



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Aggregate State 36N-16HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-38678			
Permanent Datum				SHL: 2389 FSL 2140 FWL			
Log Measured From				Lat/Long: 40.151923/-104.784037			
Drilling Measured From				SEC 9 TWP 2N RGE 66W			
Ground Level				Elevation 4912'			
Kelly Bushing				16 FT			
Kelly Bushing				K.B. 4928'			
				D.F. 4927'			
				G.L. 4912'			
Elevation							
Date				26-MAR-2014			
Run Number				Three			
Depth Driller				14,683 FT			
Depth Logger				Not Tagged			
Bottom Logged Interval				6690 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				650 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 1035 FT			
Intermediate #1				7" 26# P-110 Surface 7620 FT			
Intermediate #2							
Liner				4-1/2" 11.6# P-110 6665 FT 14,668 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 @ 6665 FT  
RCBL-CIL ran at 2000 PSI surface induced pressure.  
Estimated Cement Top recorded at 650 FT

Thank you for choosing FMC Technologies Completion Services, Inc.

Main Pass



Recorded with 2000 PSI Surface Induced Pressure

Database File: 0512338678\_anadarko\_aggergate state 36n-16hz\_03-26-14\_mit\_rbl.db

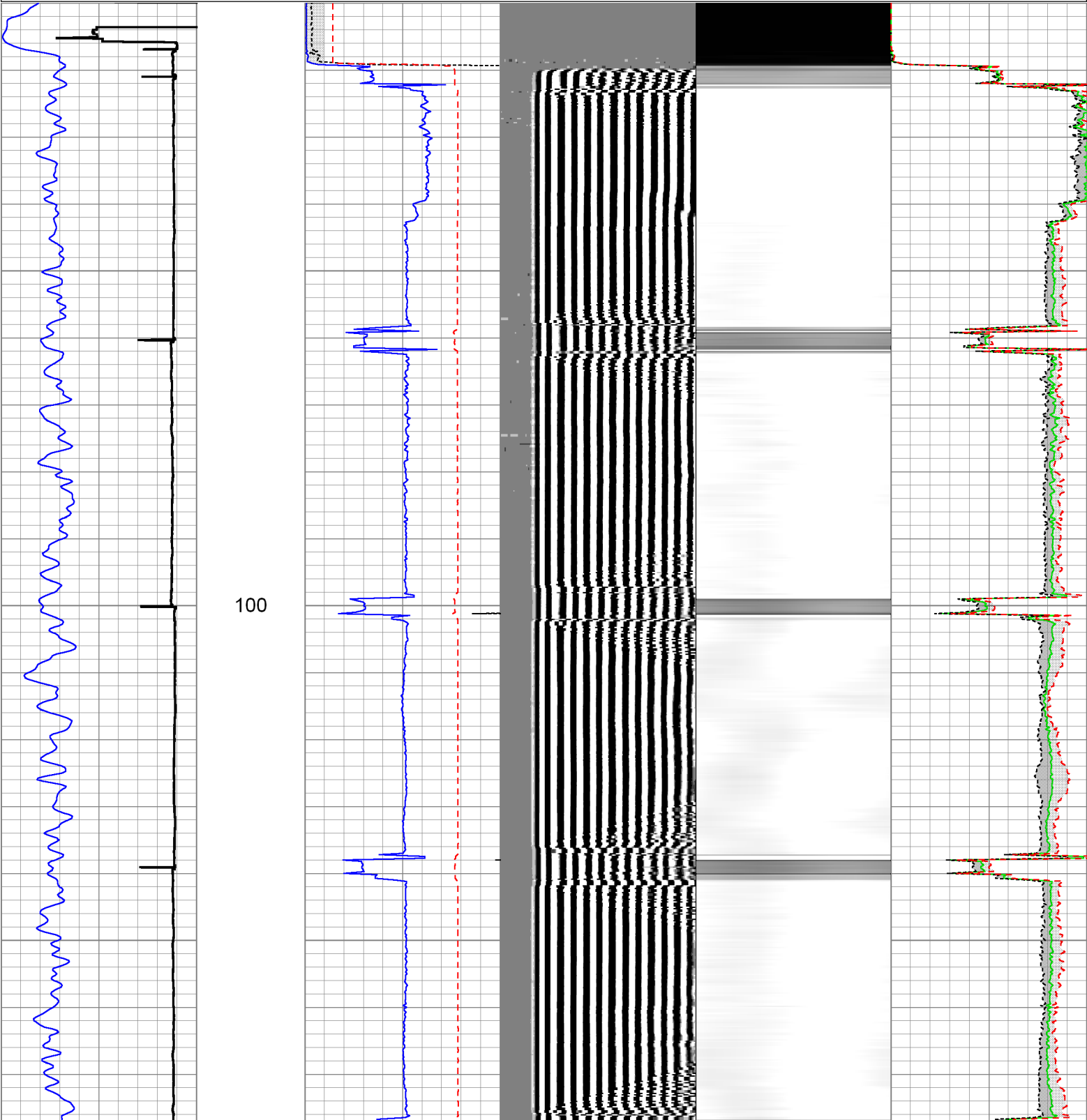
Dataset Pathname: pass3

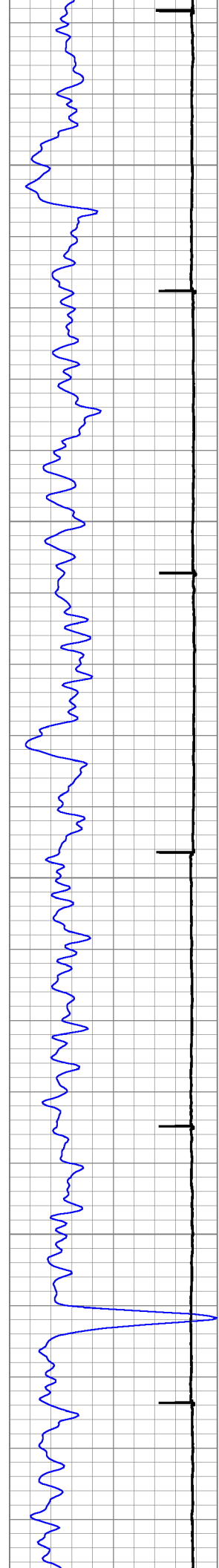
Presentation Format: rbt007

Dataset Creation: Wed Mar 26 11:54:40 2014 by Log Sondex V7.03

Charted by: Depth in Feet scaled 1:240

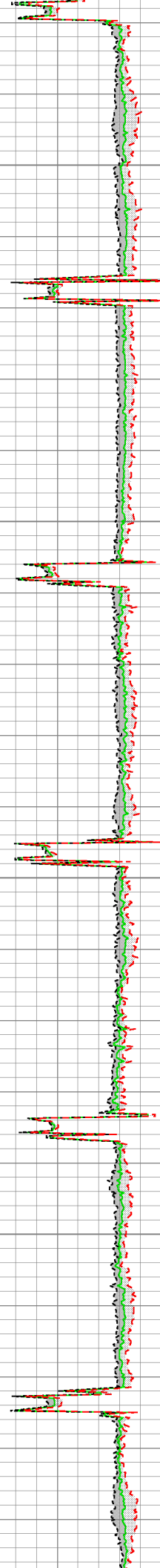
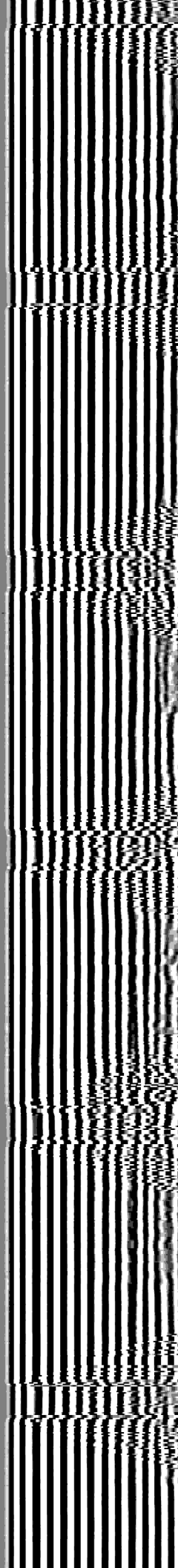
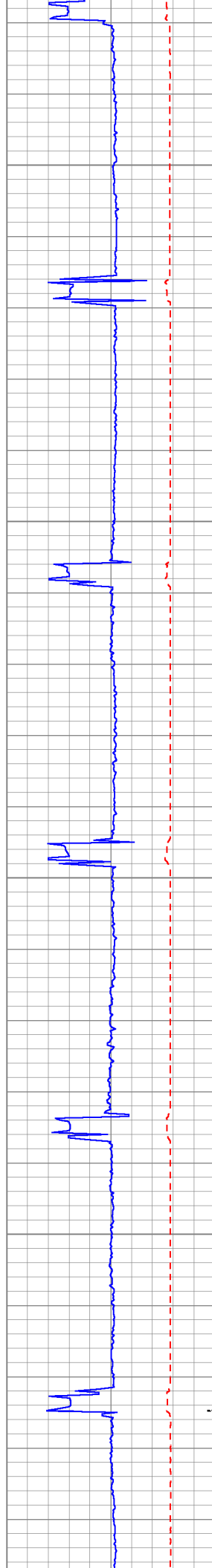
Gamma Ray		3' Amplitude		5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI) 120	0	(mV) 100	200	1200			0	100
Collar Locator		3' Amplitude x 5						Minimum Amplitude	
		0	(mV) 20					0	100
		3' Travel Time						Maximum Amplitude	
		650	(usec) 150					0	100

