



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Lochbuie 30C-13HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-38177			
Permanent Datum				SHL: 572' FSL & 582" FWL			
Log Measured From				Lat/Long: 40.04557/-104.732877			
Drilling Measured From				SEC 13 TWP 1N RGE 66W			
Ground Level				Elevation 5078'			
Kelly Bushing				13 FT			
Kelly Bushing				Elevation			
K.B. 5091'				Gauge Run			
D.F. 5090'				CIL			
G.L. 5078'							
Date				10-March-2014			
Run Number				Two			
Depth Driller				11,855 FT			
Depth Logger				7590 FT			
Bottom Logged Interval				7586 FT			
Top Log Interval				Surface			
Open Hole Size				9.625"			
Type Fluid				Water			
Density / Viscosity				8.34 LB/GAL			
Max. Recorded Temp.				219 F			
Estimated Cement Top				550 FT			
Time Well Ready				ROA			
Time Logger on Bottom				ROA			
Equipment Number				HD 134			
Location				Fort Lupton, CO			
Recorded By				J. Raby			
Witnessed By				Edgar Chaves			
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				11.6			
P-110				Surface			
P-110				6886 FT			
7898 FT				11,845 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 - Caliper Log is the first recorded log in hole.
Depth reference to Casing Talley reported Liner Top at 6886 FT.
Adjusted 10 FT to Liner Top at 6886 FT from a 13 FT KB zero.
RCBL-CIL ran with 2200 PSI surface induced pressure.
Estimated Cement Top recorded at 550 FT

Thank you for choosing FMC Technologies Completion Services, Inc.

Main Pass 7"



Recorded with 2200 PSI Surface Induced Pressure

Database File: 0512338177_anadarko_lochbuie 30c-13hz_03-10-14_mit_rbl.db

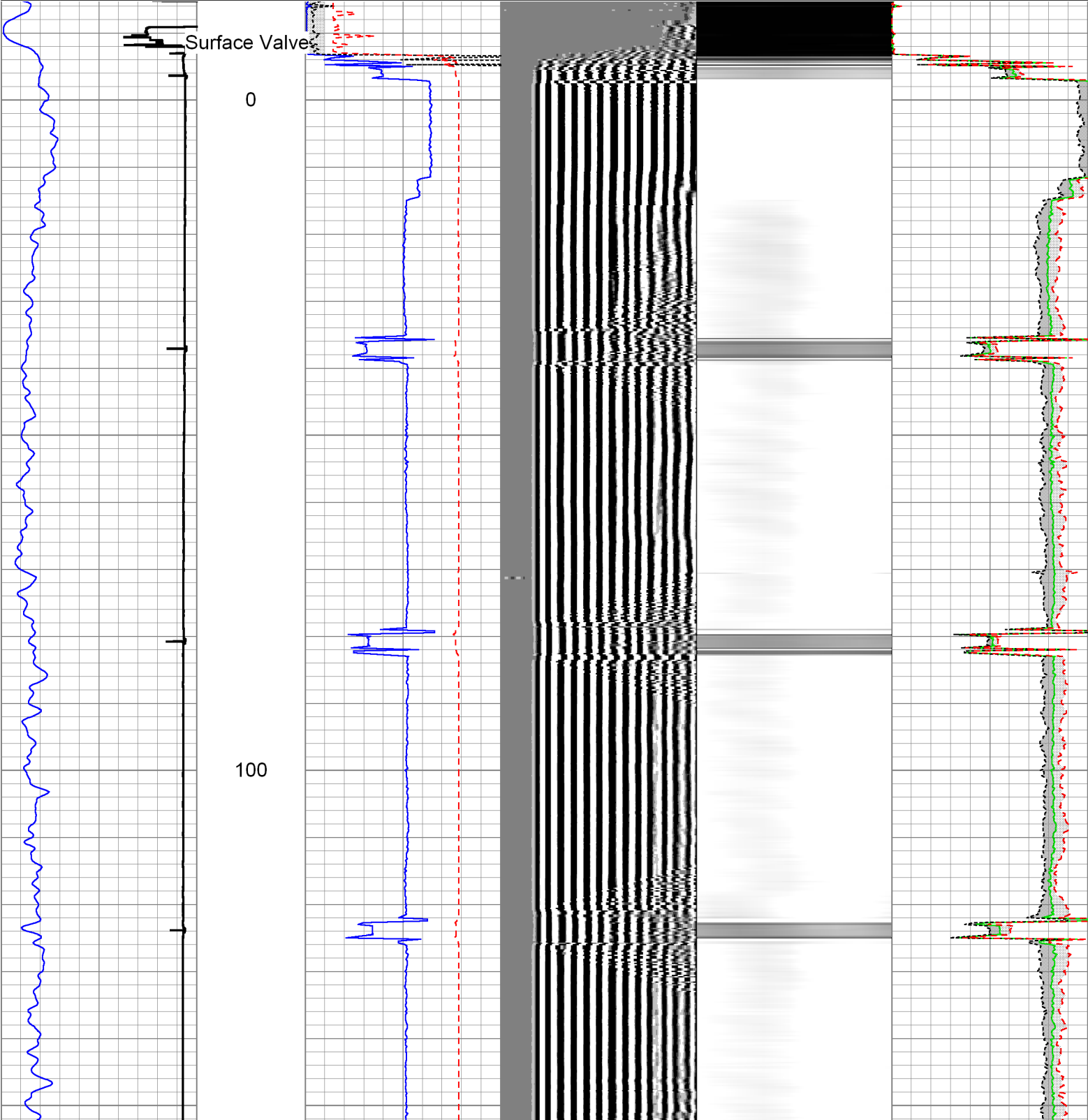
Dataset Pathname: pass7

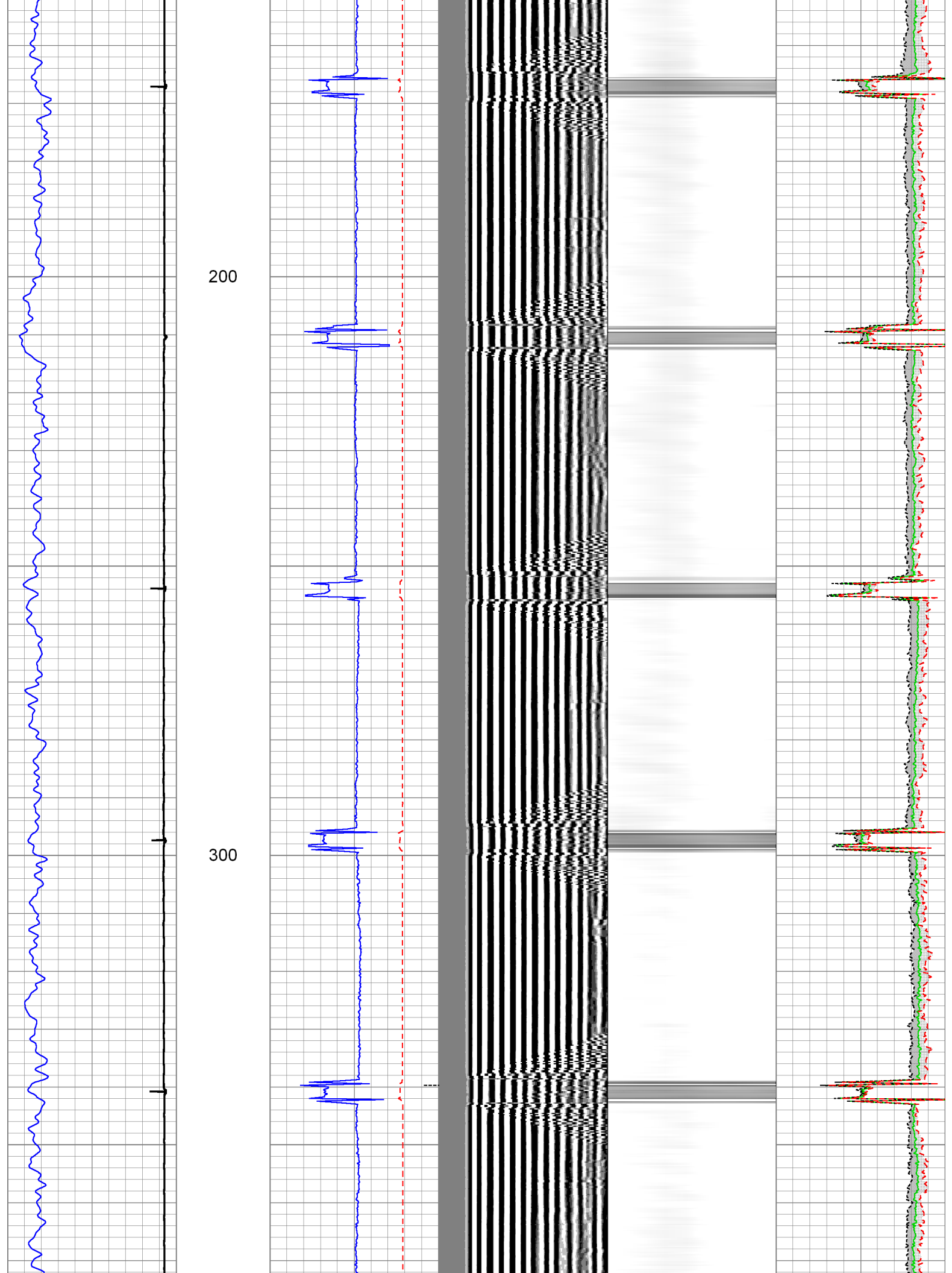
Presentation Format: rbt007

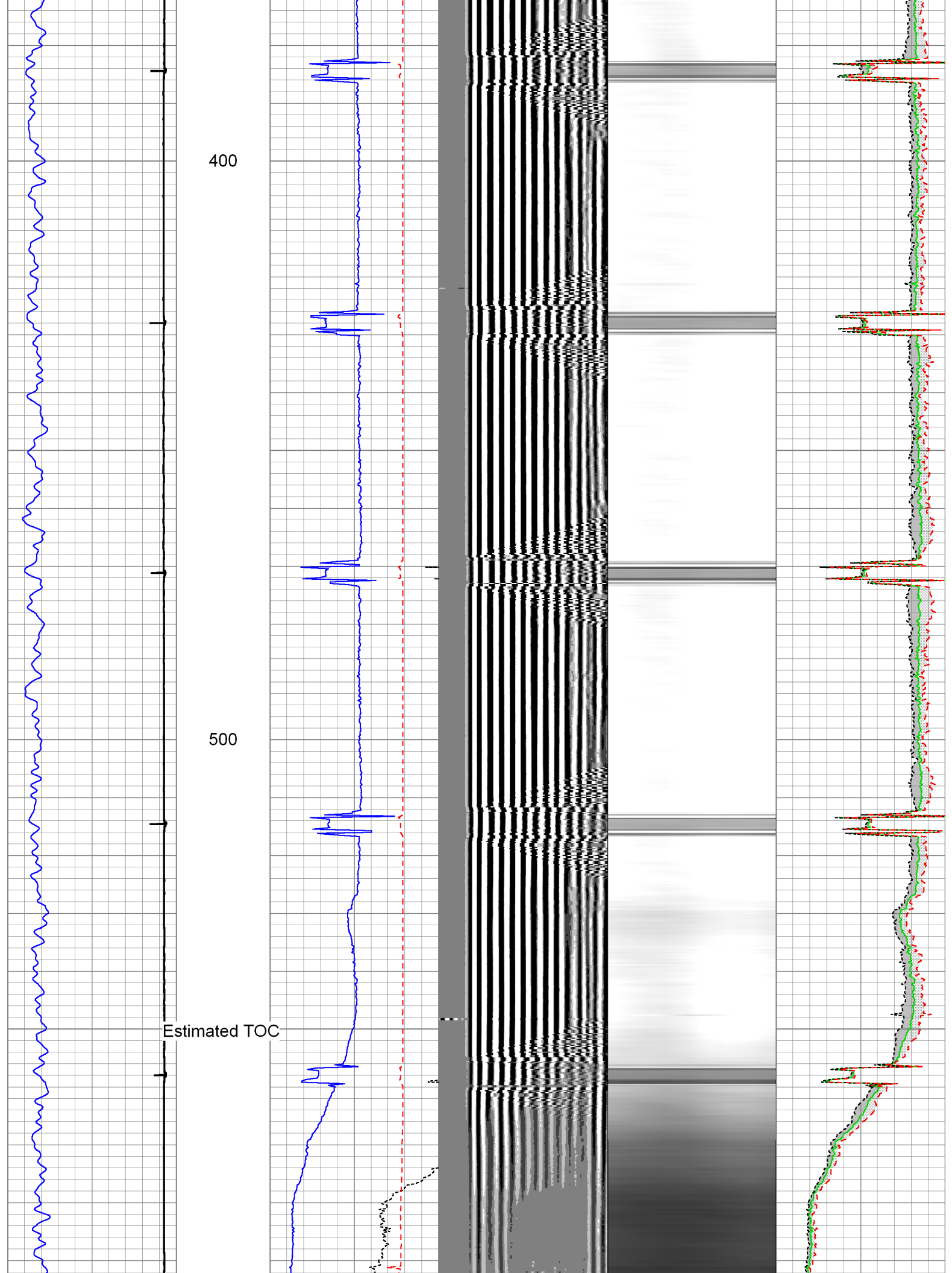
Dataset Creation: Mon Mar 10 09:52:13 2014 by Log Sondex V7.03

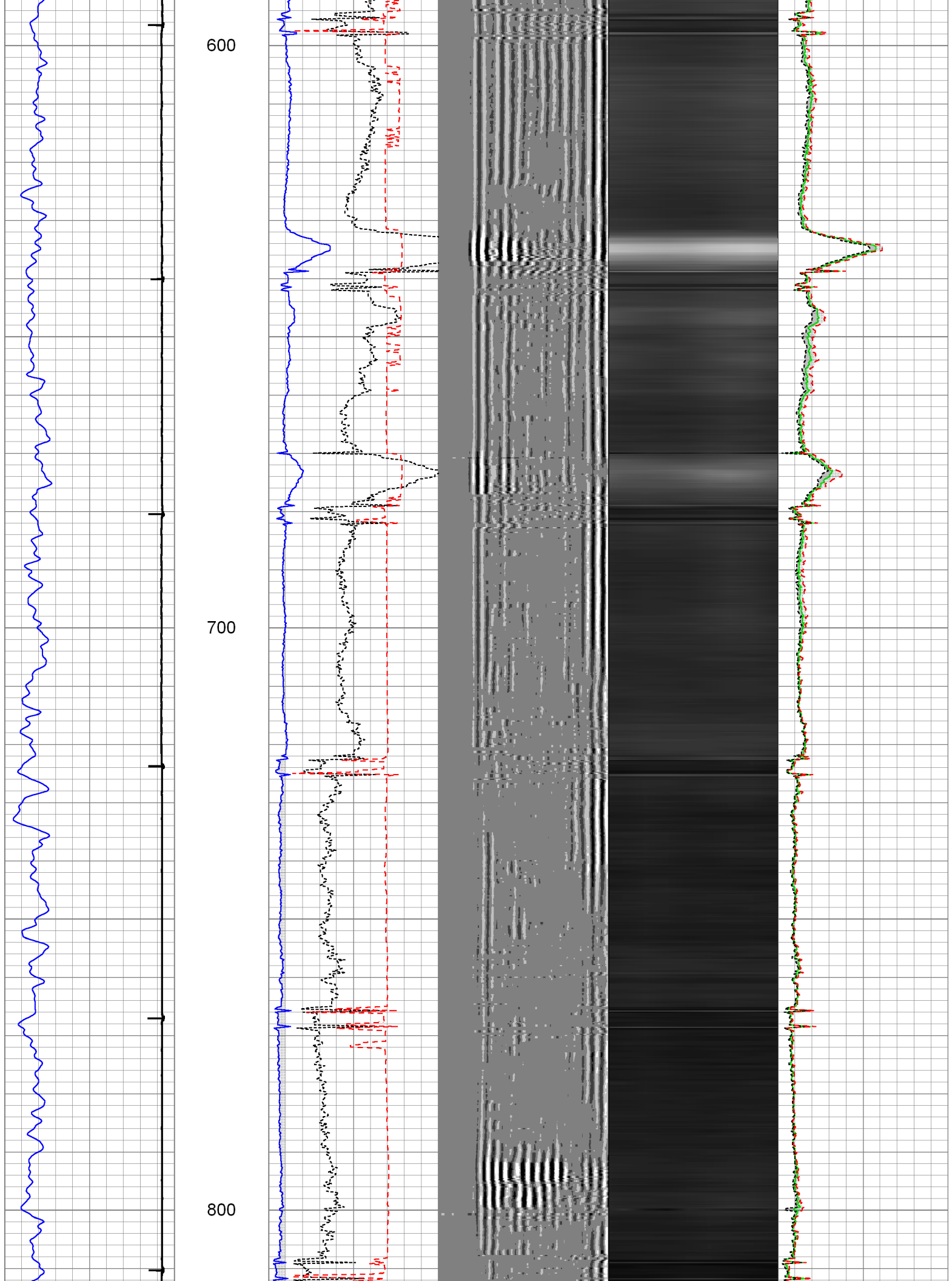
Charted by: Depth in Feet scaled 1:240

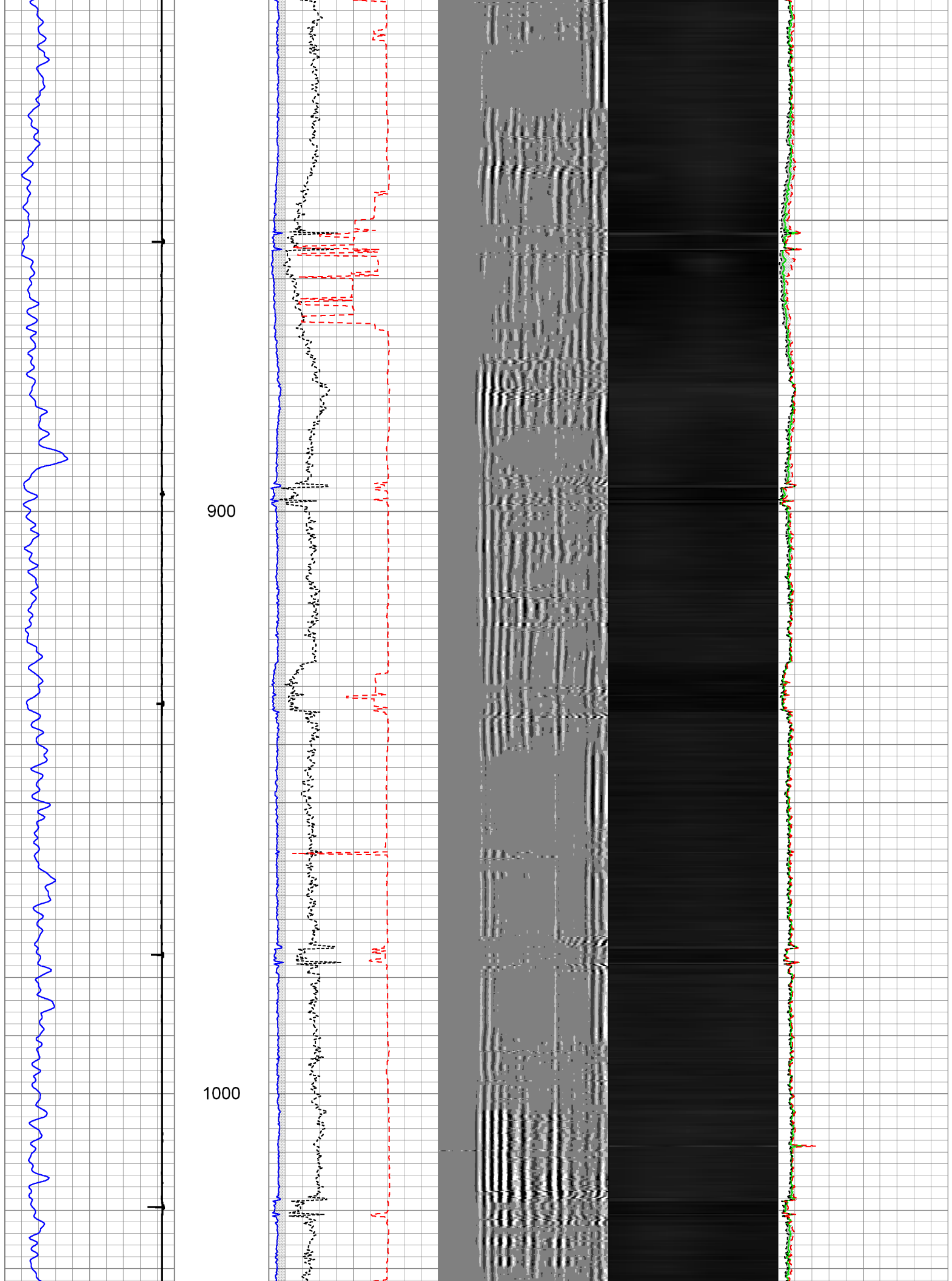
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200		0 100
Collar Locator		3' Amplitude x 5			Minimum Amplitude
		0 (mV) 20			0 100
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 100

