



Radial Cement Bond Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Highway 160 37N-2HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-38025			
Permanent Datum				SHL: 666' FNL 1532' FEL			
Log Measured From				Lat/Long: 40.085531/-104.740313			
Drilling Measured From				SEC 2 TWP 1N RGE 66W			
Ground Level				Elevation 5102'			
Kelly Bushing				13 FT			
Kelly Bushing				Elevation 5102'			
K.B. 5115'				GR Plug			
D.F. 5114'							
G.L. 5102'							
Date				31-JAN-2014			
Run Number				One			
Depth Driller				12,480 FT			
Depth Logger				6918 FT			
Bottom Logged Interval				6918 FT			
Top Log Interval				Surface			
Open Hole Size				8.750"			
Type Fluid				Water			
Density / Viscosity				8.34 lbm/gal			
Max. Recorded Temp.				215 degF			
Estimated Cement Top				548 FT			
Time Well Ready				7.00			
Time Logger on Bottom				1:30 p.m.			
Equipment Number				HD-134			
Location				Fort Lupton, CO			
Recorded By				Wayne Wacker			
Witnessed By				Edgar Chavez			
Borehole Record				Tubing Record			
Run Number				Bit From To			
Casing Record				Size (in) Wgt (lbs/Ft) Grade Top Bottom			
Surface Casing				9-5/8" 36# 1236 FT			
Intermediate #1				7" 26# 7813 FT			
Intermediate #2							