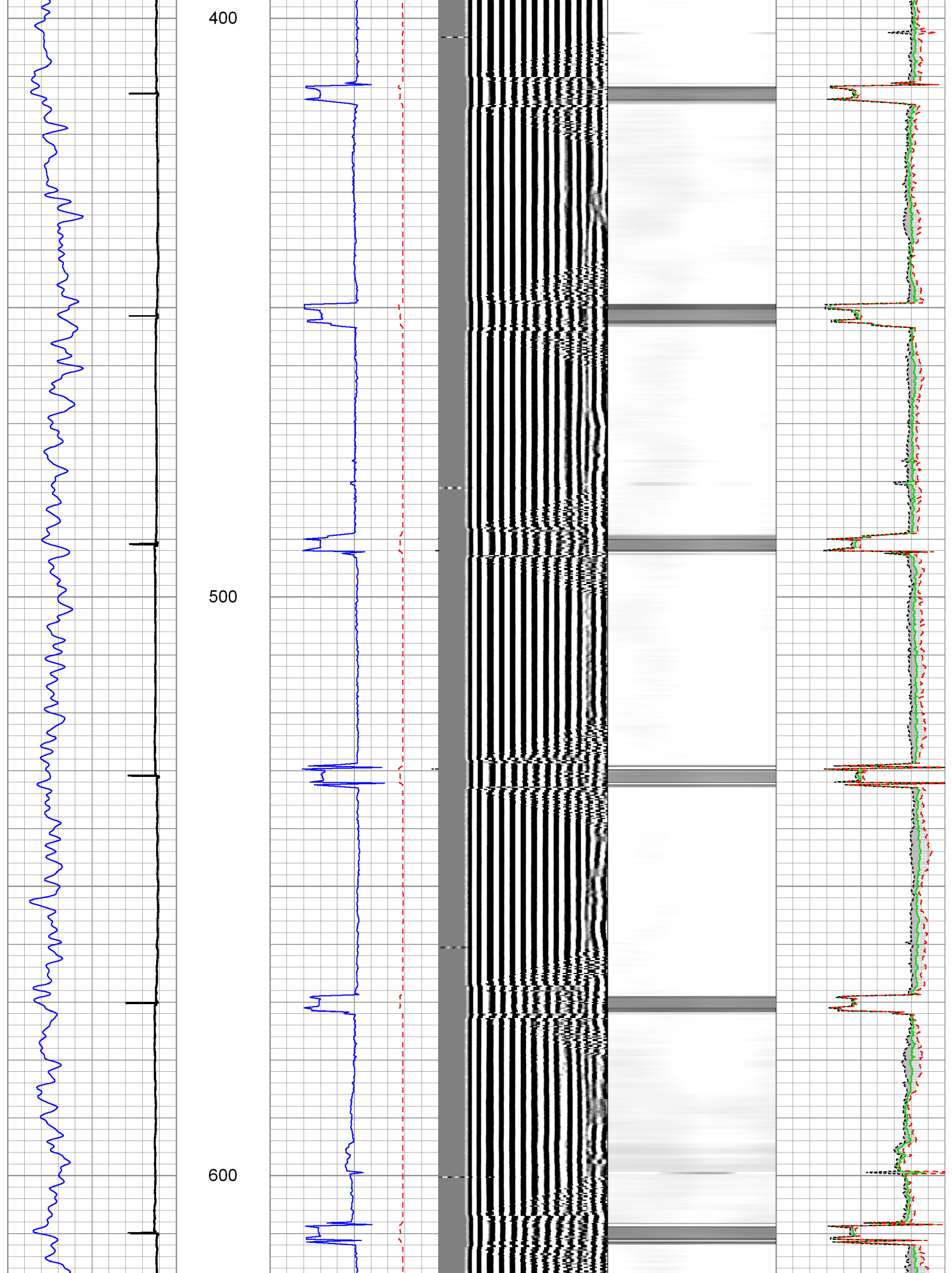




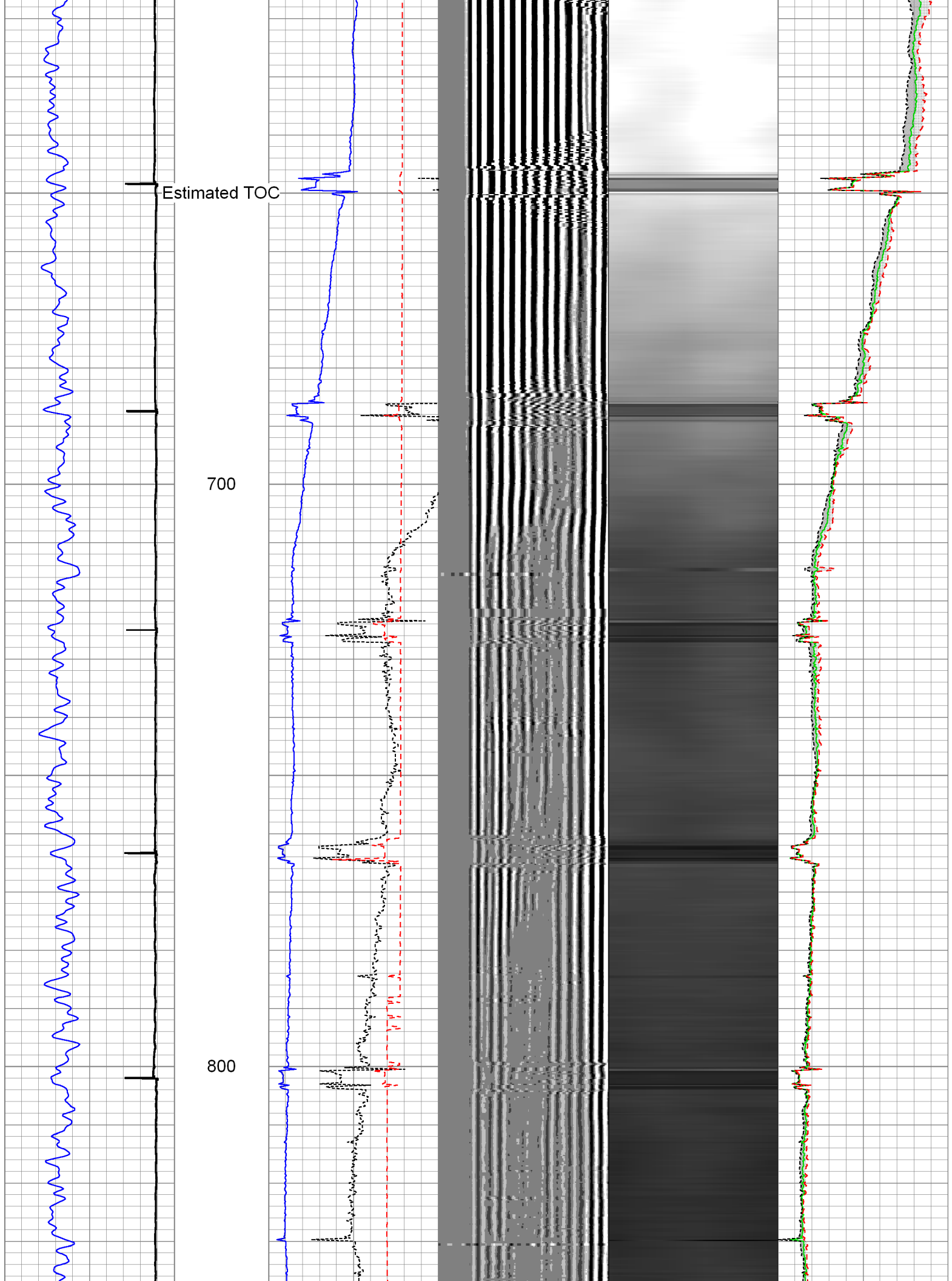
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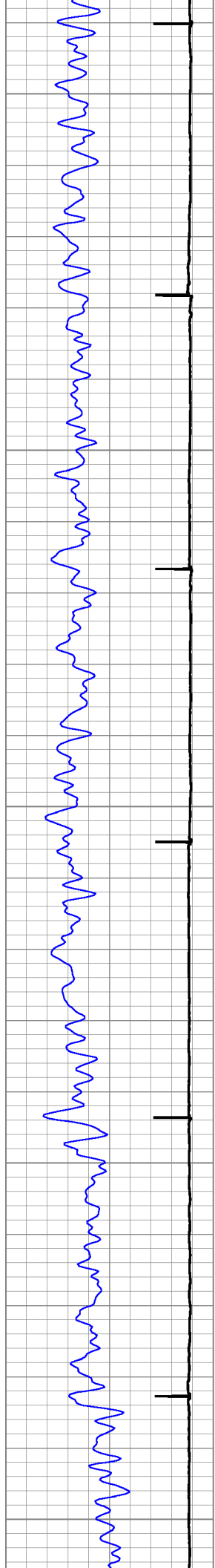
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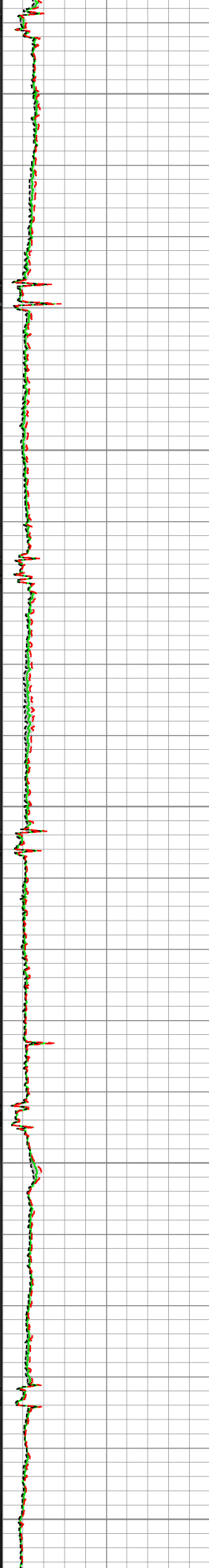
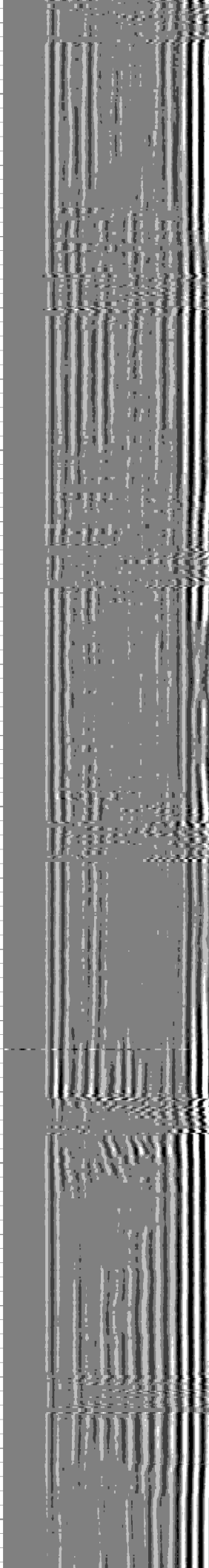
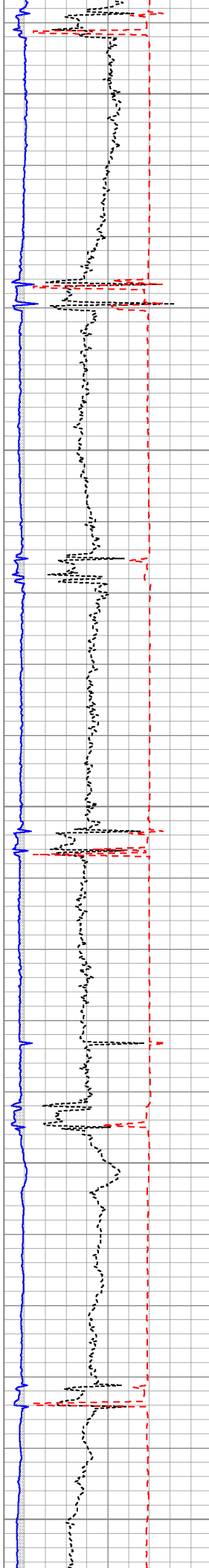