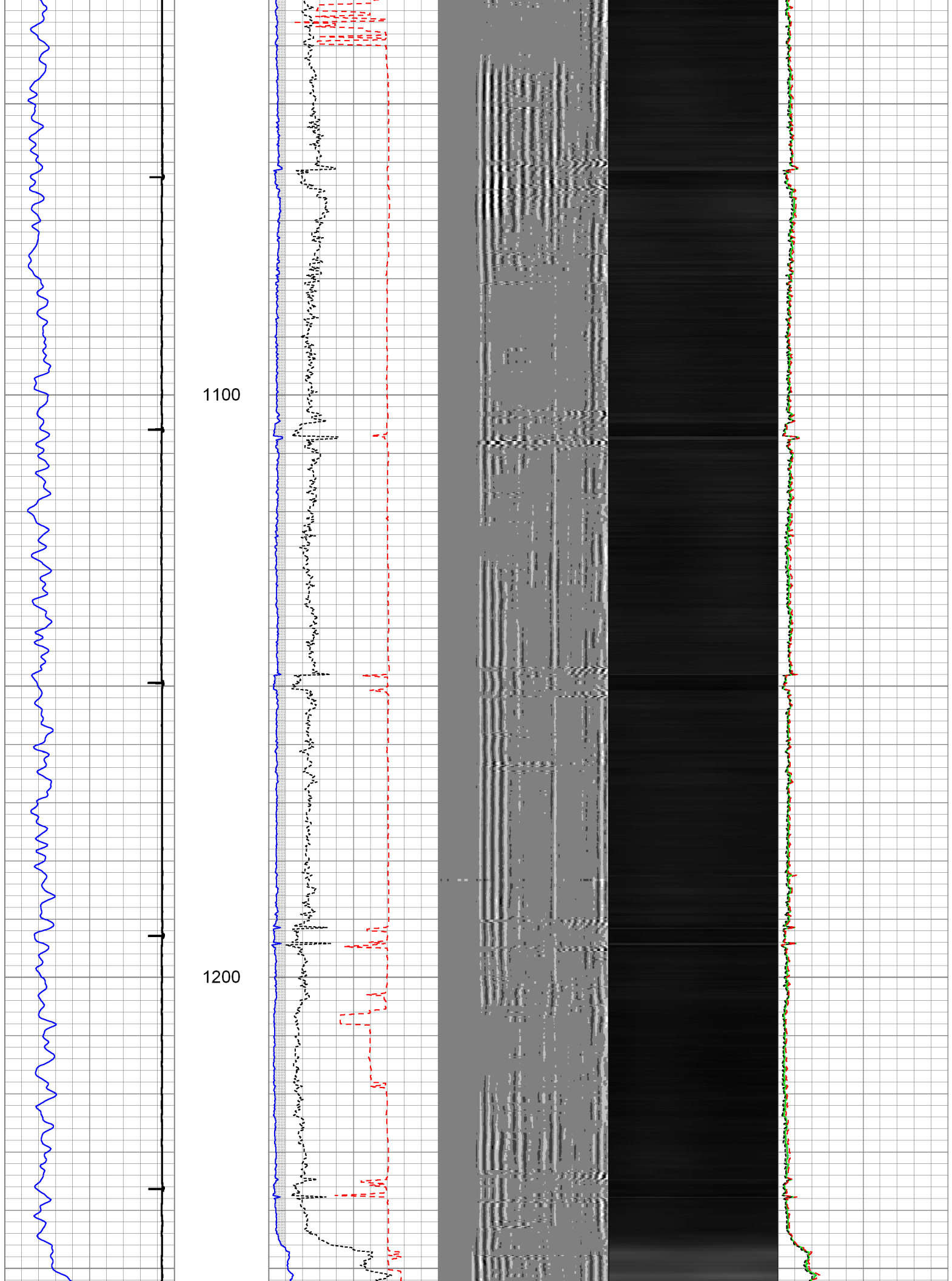


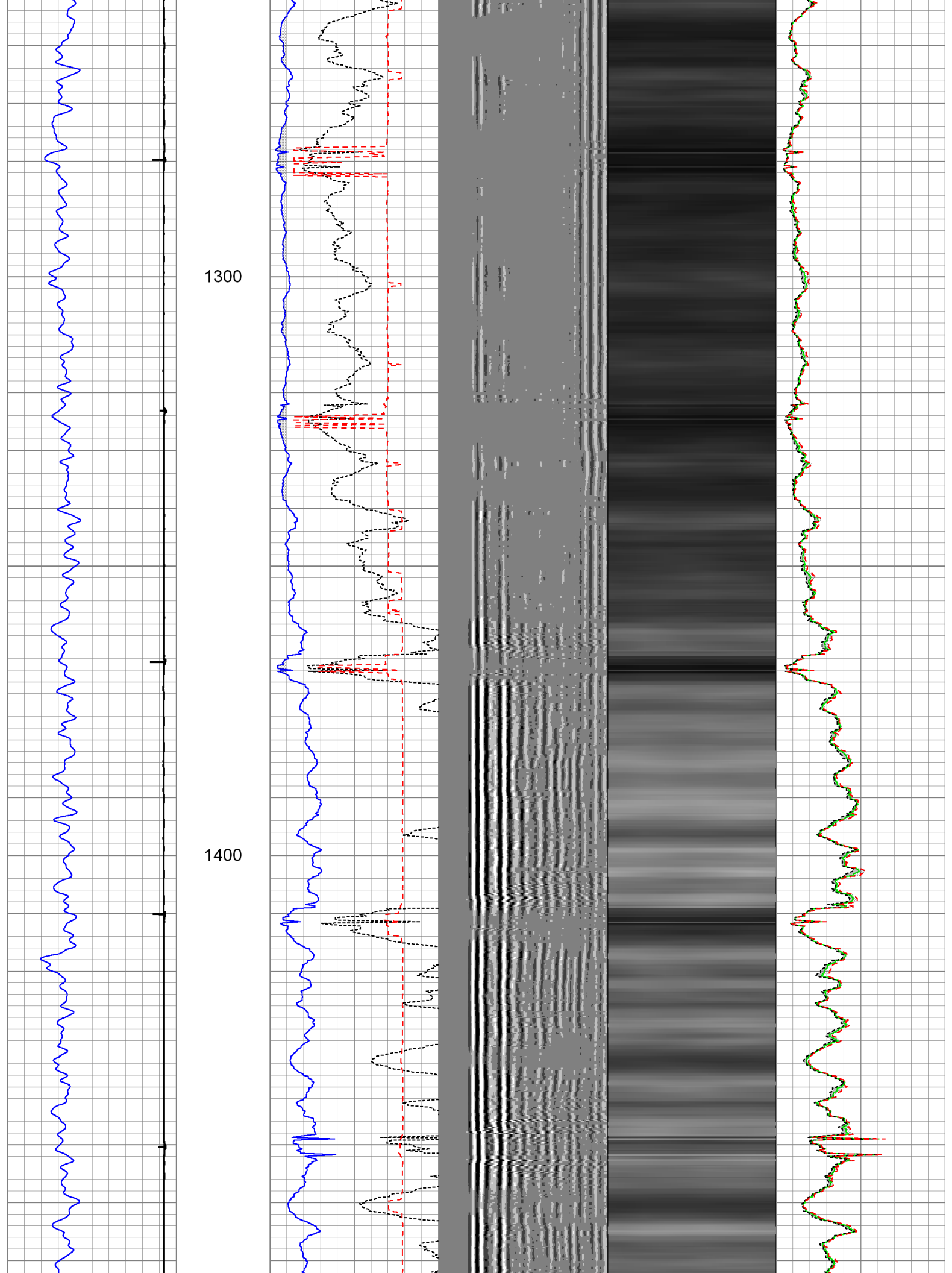


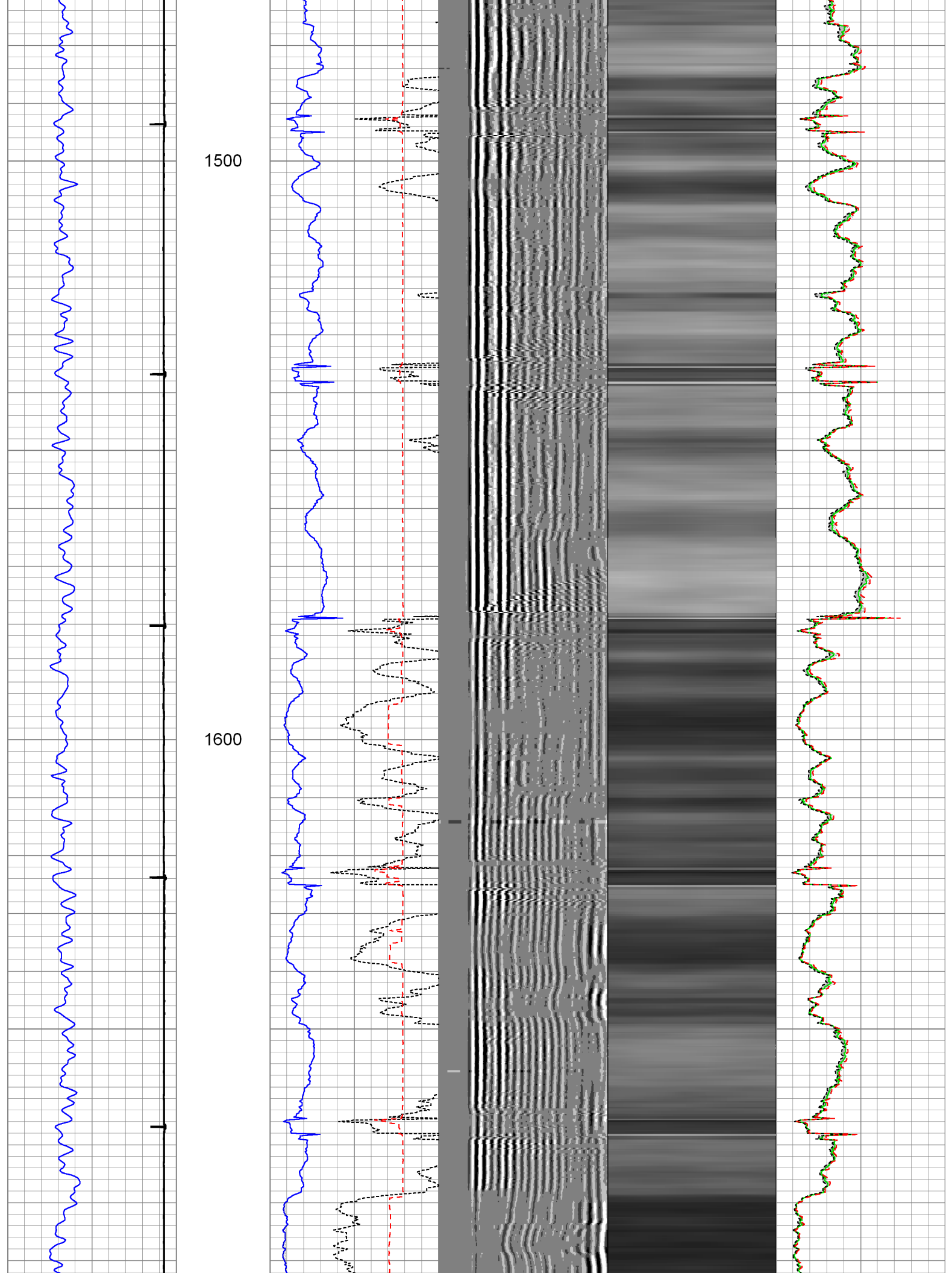


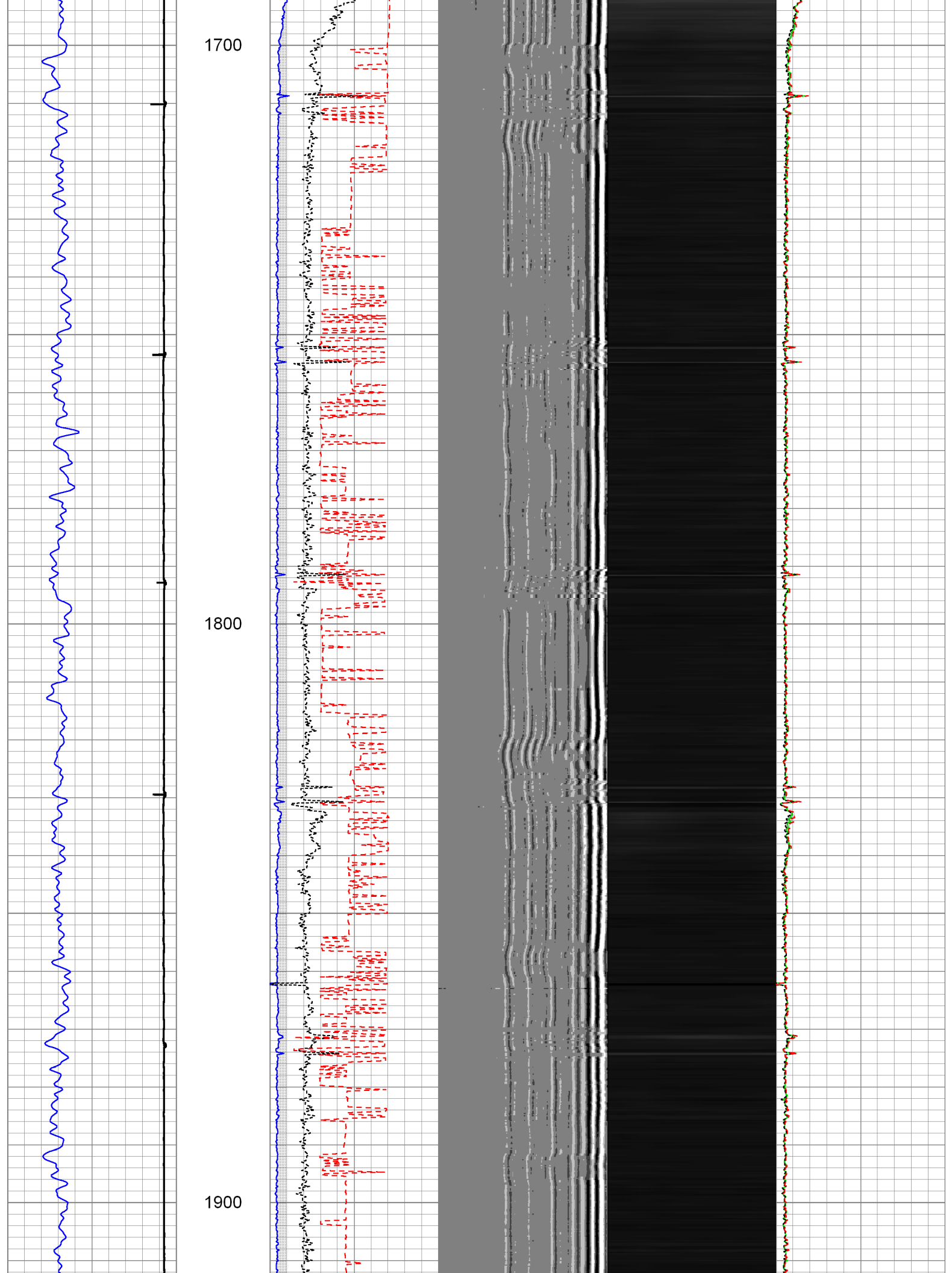






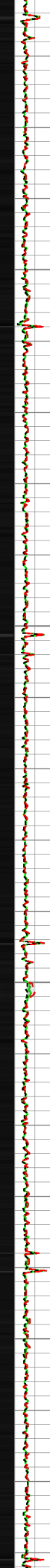
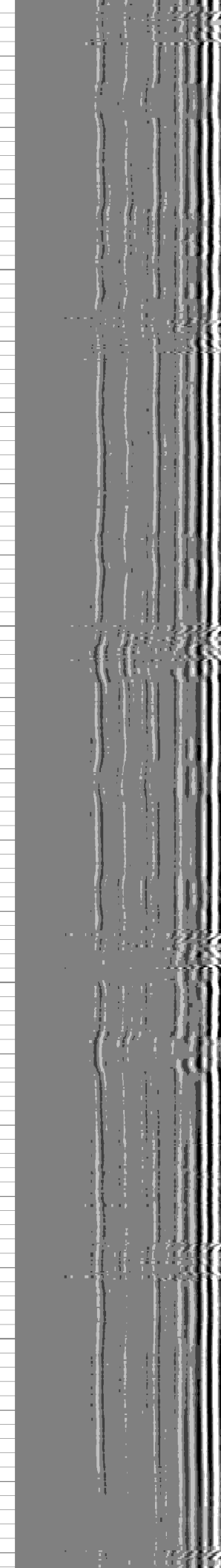
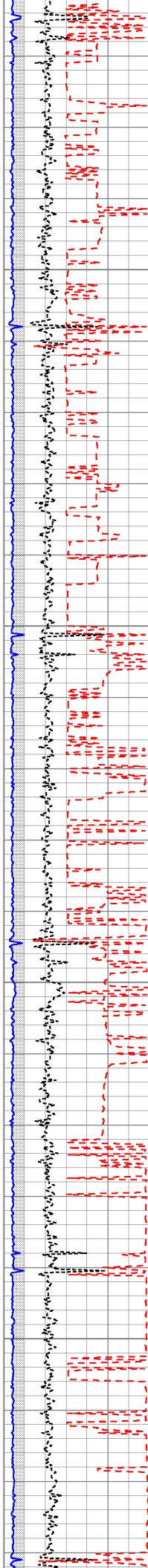






