



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 35N-E16HZ				Well Aggregate State 35N-E16HZ				
Field Wattenberg				Field Wattenberg				
County Weld				County Weld				
State Colorado				State Colorado				
Location:				API # : 05-123-38680				
SHL: 2389' FSL & 2080' FWL Lat/Long: 40.151923/-104.784252				Other Services Gauge Ring MIT				
SEC 9 TWP 2N RGE 66W				Elevation				
Permanent Datum		Ground Level		Elevation		4911'		
Log Measured From		Kelly Bushing		16 FT		K.B. 4927' D.F. 4926' G.L. 4911'		
Drilling Measured From		Kelly Bushing						
Date 27-MAR-2014								
Run Number Two								
Depth Driller ---								
Depth Logger Not Tagged								
Bottom Logged Interval 7490 FT								
Top Log Interval Surface								
Open Hole Size 8.750"								
Type Fluid Water								
Density / Viscosity 8.4 lbm/gal								
Max. Recorded Temp. 219								
Estimated Cement Top 240 FT								
Time Well Ready ROA								
Time Logger on Bottom 13:00								
Equipment Number HD 0311								
Location Fort Lupton, CO								
Recorded By J. Raby								
Witnessed By R. Duntford								
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	1032 FT		
Intermediate #1		7"	26#	HCP-110 LTC	Surface	7641 FT		
Intermediate #2								
Liner		4-1/2"	11.6#	P-110	6567 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

Radial Cement Bond Log - Casing Inspection Log is first recorded log in hole.  
Log correlated to reported casing tally at top of liner @ 6567 FT  
RCBL-CIL ran at 2000 PSI surface induced pressure.  
Estimated Cement Top recorded at 240 FT

Thank you for choosing FMC Technologies Completion Services, Inc.



7.0" Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: 0512338680\_anadarko\_aggregate state 35n-e16hz\_03-27-14\_mit\_rbl.db

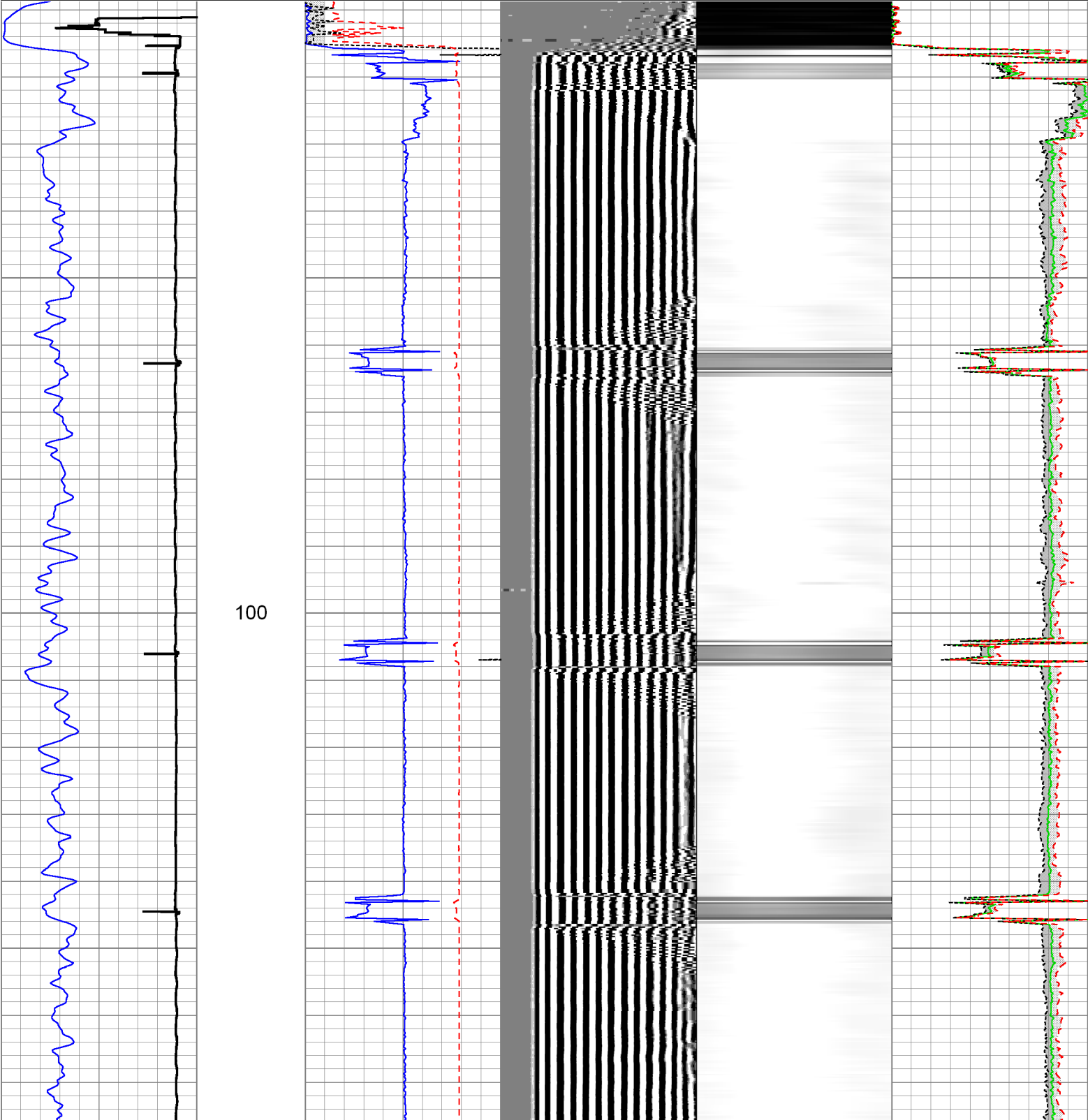
Dataset Pathname: pass6

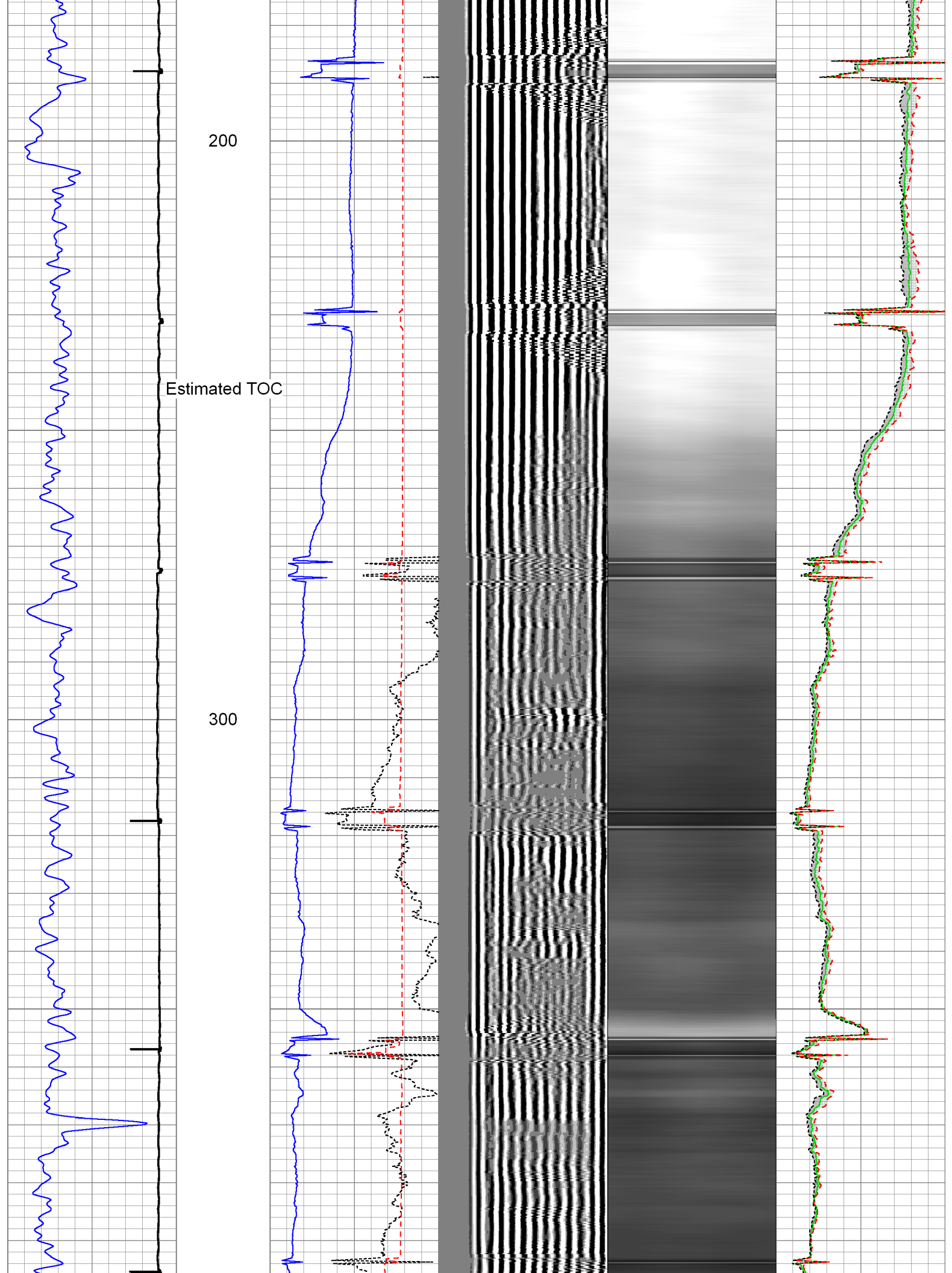
Presentation Format: rbt007

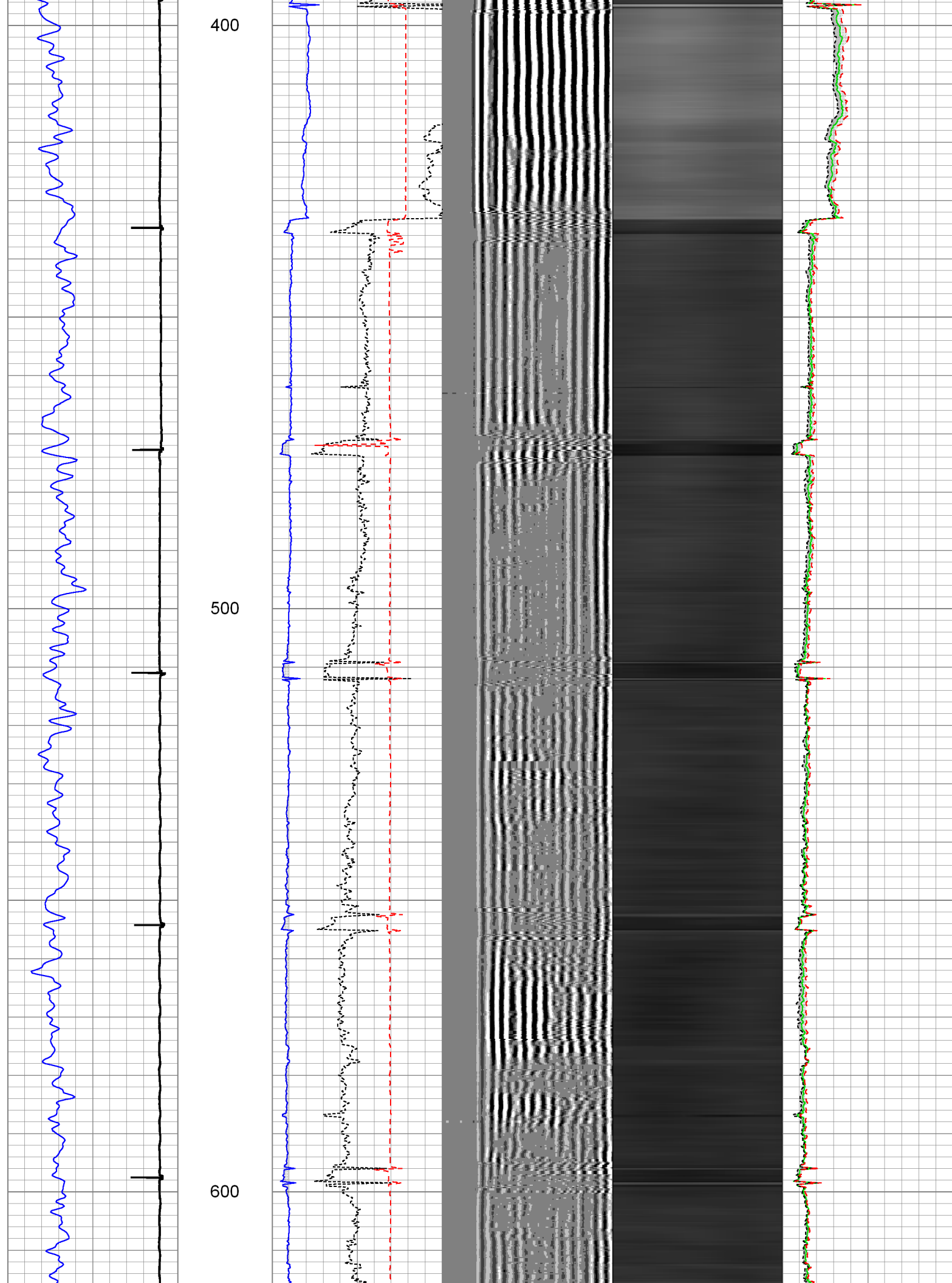
Dataset Creation: Thu Mar 27 11:38:25 2014 by Log Sondex V7.03