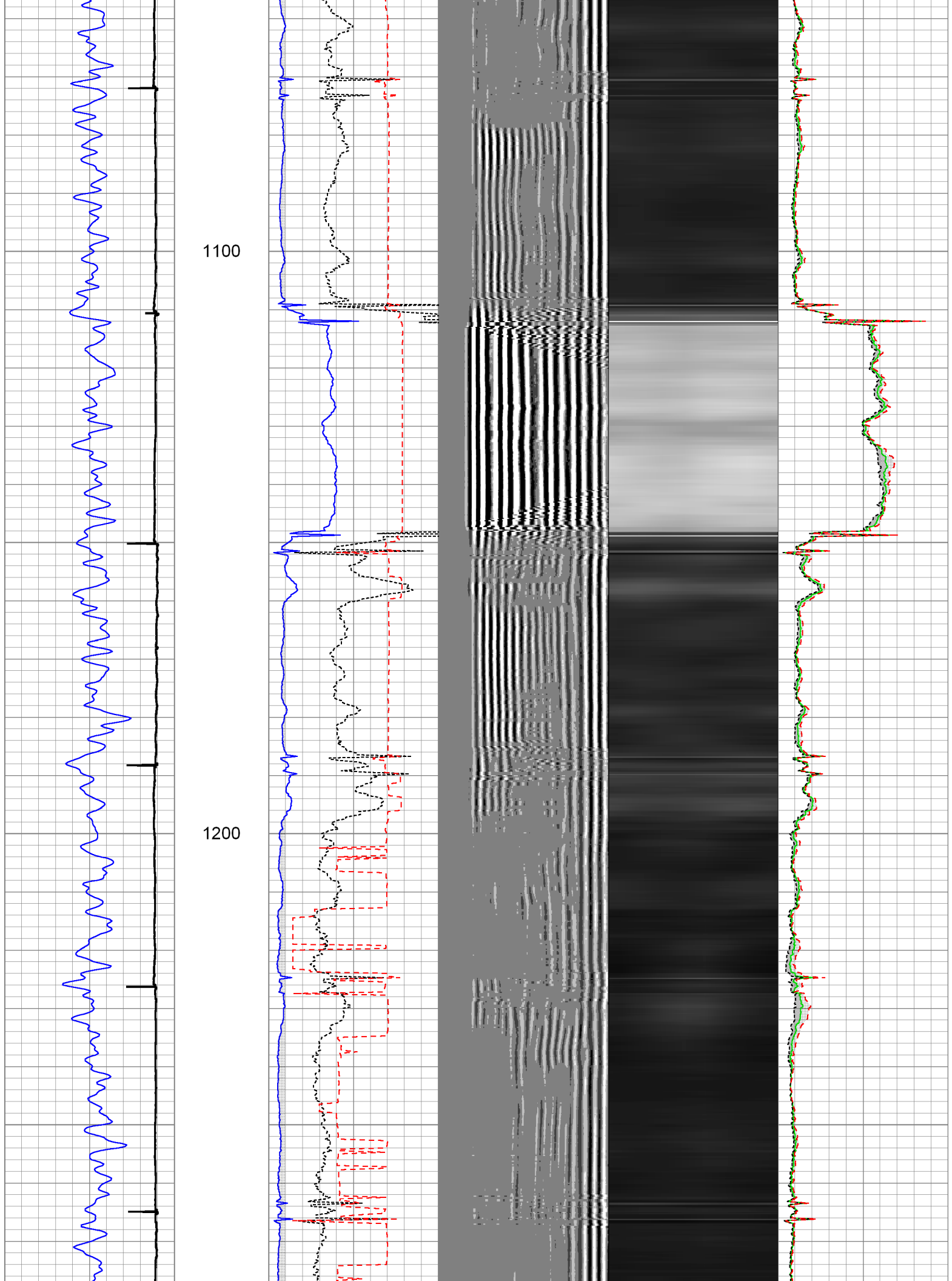


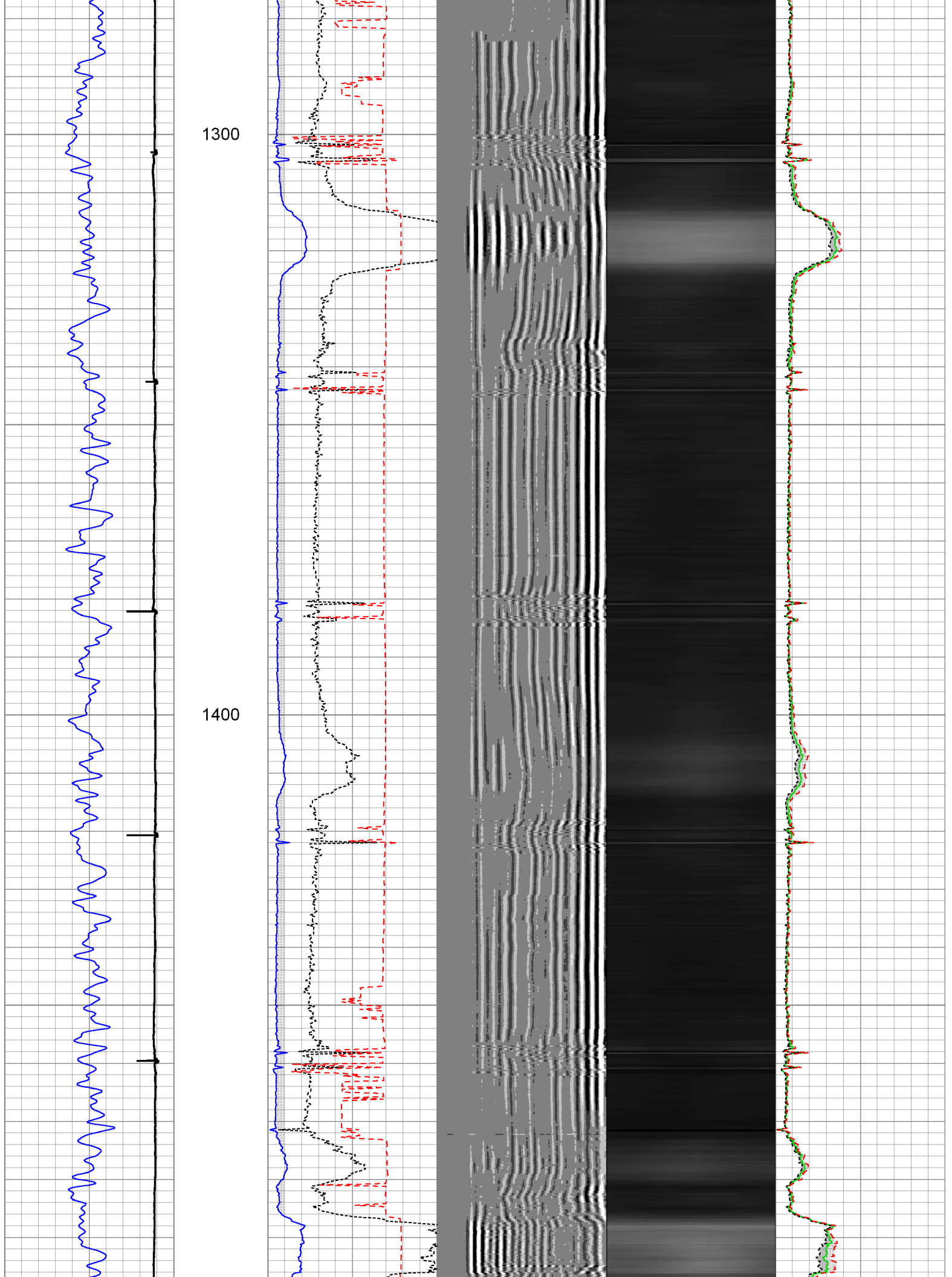


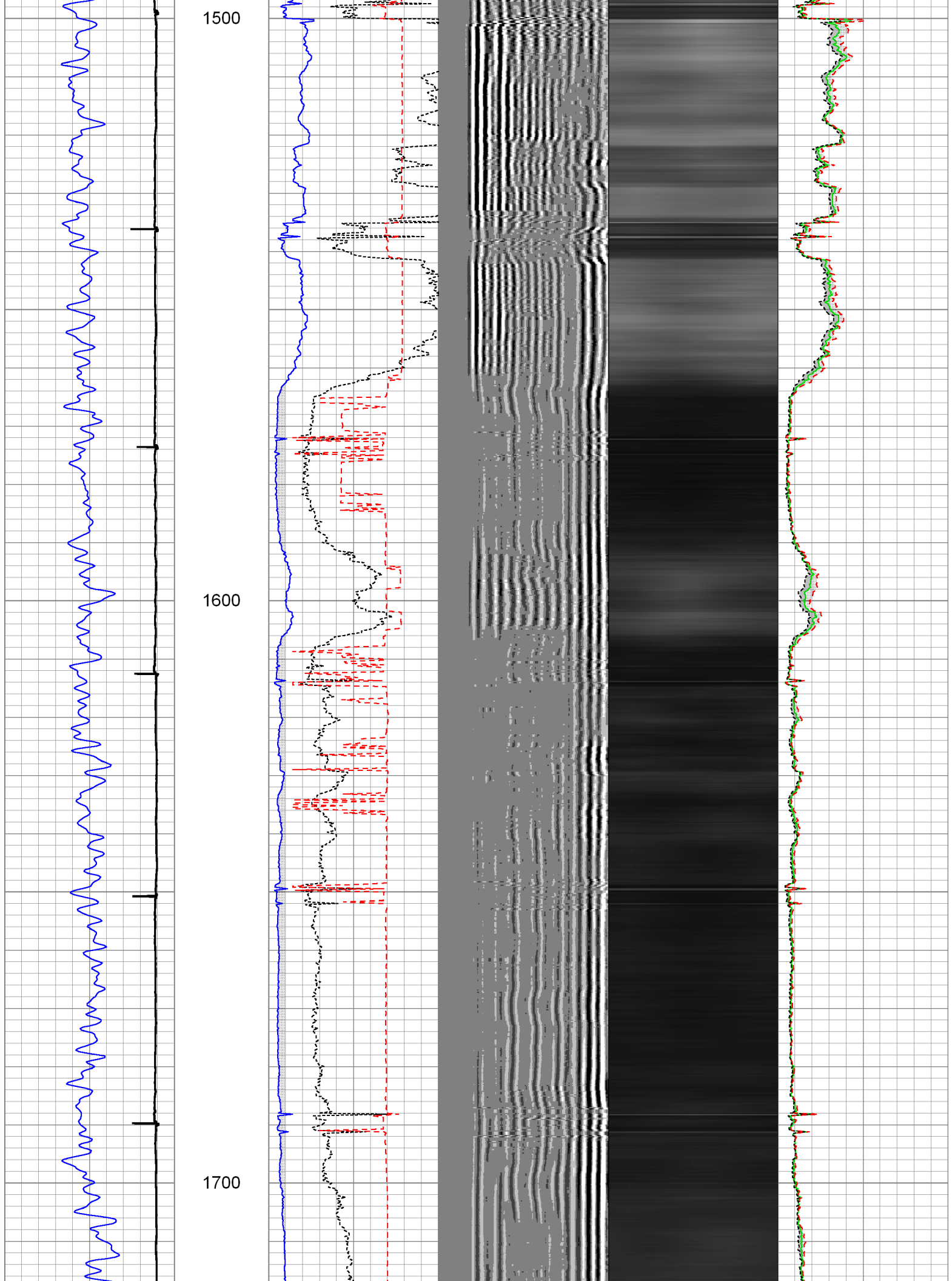
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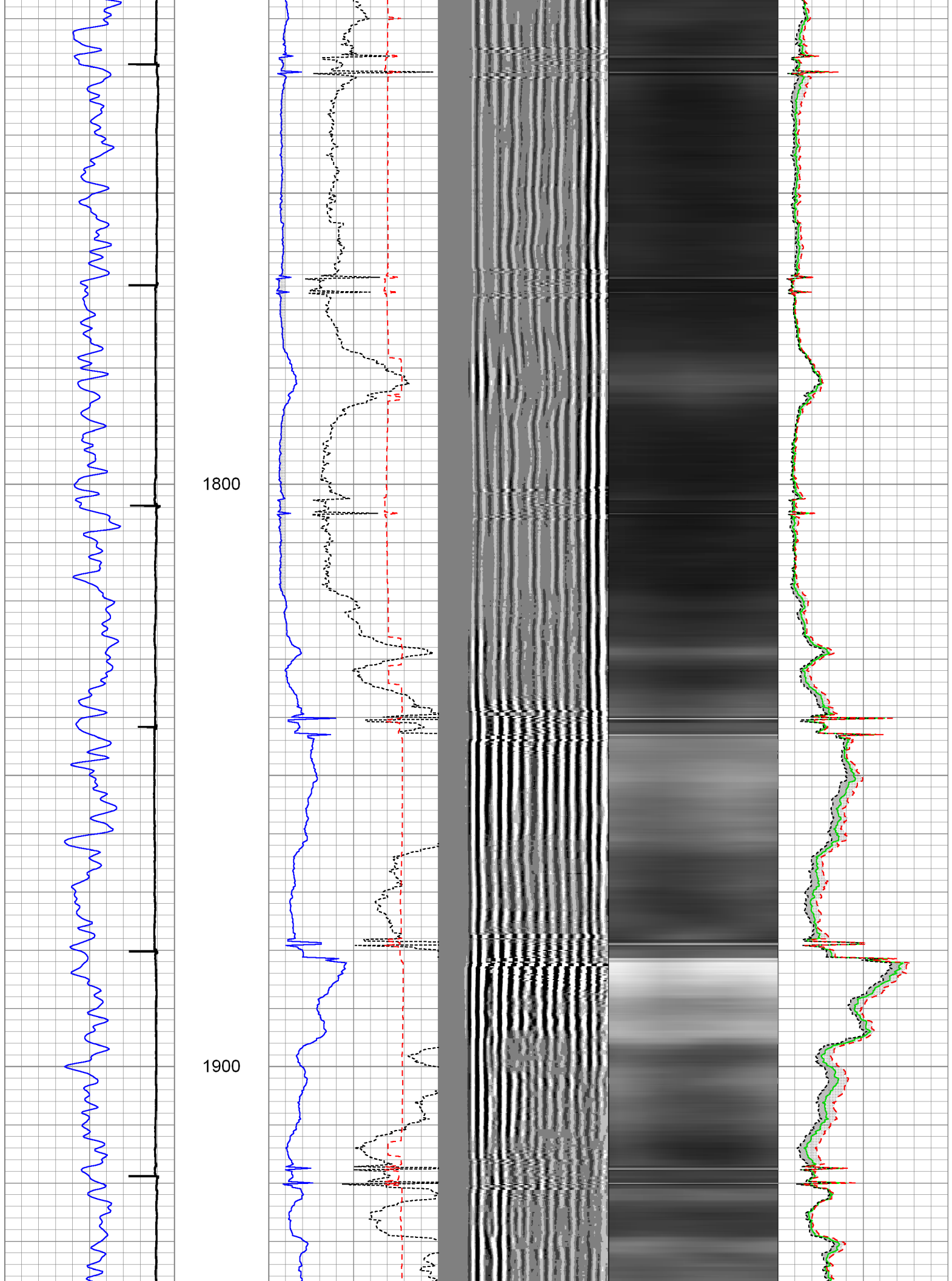
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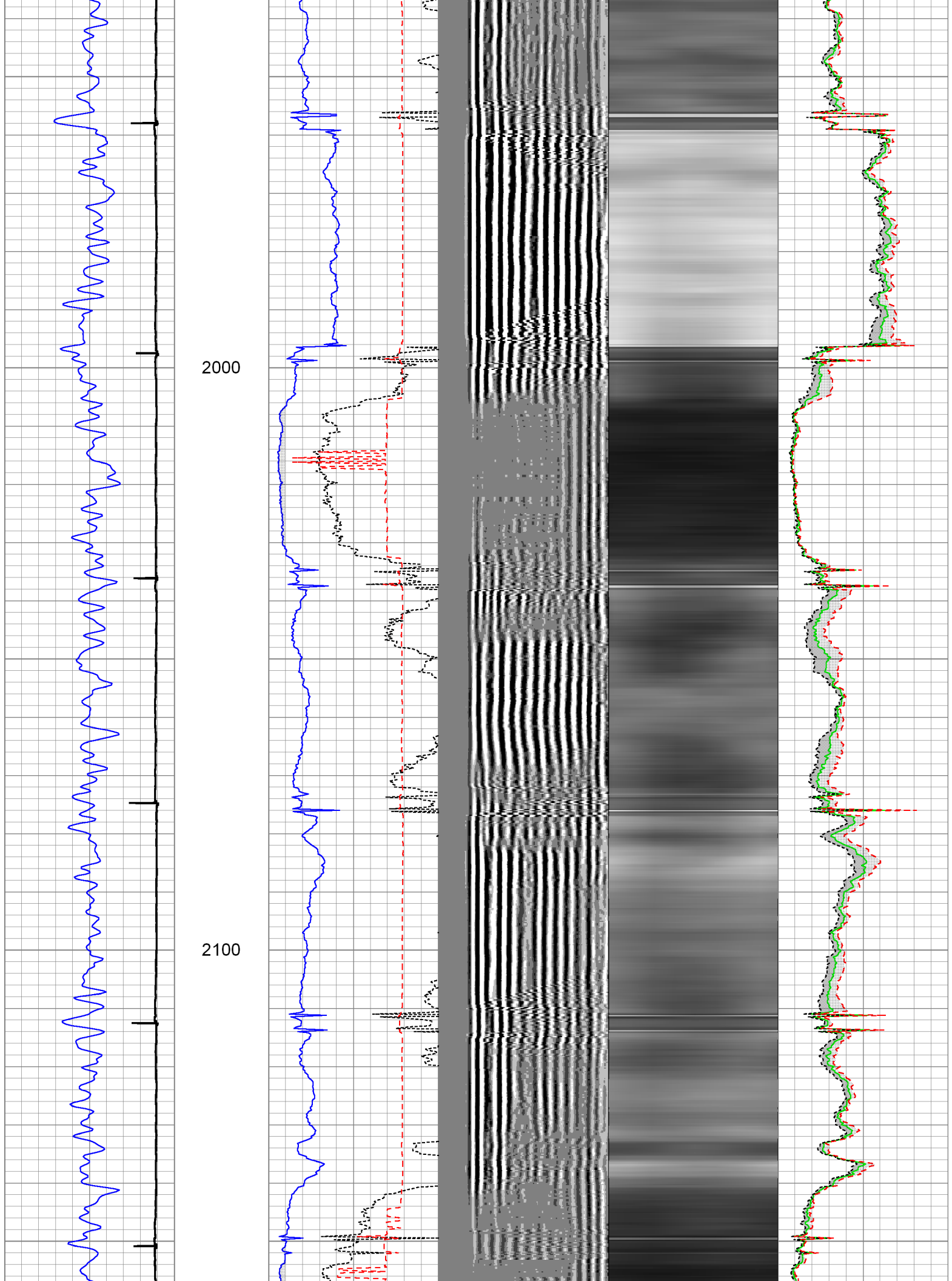






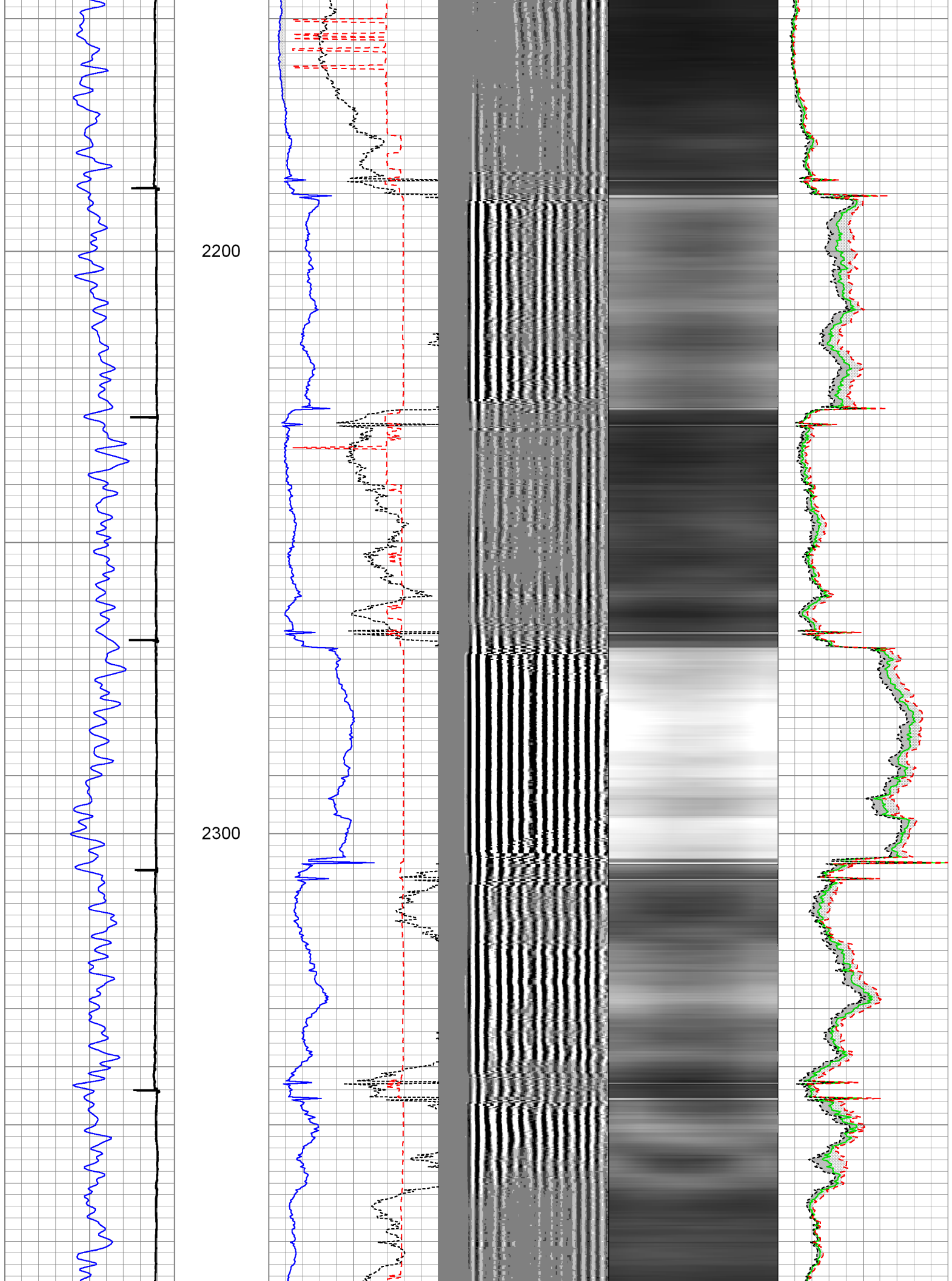






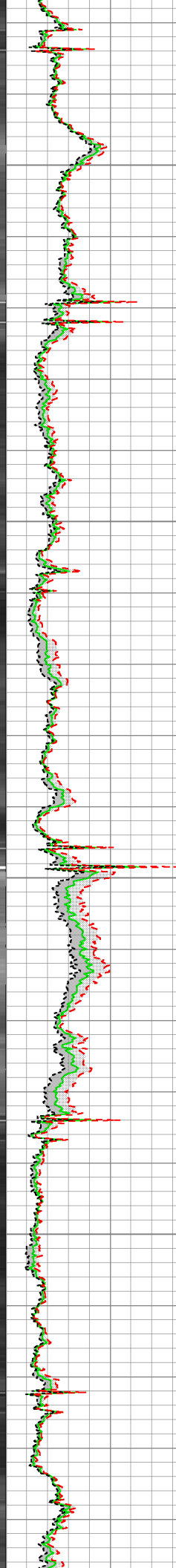
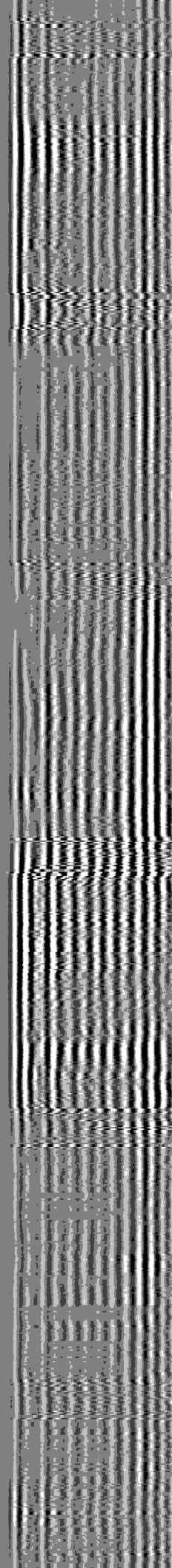
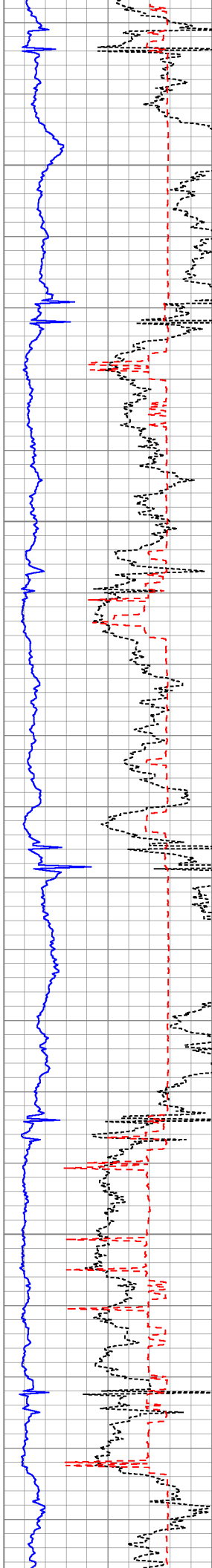
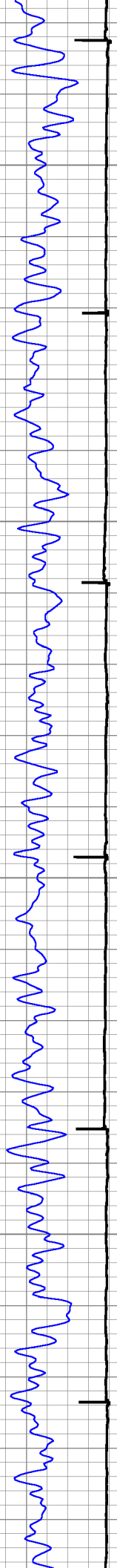
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2300