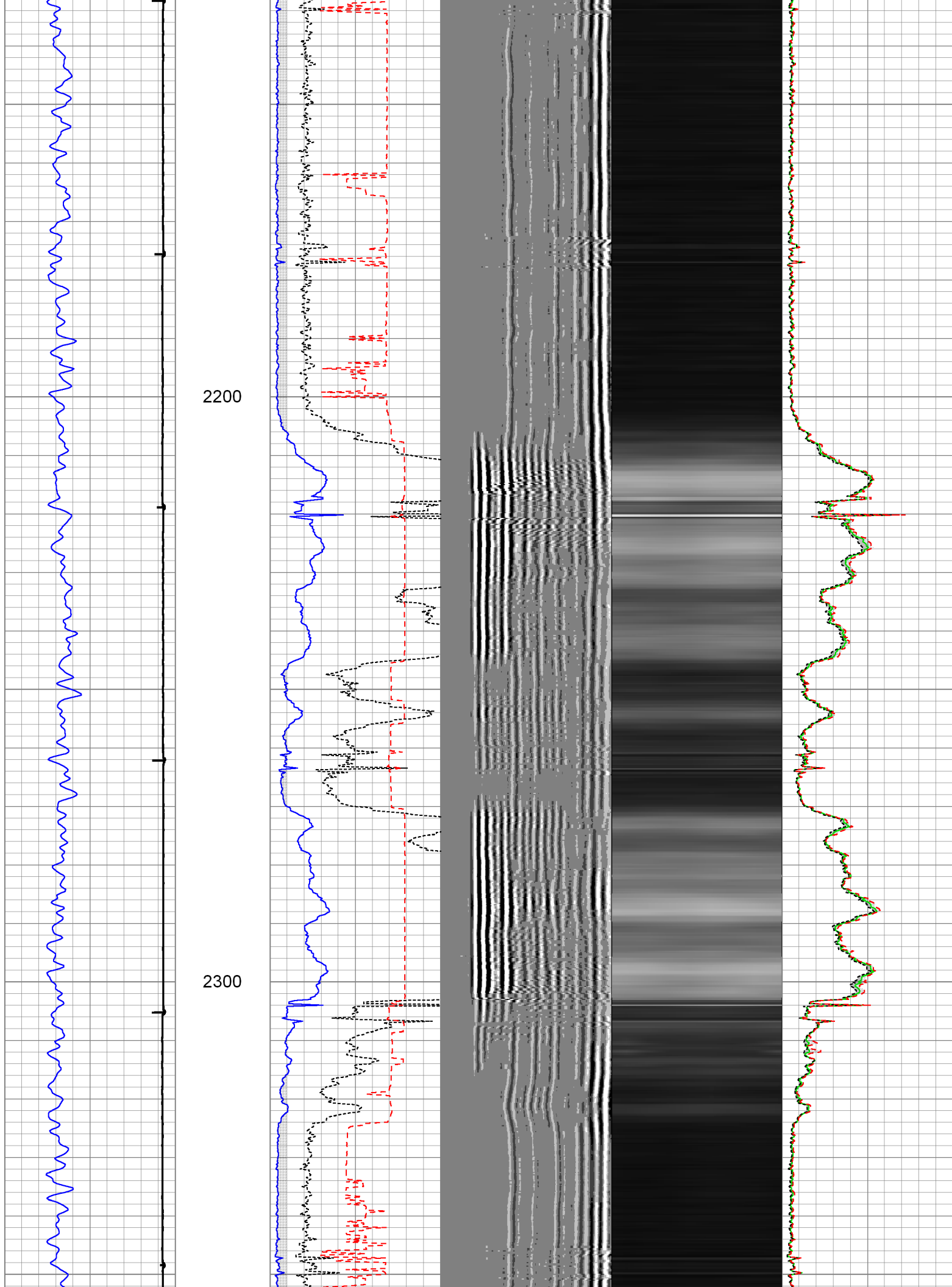
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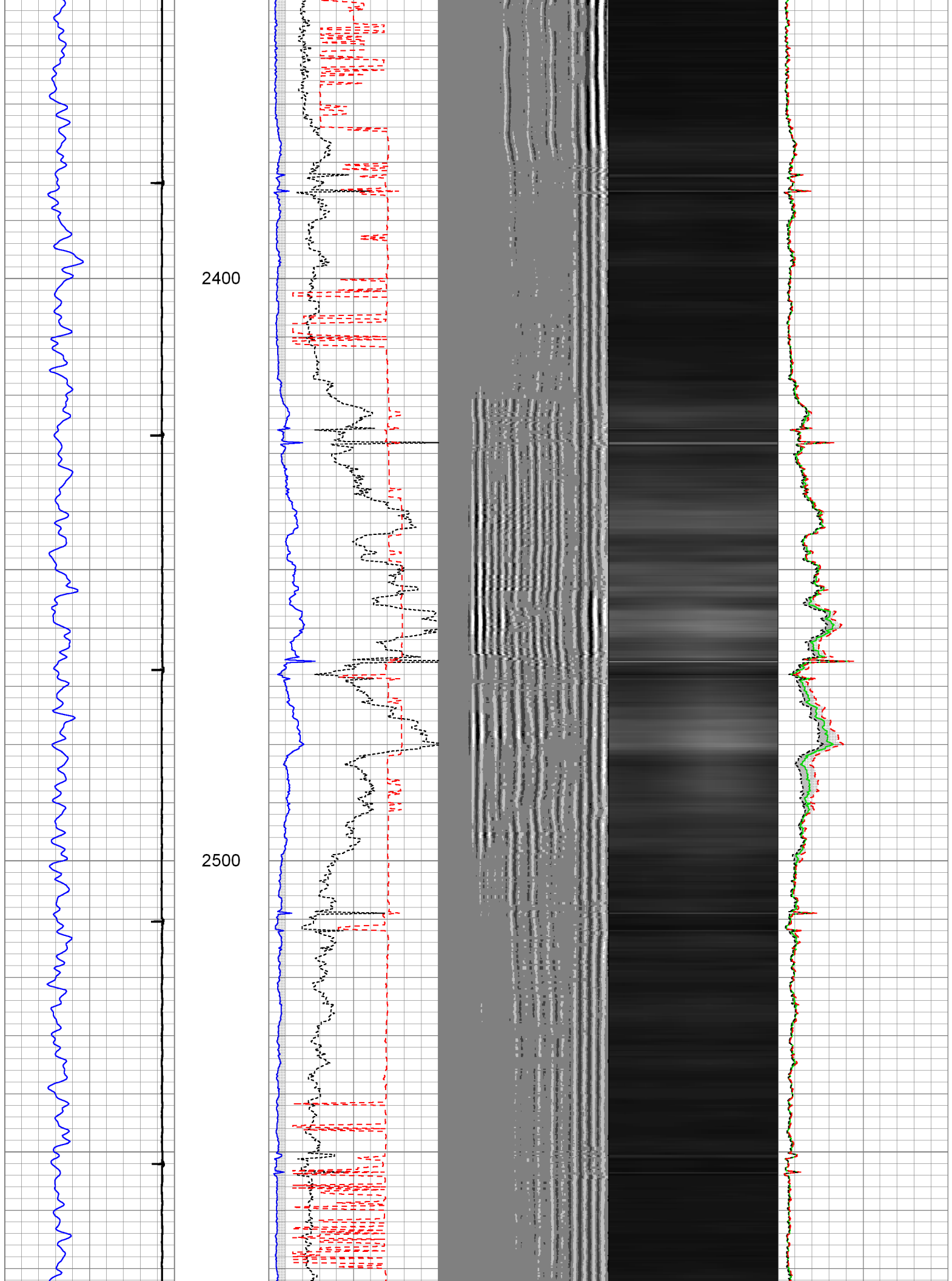
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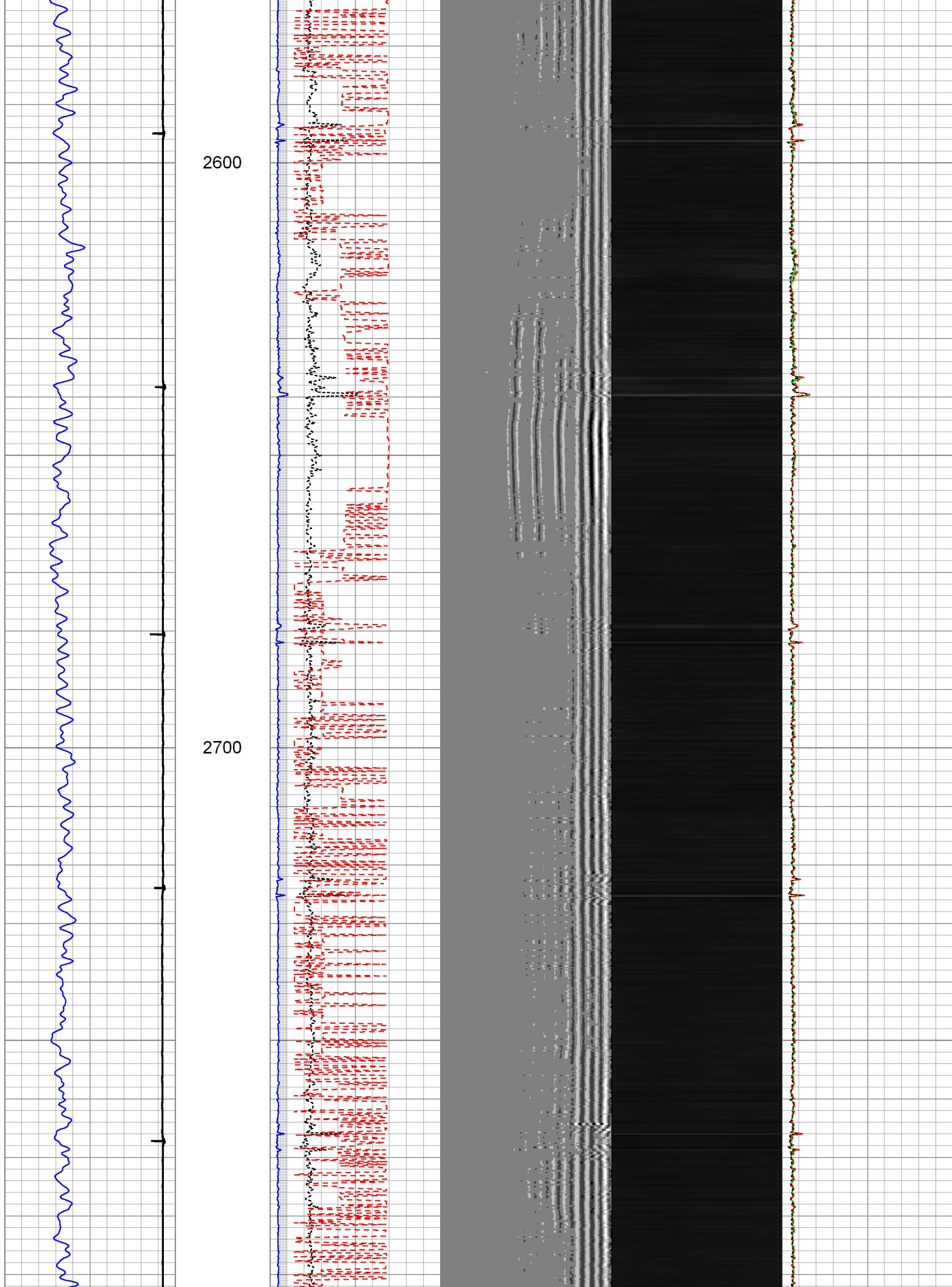
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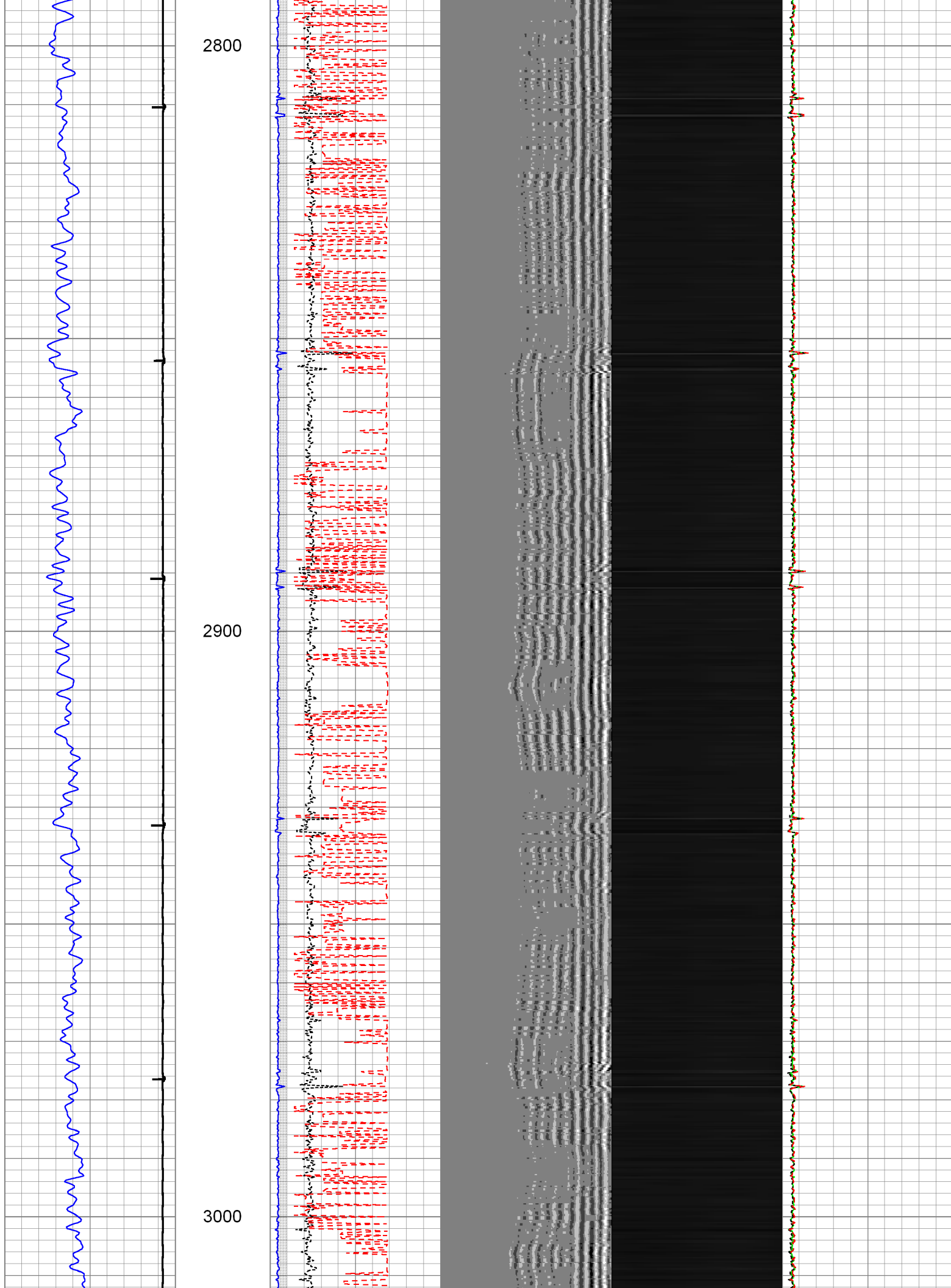
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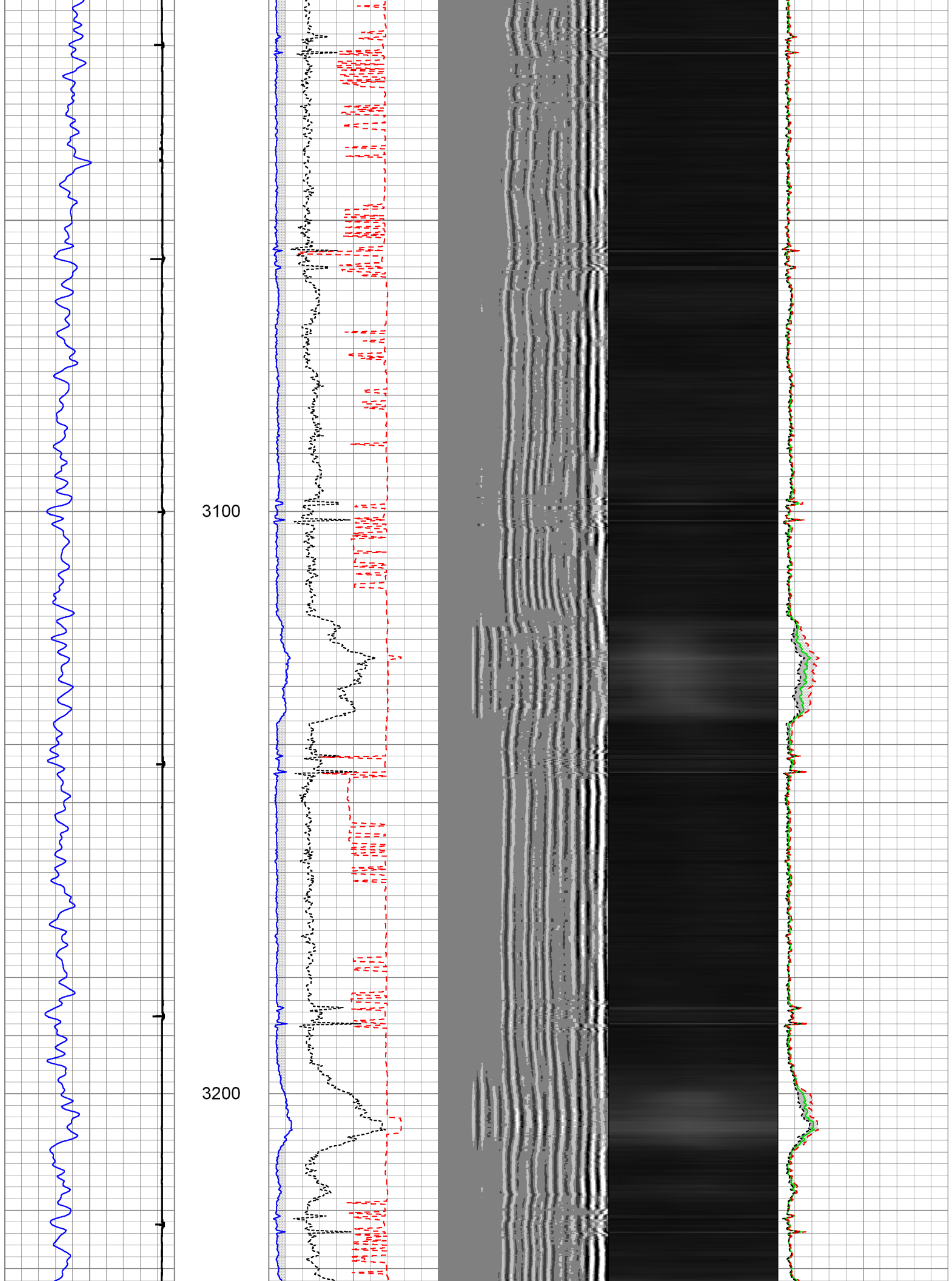