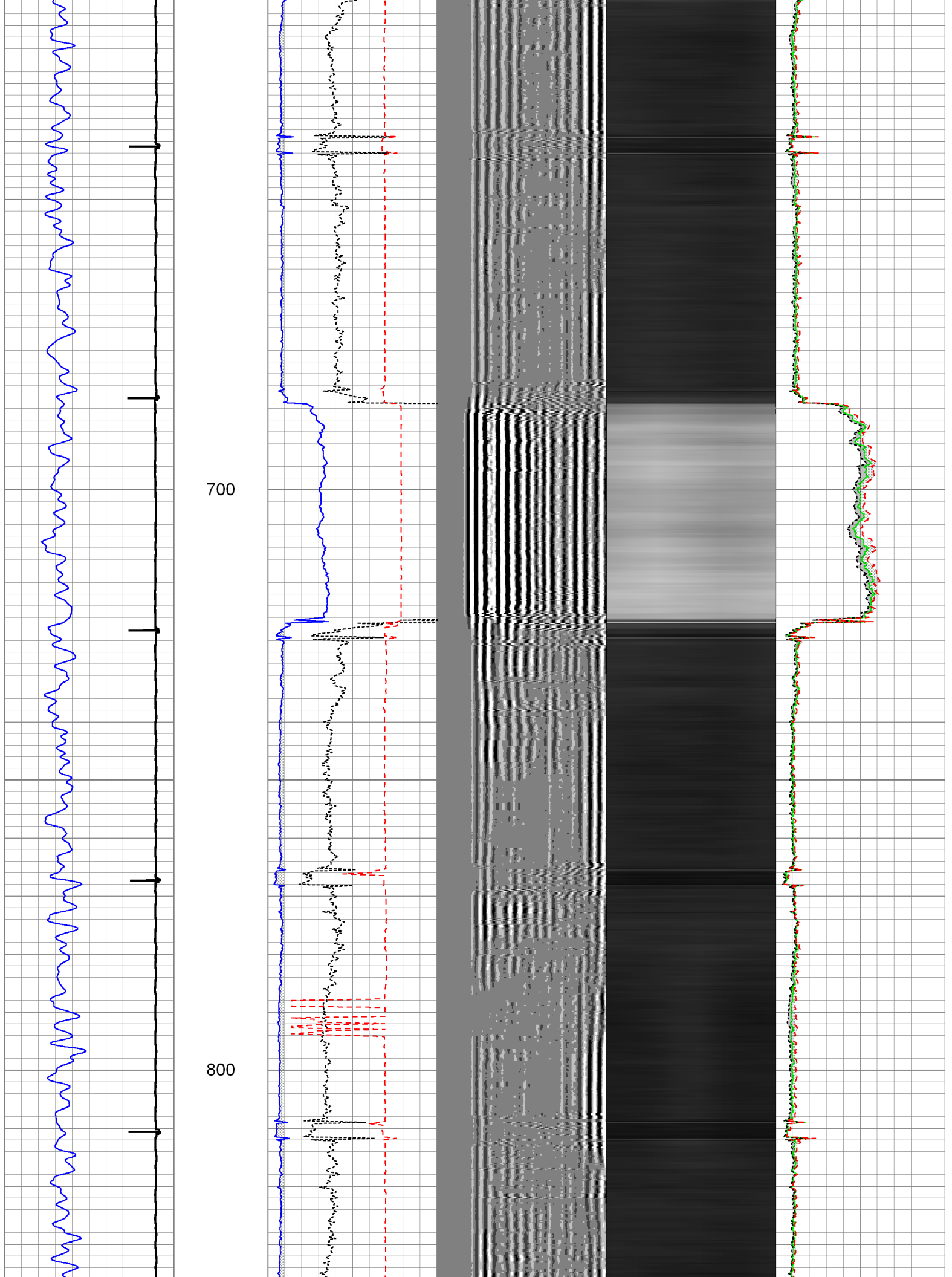
Charted by: Depth in Feet scaled 1:240

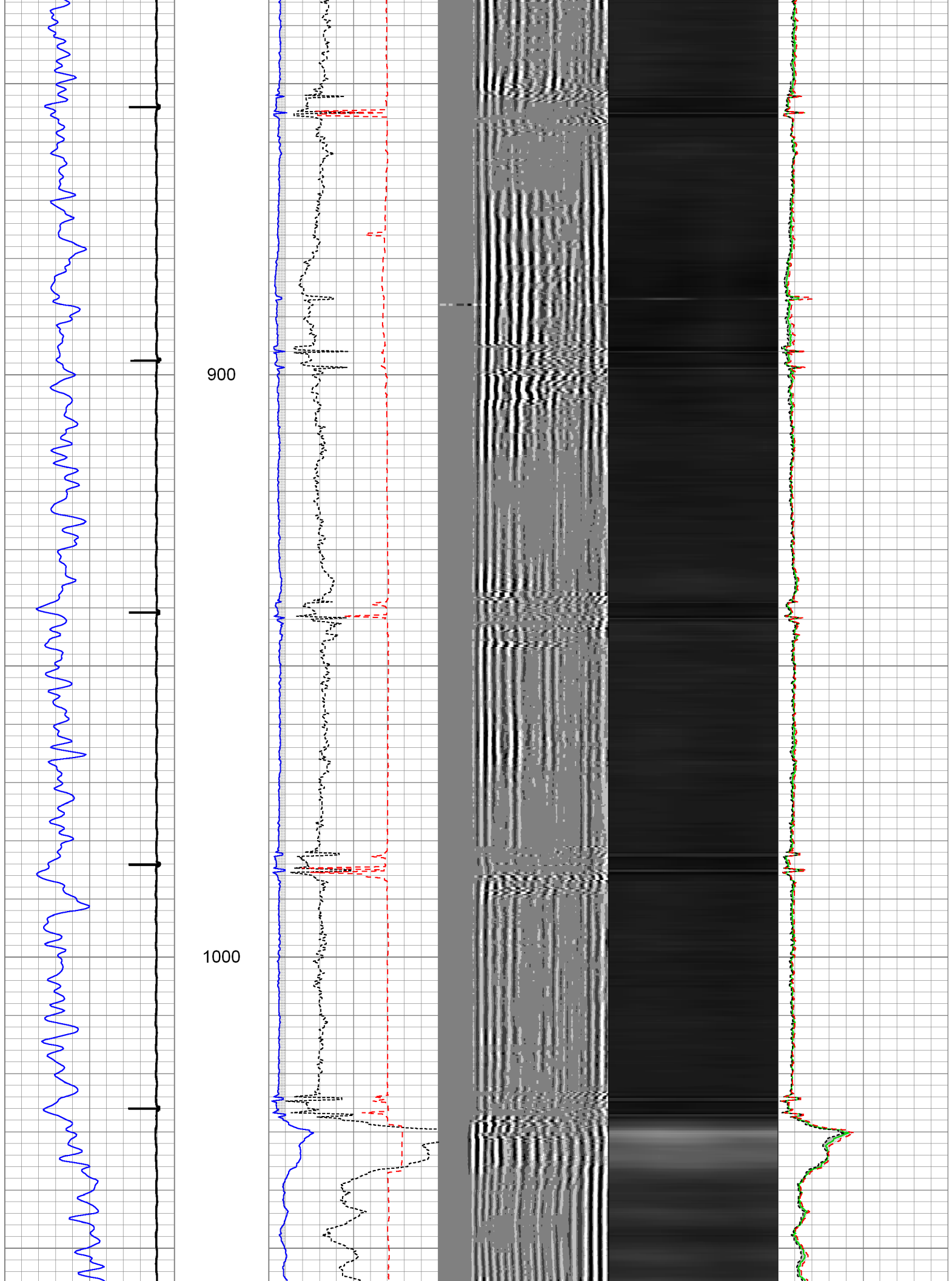
Gamma Ray		3' Amplitude		5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI) 120	0	(mV) 100	200	1200			0	100
Collar Locator		3' Amplitude x 5						Minimum Amplitude	
		0	(mV) 20					0	100
		3' Travel Time						Maximum Amplitude	
		650	(usec) 150					0	100