2400

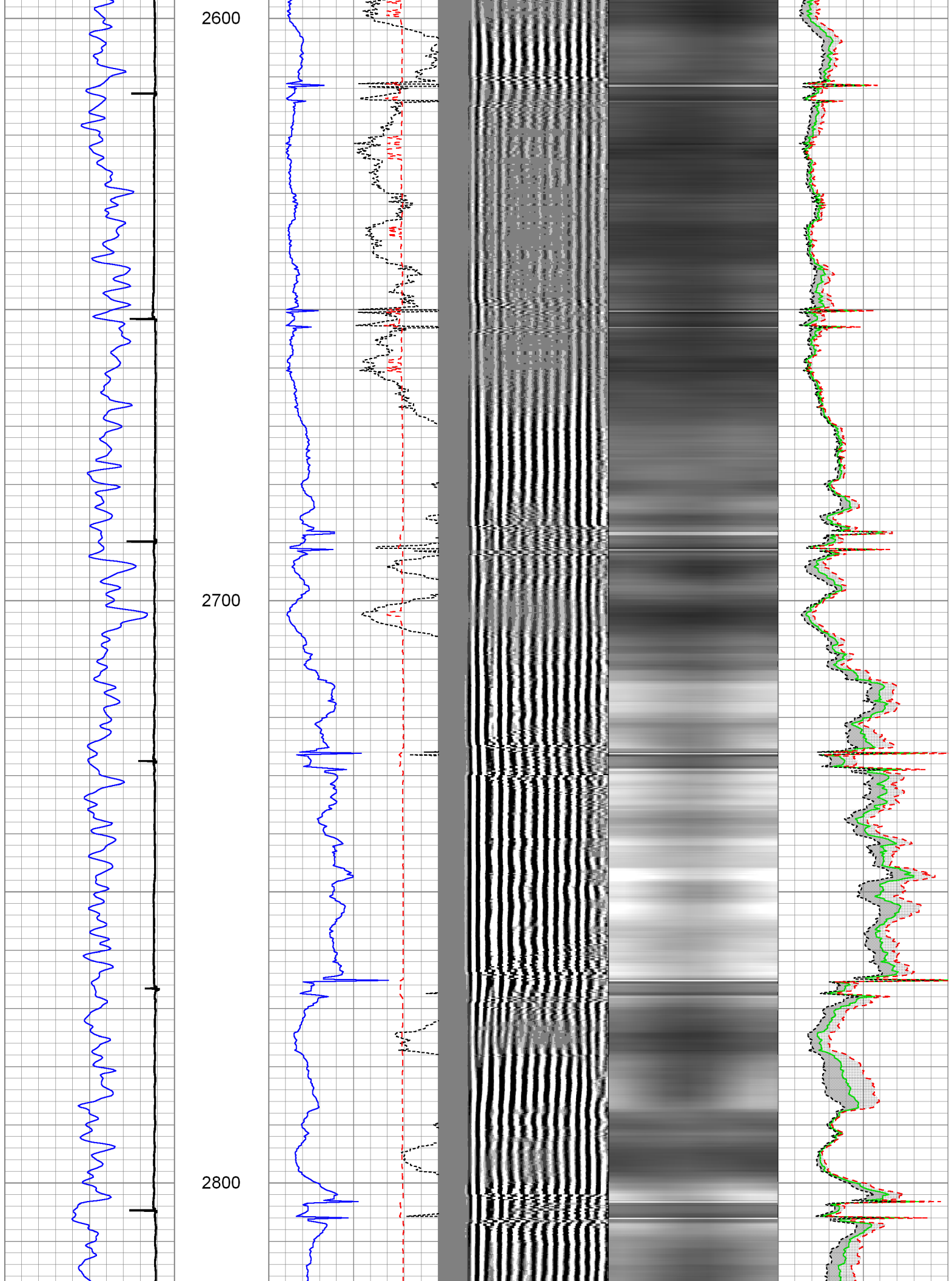
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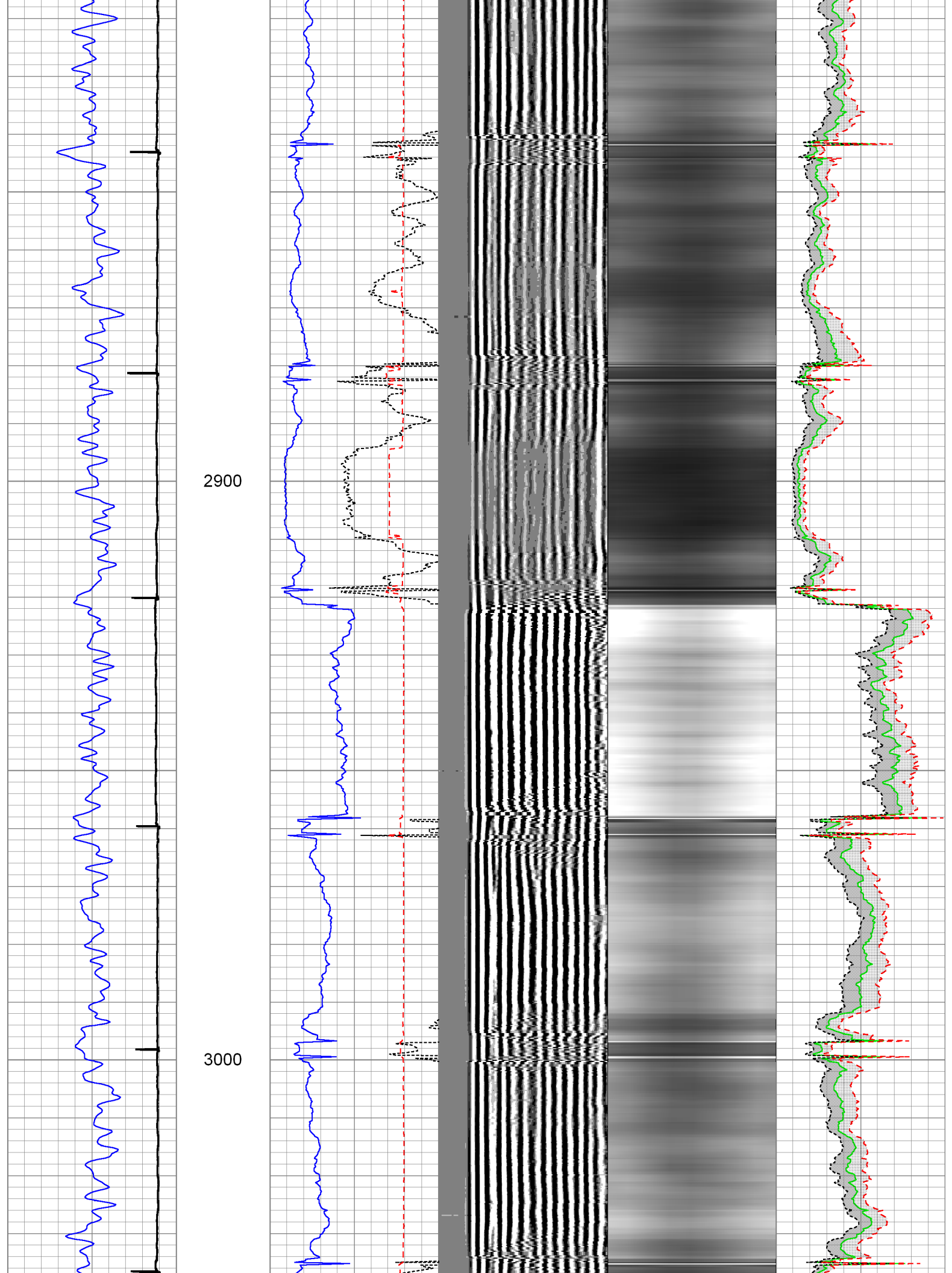
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2700

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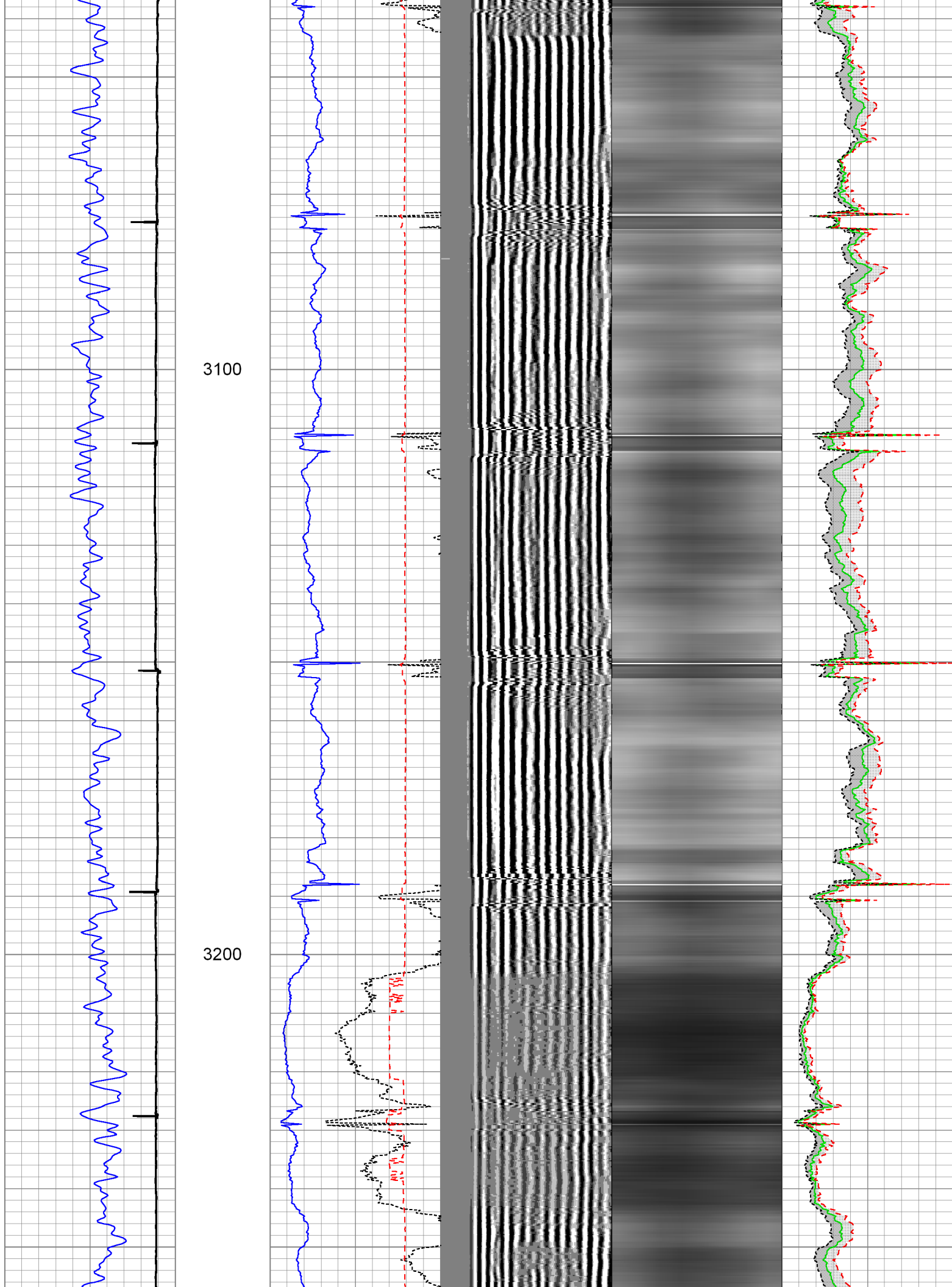






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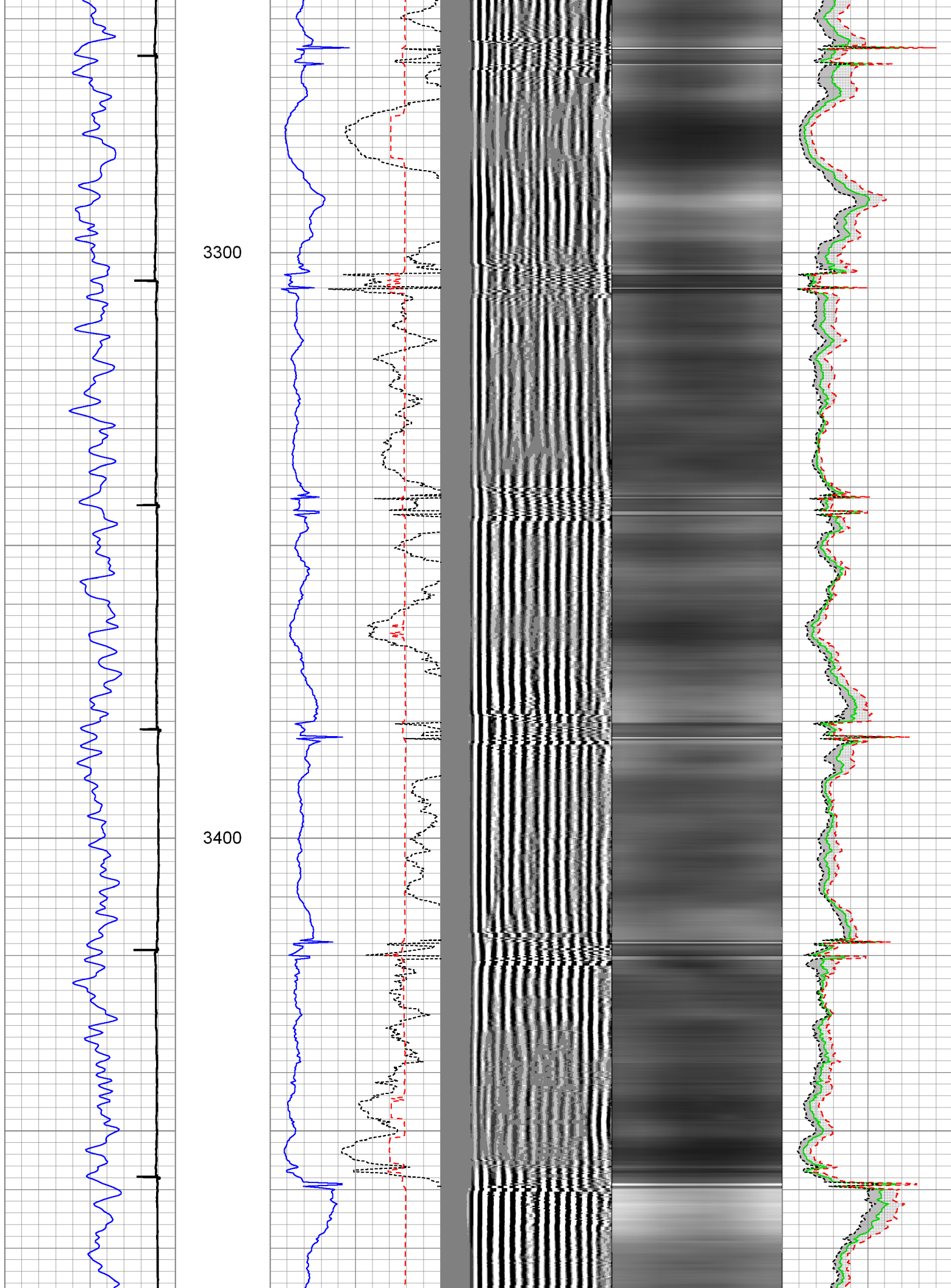
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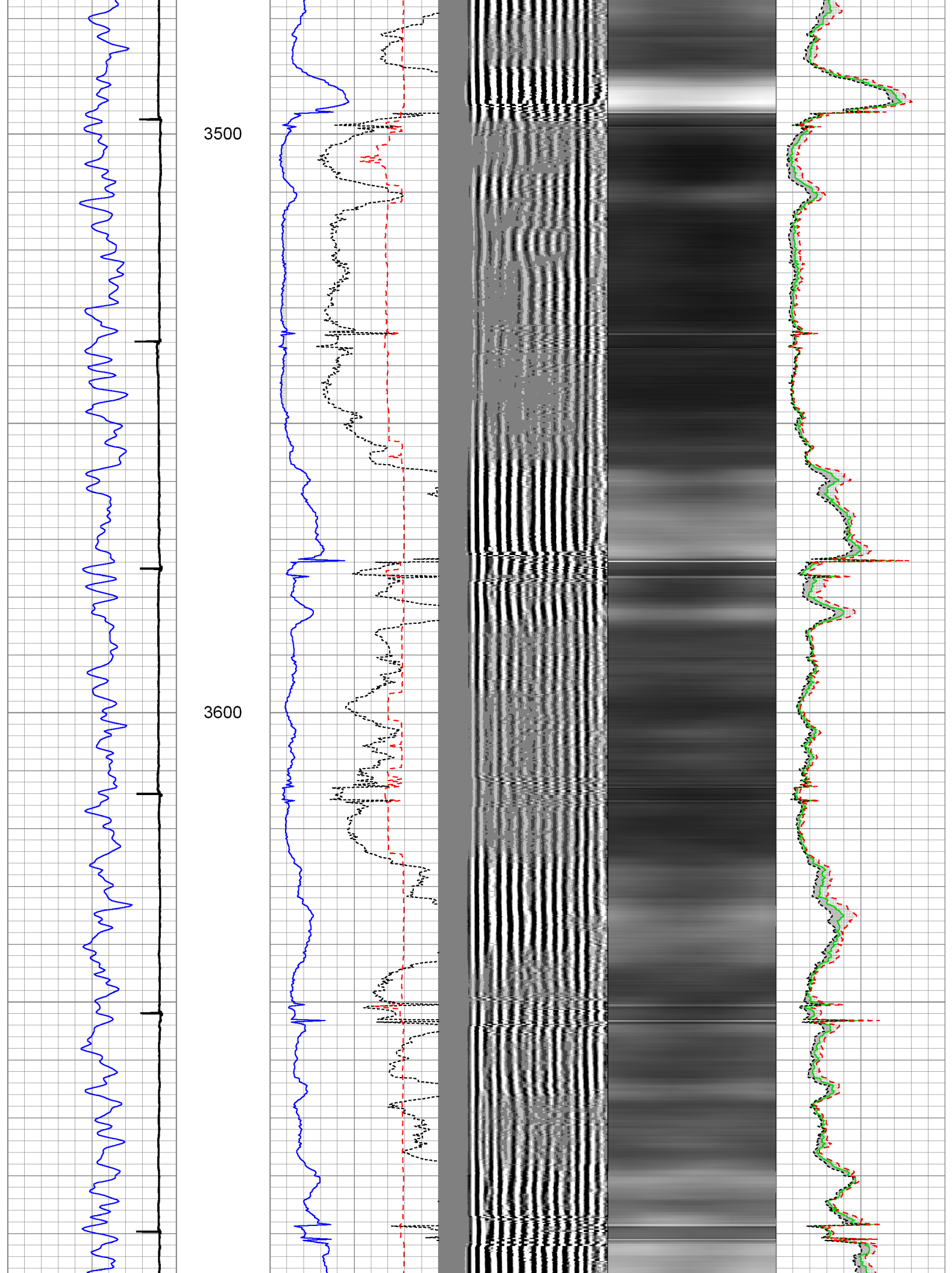