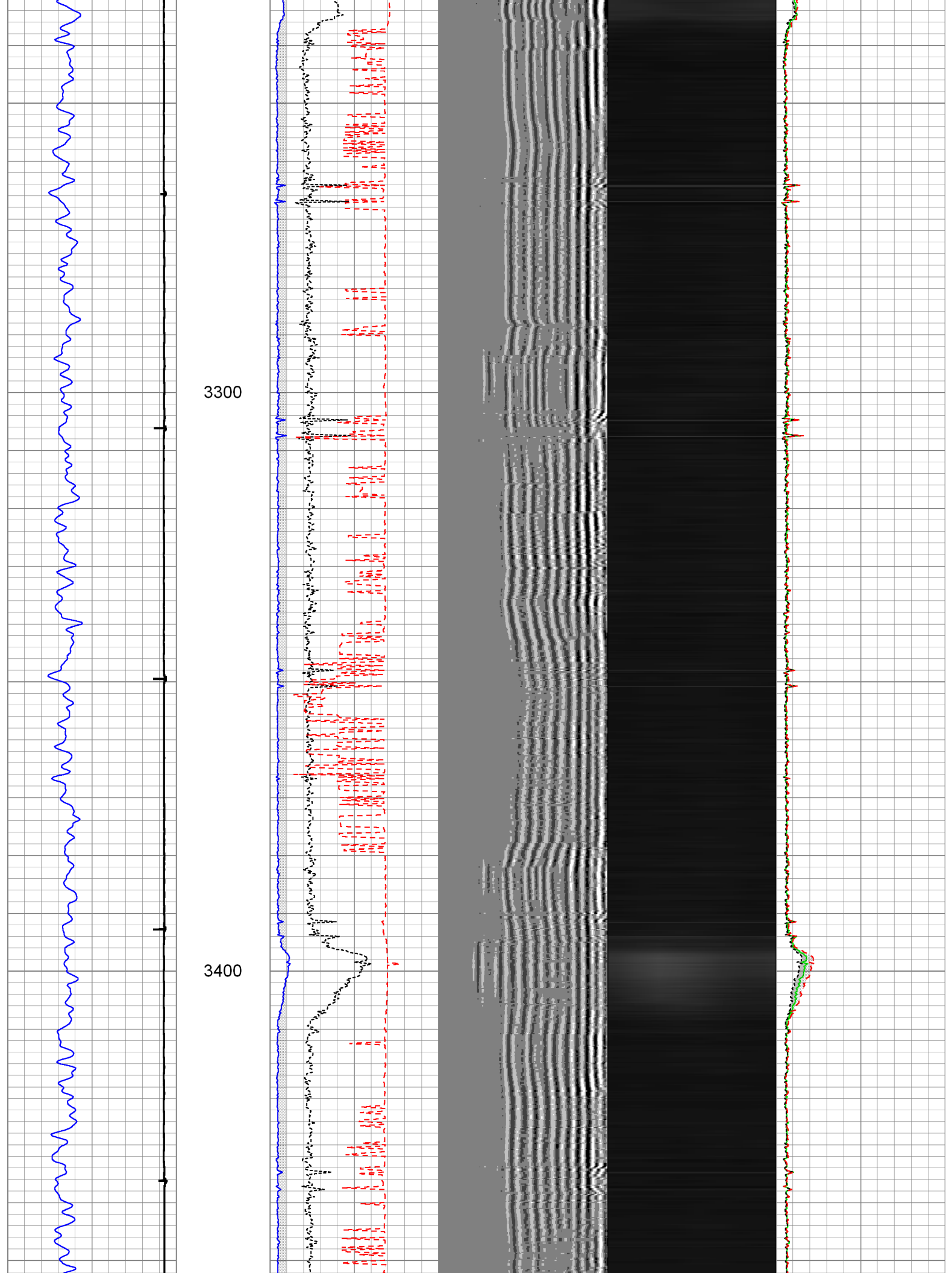
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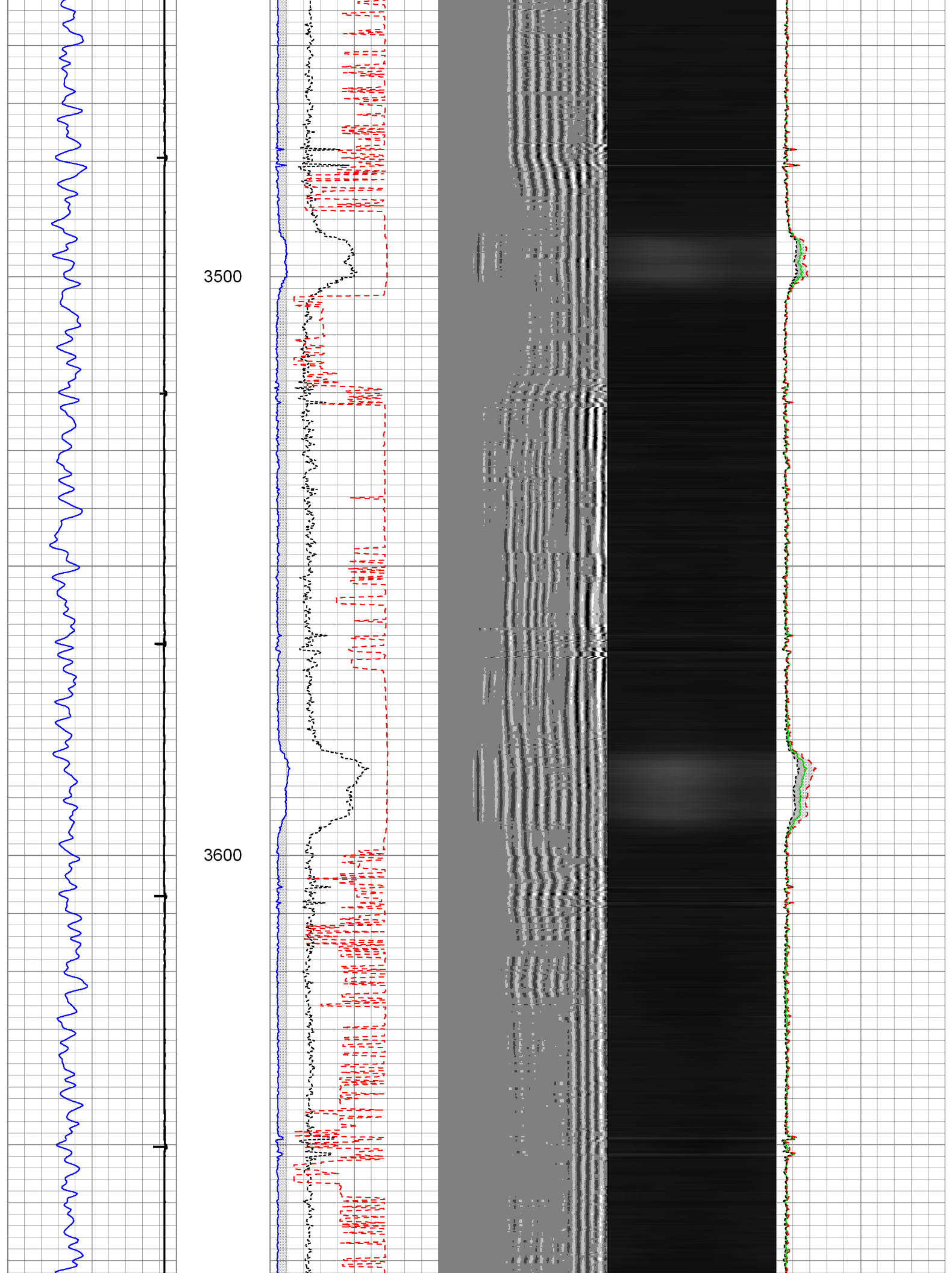
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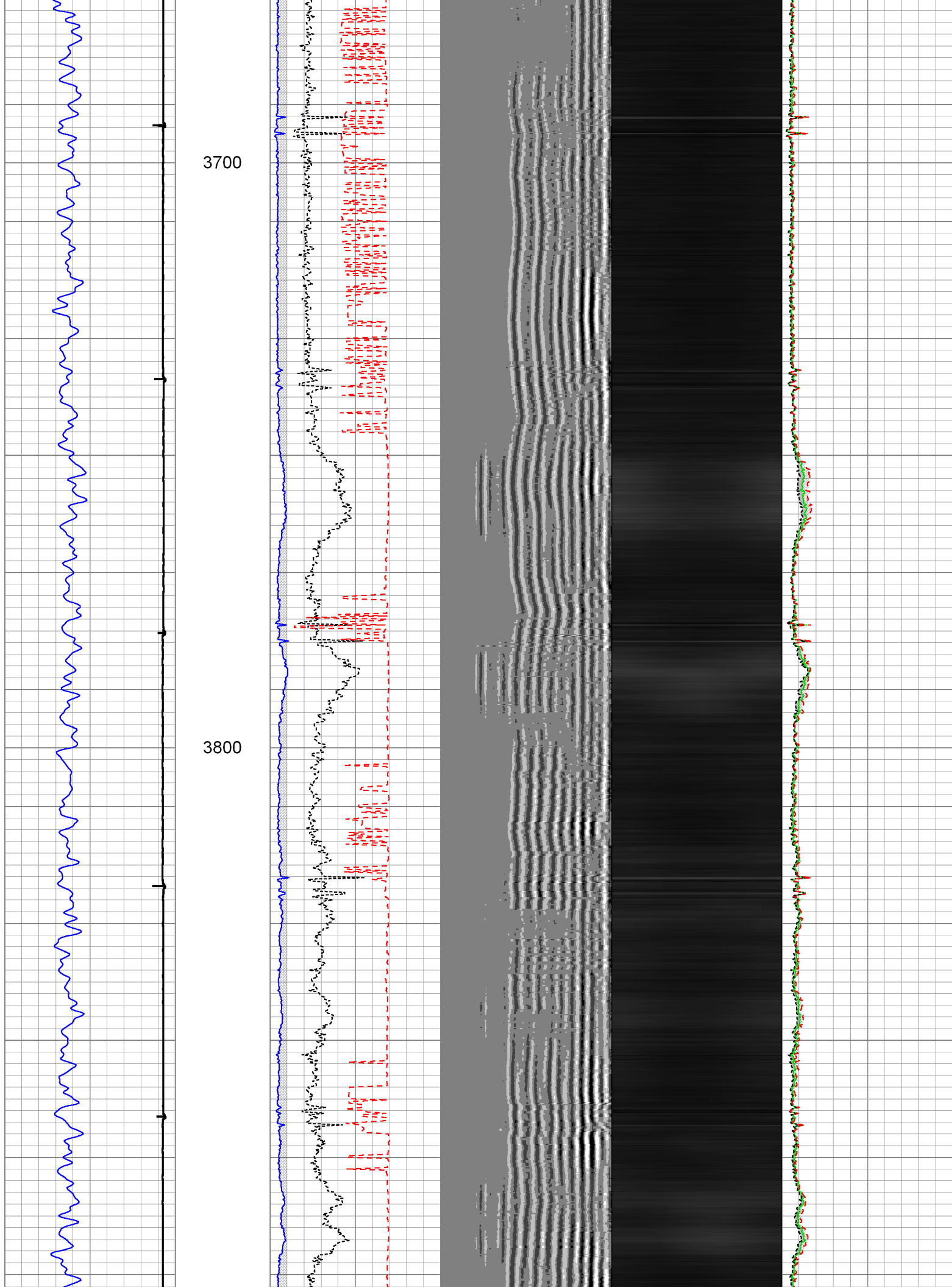