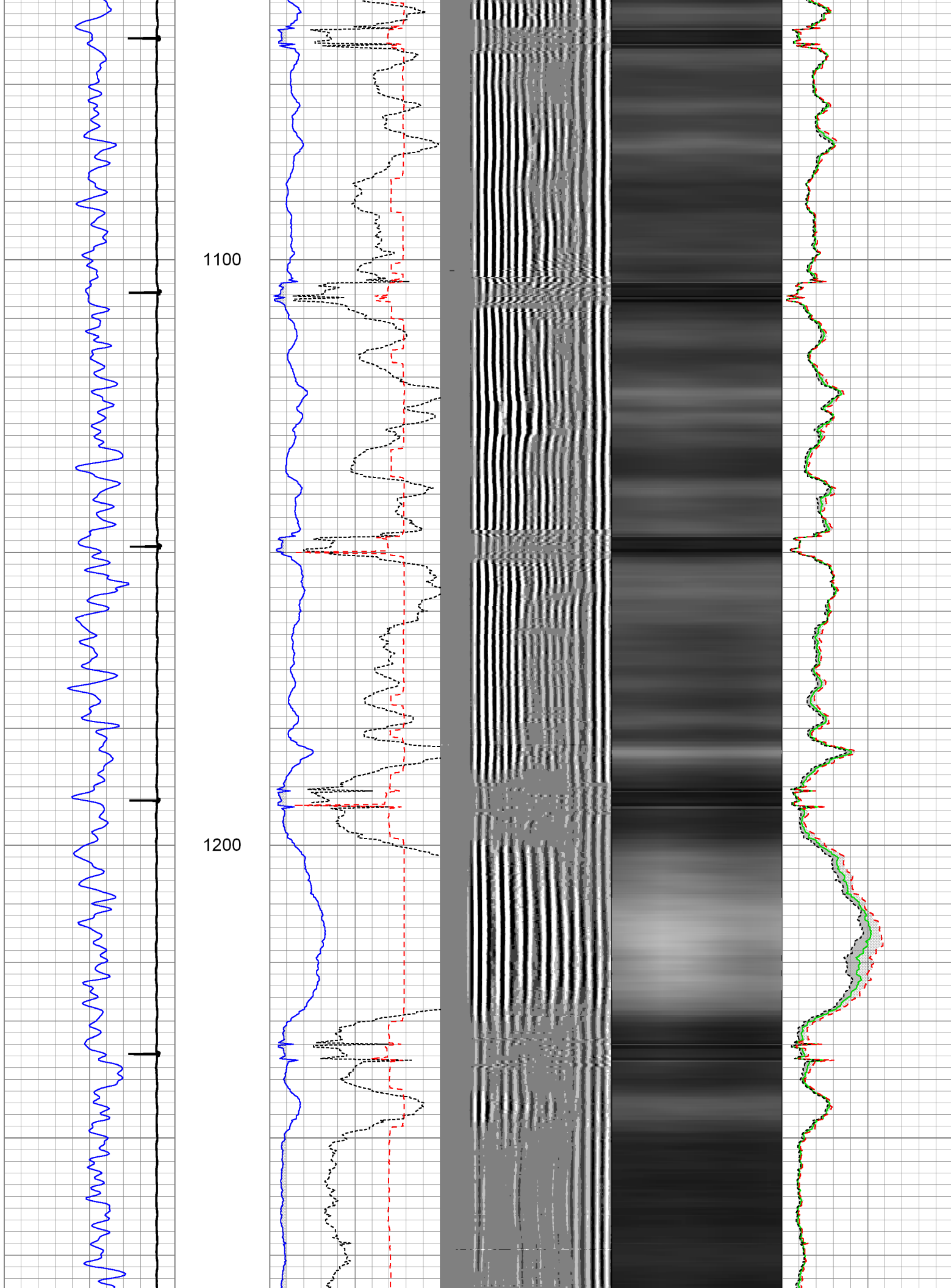


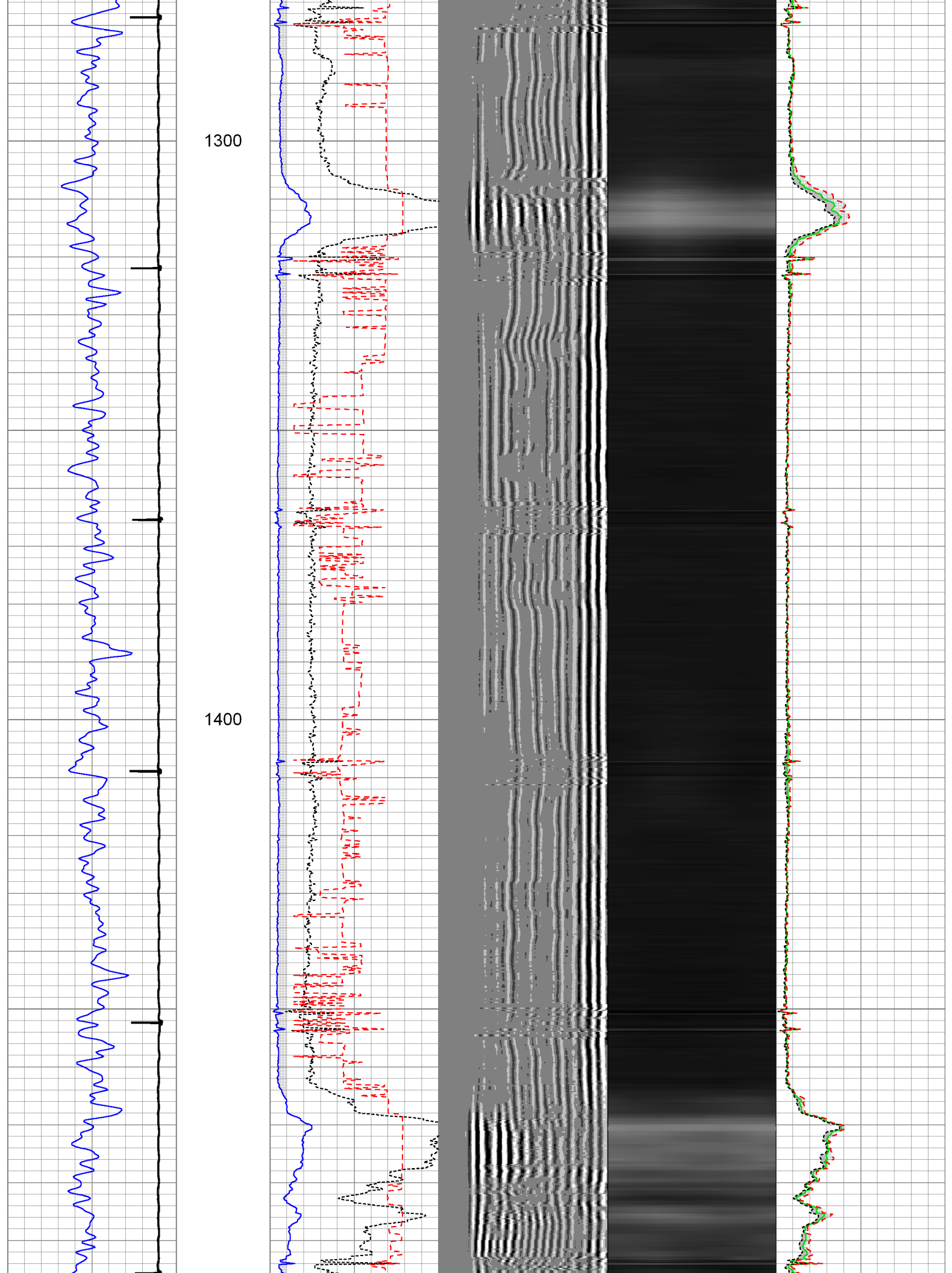


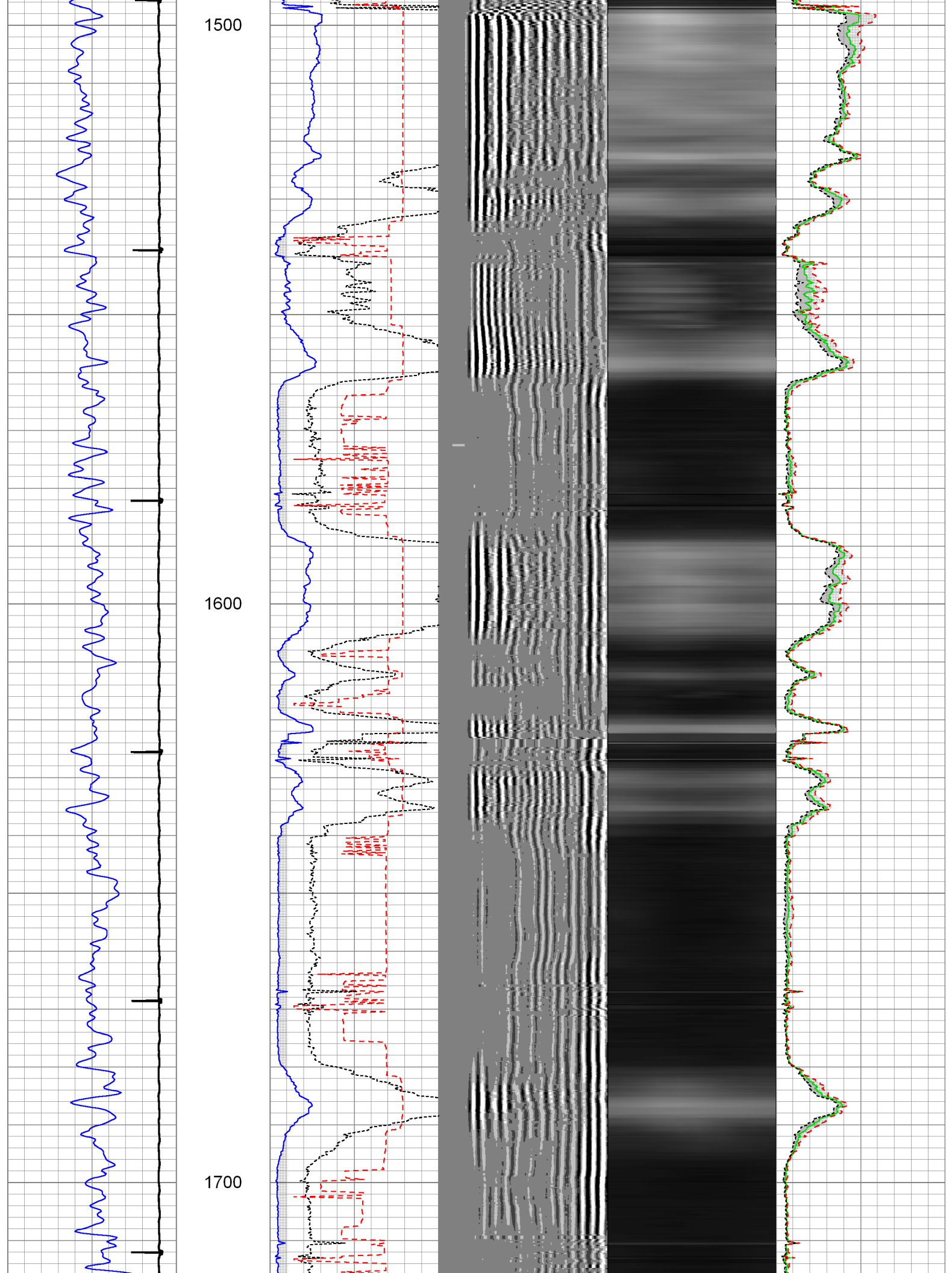


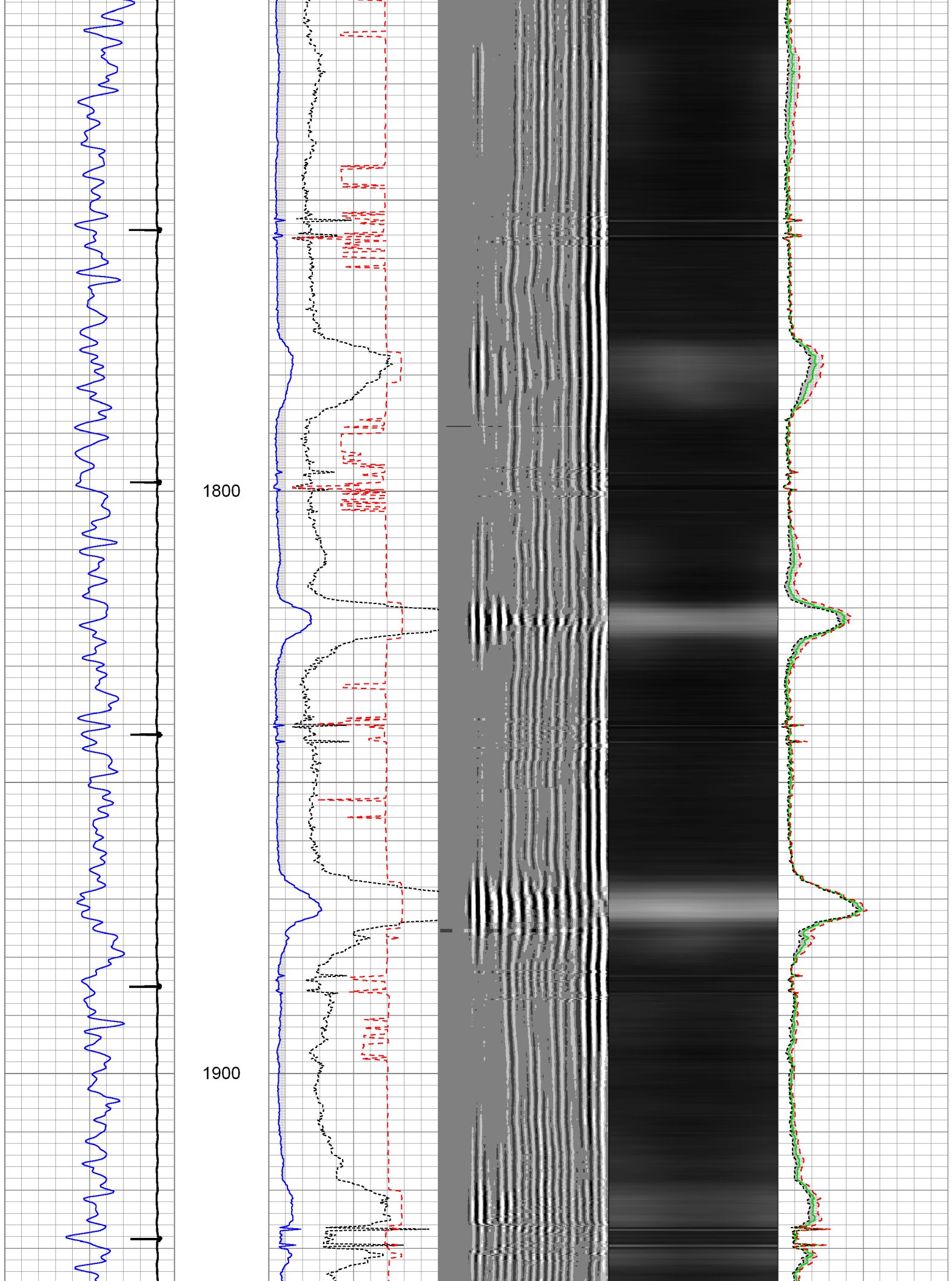
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1200



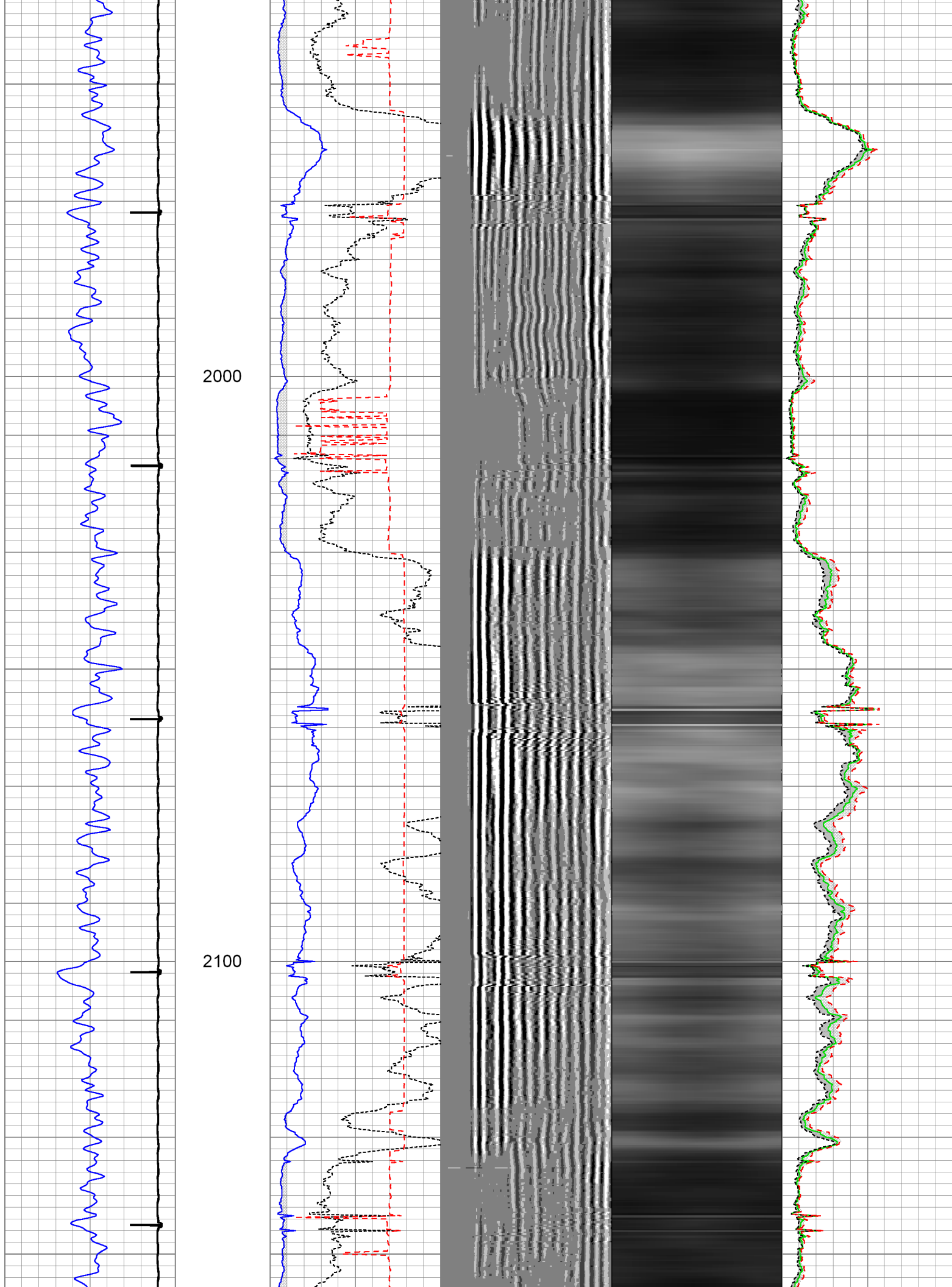






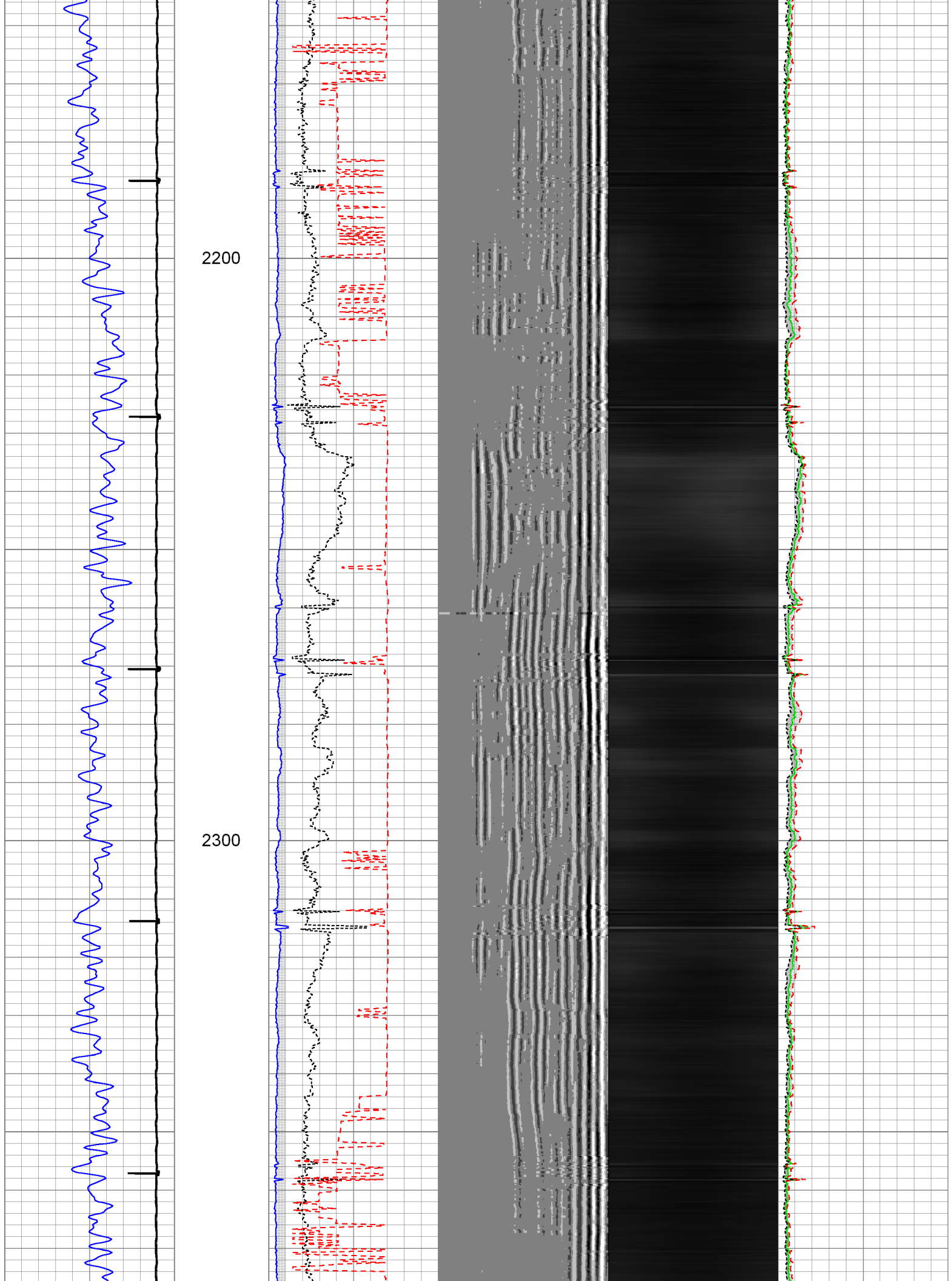
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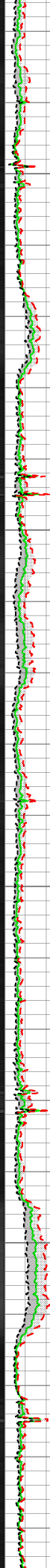
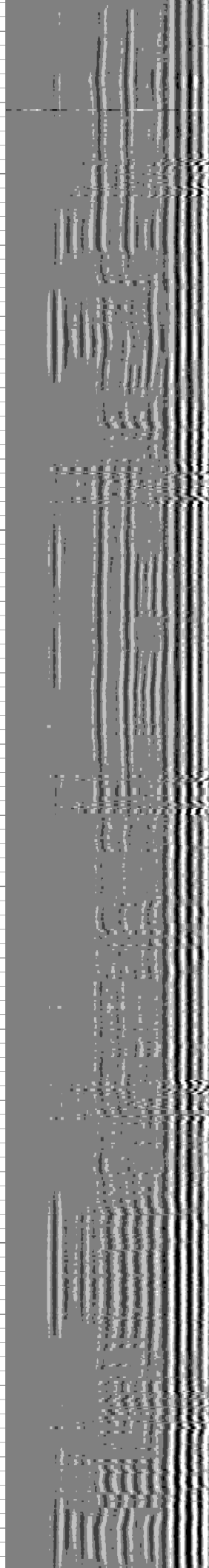
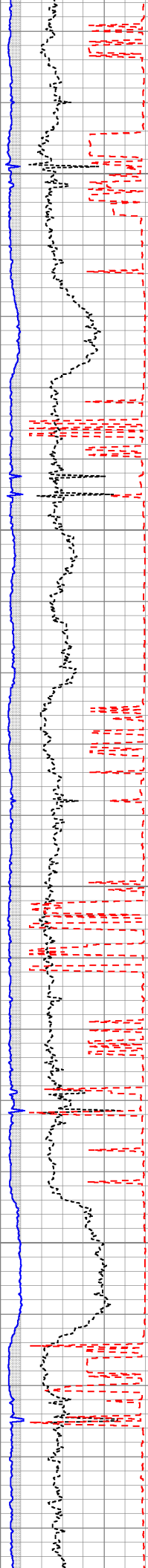
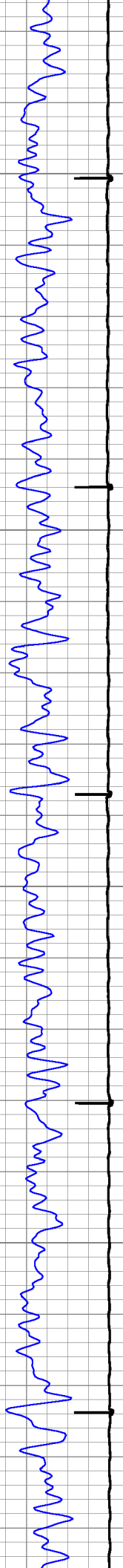
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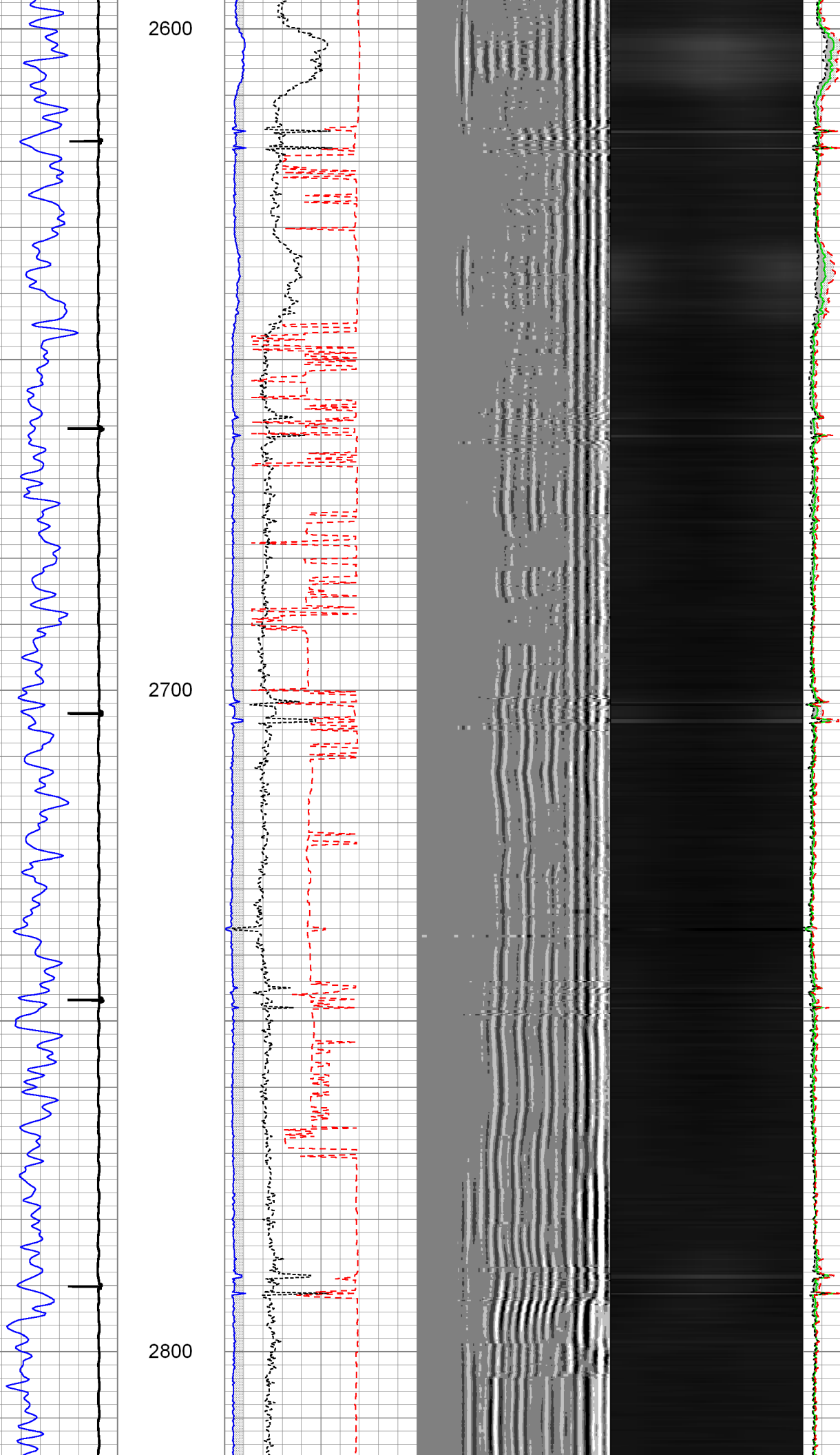
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2400