3300

3400

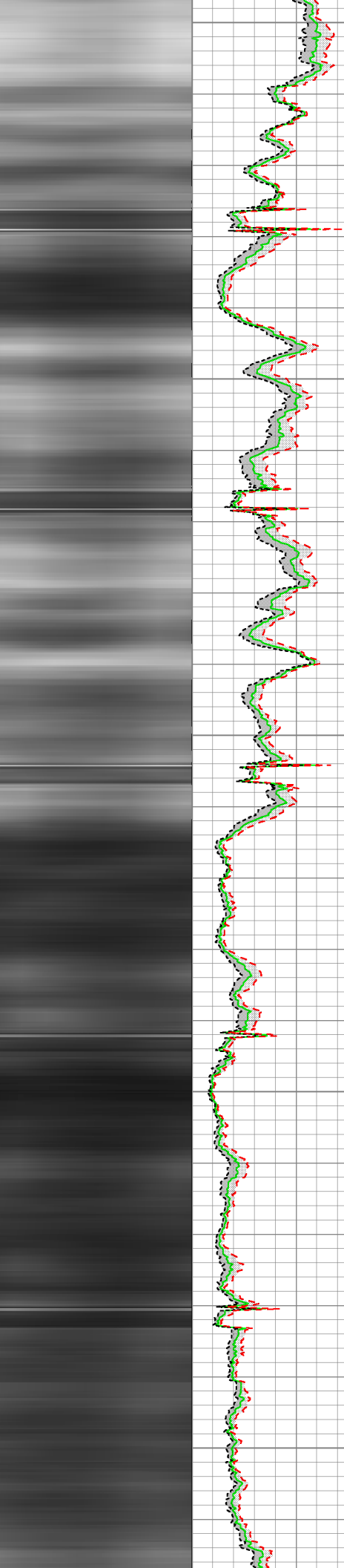
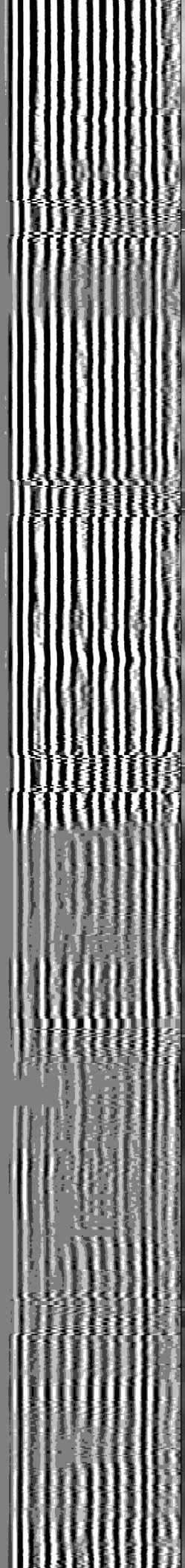
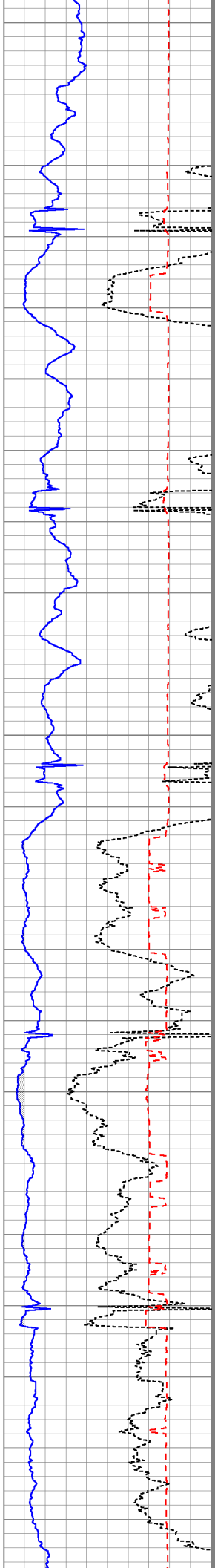
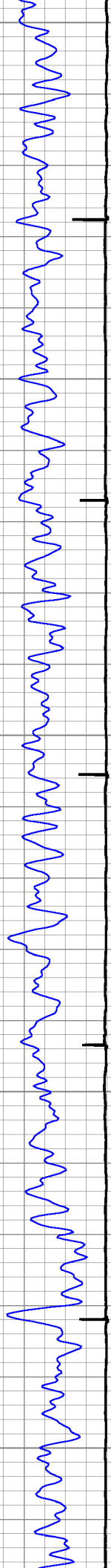