Liner				4-1/2" 11.6# 6876 FT 12,663 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 was correlated to liner top at 6876'
Logged With 2200 PSI at Surface

Thank you for choosing FMC Technologies Completion Services, Inc.



Main Pass

Logged with 2200 PSI at surface

Database File: 0512338025_anadarko_highway 160 37n-2hz_01-31-14_mit_rbl.db

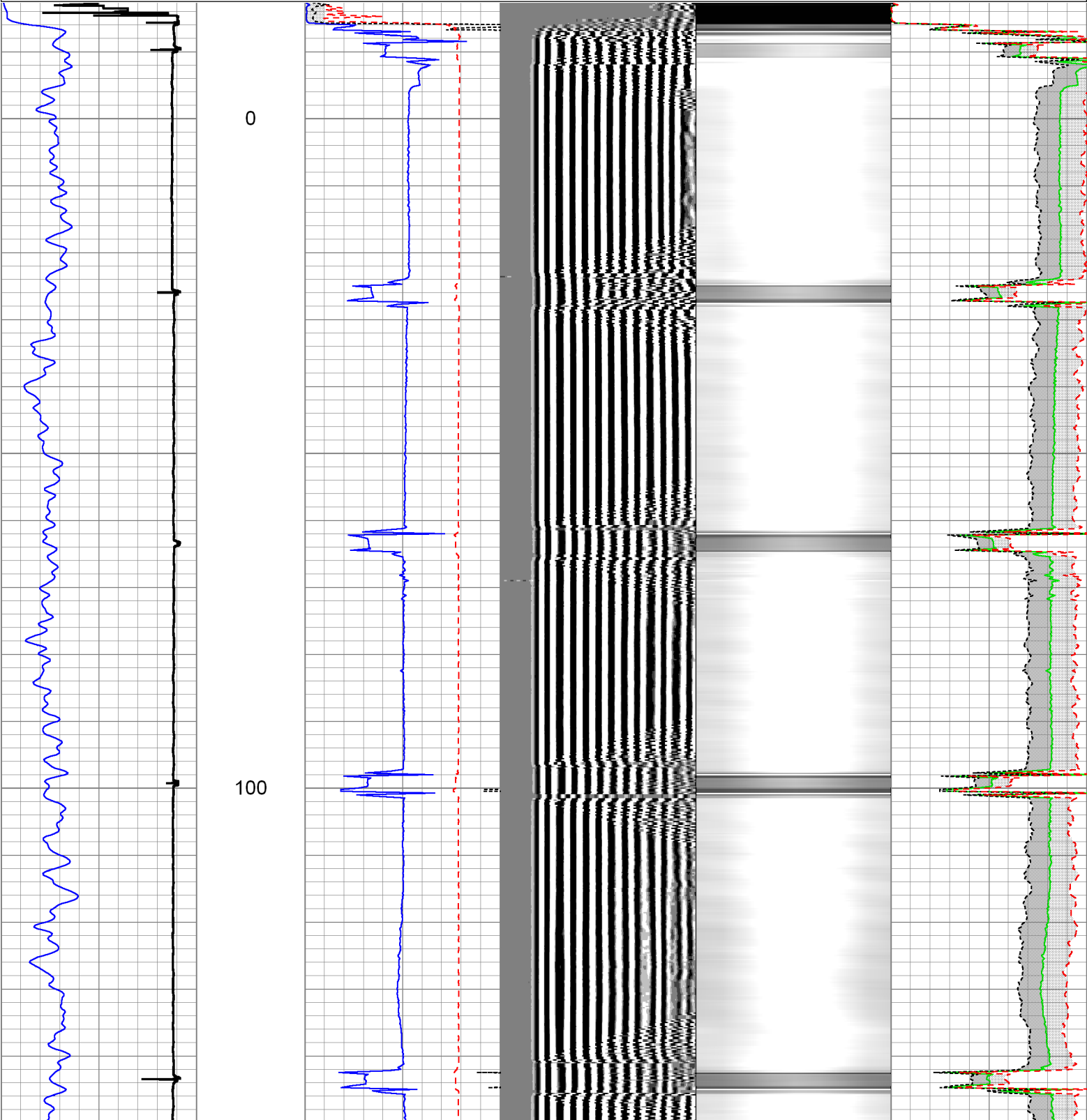
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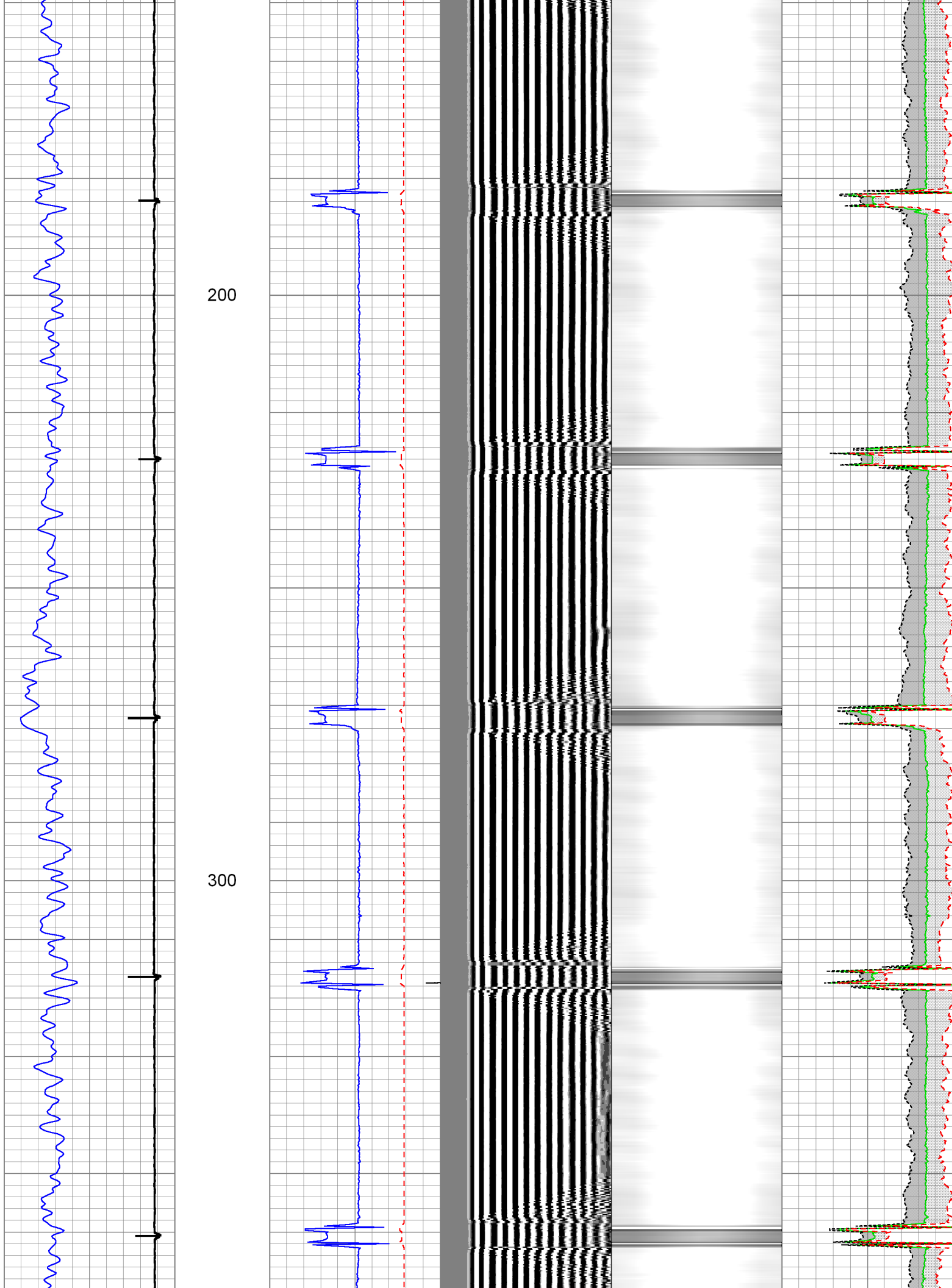
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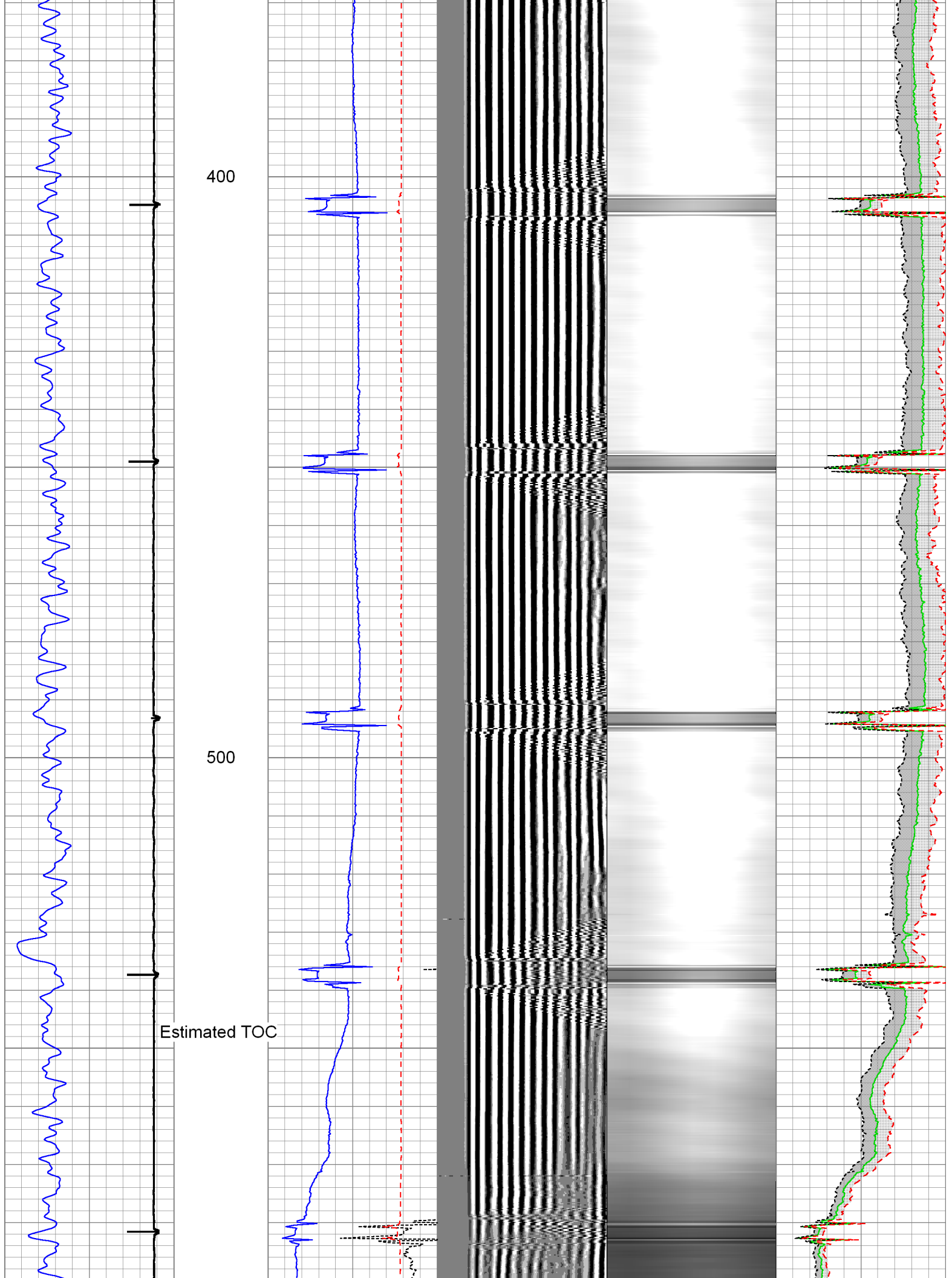
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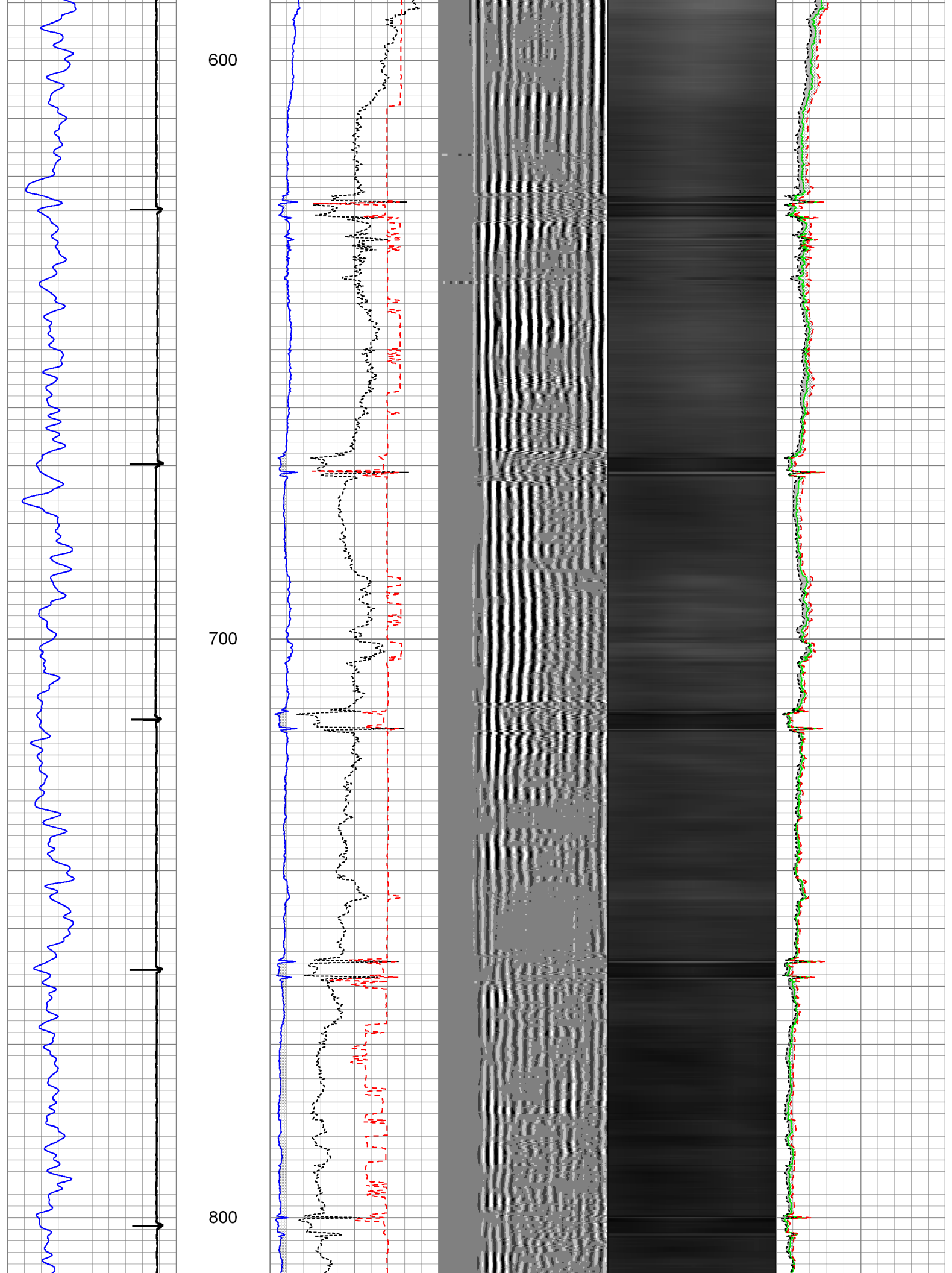