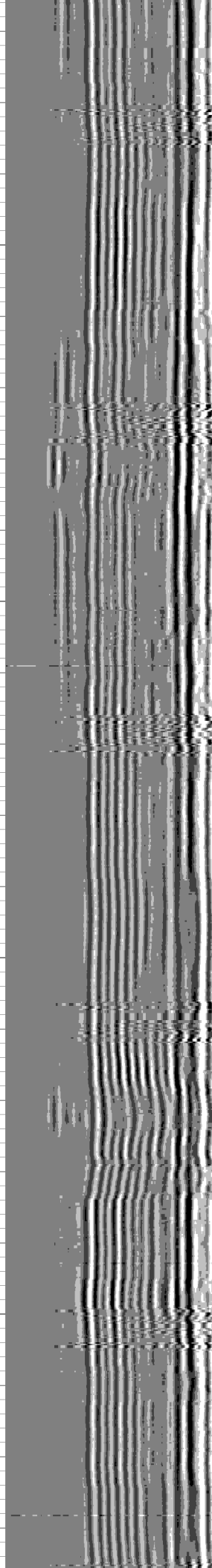
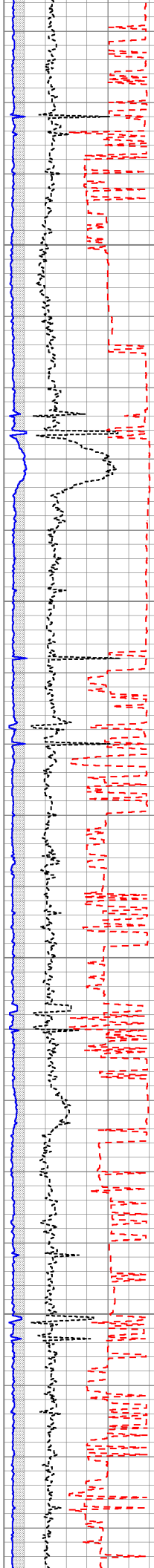
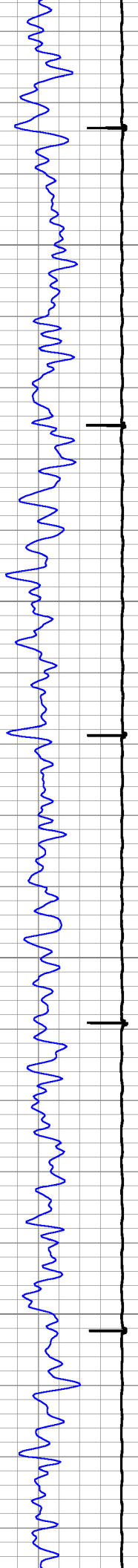
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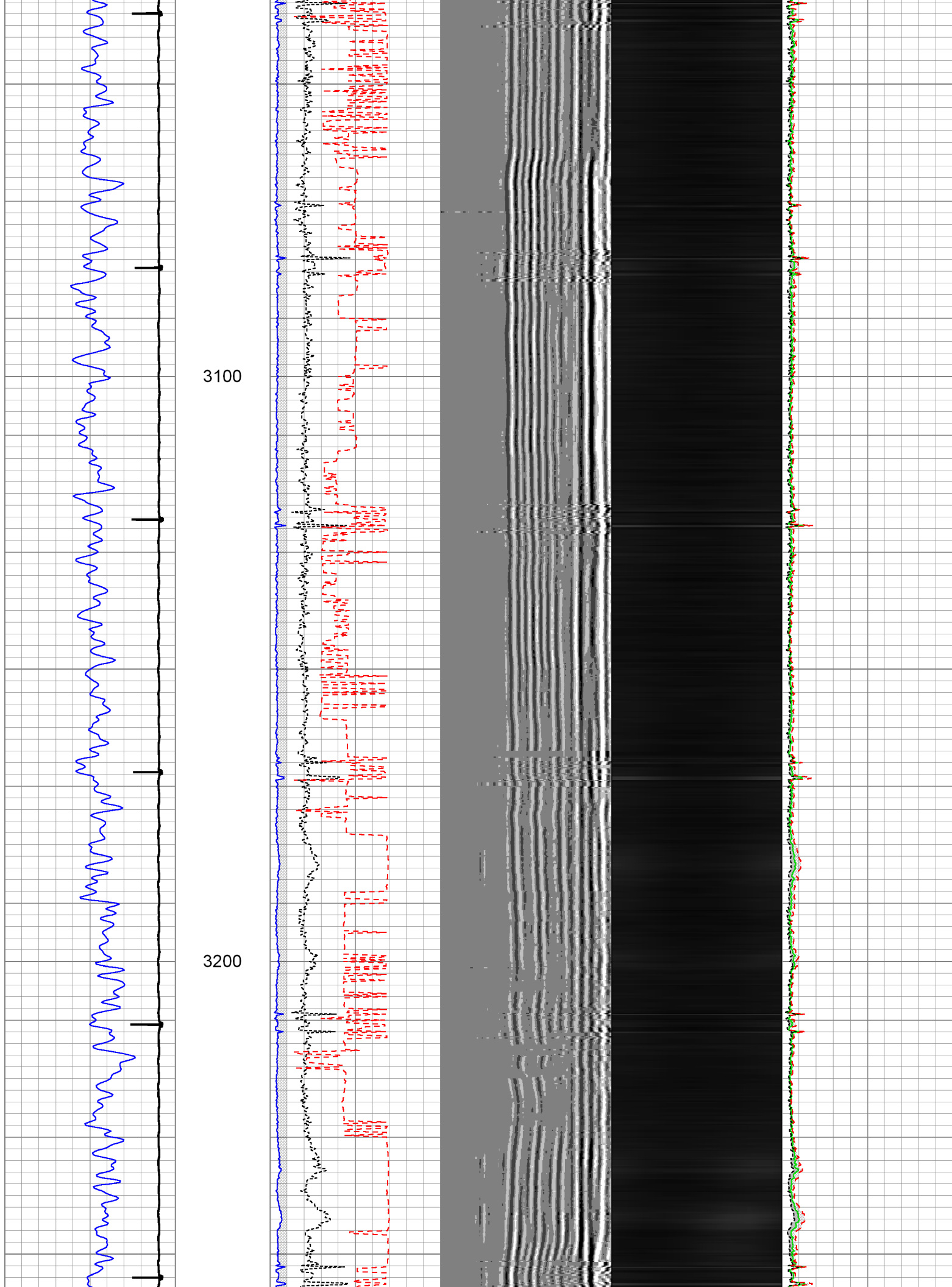
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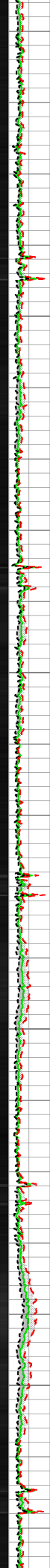
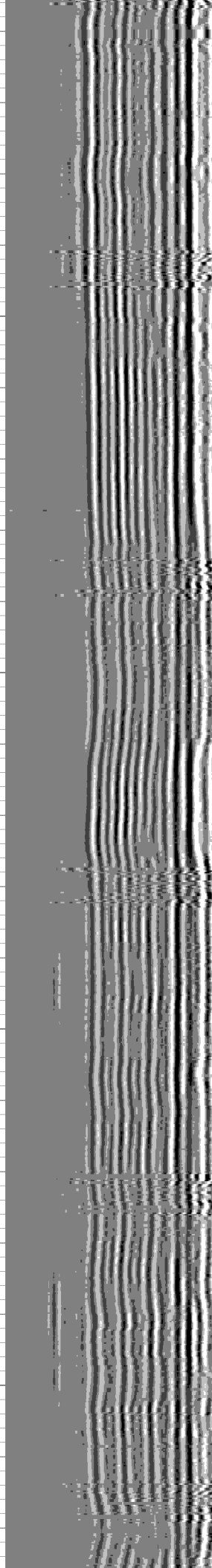
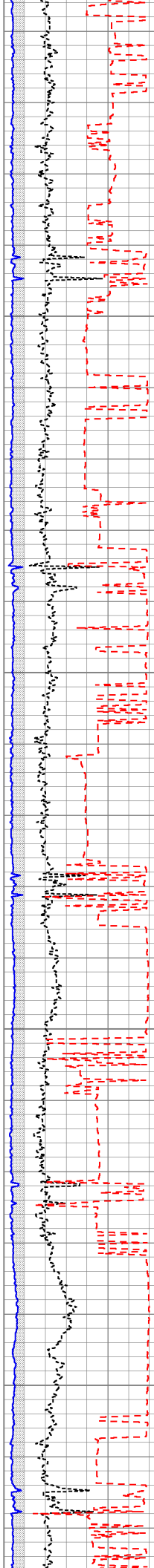
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3200



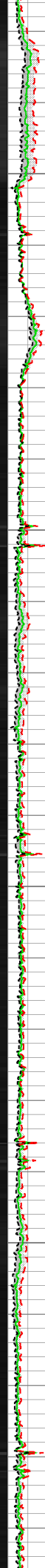
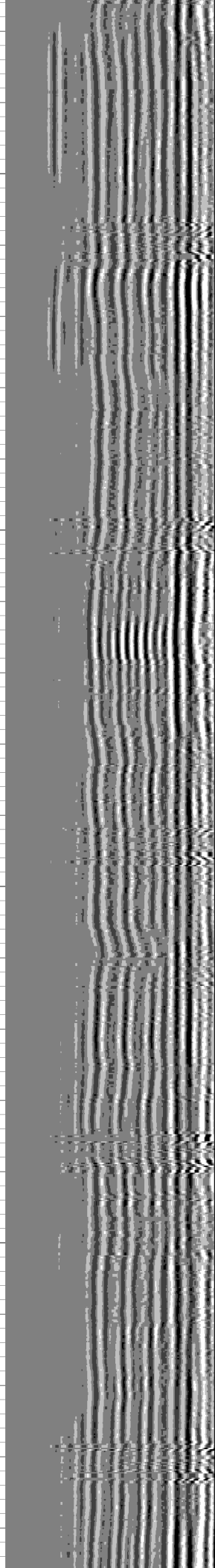
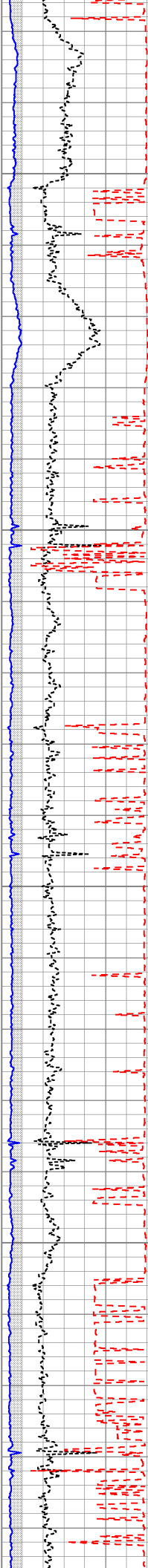
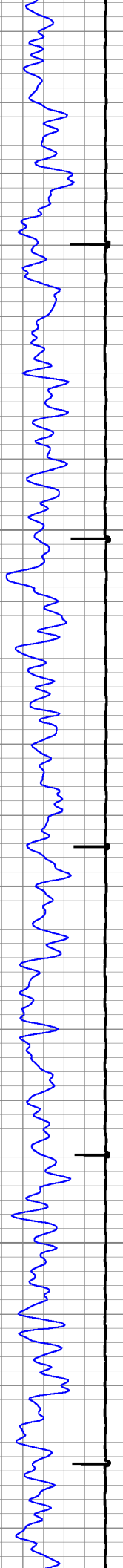
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3400