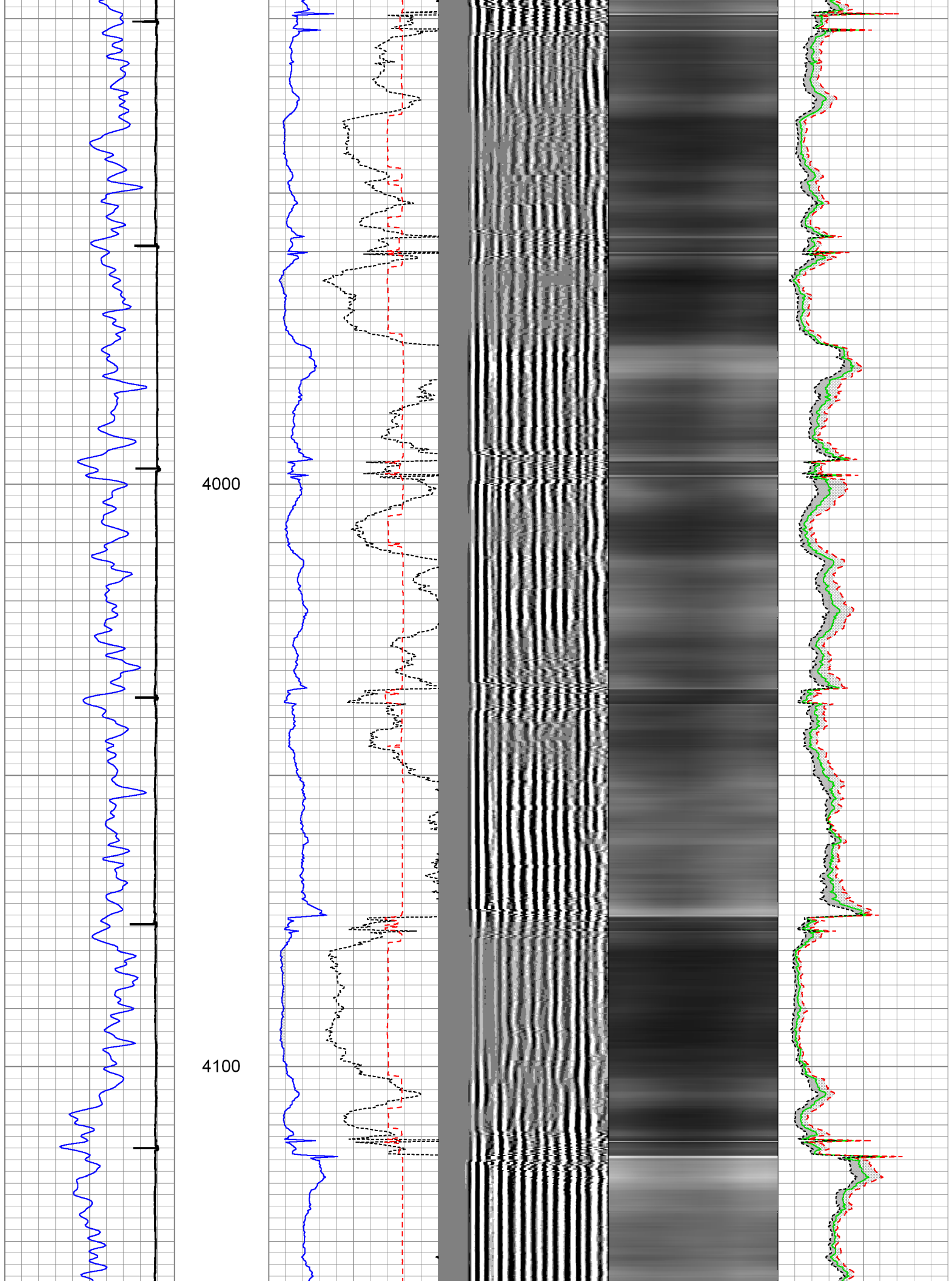


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3800

3900

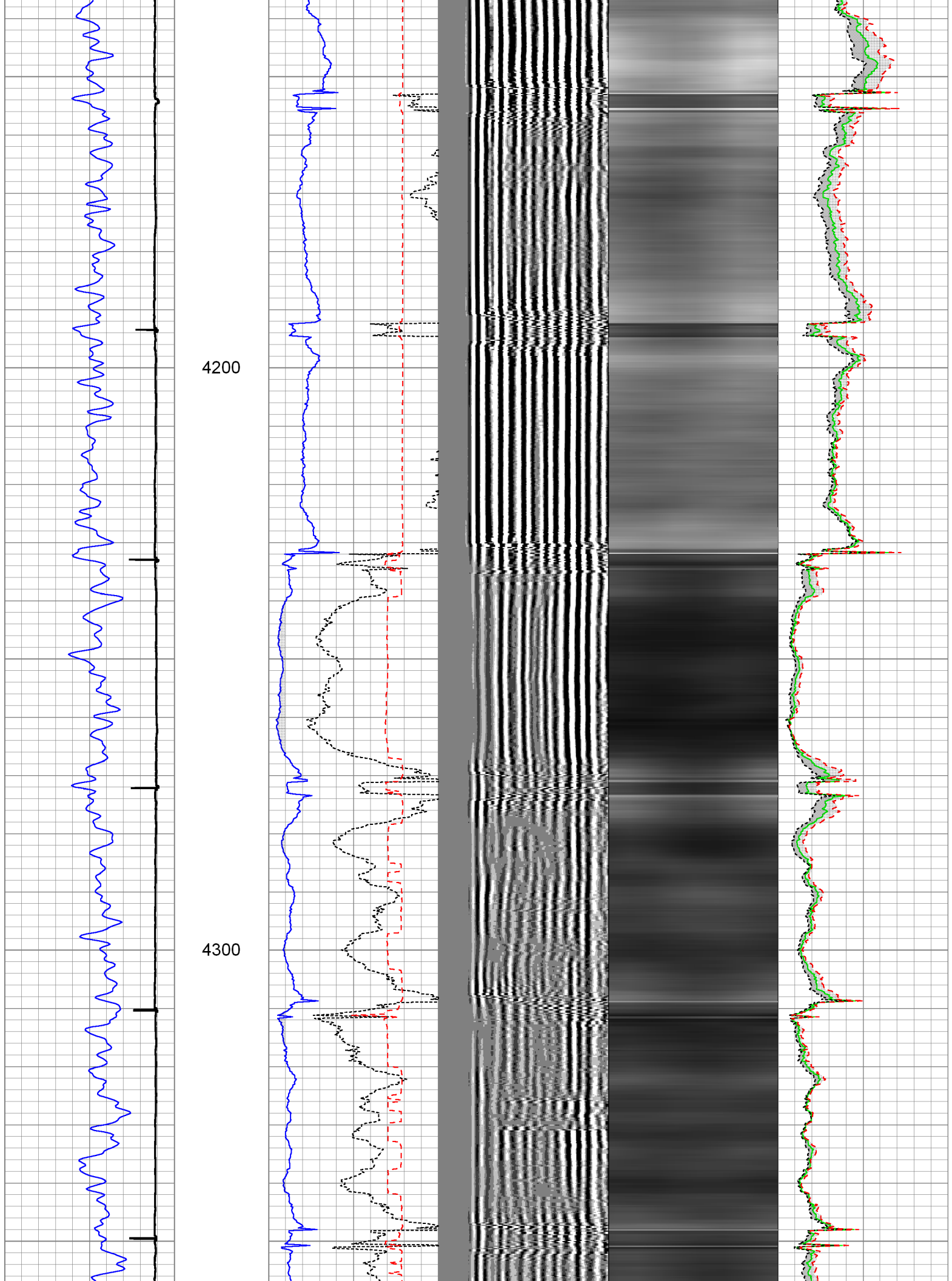


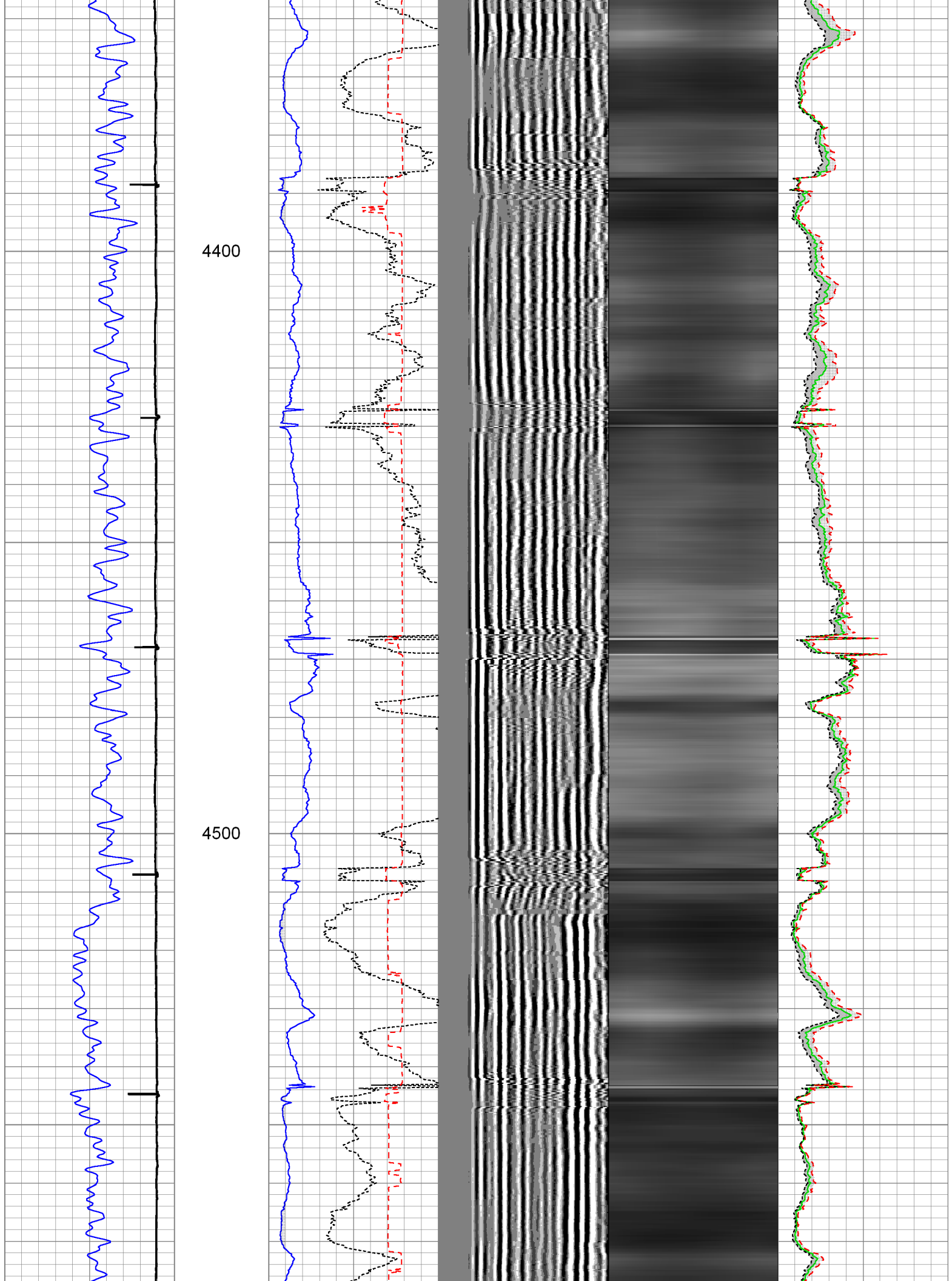




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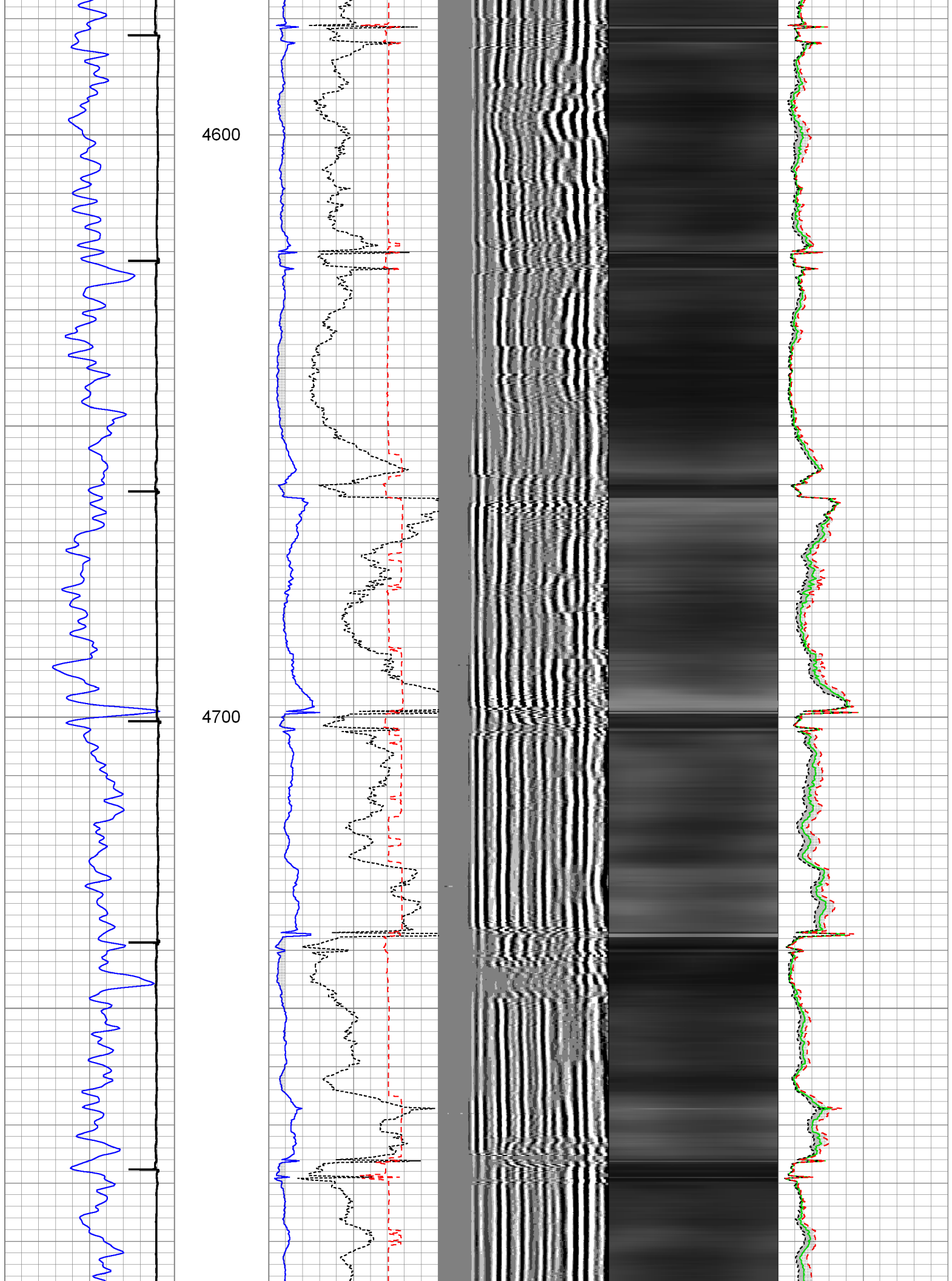






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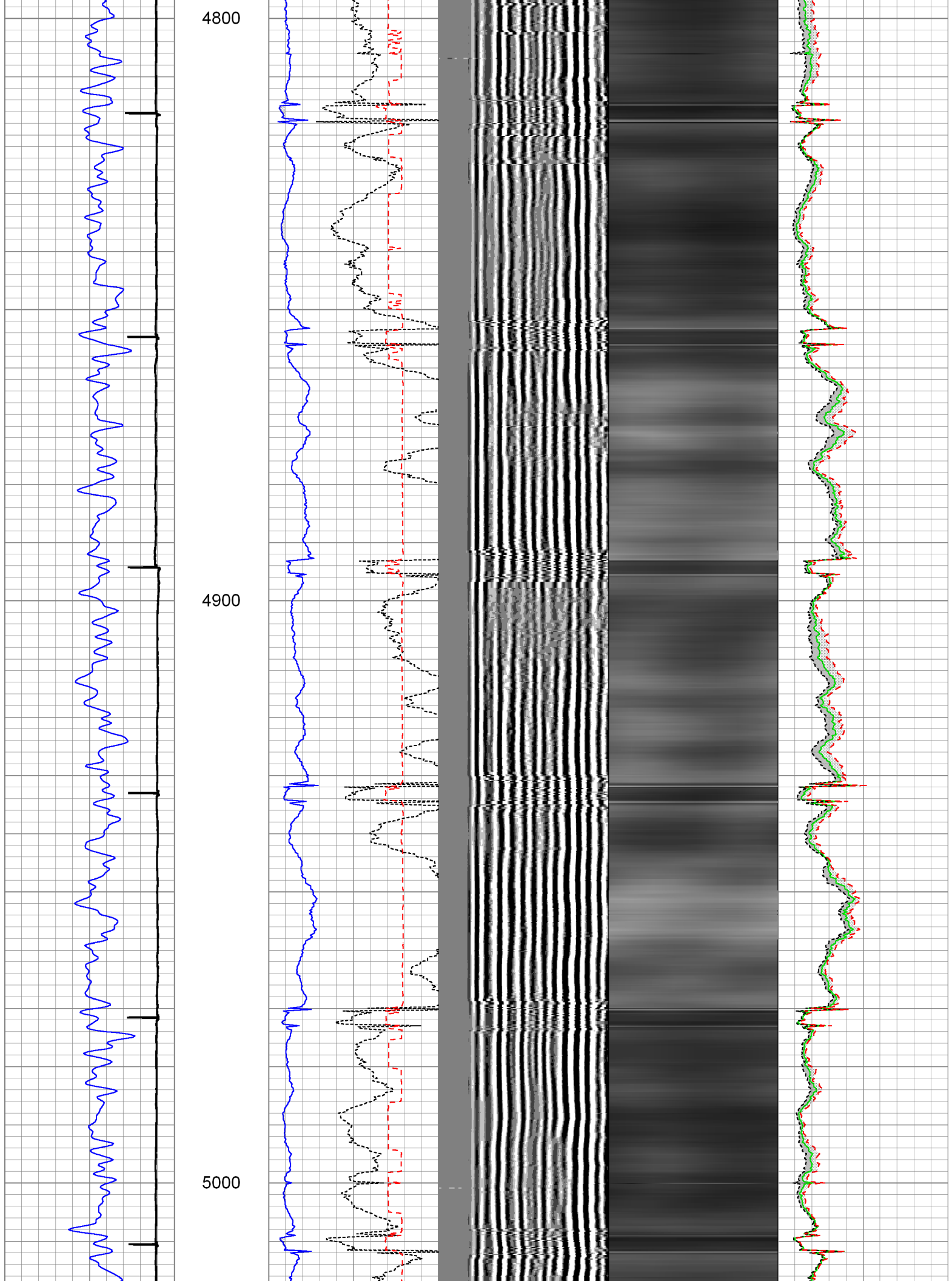
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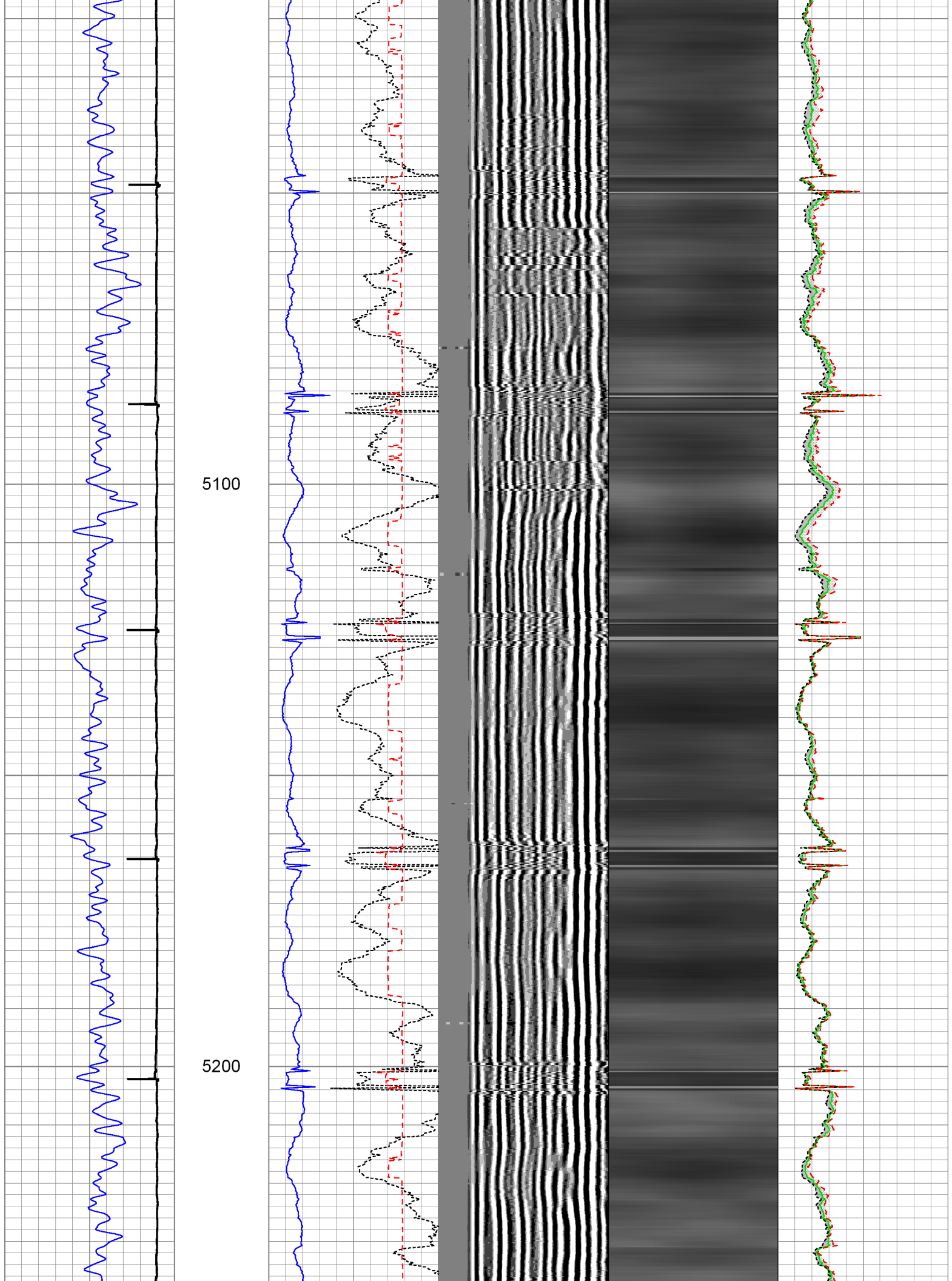