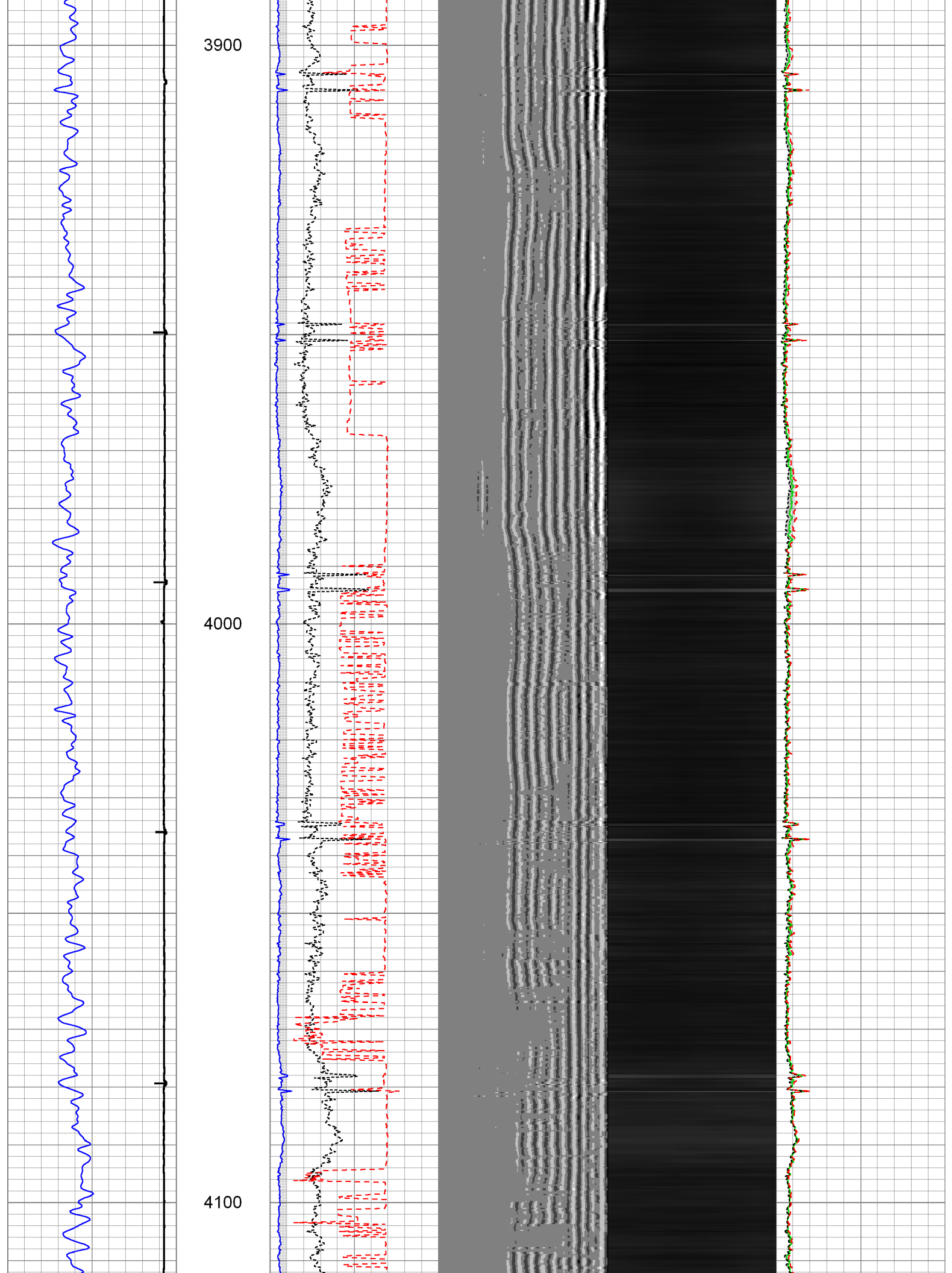


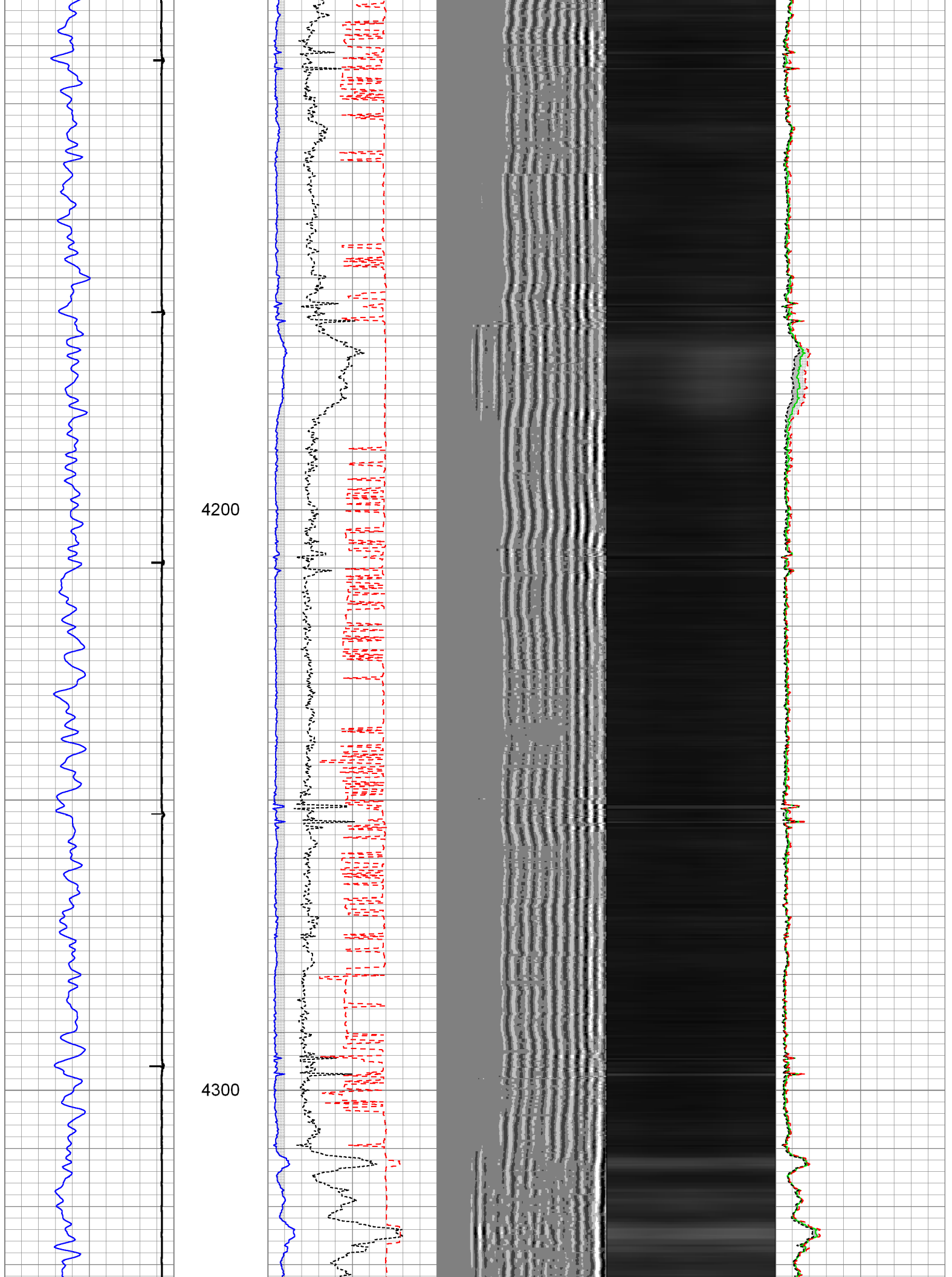


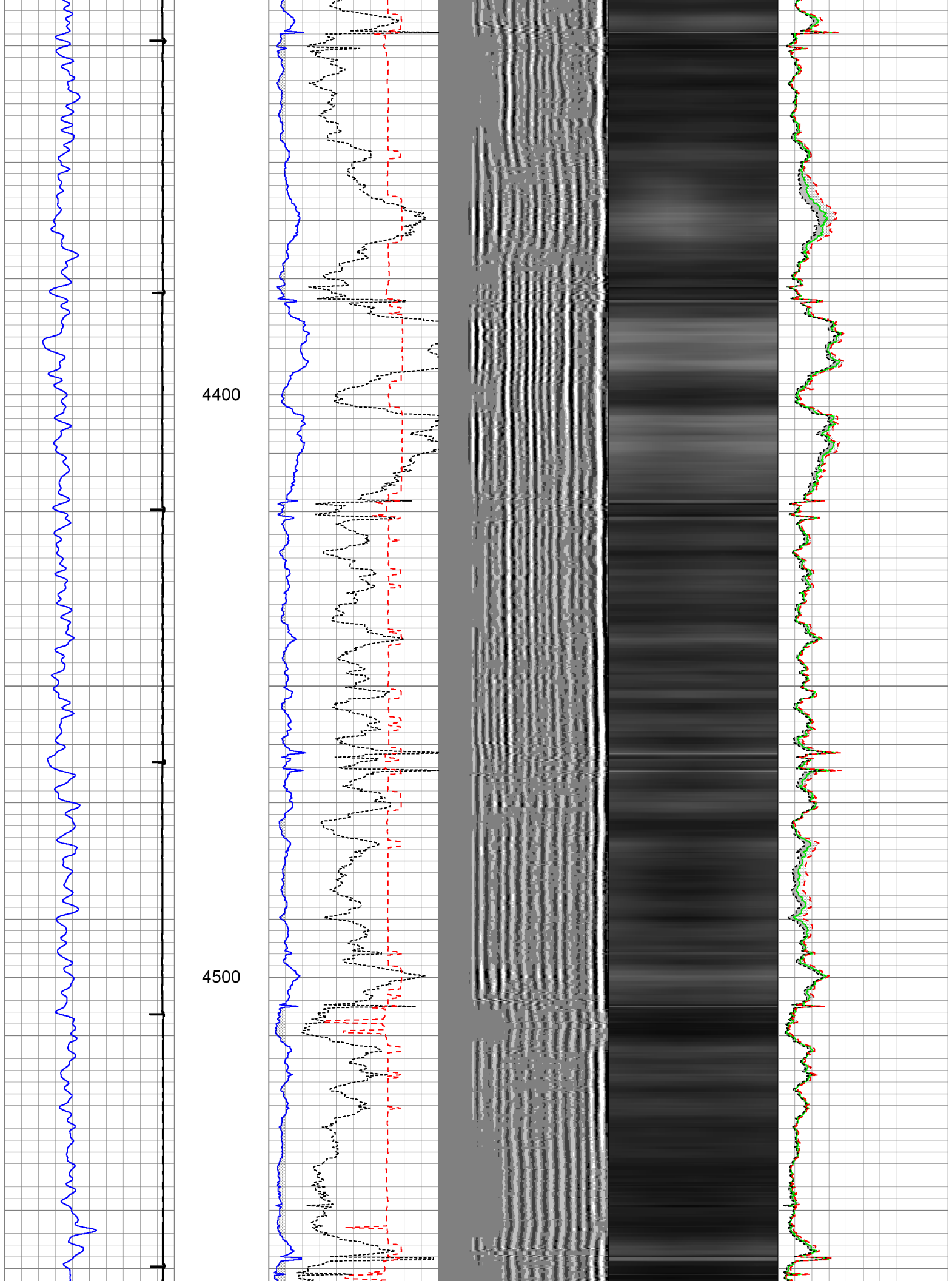
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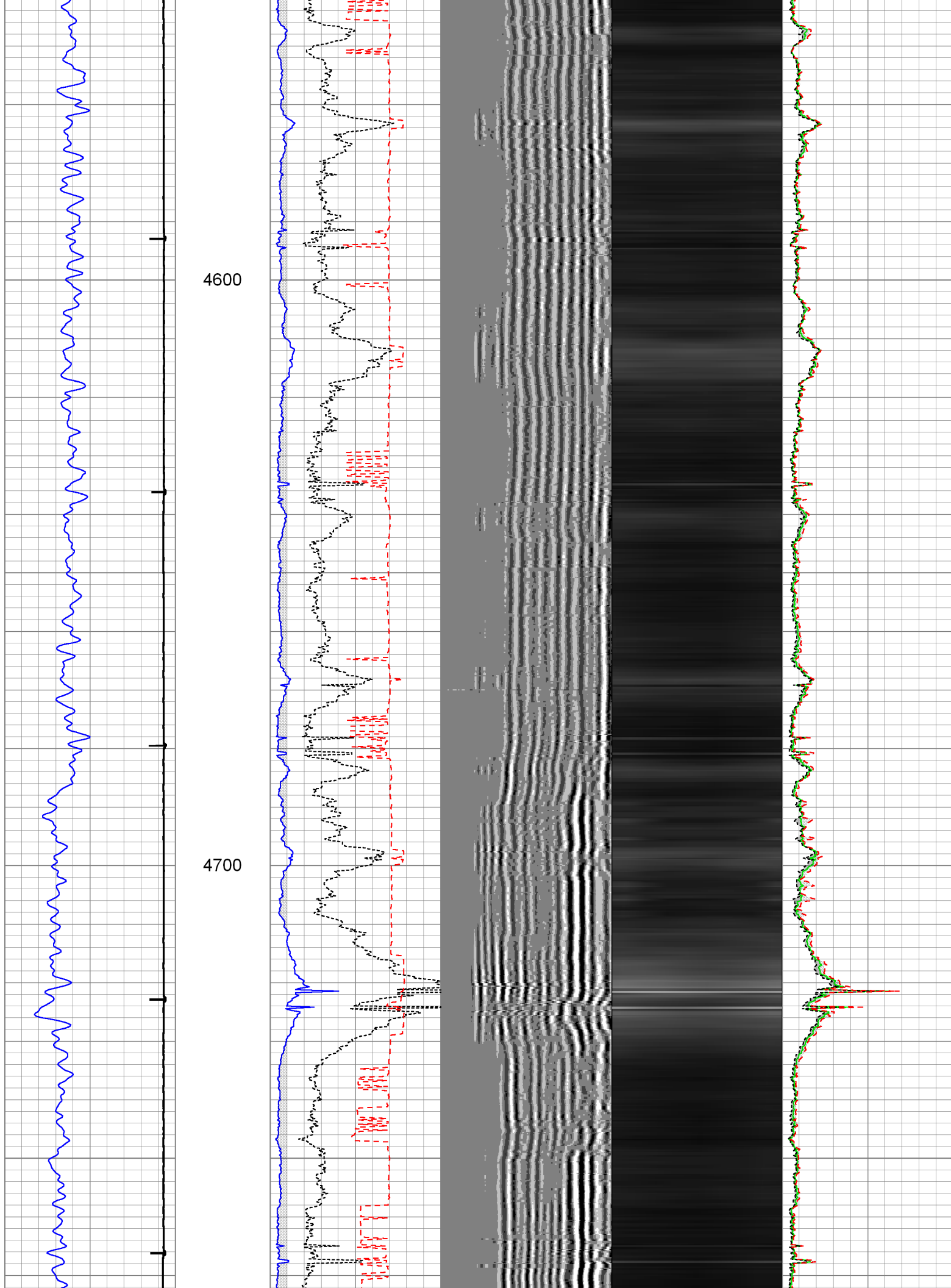


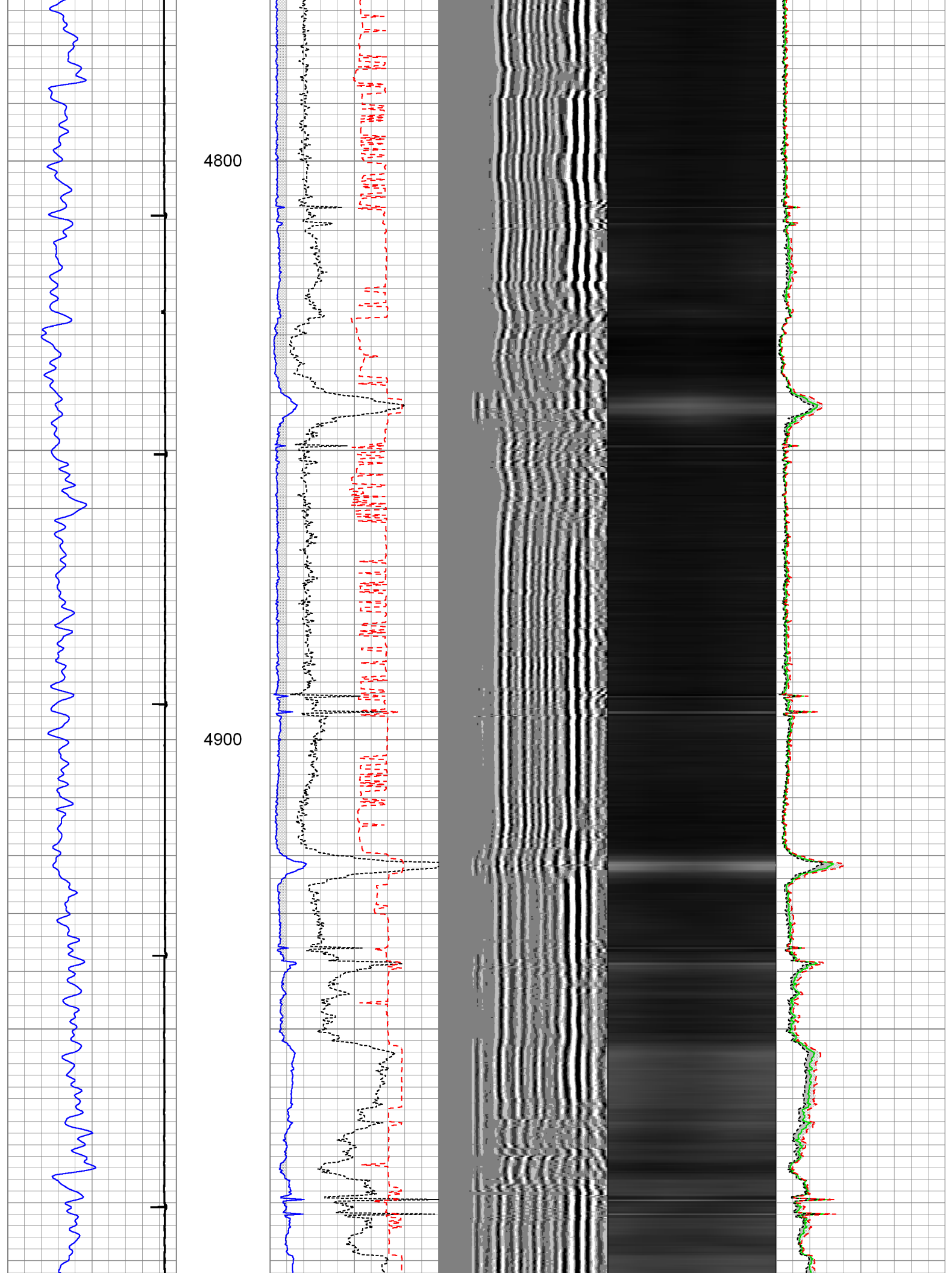




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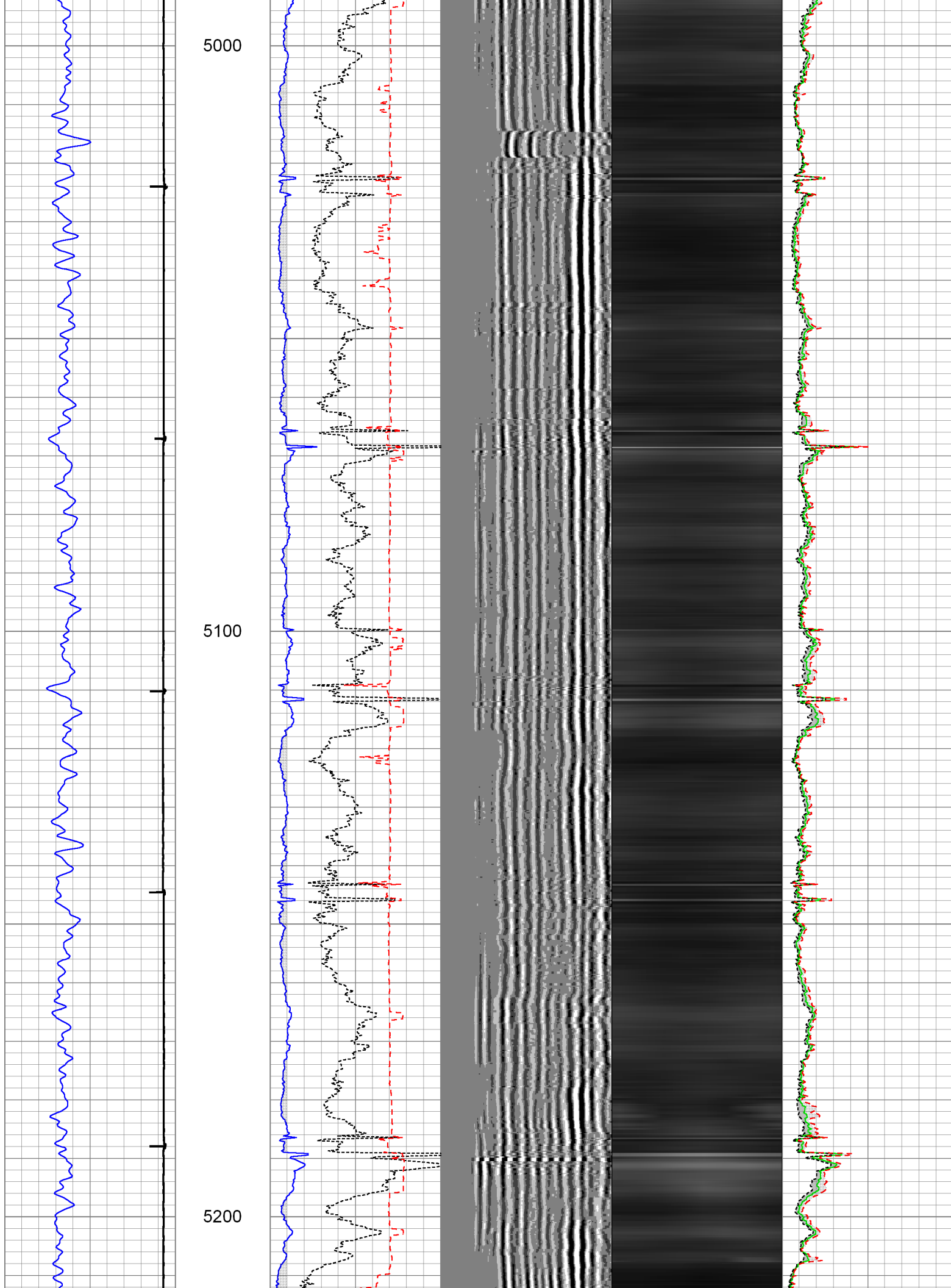