3500

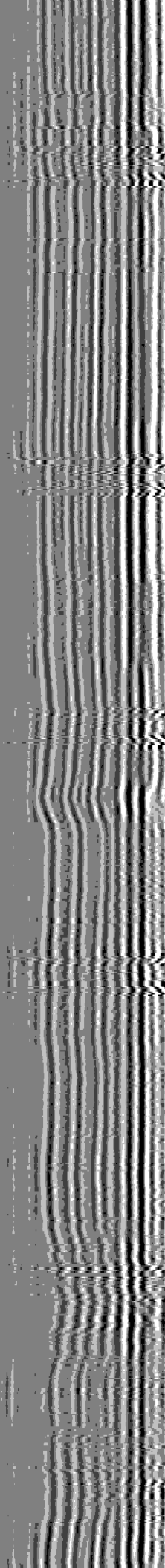
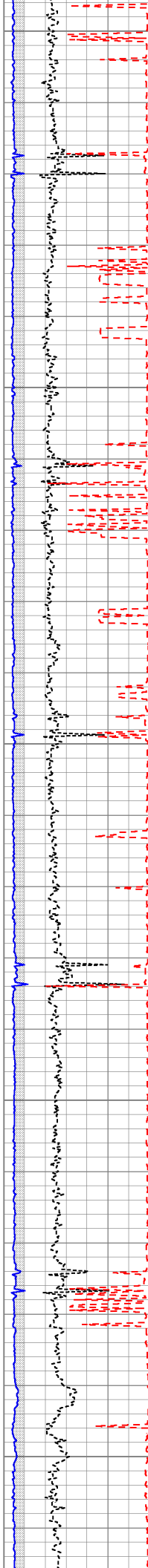
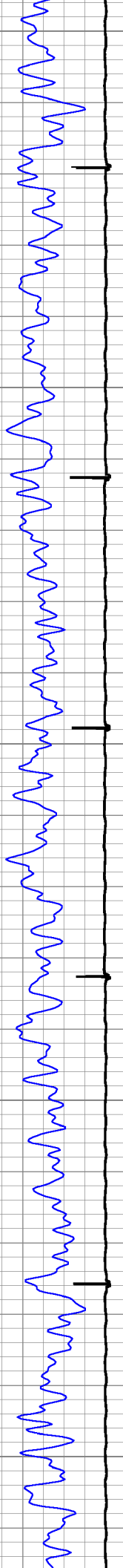
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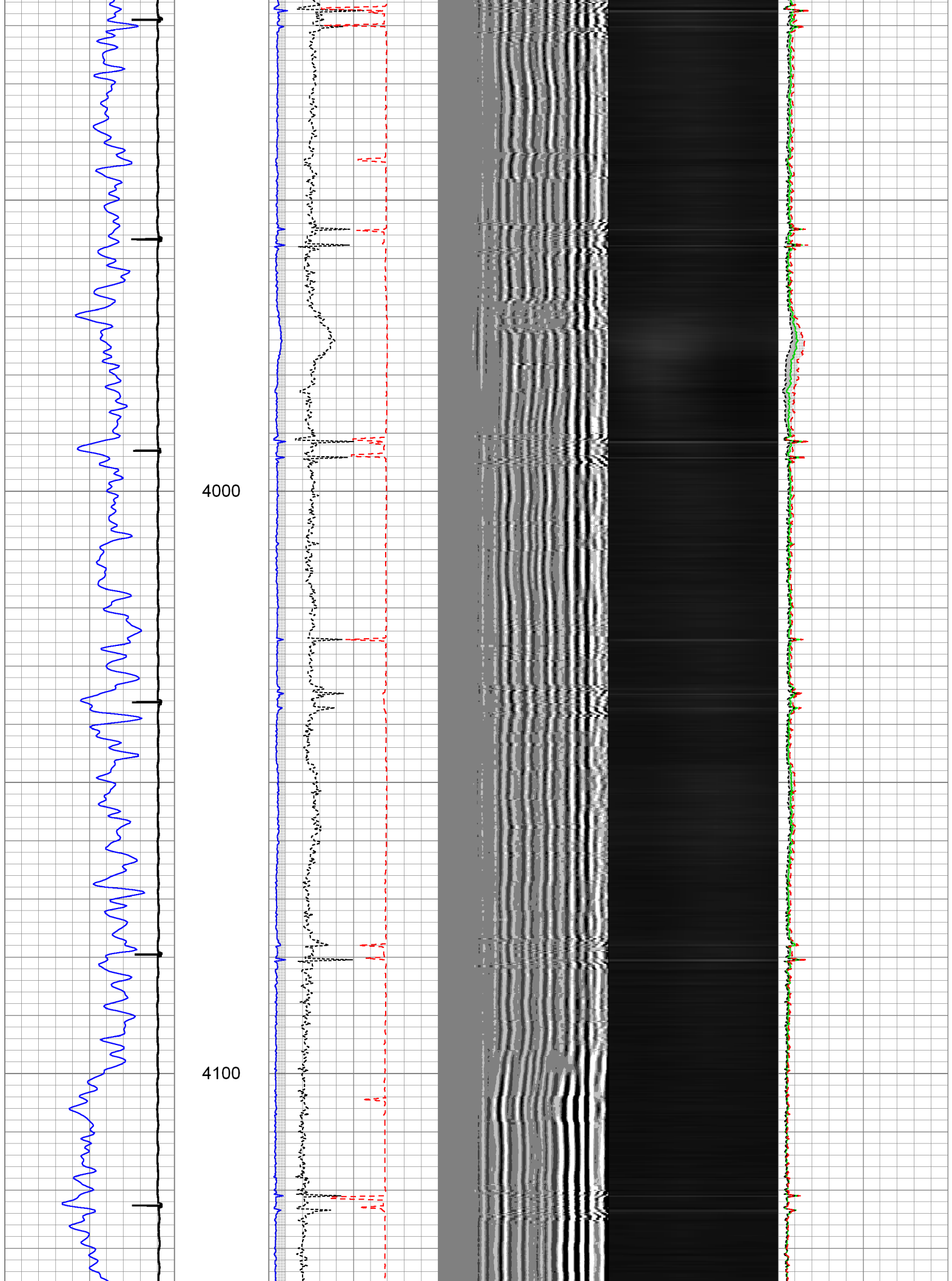


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3800

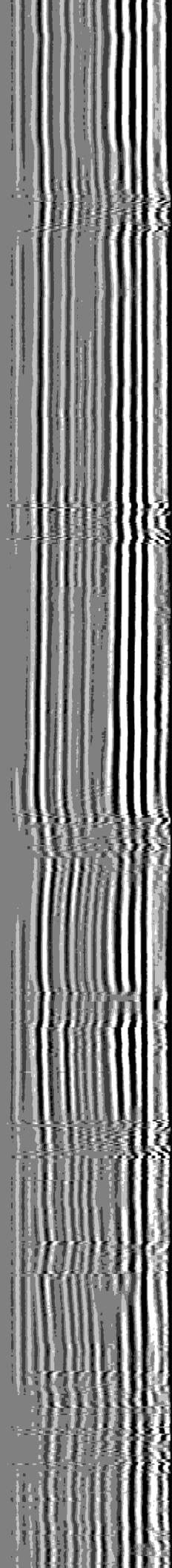
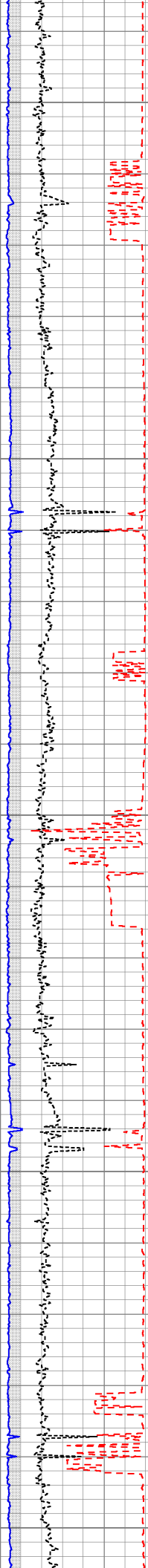
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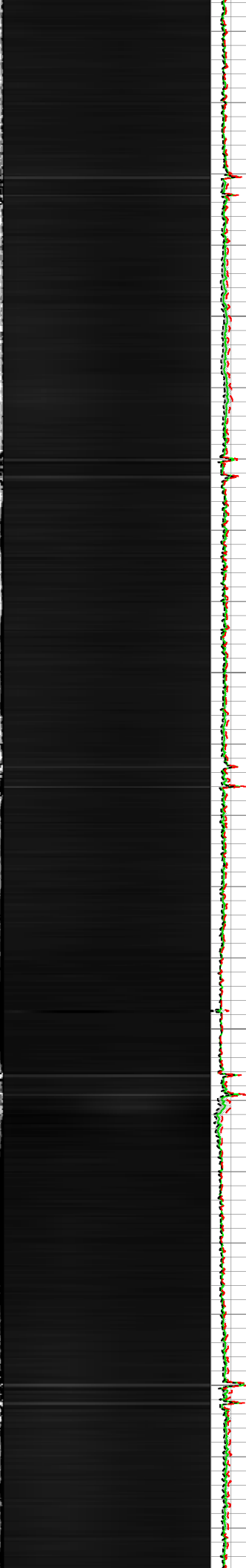
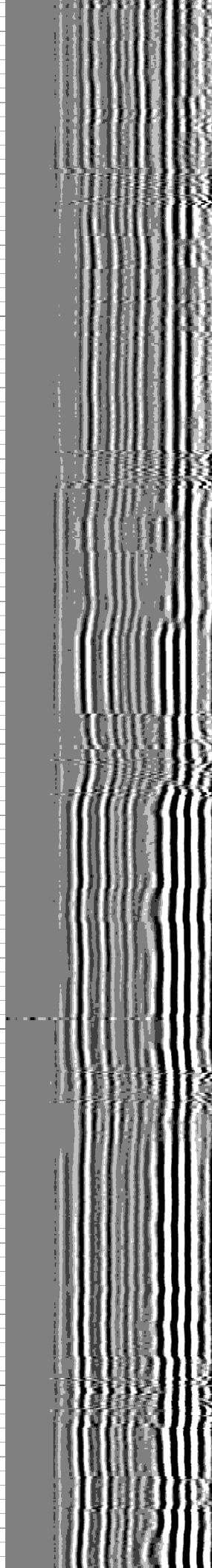
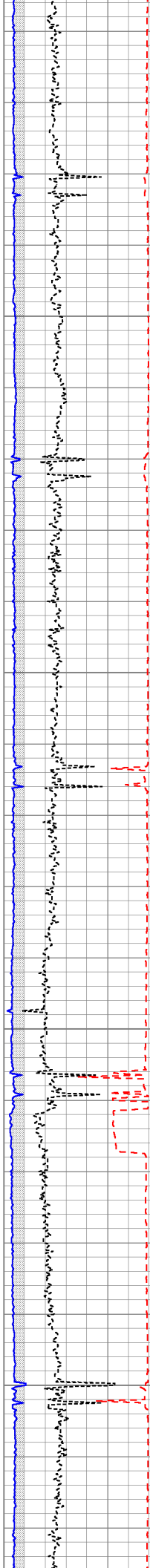
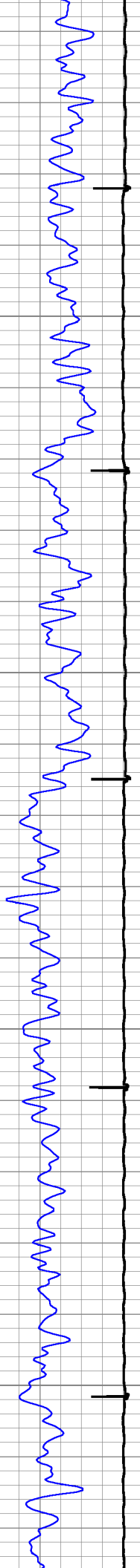
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4300



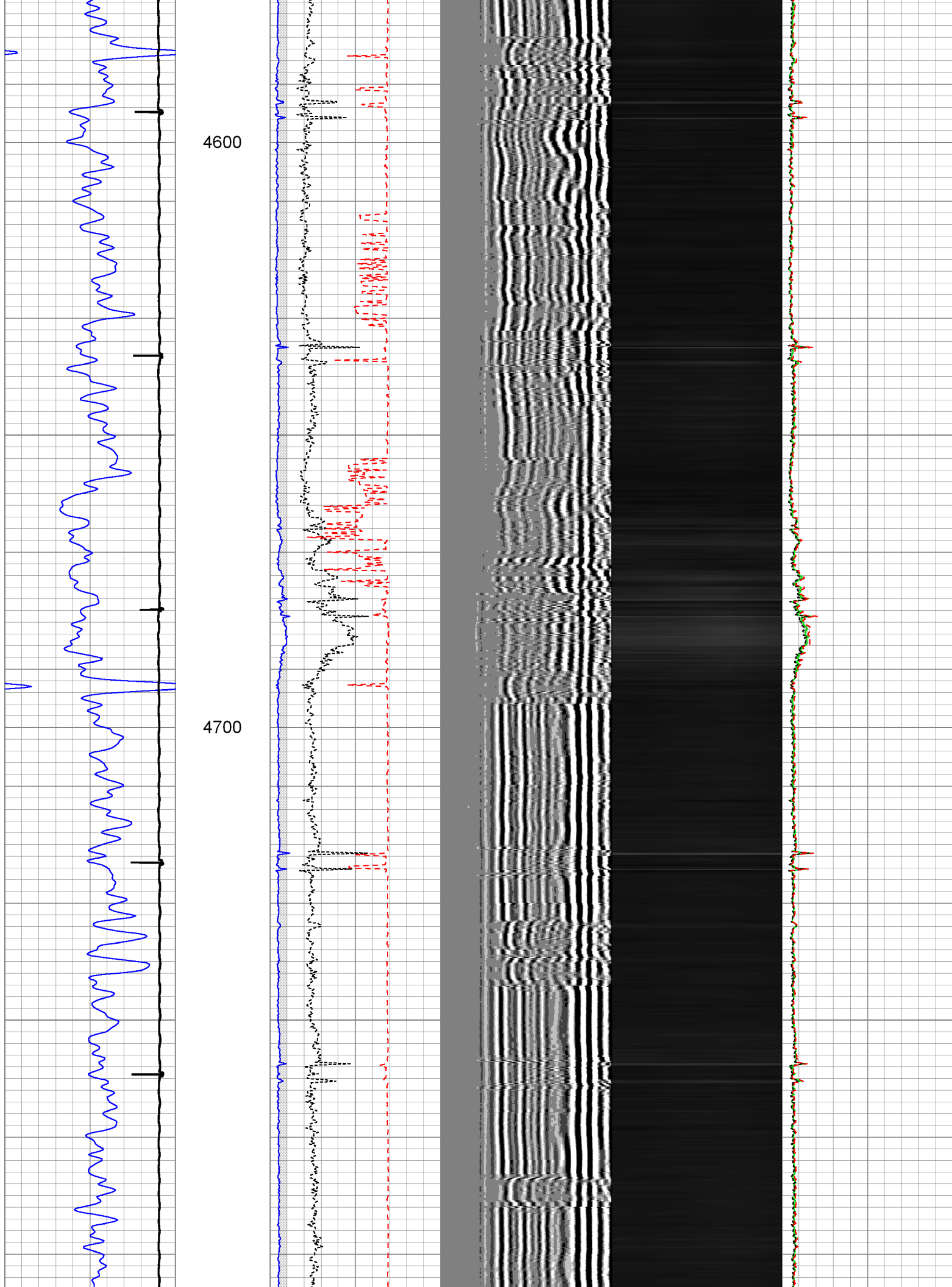
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4500