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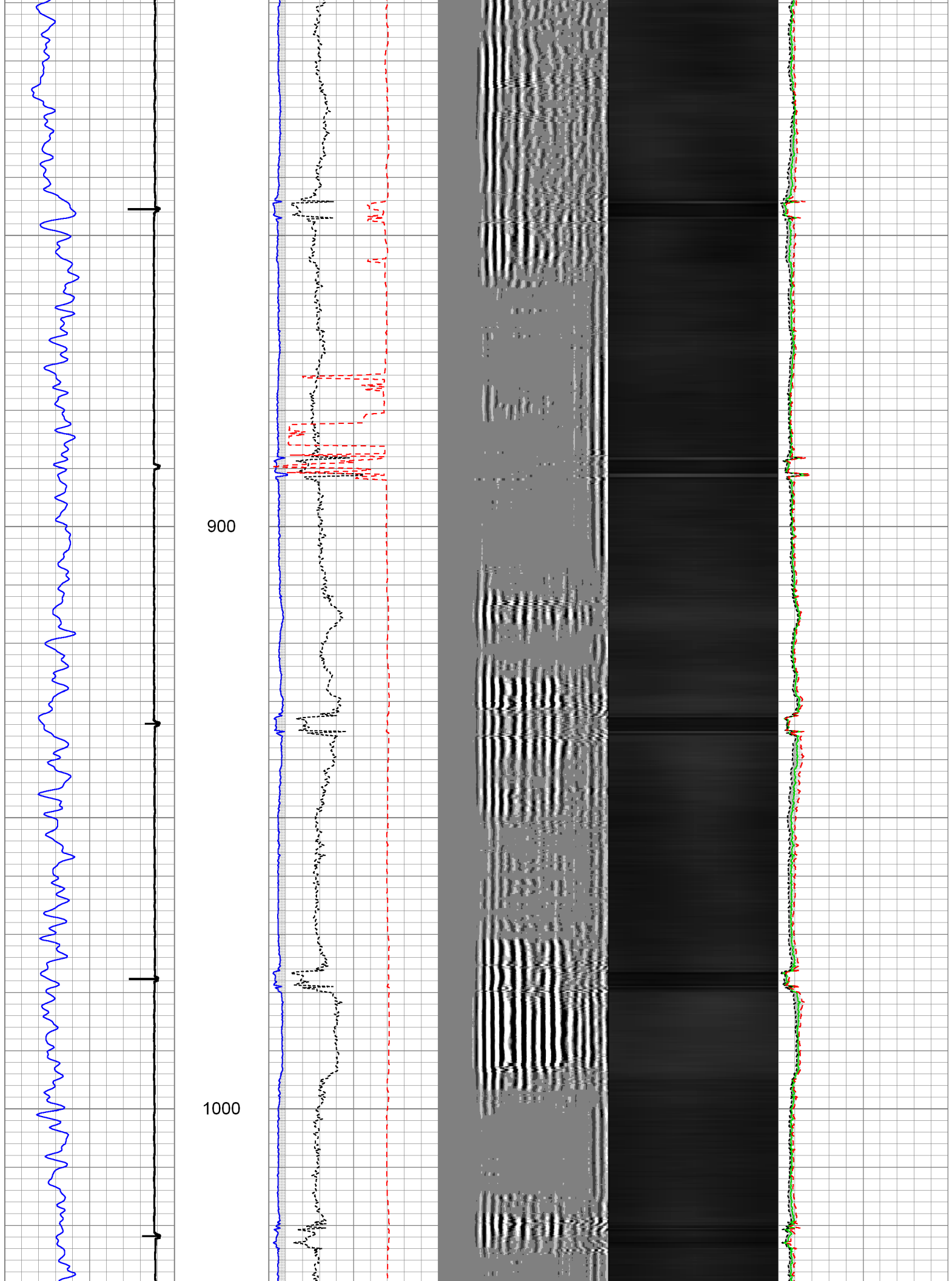
Gamma Ray			3' Amplitude		5' Variable Density Log	Sector Map	Average Amplitude			
0	(GAPI)	120	0	(mV)			100	0	100	
Collar Locator			3' Amplitude x 5				Minimum Amplitude			