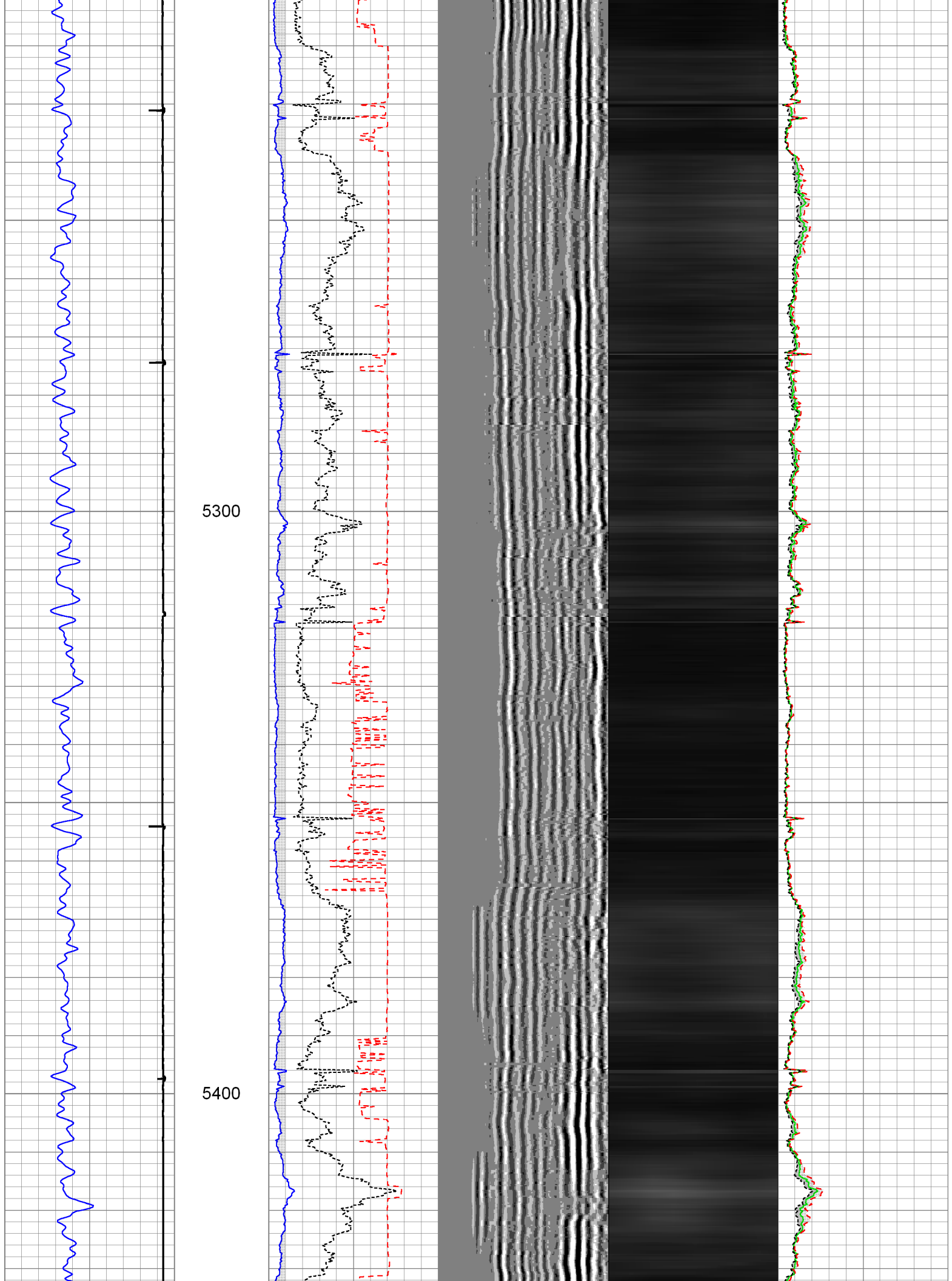


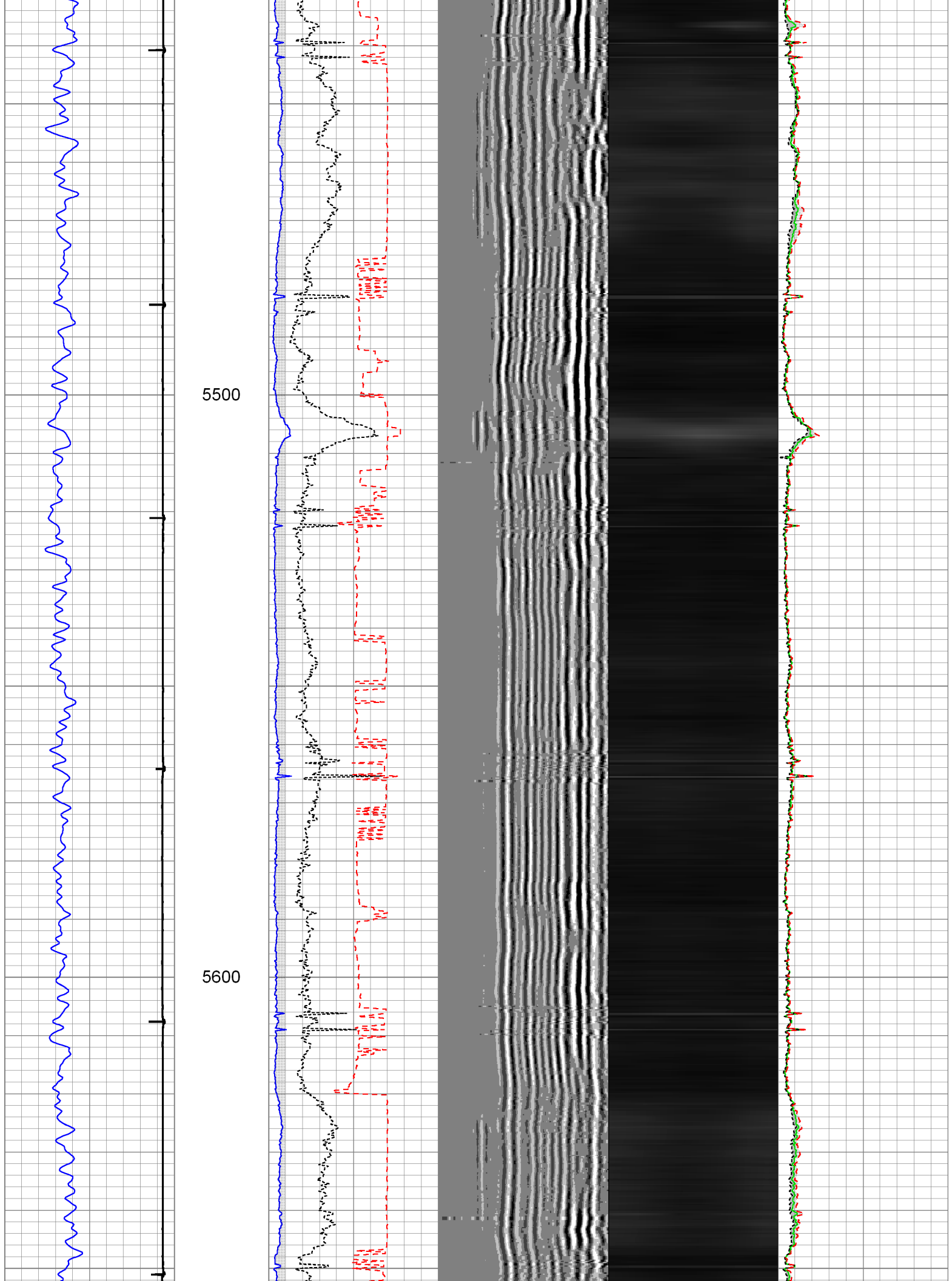
5000

5100

5200

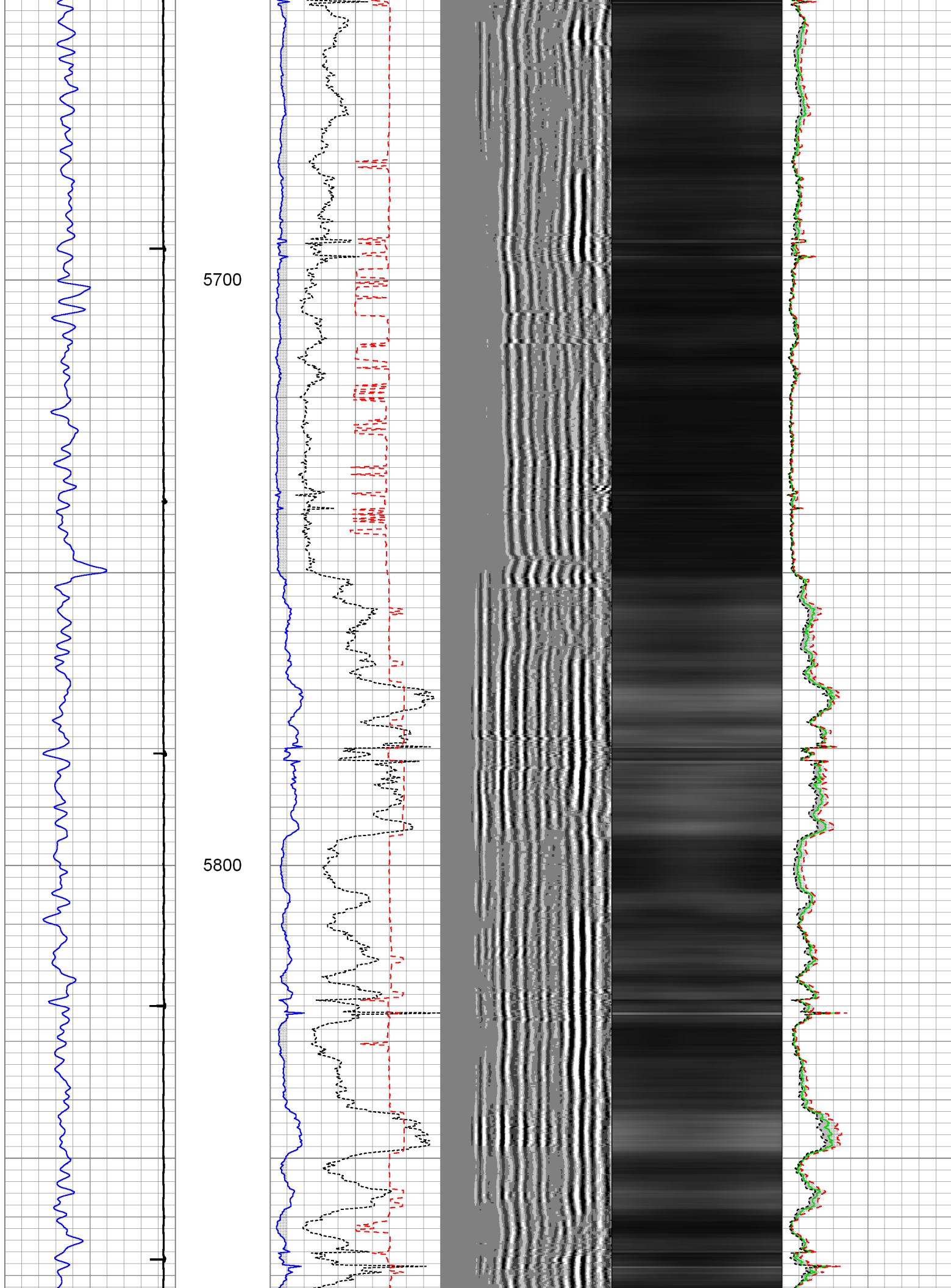


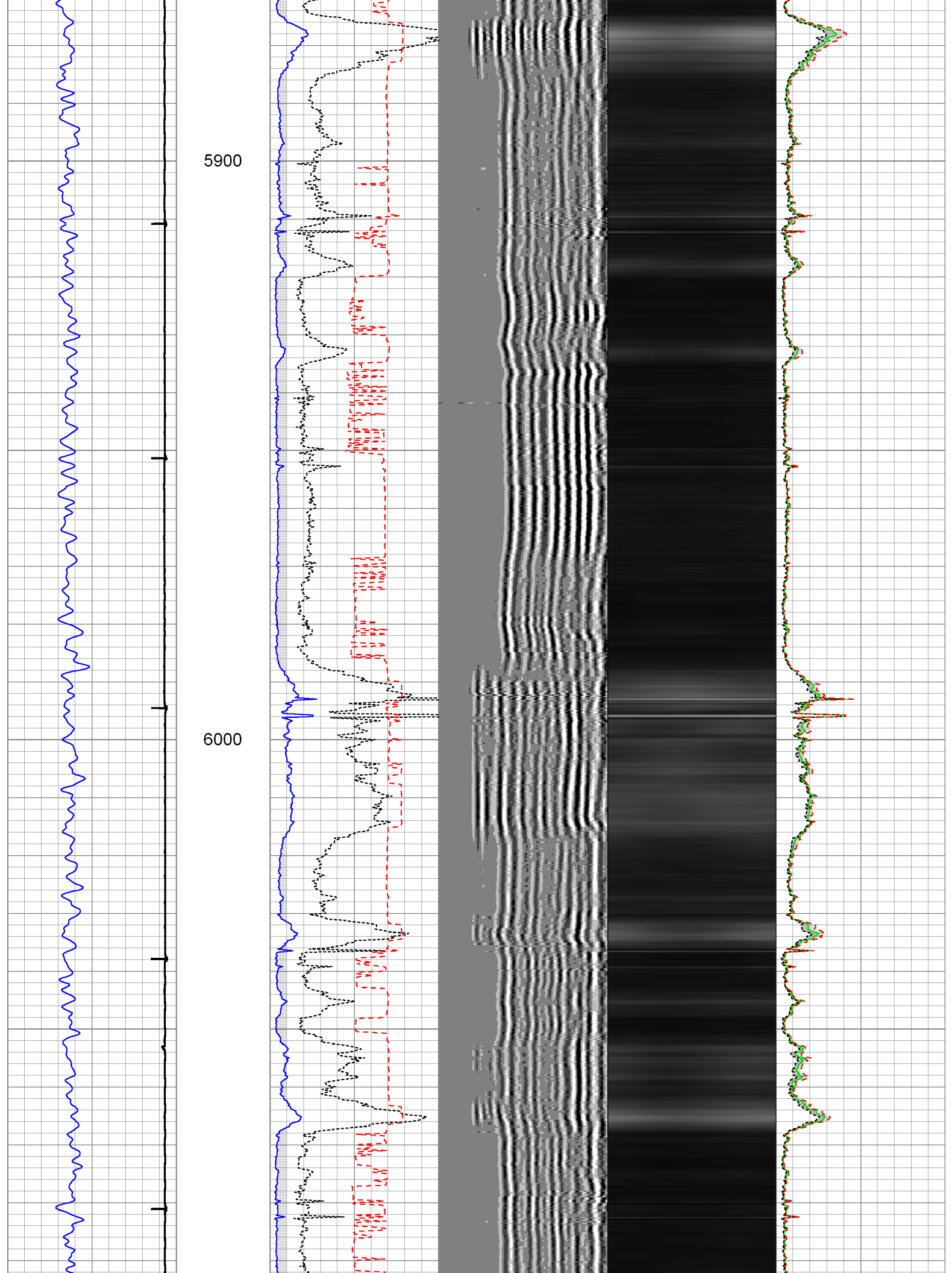




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5800

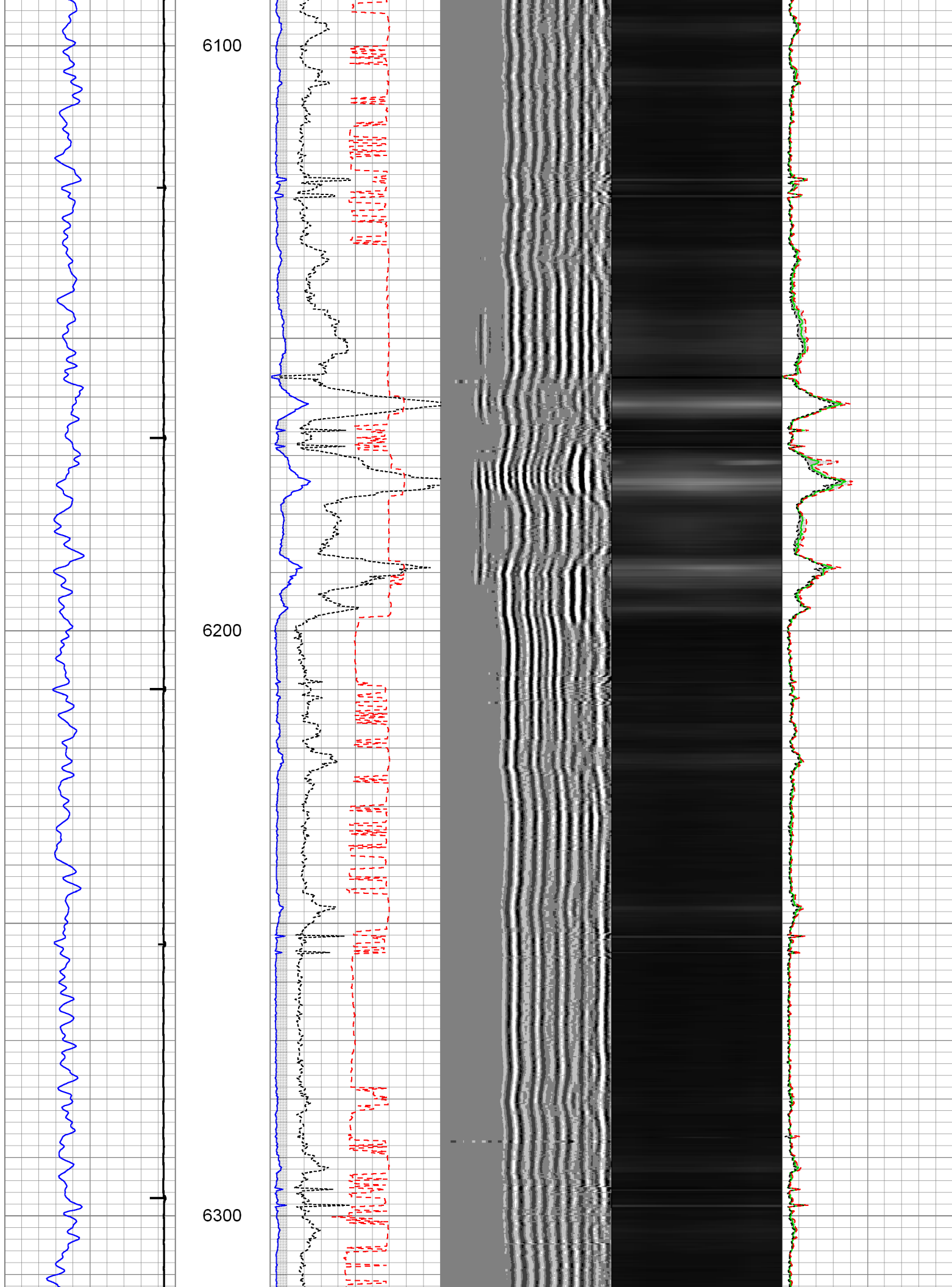