4600

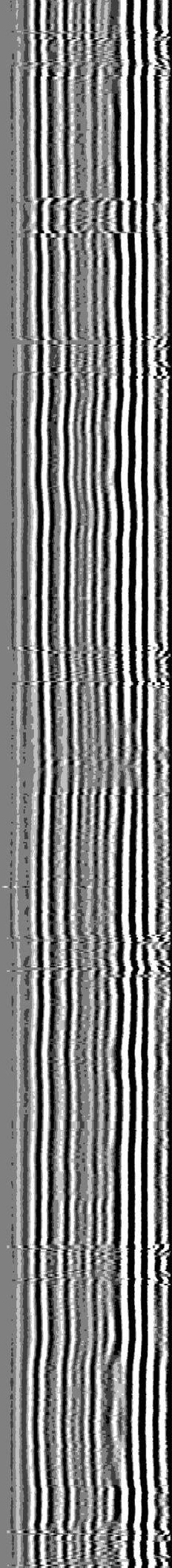
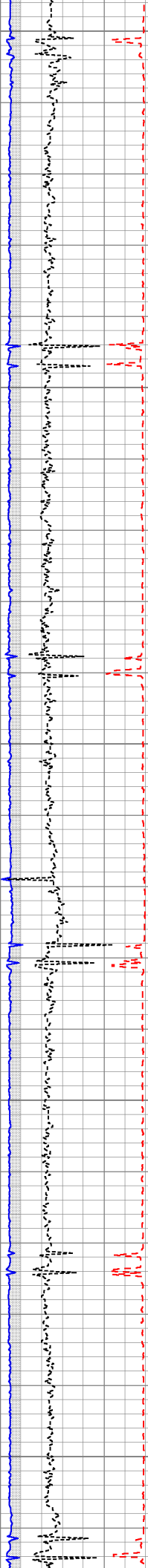
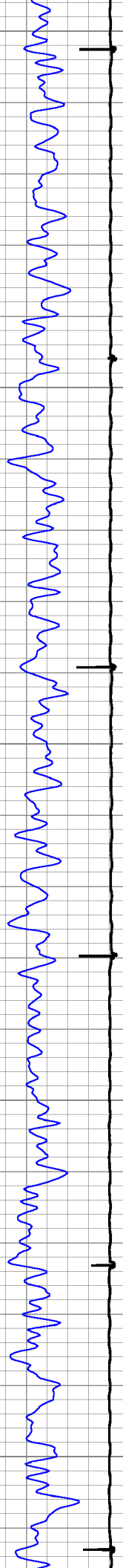
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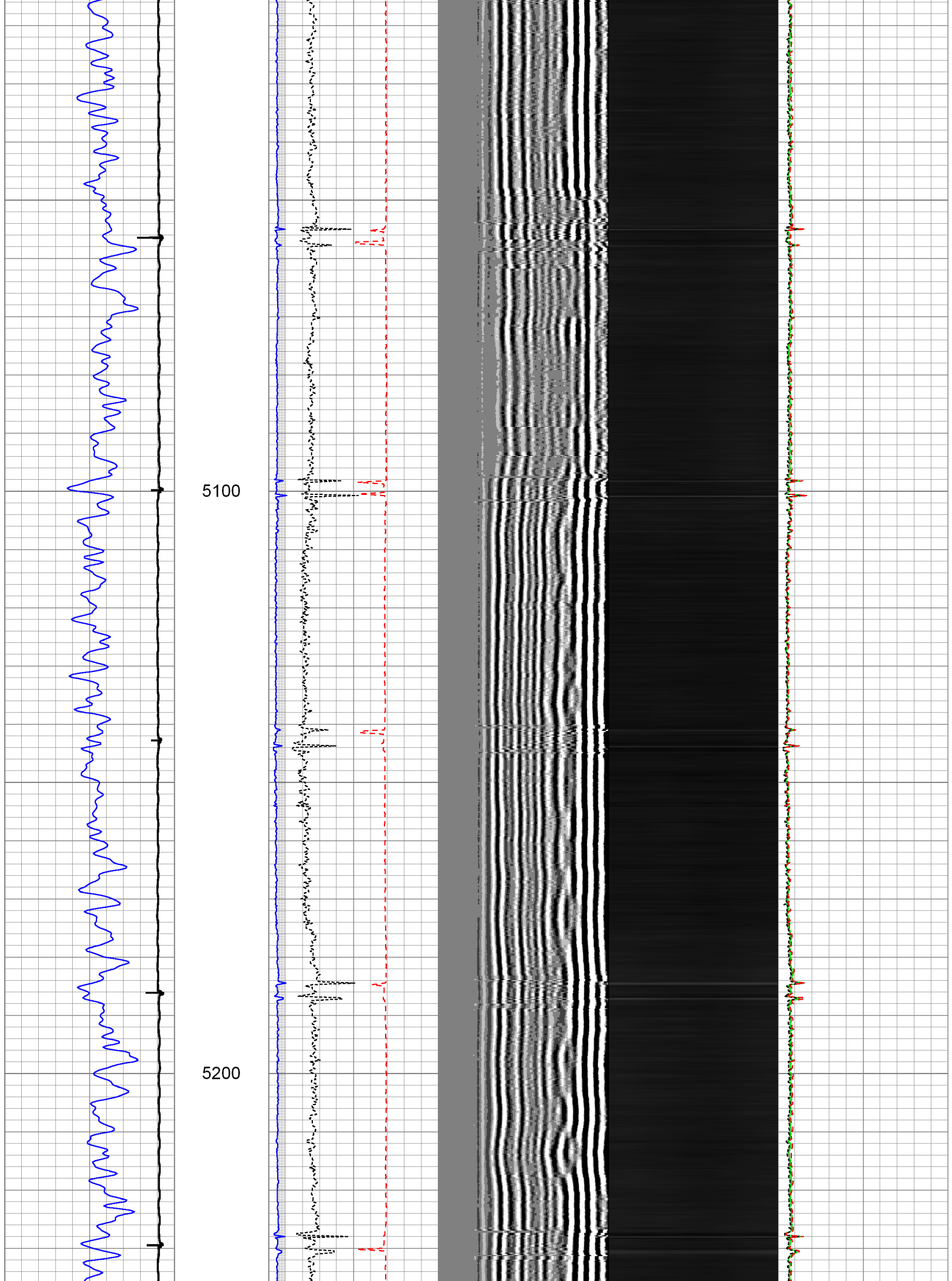