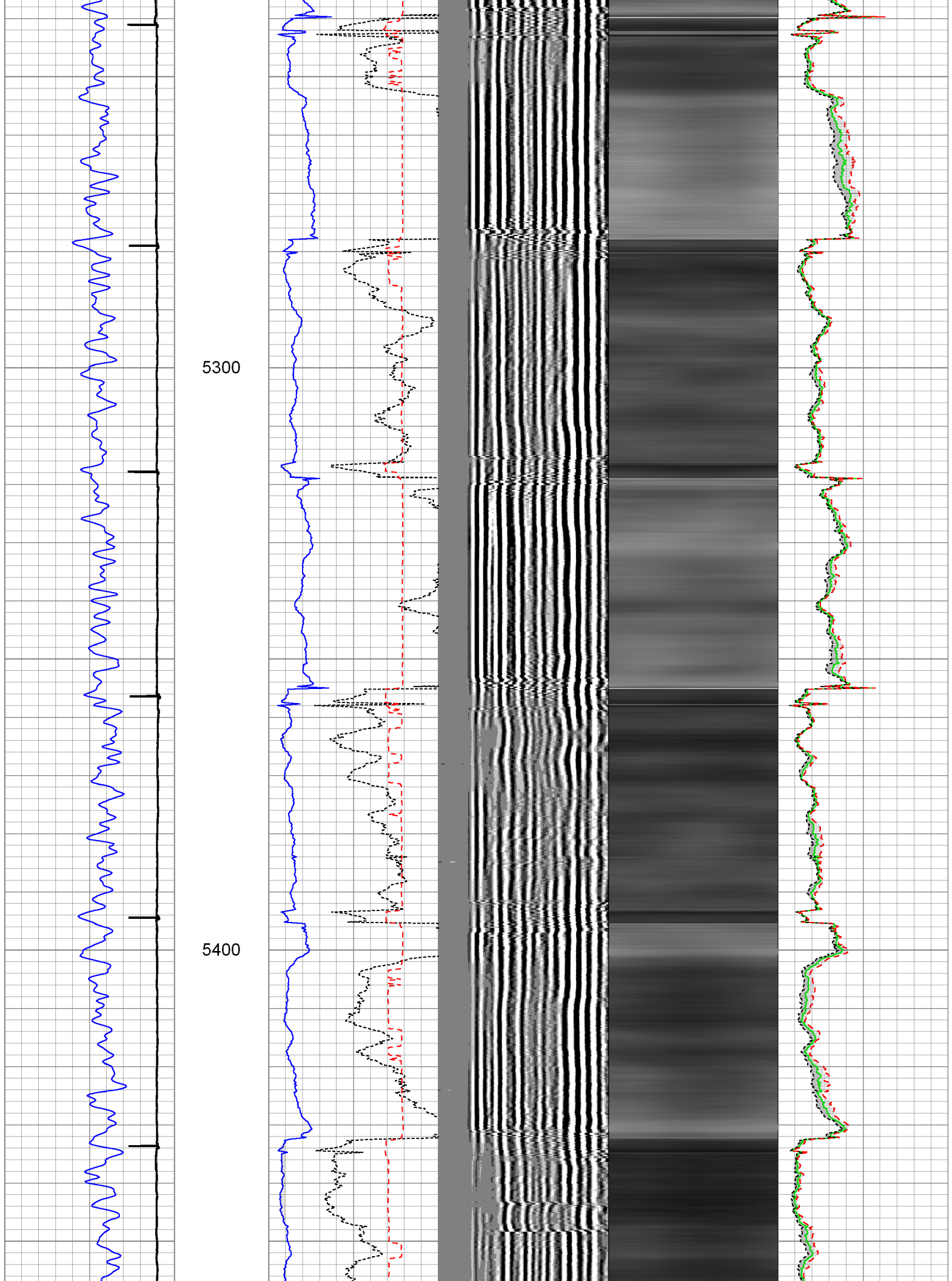
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4900

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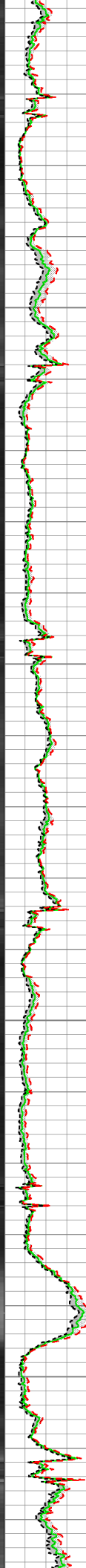
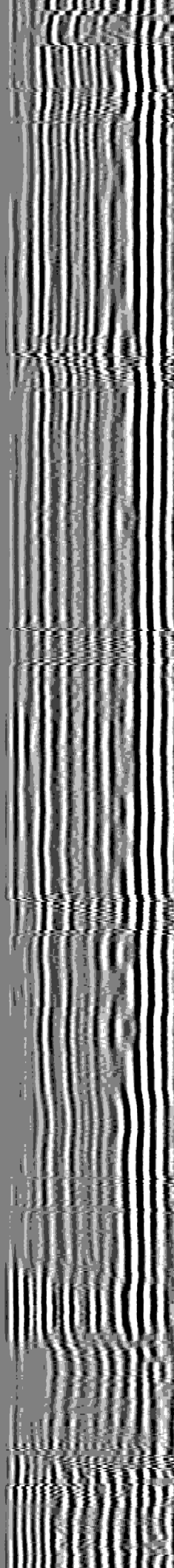
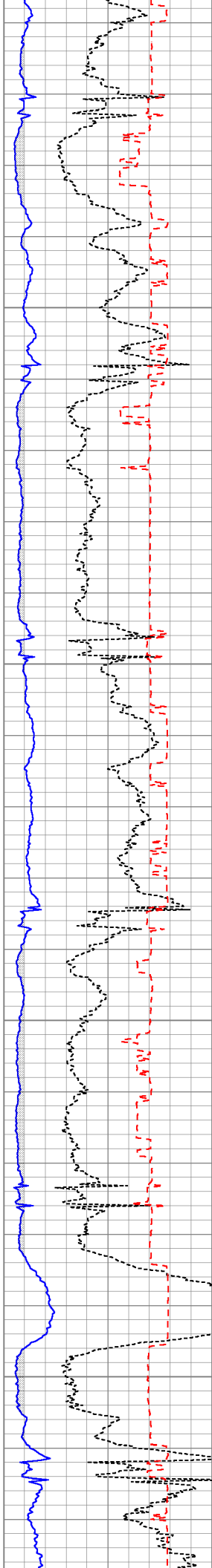




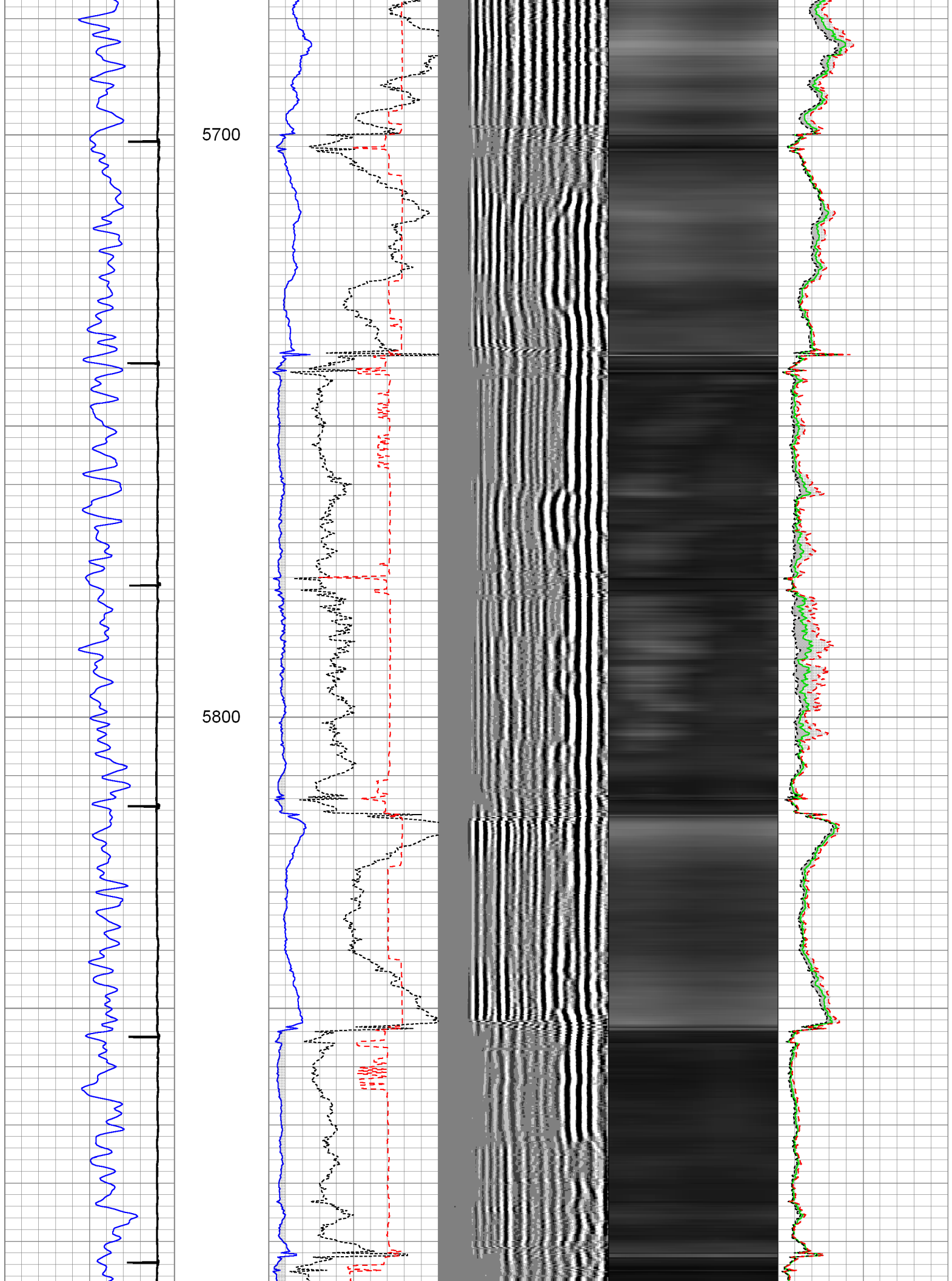


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5600





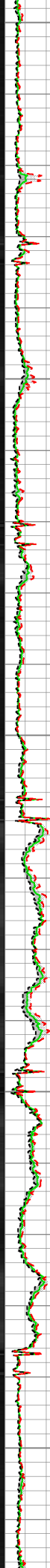
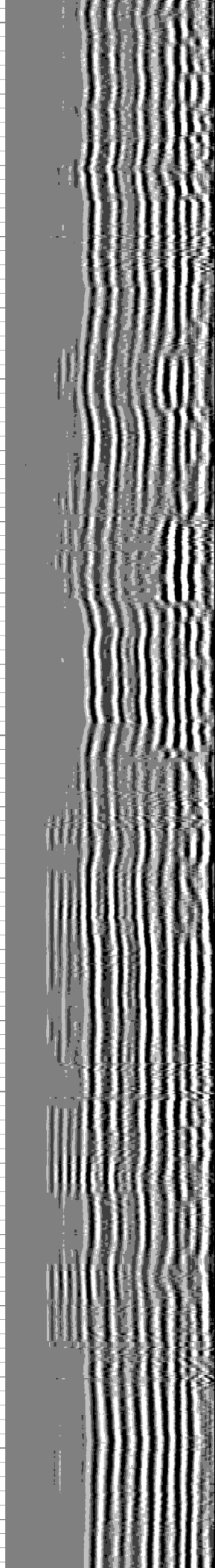
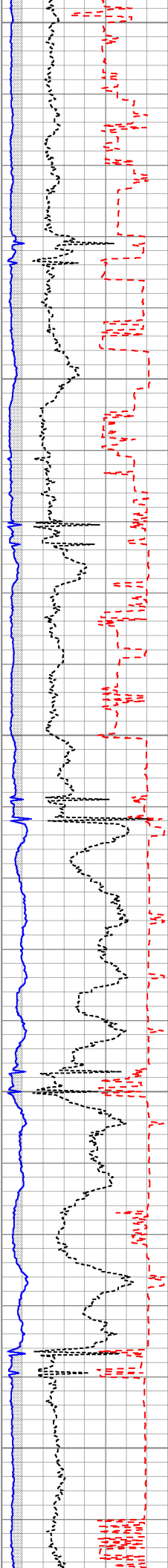