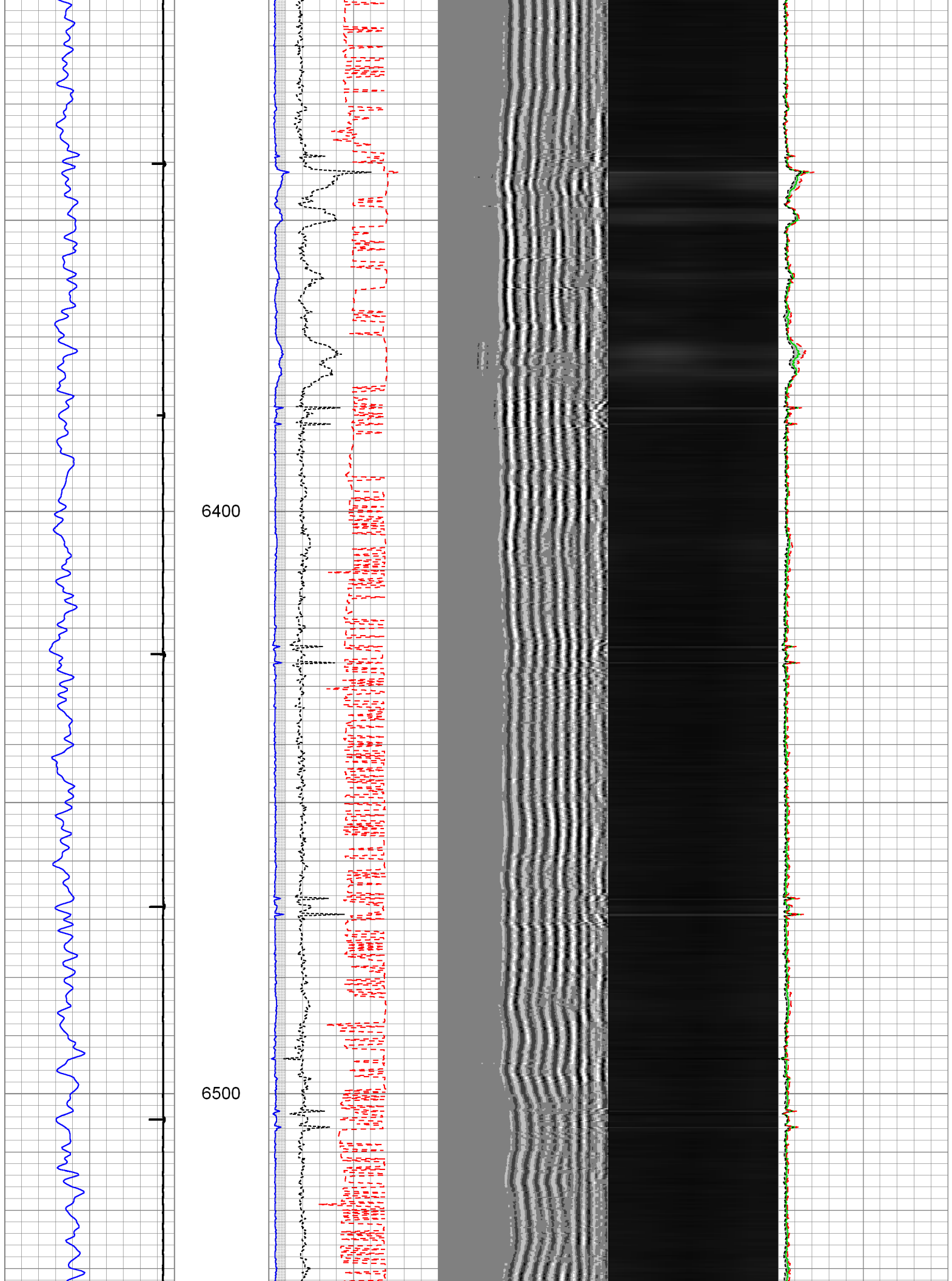


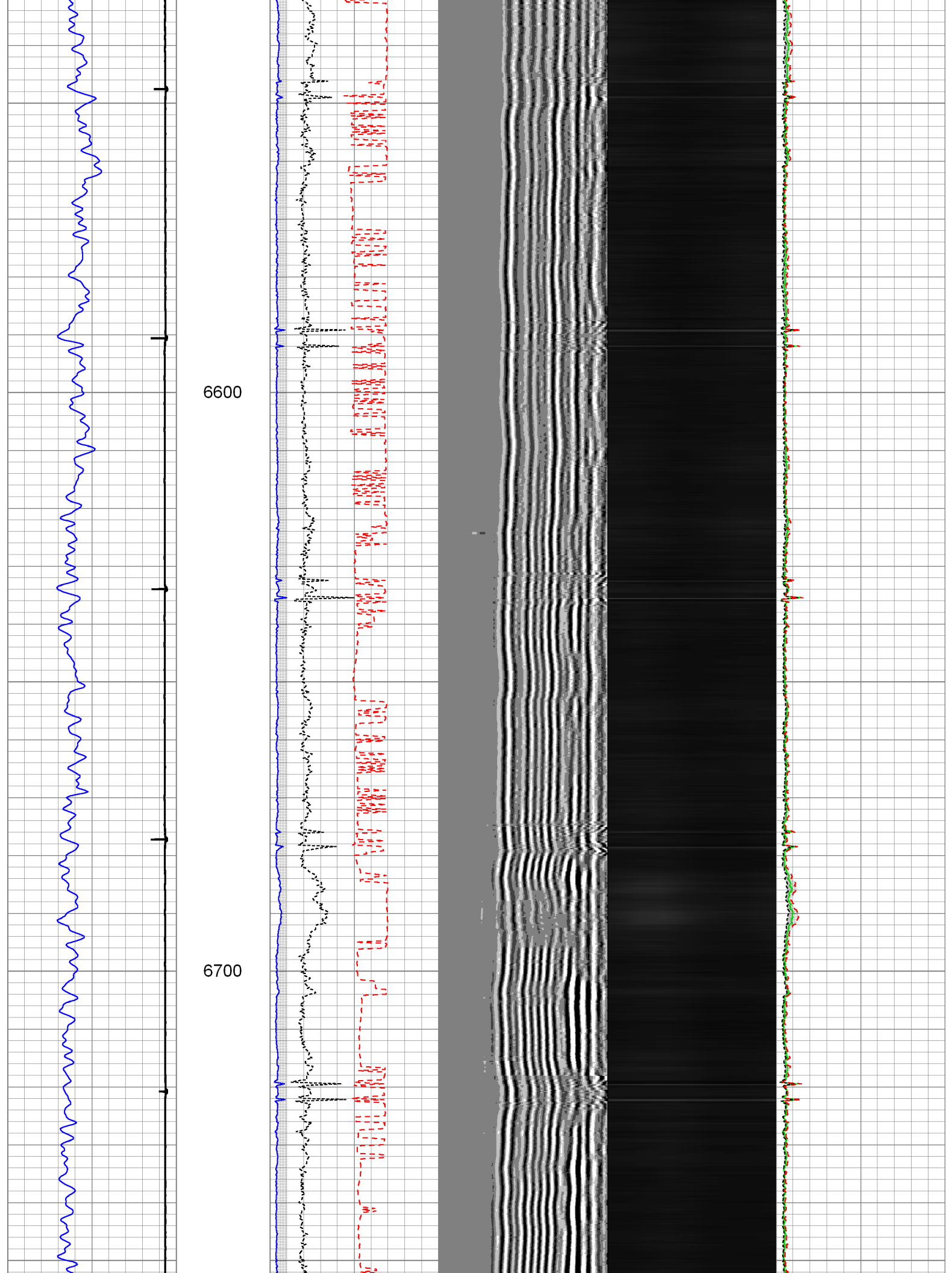
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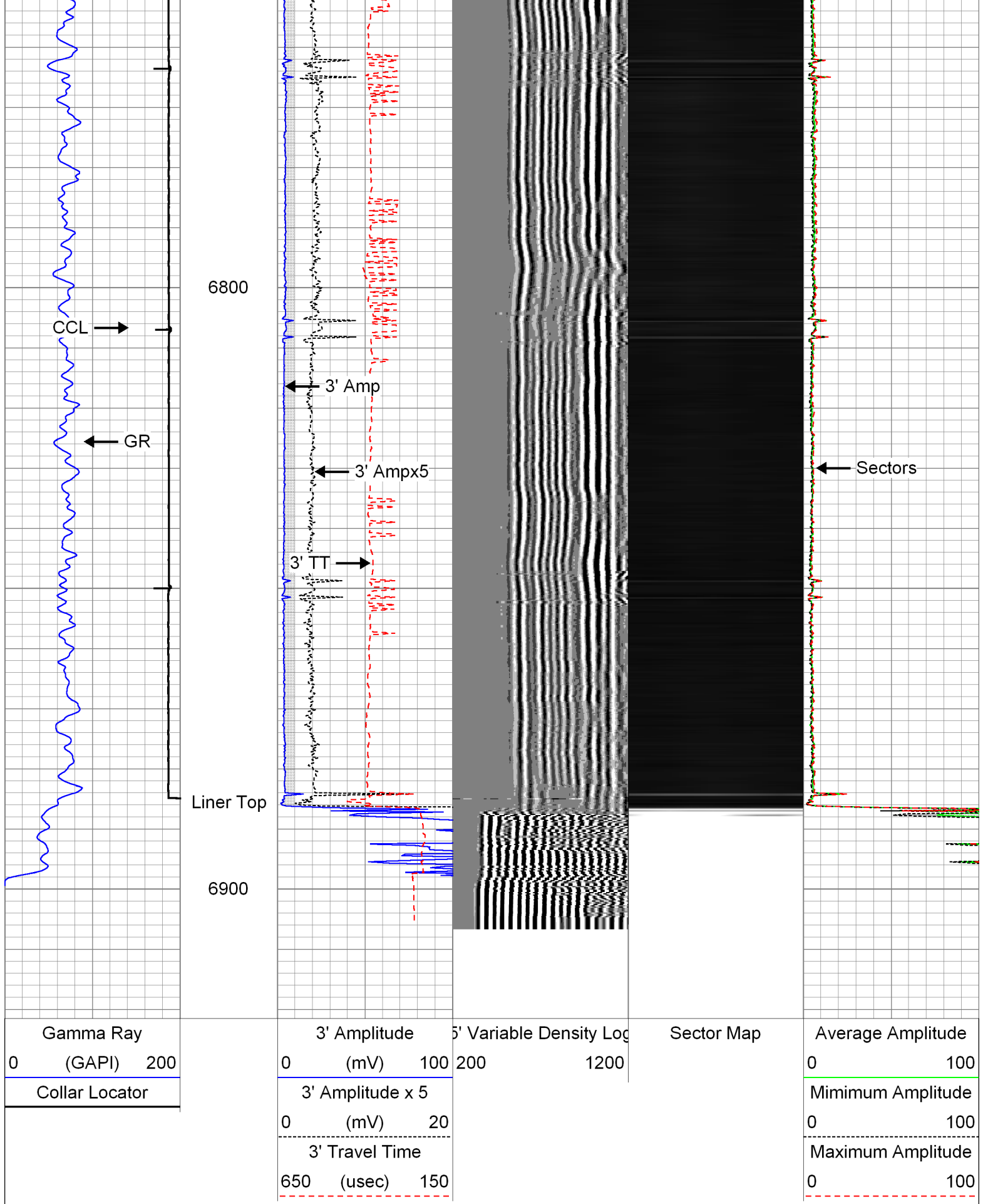
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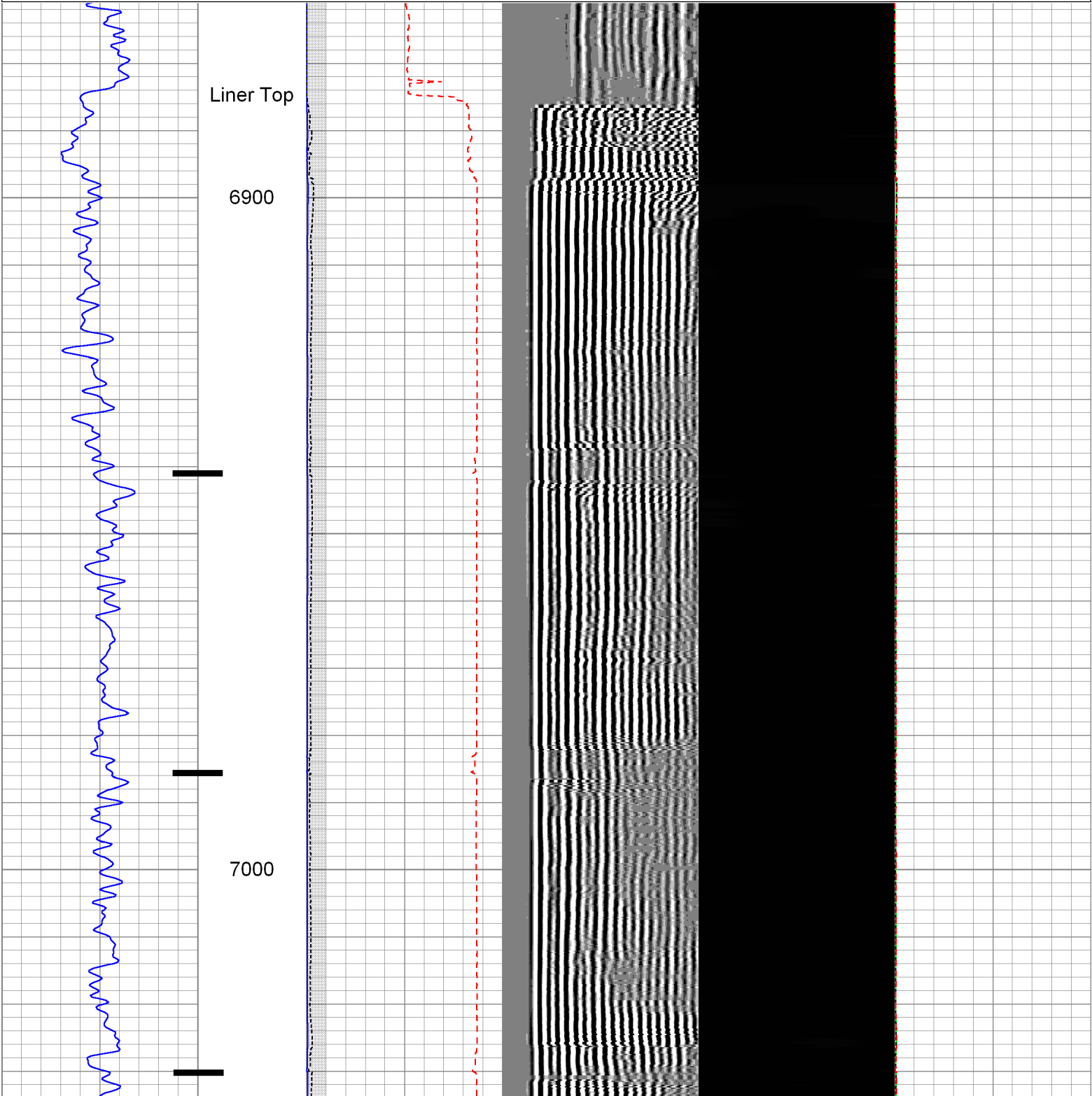