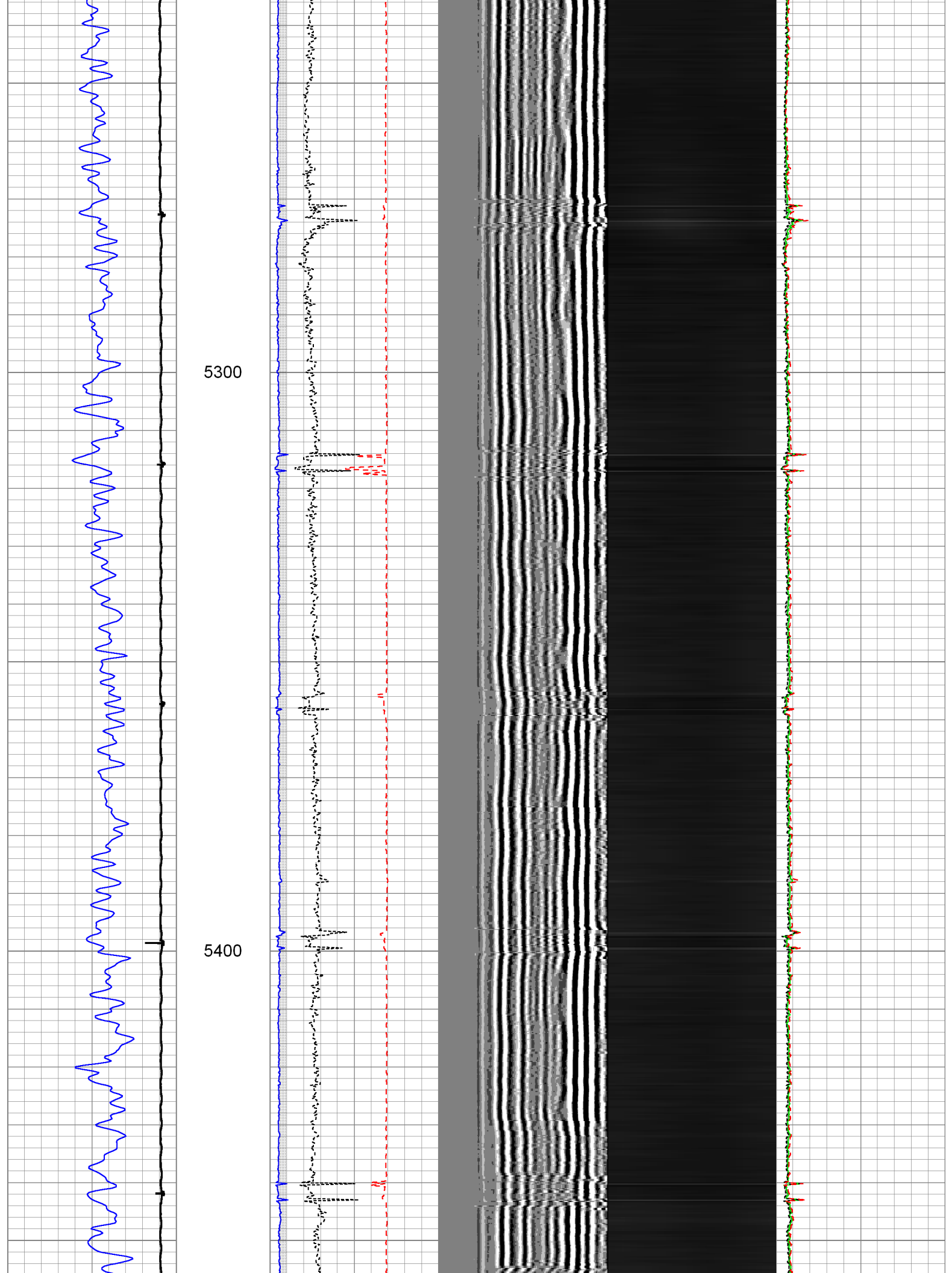
4800

4900

5000

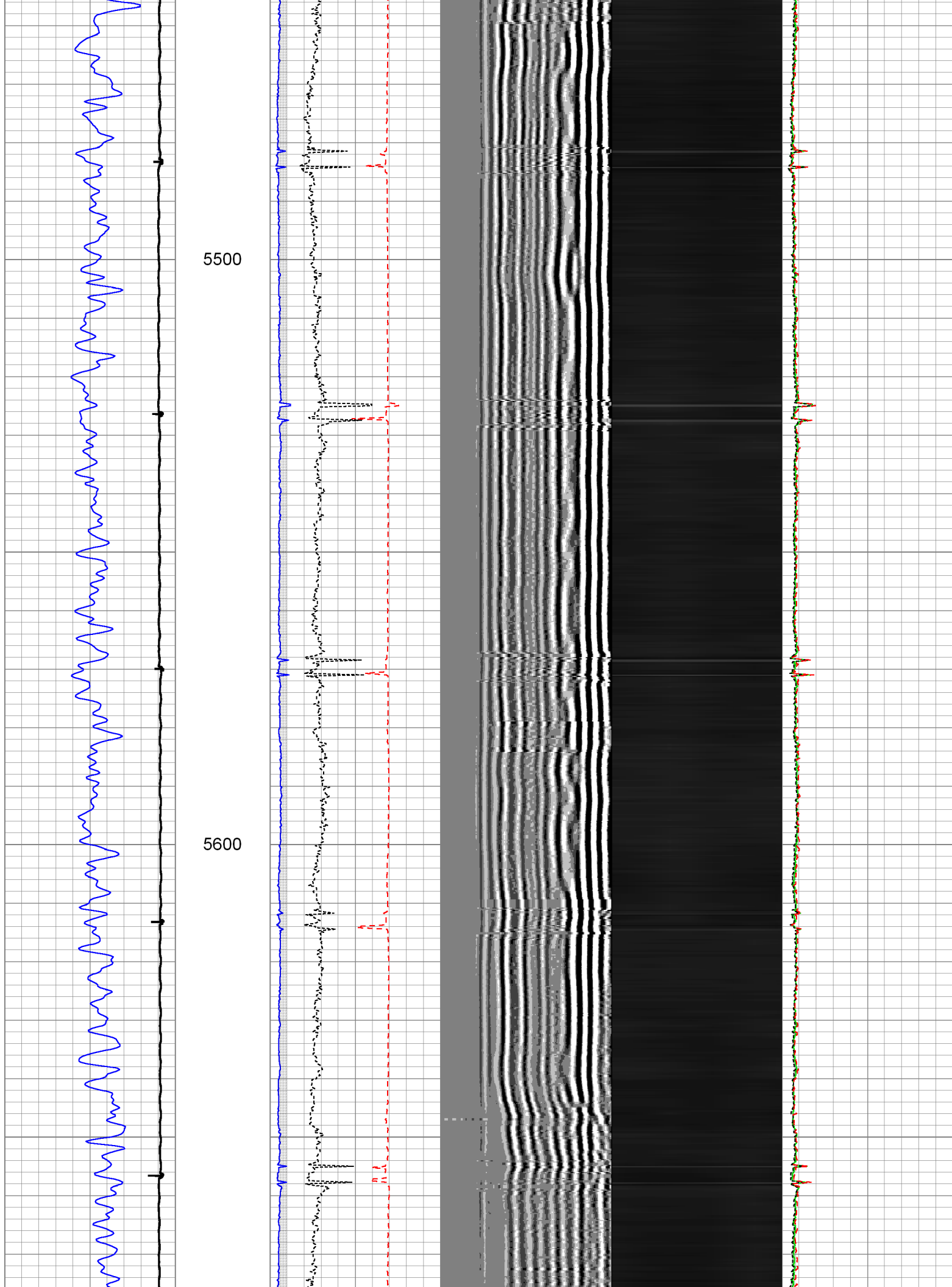


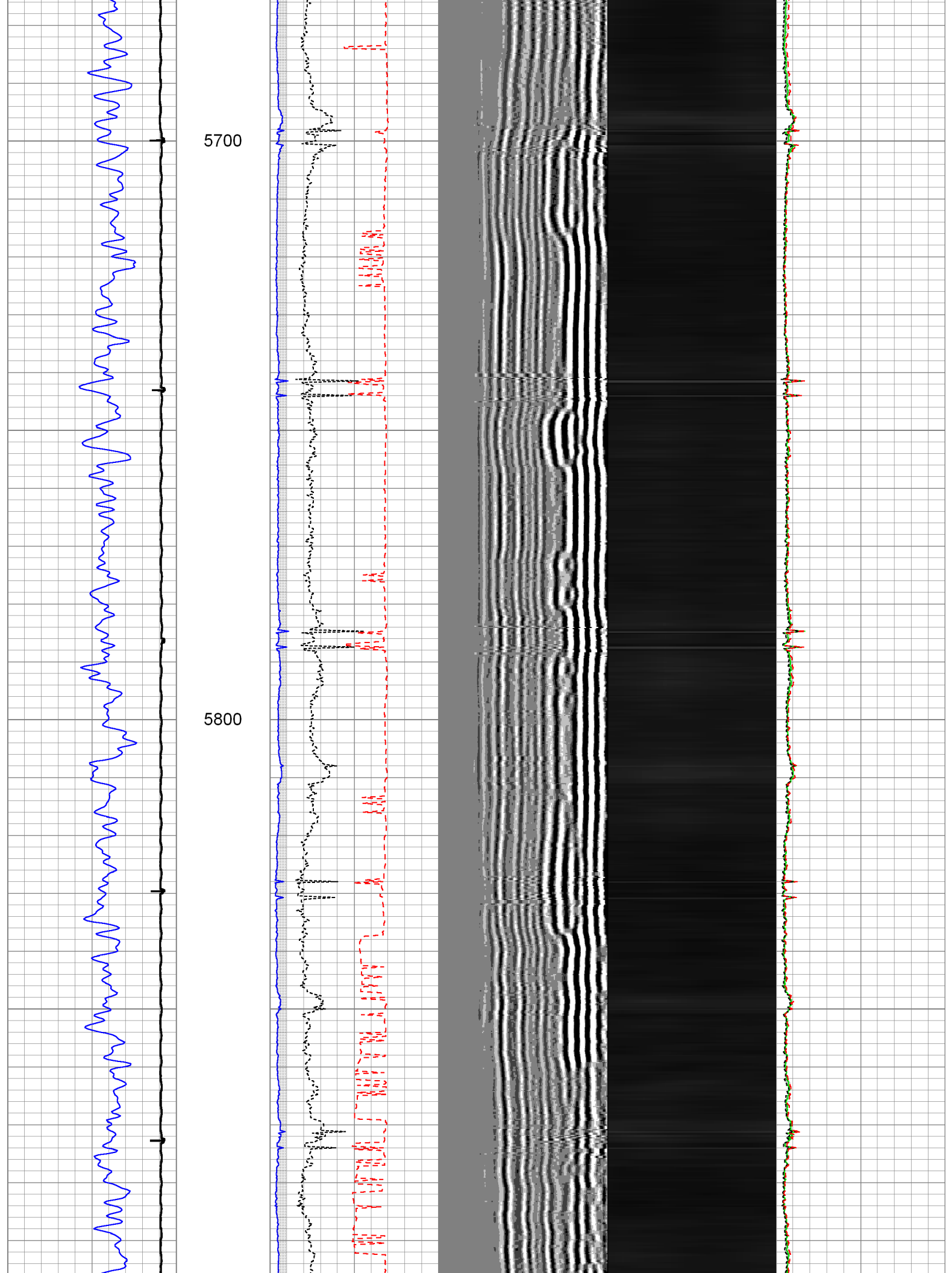




5500

5600

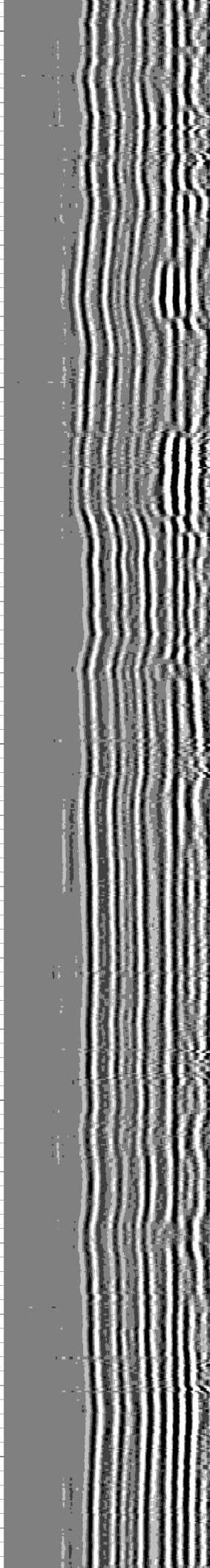
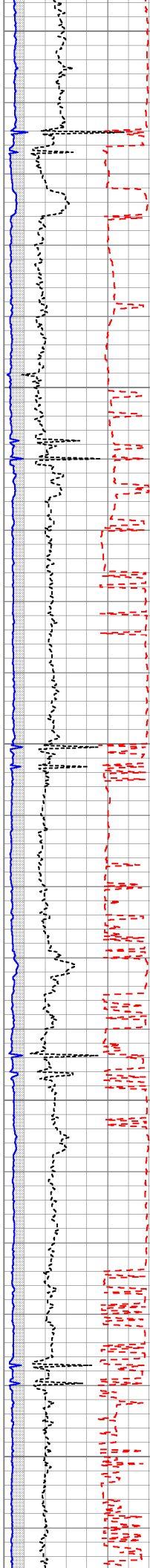
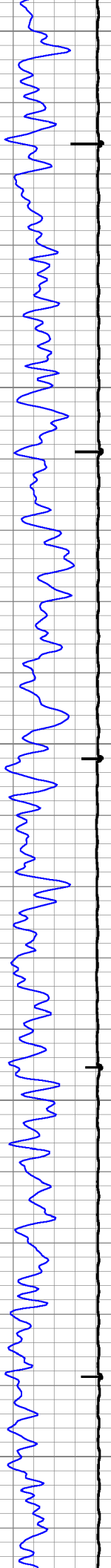




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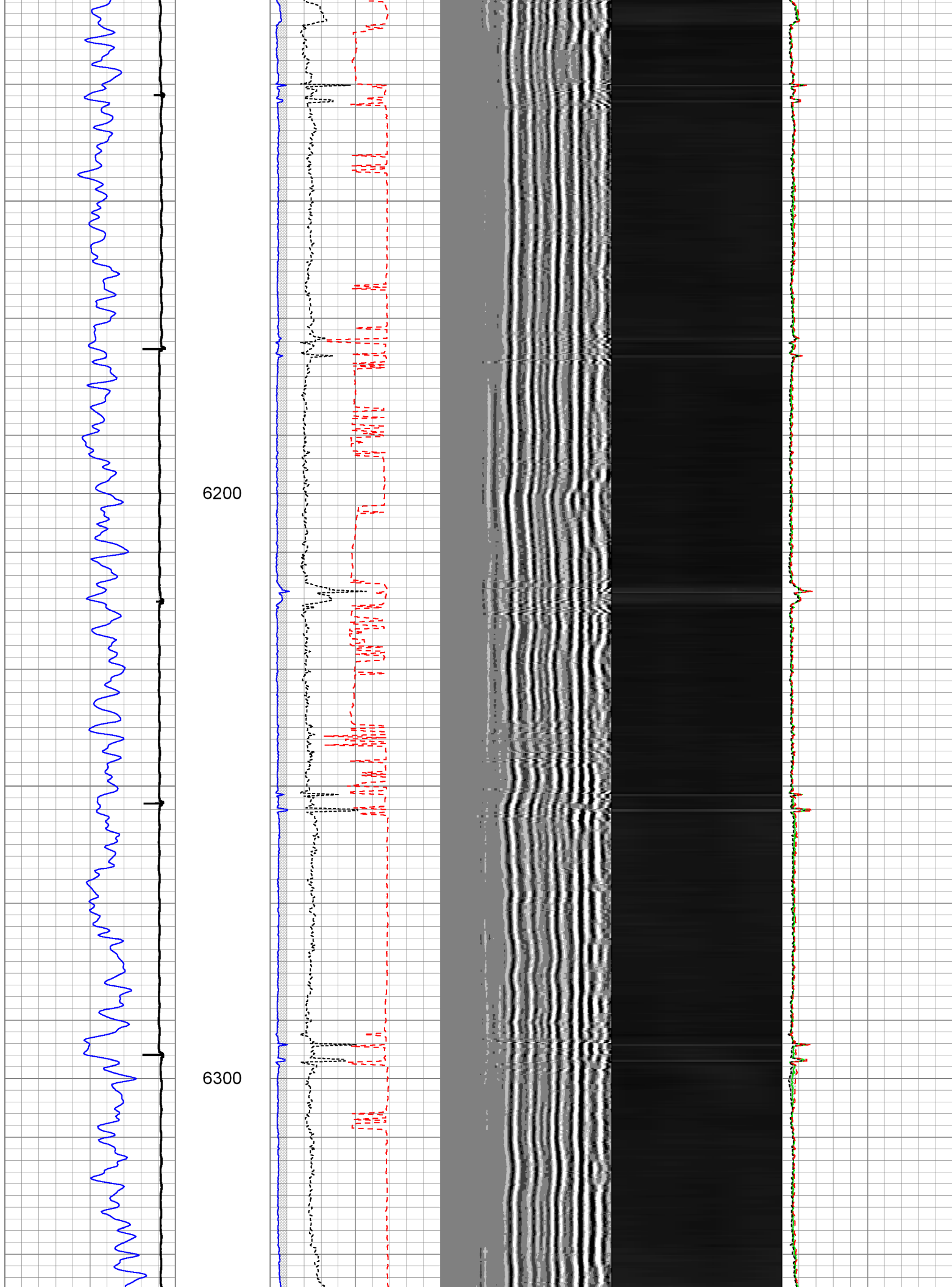
6000

6100



6200

6300



6400

6500

CCL →

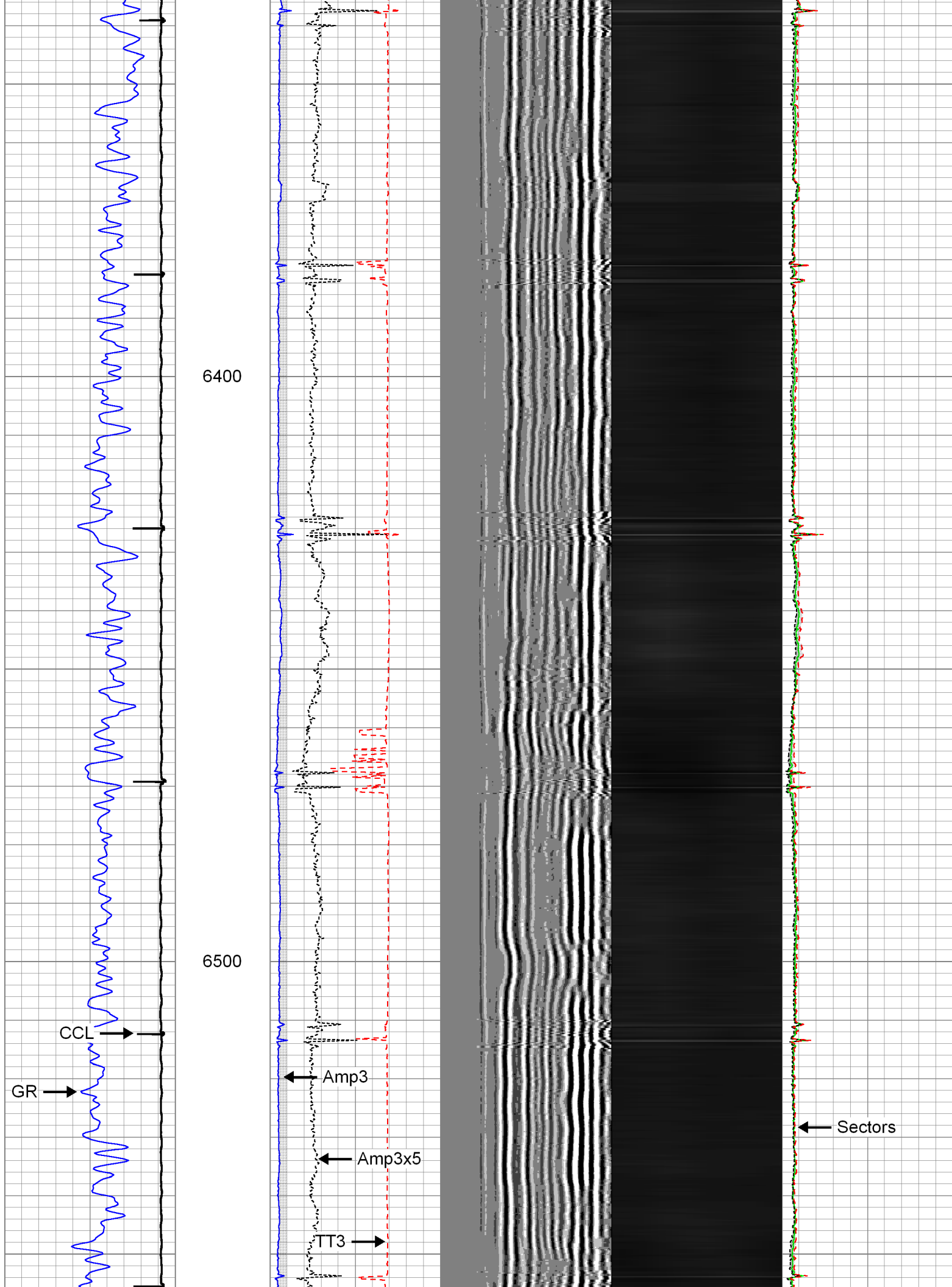
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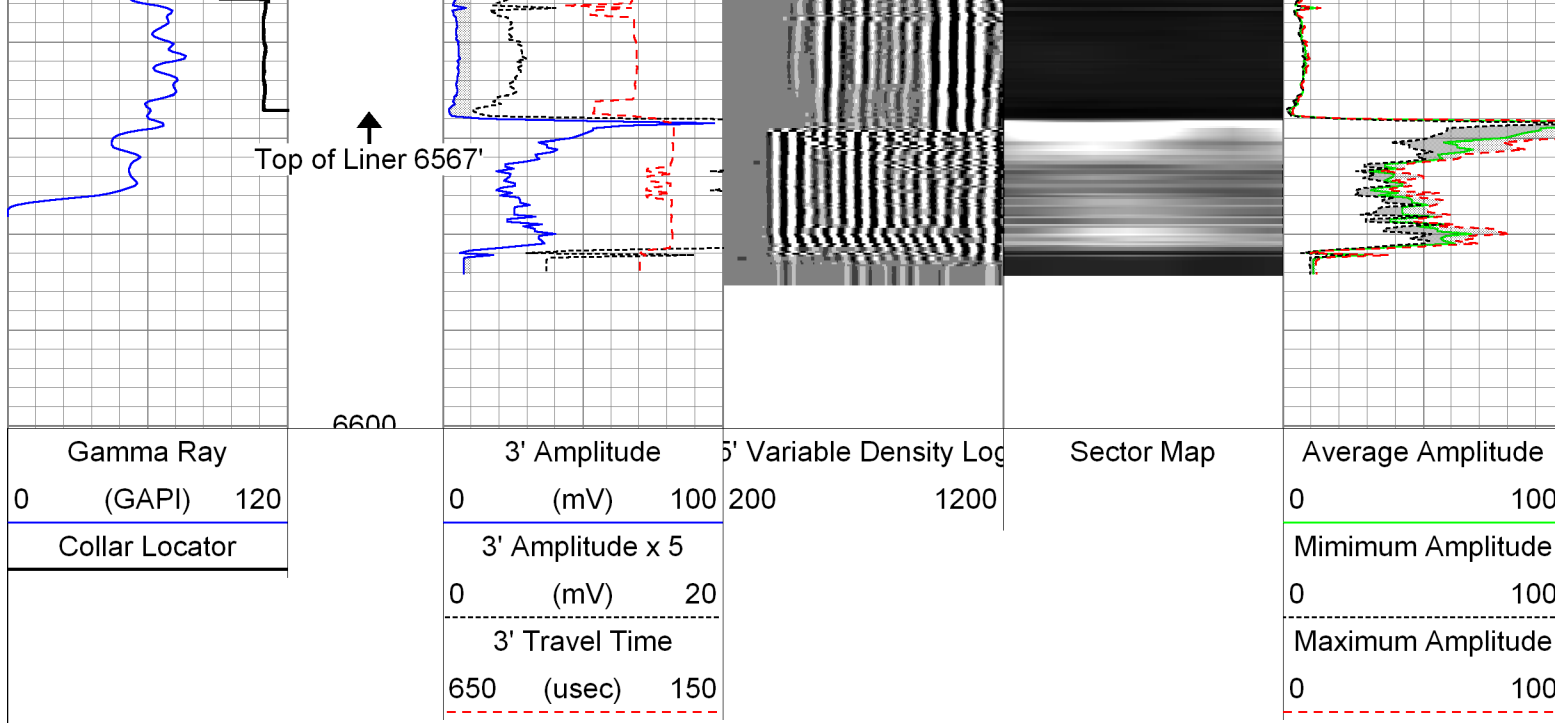
← Amp3