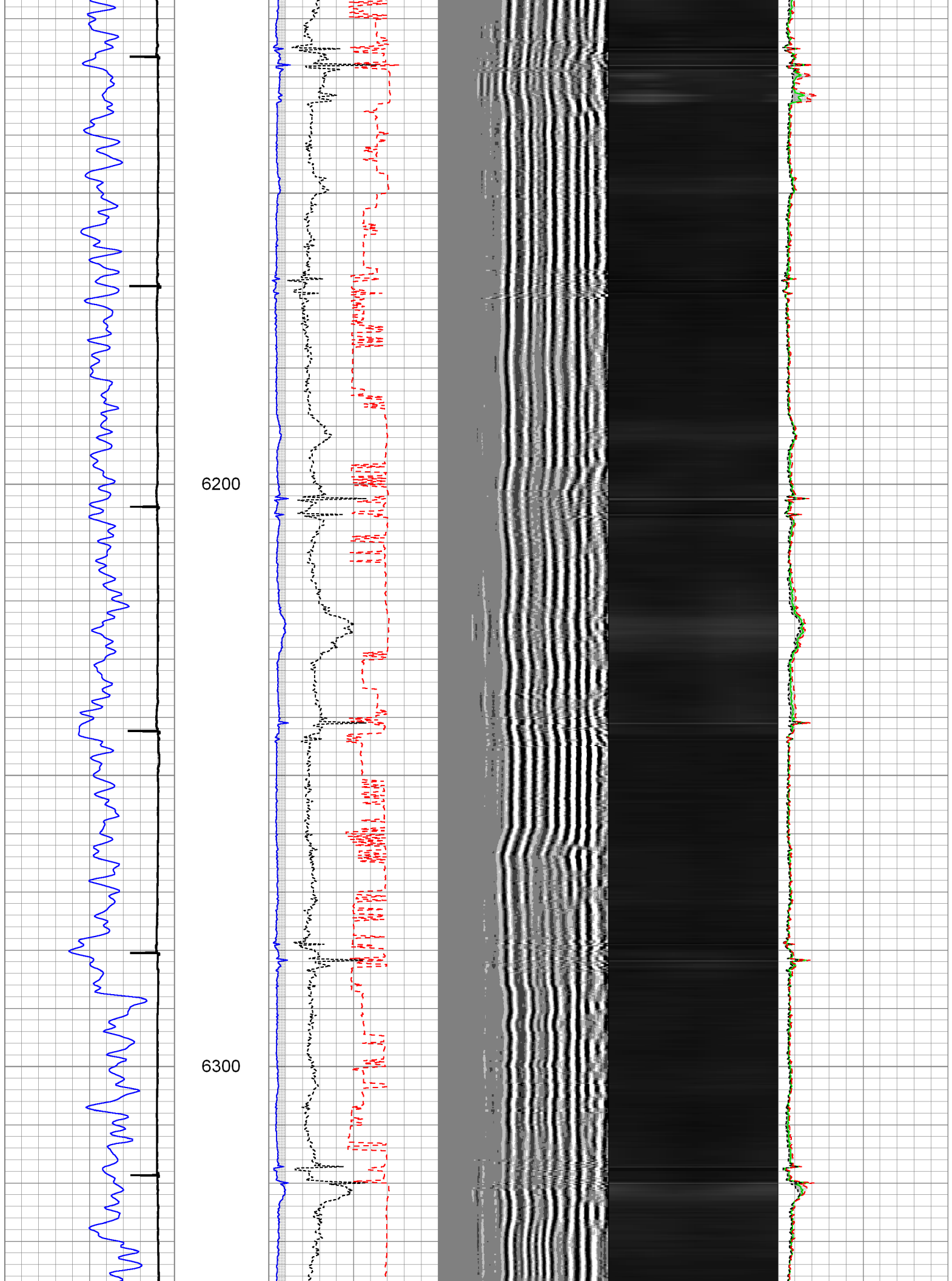


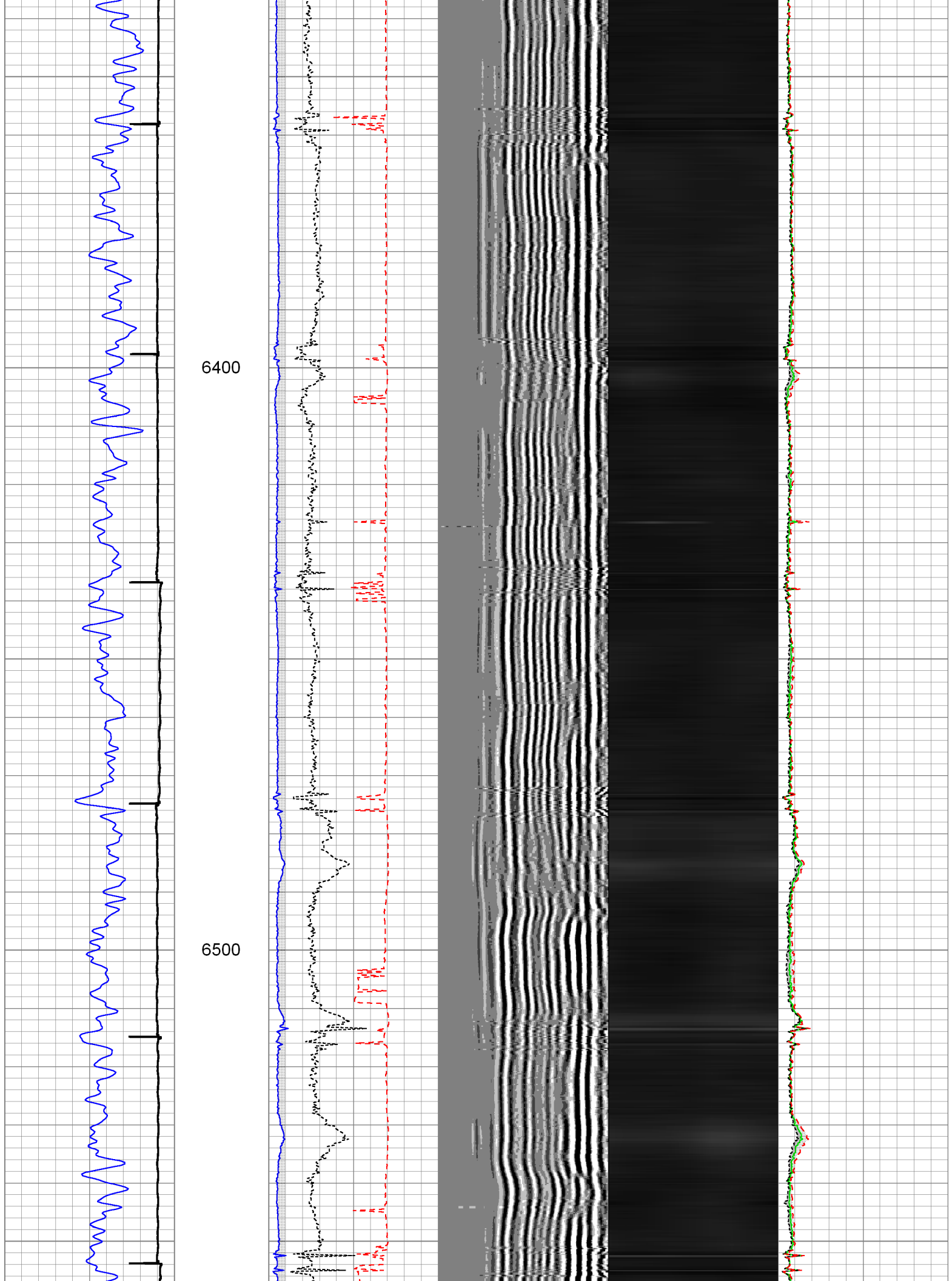
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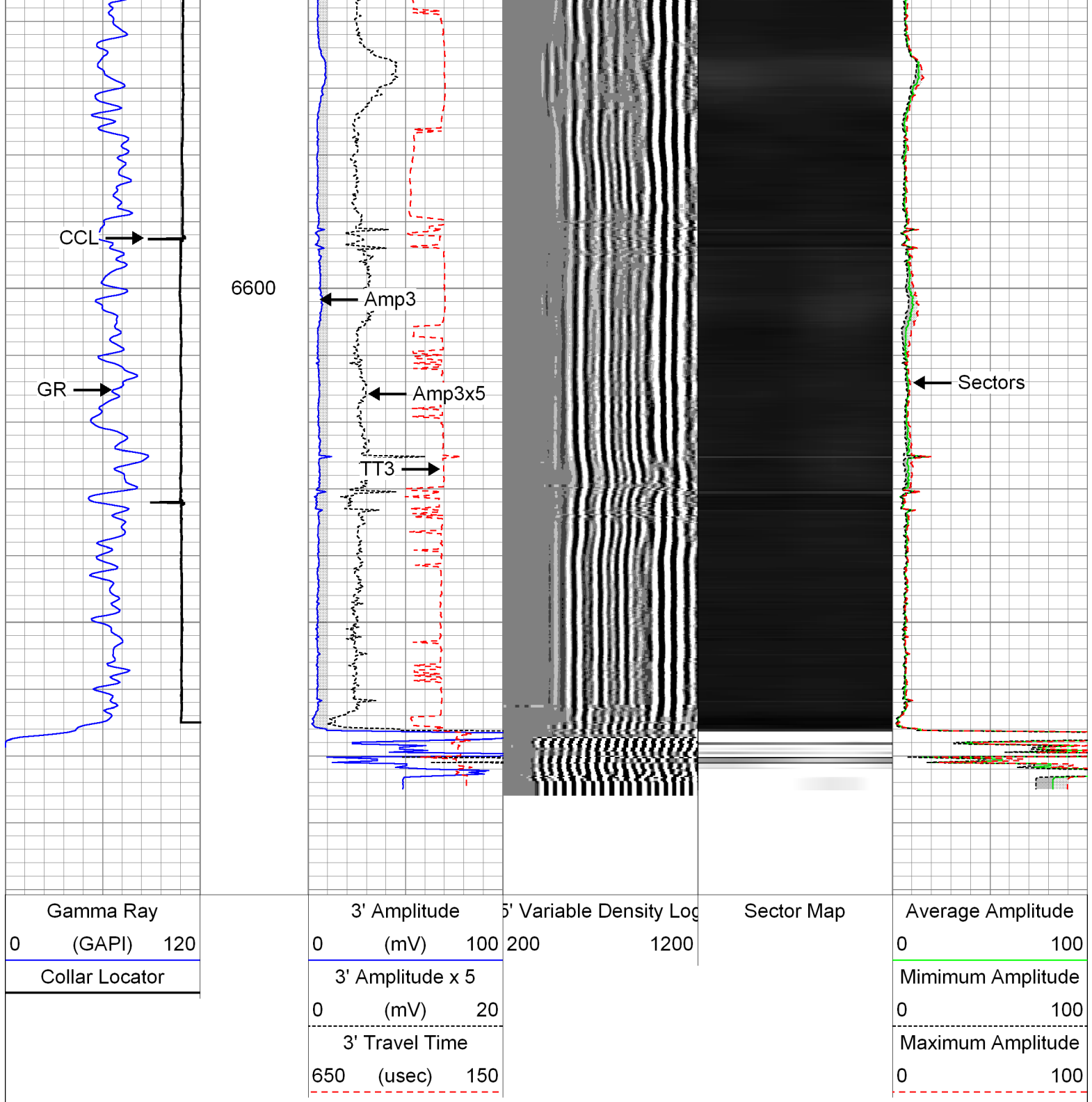
6000

6100



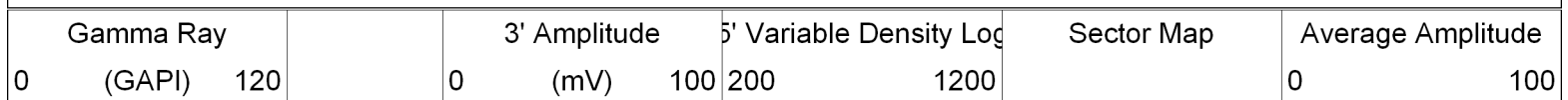




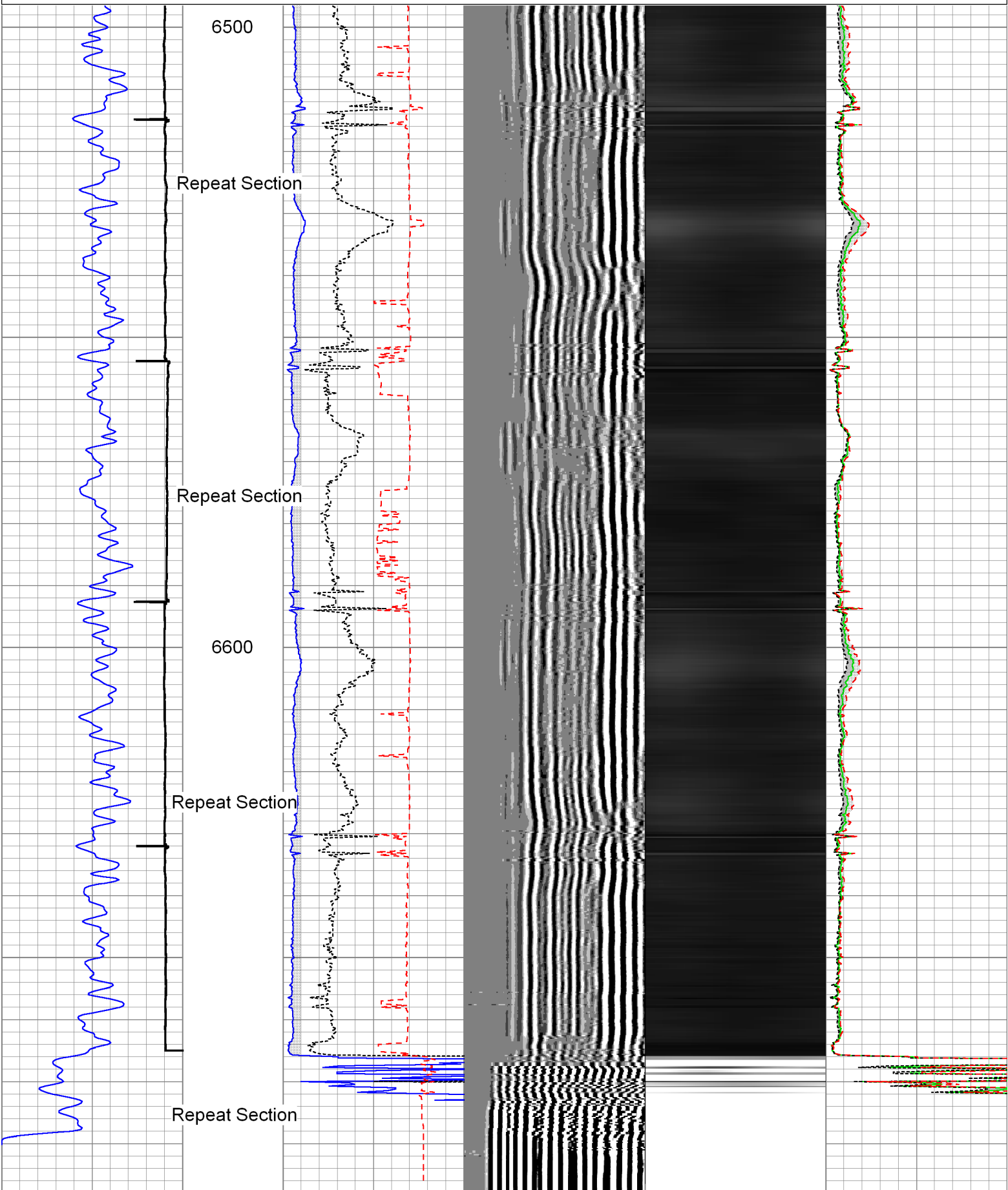


# Repeat Pass

Database File: 0512338678\_anadarko\_aggregate state 36n-16hz\_03-26-14\_mit\_rbl.db  
 Dataset Pathname: pass2  
 Presentation Format: rbt007  
 Dataset Creation: Wed Mar 26 11:46:38 2014 by Log Sondex V7.03  
 Charted by: Depth in Feet scaled 1:240

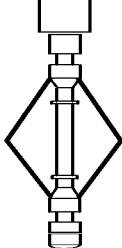


Collar Locator	3' Amplitude x 5			Minimum Amplitude	
	0	(mV)	20	0	100
	3' Travel Time			Maximum Amplitude	
	650	(usec)	150	0	100







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: 0512338678\_anadarko\_aggregate state 36n-16hz\_03-26-14\_mit\_rbl.db: field/well/run1/pass3  
 Total Length: 27.97 ft  
 Total Weight: 316.30 lb  
 O.D. 3.13 in

#### Calibration Report

Database File: 0512338678\_anadarko\_aggregate state 36n-16hz\_03-26-14\_mit\_rbl.db  
 Dataset Pathname: pass3  
 Dataset Creation: Wed Mar 26 11:54:40 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

Performed: Fri Sep 20 11:47:48 2013  
 Calibration Angle: 45

		Inc X	Inc Y
Vertical:		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: Wed Mar 26 12:07:55 2014

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1129	344.0	1473	355.0	1828	419.0	2247
Finger 02:	1085	356.0	1441	364.0	1805	434.0	2239
Finger 03:	1090	354.0	1444	351.0	1795	415.0	2210
Finger 04:	1048	371.0	1419	366.0	1785	431.0	2216
Finger 05:X	1088	360.0	1448	340.0	1788	391.0	2179
Finger 06:	1079	378.0	1457	353.0	1810	401.0	2211
Finger 07:	1093	380.0	1473	344.0	1817	387.0	2204
Finger 08:	1053	387.0	1440	360.0	1800	397.0	2197
Finger 09:	1112	391.0	1503	349.0	1852	367.0	2219
Finger 10:	1080	392.0	1472	354.0	1826	370.0	2196
Finger 11:	1053	389.0	1442	363.0	1805	372.0	2177
Finger 12:	1127	391.0	1518	346.0	1864	340.0	2204
Finger 13:	1060	387.0	1447	365.0	1812	372.0	2184
Finger 14:	1042	399.0	1441	390.0	1831	378.0	2209
Finger 15:	1010	393.0	1403	399.0	1802	382.0	2184
Finger 16:	1044	382.0	1426	396.0	1822	369.0	2191
Finger 17:	1068	373.0	1441	392.0	1833	359.0	2192
Finger 18:	1088	368.0	1456	396.0	1852	367.0	2219
Finger 19:	1051	369.0	1420	412.0	1832	382.0	2214
Finger 20:	962	360.0	1322	429.0	1751	402.0	2153
Finger 21:	1055	351.0	1406	418.0	1824	394.0	2218

Finger 21:	1000	351.0	1378	427.0	1805	403.0	2208
Finger 22:	1027	351.0	1378	427.0	1805	403.0	2208
Finger 23:	1133	326.0	1459	402.0	1861	378.0	2239
Finger 24:	1037	341.0	1378	440.0	1818	418.0	2236
Finger 25:	1041	330.0	1371	439.0	1810	426.0	2236
Finger 26:	1066	326.0	1392	431.0	1823	417.0	2240
Finger 27:	1084	312.0	1396	421.0	1817	425.0	2242
Finger 28:	1045	317.0	1362	440.0	1802	442.0	2244
Finger 29:	1024	316.0	1340	444.0	1784	463.0	2247
Finger 30:	1020	311.0	1331	437.0	1768	466.0	2234
Finger 31:	1080	312.0	1392	417.0	1809	442.0	2251
Finger 32:	1029	310.0	1339	421.0	1760	464.0	2224
Finger 33:	1050	314.0	1364	417.0	1781	464.0	2245
Finger 34:	1046	316.0	1362	420.0	1782	474.0	2256
Finger 35:	1107	311.0	1418	388.0	1806	445.0	2251
Finger 36:	1049	319.0	1368	397.0	1765	470.0	2235
Finger 37:	1163	315.0	1478	367.0	1845	429.0	2274
Finger 38:	1121	322.0	1443	372.0	1815	439.0	2254
Finger 39:	1077	333.0	1410	375.0	1785	451.0	2236
Finger 40:	1016	348.0	1364	388.0	1752	467.0	2219

#### Segmented Cement Bond Log Calibration Report

Serial Number: 10012639in7  
Tool Model: 004

Calibration Casing Diameter: 7.000 in  
Calibration Depth: 2.070 ft

Master Calibration, performed Wed Mar 26 12:10:18 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.001	0.732	0.800	62.165	83.920	0.698
5FT	-0.004	0.871	0.800	62.165	70.178	1.057
S1	0.002	0.769	0.000	100.000	130.359	-0.251
S2	0.000	0.686	0.000	100.000	145.812	-0.005
S3	0.001	0.651	0.000	100.000	153.717	-0.099
S4	-0.000	0.663	0.000	100.000	150.791	0.033
S5	0.001	0.717	0.000	100.000	139.772	-0.166
S6	0.001	0.780	0.000	100.000	128.393	-0.176
S7	0.001	0.824	0.000	100.000	121.374	-0.067
S8	-0.000	0.825	0.000	100.000	121.177	0.004

#### 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 36N-16HZ  
Field Wattenberg