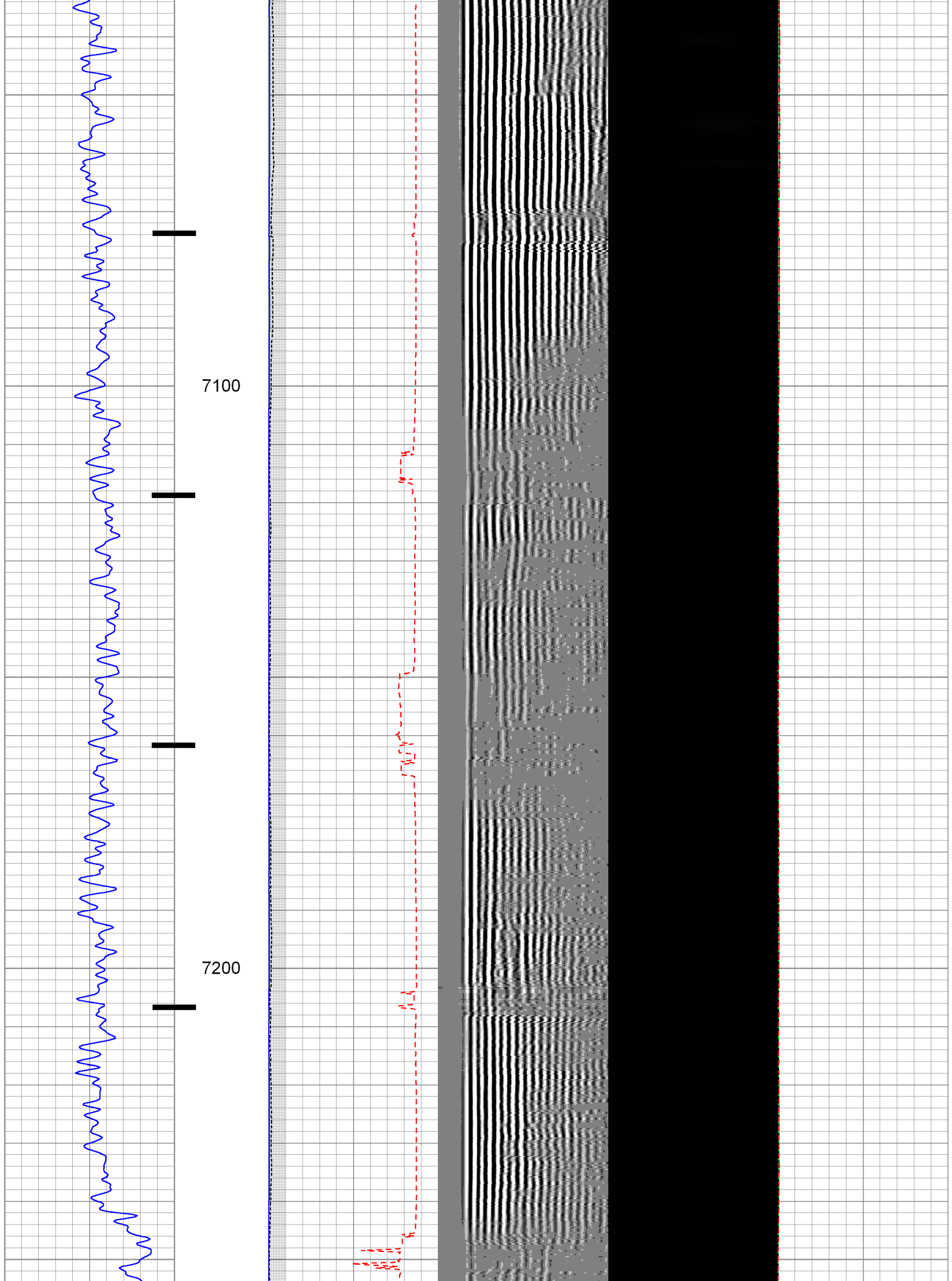


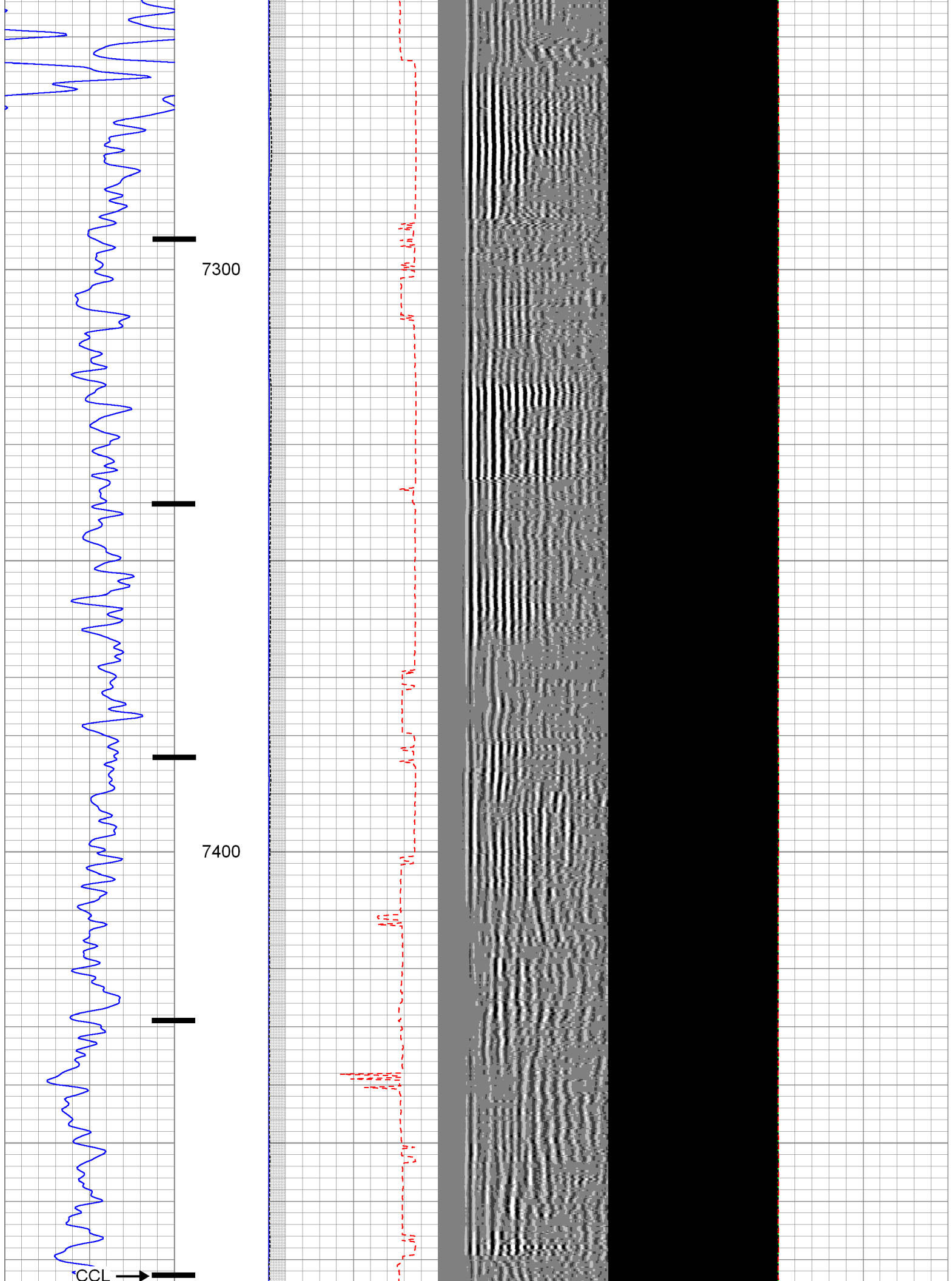


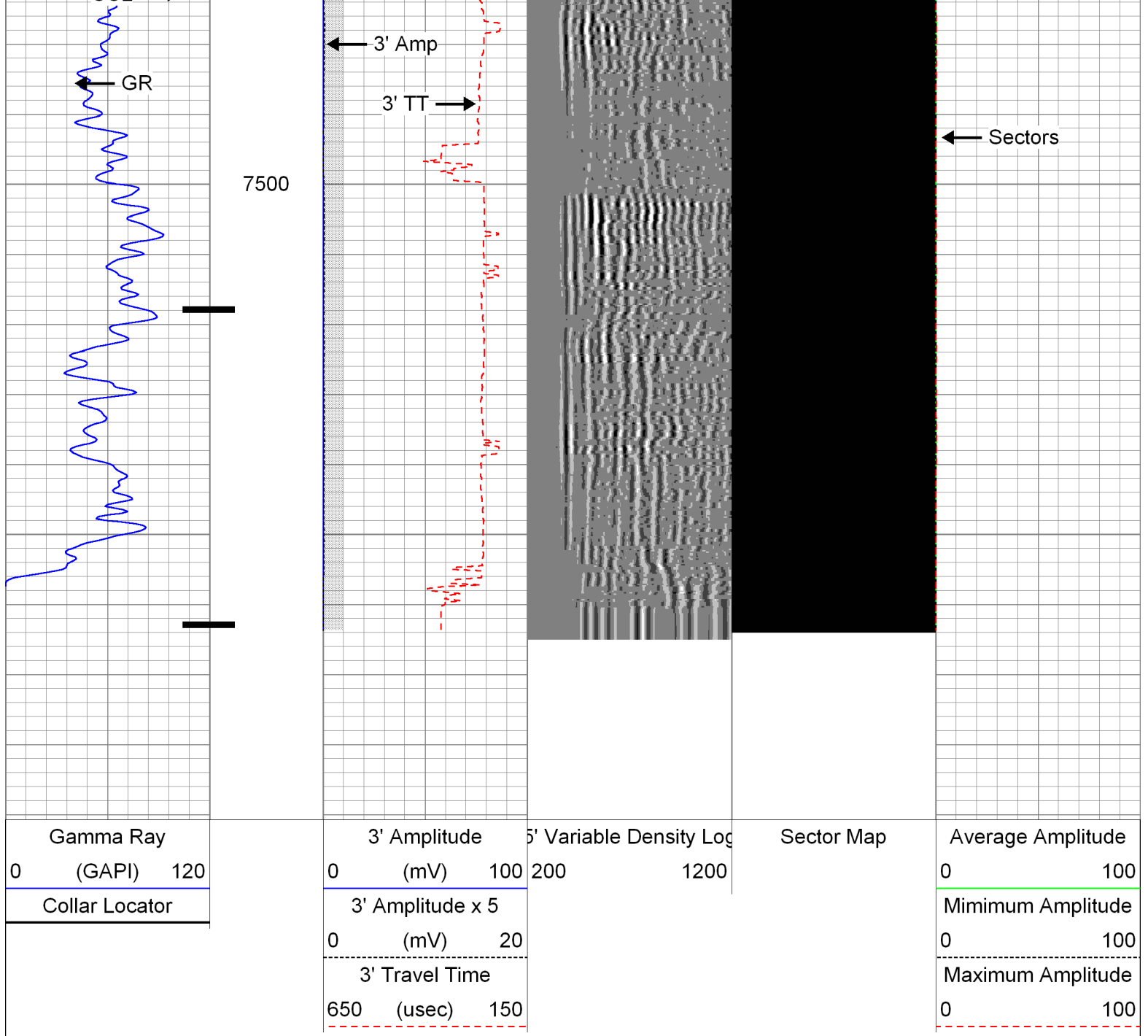


<div> <div>Database File:</div> <div>0512338177_anadarko_lochbuie 30c-13hz_03-10-14_mit_rbl.db</div> </div> <div> <div>Dataset Pathname:</div> <div>pass4</div> </div> <div> <div>Presentation Format:</div> <div>rbt007</div> </div> <div> <div>Dataset Creation:</div> <div>Mon Mar 10 09:17:21 2014 by Log Sondex V7.03</div> </div> <div> <div>Charted by:</div> <div>Depth in Feet scaled 1:240</div> </div>					
<div> <div>Gamma Ray</div> <div>0 (GAPI) 120</div> </div>		<div> <div>3' Amplitude</div> <div>0 (mV) 100</div> </div>		<div> <div>5' Variable Density Log</div> <div>200 1200</div> </div>	
<div> <div>Collar Locator</div> </div>		<div> <div>3' Amplitude x 5</div> <div>0 (mV) 20</div> </div>		<div> <div>Sector Map</div> </div>	
		<div> <div>3' Travel Time</div> <div>650 (usec) 150</div> </div>		<div> <div>Average Amplitude</div> <div>0 100</div> </div>	
				<div> <div>Mimimum Amplitude</div> <div>0 100</div> </div>	
				<div> <div>Maximum Amplitude</div> <div>0 100</div> </div>	



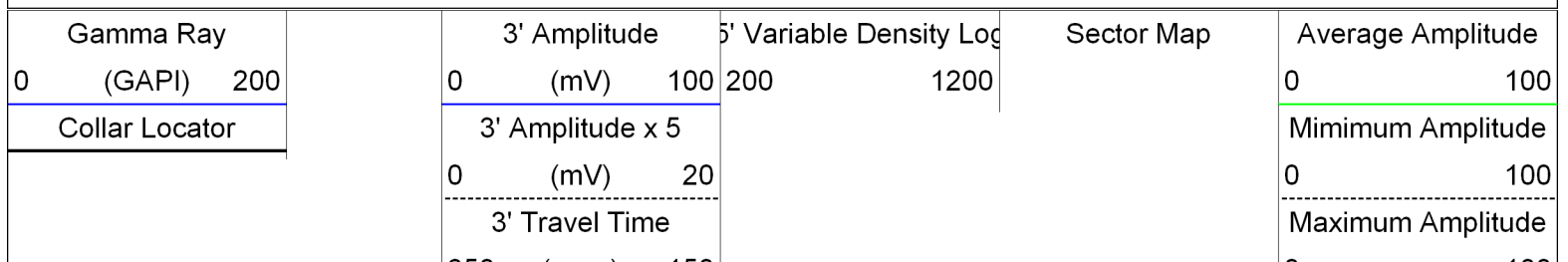


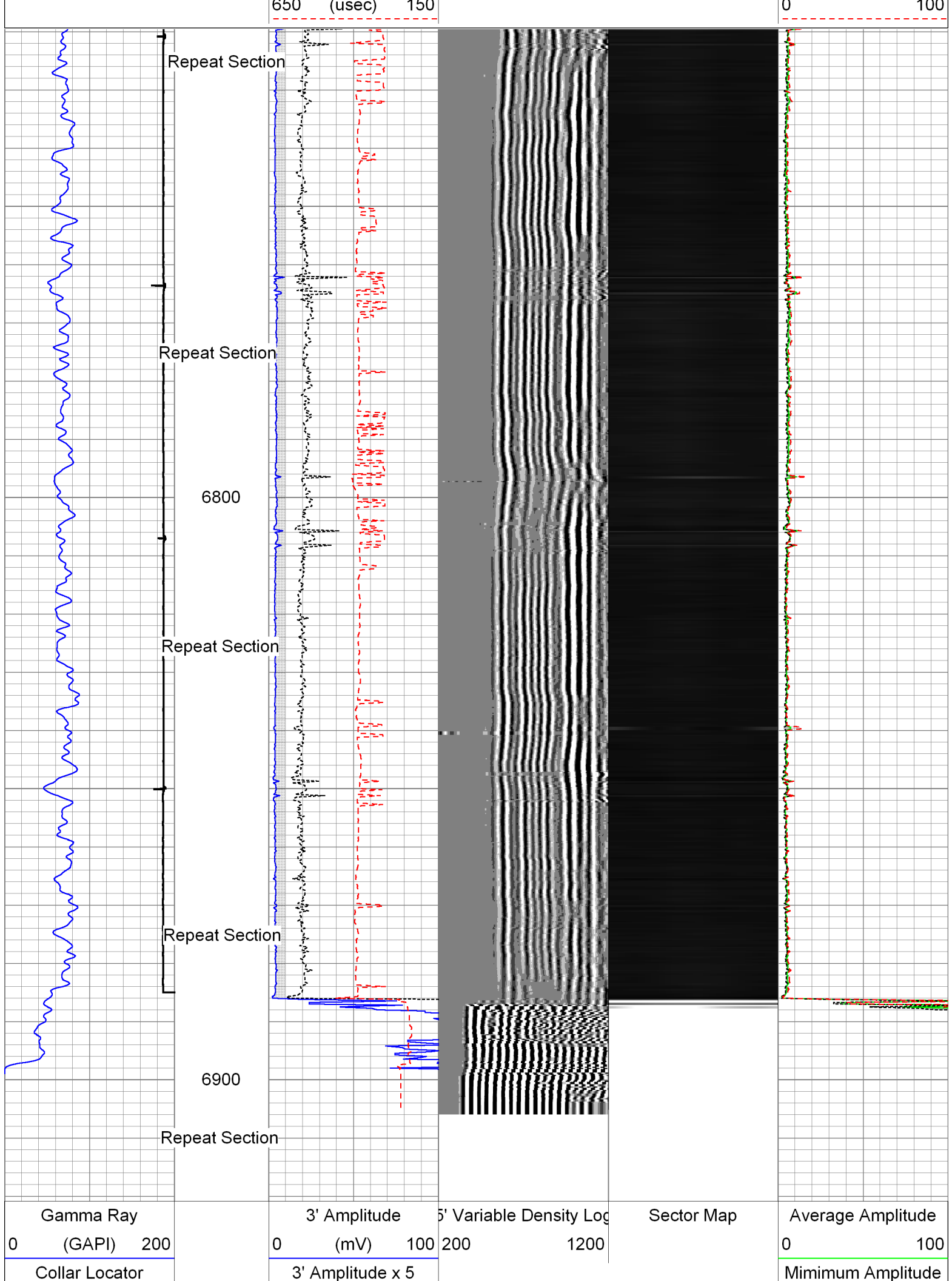




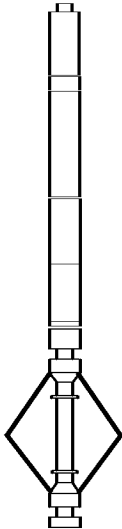
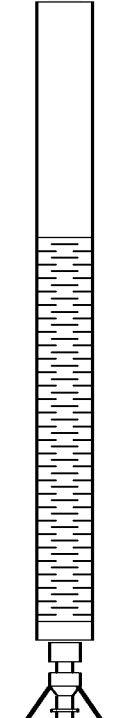
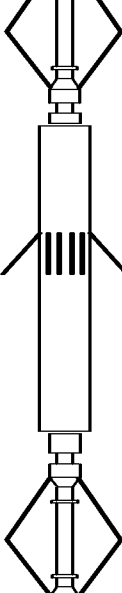
Repeat Pass


Database File: 0512338177_anadarko_lochbuie 30c-13hz_03-10-14_mit_rbl.db
 Dataset Pathname: pass6
 Presentation Format: rbt007
 Dataset Creation: Mon Mar 10 09:44:28 2014 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240





	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	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 (219135) 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 (1037) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVFS3FT	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					
CBLROT	15.85					
WVFS5FT	14.85					
MIT	5.41		PRC-057 (1102) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			MIT-027 (218949) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			PRC-057 (1038) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			RJL 006 (219229)	0.22	1.69	1.20

TSTAMP	0.00		BOL-000 (219229) Bullnose Terminator	0.22	1.09	1.20
Dataset: 0512338177_anadarko_lochbuie 30c-13hz_03-10-14_mit_rbl.db: field/well/run1/pass7 Total Length: 27.97 ft Total Weight: 316.30 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512338177_anadarko_lochbuie 30c-13hz_03-10-14_mit_rbl.db		
Dataset Pathname:	pass7		
Dataset Creation:	Mon Mar 10 09:52:13 2014 by Log Sondex V7.03		
Multi-finger Imaging Tool Calibration Report			
Serial Number:		218949	
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:	Mon Mar 10 09:36:04 2014		
Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1420	254.0	1674	262.0	1936	288.0	2224
Finger 02:	1392	264.0	1656	268.0	1924	293.0	2217
Finger 03:	1373	263.0	1636	274.0	1910	300.0	2210
Finger 04:	1347	262.0	1609	281.0	1890	305.0	2195
Finger 05:	1363	263.0	1626	284.0	1910	305.0	2215
Finger 06:	1362	261.0	1623	281.0	1904	302.0	2206
Finger 07:	1409	249.0	1658	277.0	1935	289.0	2224
Finger 08:	1375	263.0	1638	291.0	1929	305.0	2234
Finger 09:	1443	246.0	1689	274.0	1963	286.0	2249
Finger 10:	1410	253.0	1663	291.0	1954	290.0	2244
Finger 11:	1433	255.0	1688	289.0	1977	289.0	2266
Finger 12:	1447	259.0	1706	288.0	1994	288.0	2282
Finger 13:	1461	241.0	1702	276.0	1978	276.0	2254
Finger 14:	1409	268.0	1677	300.0	1977	295.0	2272
Finger 15:	1410	270.0	1680	299.0	1979	292.0	2271
Finger 16:	1379	278.0	1657	304.0	1961	298.0	2259
Finger 17:	1434	260.0	1694	282.0	1976	273.0	2249
Finger 18:	1445	271.0	1716	295.0	2011	287.0	2298
Finger 19:	1415	280.0	1695	300.0	1995	289.0	2284
Finger 20:	1428	275.0	1703	288.0	1991	275.0	2266
Finger 21:	1394	288.0	1682	303.0	1985	295.0	2280
Finger 22:	1411	278.0	1689	289.0	1978	284.0	2262
Finger 23:	1466	265.0	1731	267.0	1998	260.0	2258
Finger 24:	1389	292.0	1681	292.0	1973	293.0	2266
Finger 25:	1418	281.0	1699	281.0	1980	282.0	2262
Finger 26:	1379	299.0	1678	296.0	1974	297.0	2271
Finger 27:	1424	283.0	1707	276.0	1983	280.0	2263

Finger 28:	1431	279.0	1710	266.0	1976	274.0	2250
Finger 29:	1413	291.0	1704	280.0	1984	283.0	2267
Finger 30:	1128	293.0	1421	292.0	1713	316.0	2029
Finger 31:	1358	268.0	1626	254.0	1880	272.0	2152
Finger 32:	1357	295.0	1652	285.0	1937	301.0	2238
Finger 33:	1299	308.0	1607	303.0	1910	327.0	2237
Finger 34:	1434	271.0	1705	249.0	1954	266.0	2220
Finger 35:	1411	275.0	1686	260.0	1946	290.0	2236
Finger 36:	1401	279.0	1680	266.0	1946	293.0	2239
Finger 37:	1408	266.0	1674	261.0	1935	290.0	2225
Finger 38:	1369	270.0	1639	268.0	1907	301.0	2208
Finger 39:	1365	273.0	1638	273.0	1911	303.0	2214
Finger 40:	1399	263.0	1662	266.0	1928	292.0	2220

Segmented Cement Bond Log Calibration Report

Serial Number:	10012639in7
Tool Model:	004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	150.586 ft

Master Calibration, performed Mon Mar 10 09:46:07 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.000	0.732	0.800	62.165	83.776	0.803
5FT	-0.005	0.871	0.800	62.165	70.080	1.142
S1	0.000	0.769	0.000	100.000	130.051	-0.014
S2	-0.001	0.686	0.000	100.000	145.672	0.091
S3	0.000	0.651	0.000	100.000	153.564	0.000
S4	-0.001	0.663	0.000	100.000	150.544	0.197
S5	0.000	0.717	0.000	100.000	139.607	-0.048
S6	0.001	0.780	0.000	100.000	128.303	-0.105
S7	-0.000	0.824	0.000	100.000	121.272	0.018
S8	-0.001	0.825	0.000	100.000	121.107	0.062

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	Lochbuie 30C-13HZ
Field	Wattenberg
County	Weld
State	Colorado