← Amp3x5

TT3 →

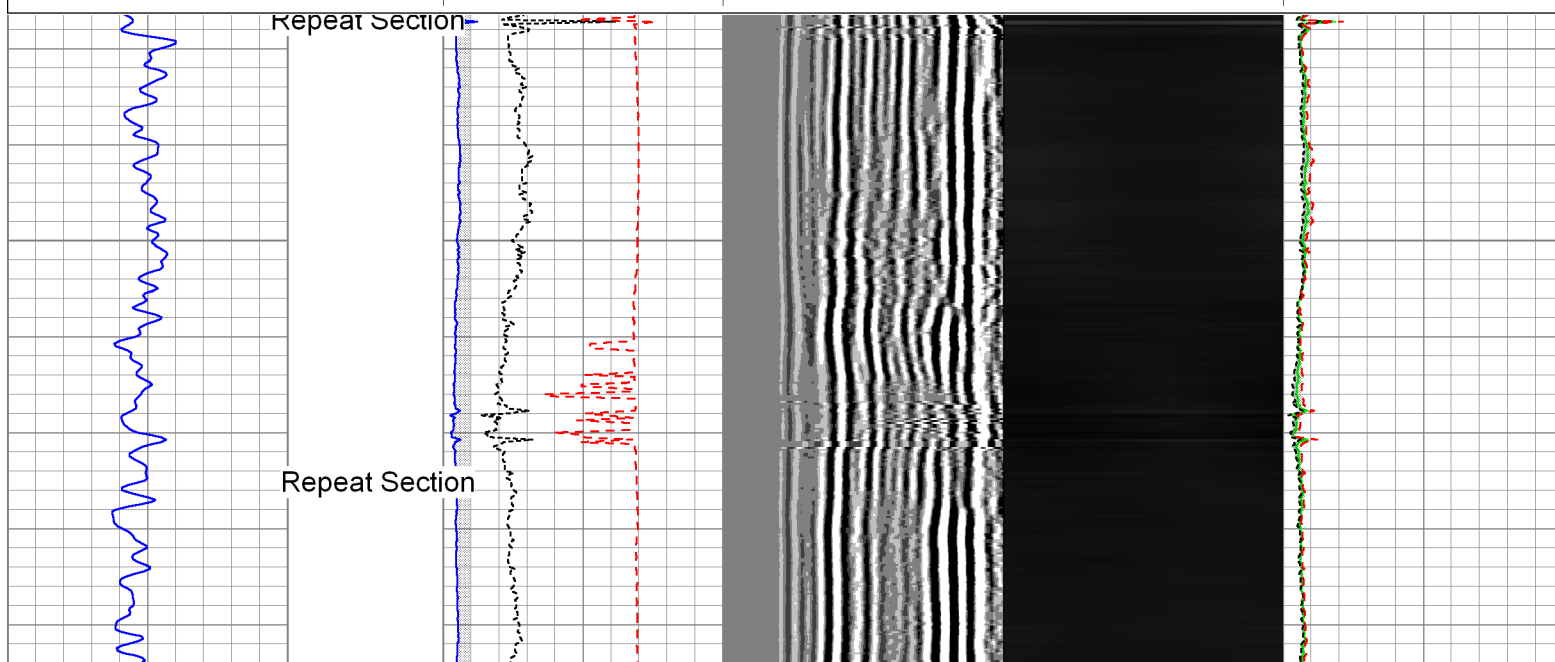
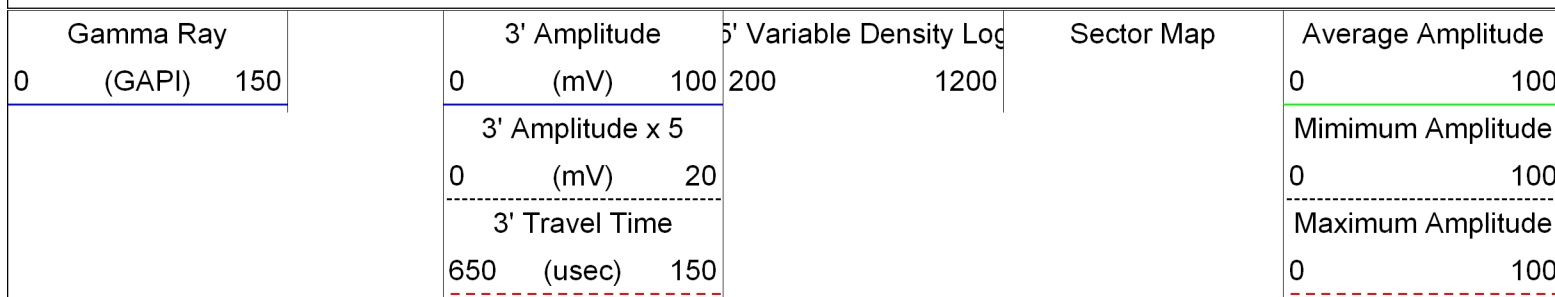
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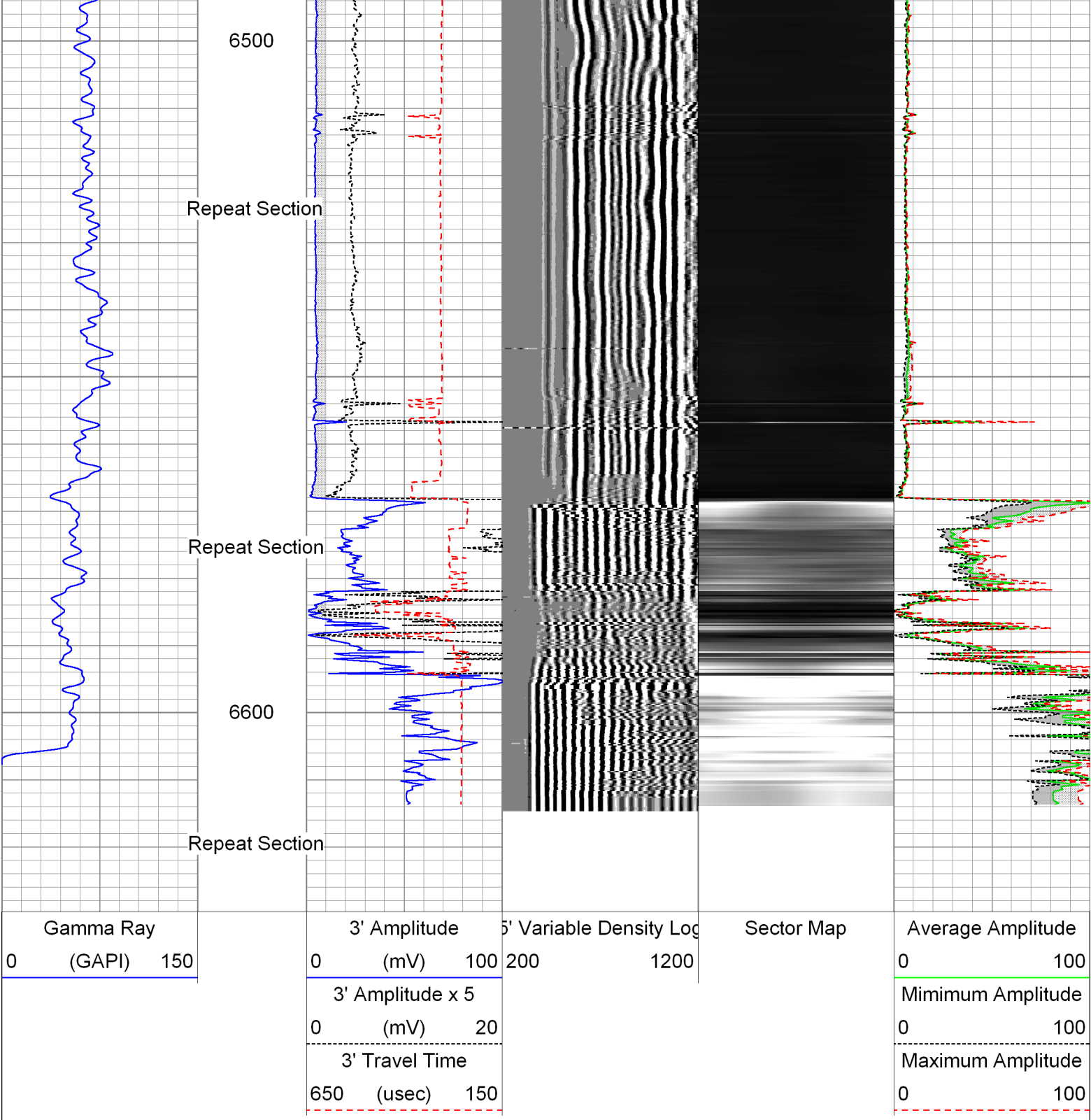


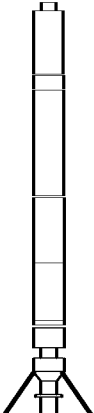


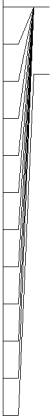
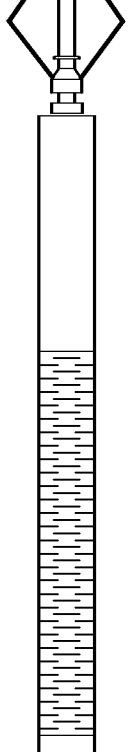


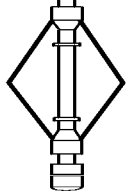
# Repeat Pass

Database File: 0512338680\_anadarko\_aggregate state 35n-e16hz\_03-27-14\_mit\_rbl.db  
 Dataset Pathname: pass3  
 Presentation Format: rbt007  
 Dataset Creation: Thu Mar 27 11:04:47 2014 by Log Sondex V7.03  
 Charted by: Depth in Feet scaled 1:240





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.67		AES 1-7/16" Cablehead	1.08	1.44	1.00
			AGS-001 (219135) Adaptor GO to Sondex	0.21	1.69	1.00
			XTU-002 (051219) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (10013899) Production Gamma Ray	1.93	1.69	9.50

				PRC-057 (1101) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVF3FT	15.85			RBT-004 (10012639in7) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	15.85						
WVFS2	15.85						
WVFS3	15.85						
WVFS4	15.85						
WVFS5	15.85						
WVFS6	15.85						
WVFS7	15.85						
WVFS8	15.85						
CBLTEMP	15.85			PRC-057 (1102) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
CBLROT	15.85						
WVF5FT	14.85						
MIT	5.41			MIT-042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00			PRC-057 (1037) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
				BUL-006 (218707) Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512338680_anadarko_aggregate state 35n-e16hz_03-27-14_mit_rbl.db: field/well/run1/pass6 Total Length: 27.97 ft Total Weight: 316.30 lb O.D.: 3.13 in							

Calibration Report	
Database File:	0512338680_anadarko_aggregate state 35n-e16hz_03-27-14_mit_rbl.db
Dataset Pathname:	pass6
Dataset Creation:	Thu Mar 27 11:38:25 2014 by Log Sondex V7.03
Multi-finger Imaging Tool Calibration Report	
Serial Number:	10014703
Number of Fingers:	40
Tool Model:	042

Inclinometer Calibration Report	
Dataset:	0512338680_anadarko_aggregate state 35n-e16hz_03-27-14_mit_rbl.db: field/well/run1/pass6

Vertical:		Inc X	Inc Y
		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: Thu Mar 27 11:29:50 2014

Ring size: (in)	4		5		6		7
		Sens		Sens		Sens	
Finger 01:	1124	360.0	1484	357.0	1841	381.0	2222
Finger 02:	1082	360.0	1442	379.0	1821	394.0	2215
Finger 03:	1087	343.0	1430	381.0	1811	378.0	2189
Finger 04:	1055	342.0	1397	409.0	1806	394.0	2200
Finger 05:	1089	320.0	1409	395.0	1804	361.0	2165
Finger 06:	1085	323.0	1408	423.0	1831	373.0	2204
Finger 07:	1103	314.0	1417	422.0	1839	363.0	2202
Finger 08:	1062	312.0	1374	448.0	1822	377.0	2199
Finger 09:	1126	309.0	1435	441.0	1876	354.0	2230
Finger 10:	1095	303.0	1398	451.0	1849	360.0	2209
Finger 11:	1076	297.0	1373	451.0	1824	371.0	2195
Finger 12:	1150	298.0	1448	458.0	1906	318.0	2224
Finger 13:	1086	296.0	1382	452.0	1834	379.0	2213
Finger 14:	1064	307.0	1371	477.0	1848	393.0	2241
Finger 15:	1034	307.0	1341	477.0	1818	404.0	2222
Finger 16:	1066	307.0	1373	460.0	1833	395.0	2228
Finger 17:	1093	308.0	1401	442.0	1843	388.0	2231
Finger 18:	1112	317.0	1429	433.0	1862	395.0	2257
Finger 19:	1073	328.0	1401	438.0	1839	414.0	2253
Finger 20:	985	332.0	1317	438.0	1755	436.0	2191
Finger 21:	1077	341.0	1418	409.0	1827	426.0	2253
Finger 22:	1047	347.0	1394	410.0	1804	442.0	2246
Finger 23:	1152	335.0	1487	372.0	1859	408.0	2267
Finger 24:	1054	366.0	1420	396.0	1816	451.0	2267
Finger 25:	1055	367.0	1422	380.0	1802	458.0	2260
Finger 26:	1081	375.0	1456	362.0	1818	444.0	2262
Finger 27:	1093	370.0	1463	346.0	1809	451.0	2260
Finger 28:	1051	389.0	1440	351.0	1791	463.0	2254
Finger 29:	1028	396.0	1424	350.0	1774	475.0	2249
Finger 30:	1023	397.0	1420	341.0	1761	472.0	2233
Finger 31:	1081	398.0	1479	324.0	1803	441.0	2244
Finger 32:	1027	399.0	1426	328.0	1754	457.0	2211
Finger 33:	1043	404.0	1447	328.0	1775	452.0	2227
Finger 34:	1039	405.0	1444	335.0	1779	455.0	2234
Finger 35:	1103	388.0	1491	318.0	1809	417.0	2226
Finger 36:	1044	395.0	1439	334.0	1773	435.0	2208
Finger 37:	1155	377.0	1532	315.0	1847	399.0	2246
Finger 38:	1114	375.0	1489	331.0	1820	403.0	2223
Finger 39:	1071	377.0	1448	347.0	1795	411.0	2206
Finger 40:	1010	376.0	1386	377.0	1763	426.0	2189

Segmented Cement Bond Log Calibration Report

Serial Number:	10012639in7
Tool Model:	004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	14.067 ft

Master Calibration, performed Wed Mar 26 15:15:19 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.001	0.732	0.800	62.165	83.855	0.745
5FT	-0.004	0.871	0.800	62.165	70.178	1.057
S1	0.001	0.769	0.000	100.000	130.243	-0.162
S2	0.000	0.686	0.000	100.000	145.804	0.000
S3	0.000	0.651	0.000	100.000	153.581	-0.011
S4	-0.001	0.663	0.000	100.000	150.575	0.176
S5	0.001	0.717	0.000	100.000	139.736	-0.140
S6	0.001	0.780	0.000	100.000	128.305	-0.107
S7	0.000	0.824	0.000	100.000	121.342	-0.040
S8	-0.000	0.825	0.000	100.000	121.112	0.058

Gamma Ray Calibration Report

Serial Number: 10013899  
 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 35N-E16HZ  
 Field Wattenberg  
 County Weld  
 State Colorado