			0	(mV)	20	0			100	
			3' Travel Time		Maximum Amplitude					
			650	(usec)	150	0				100





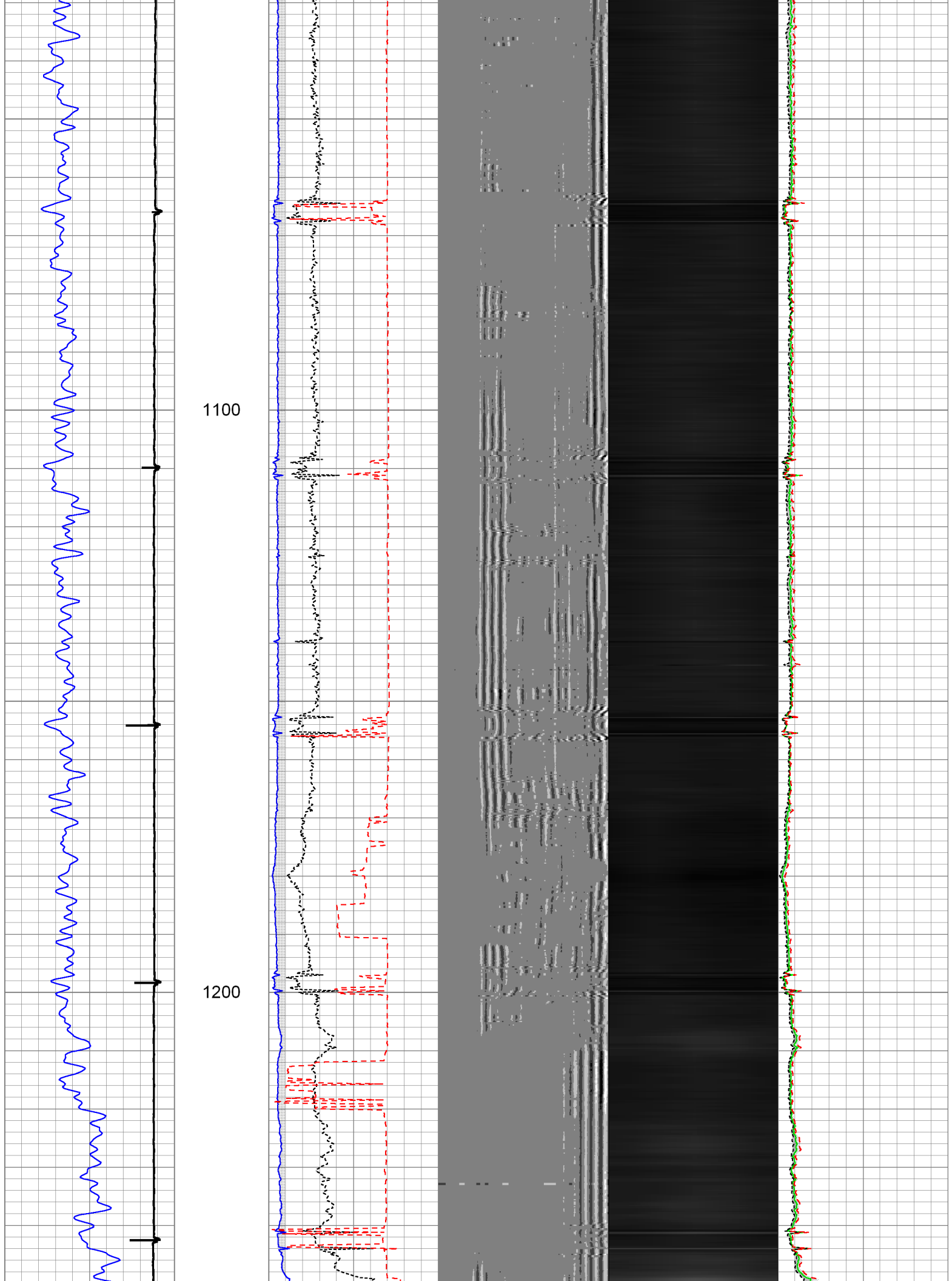


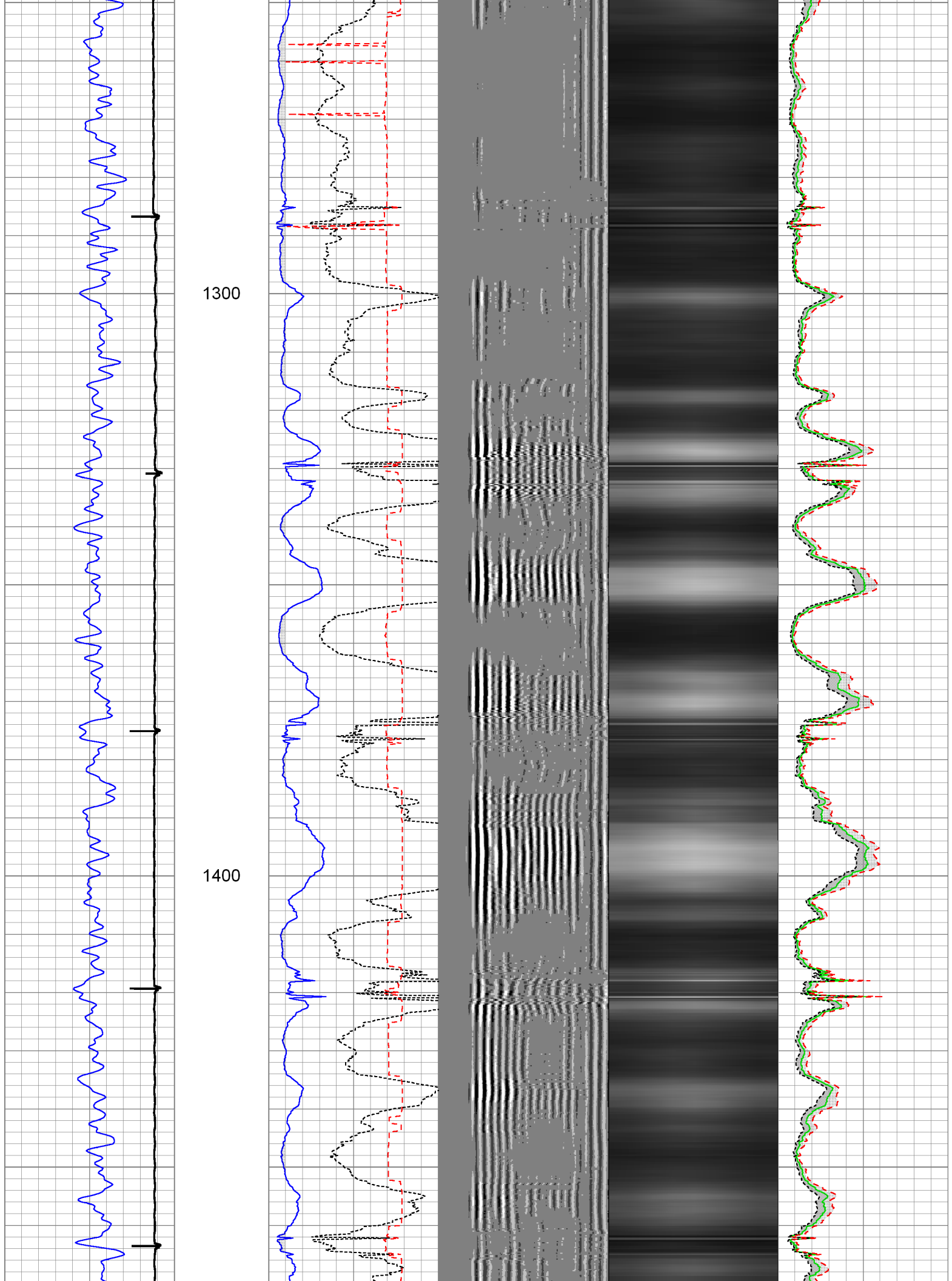




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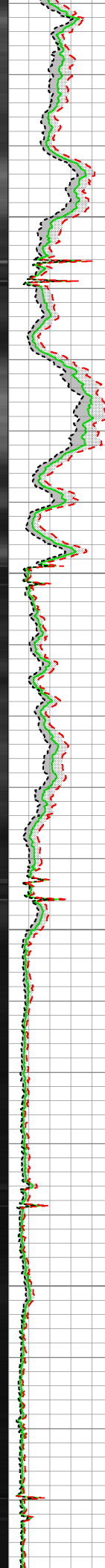
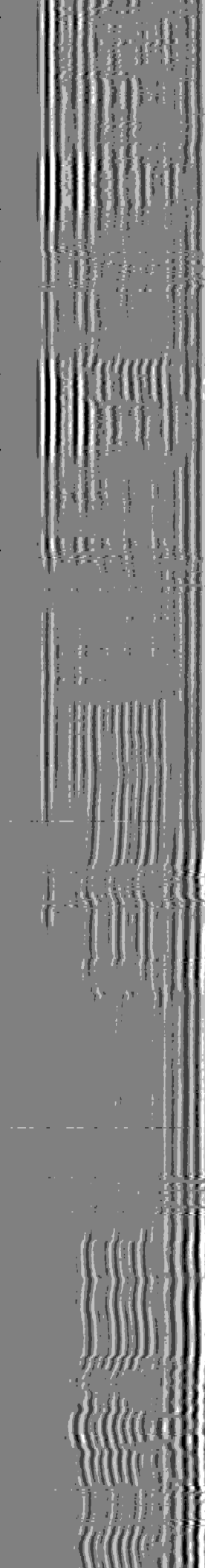
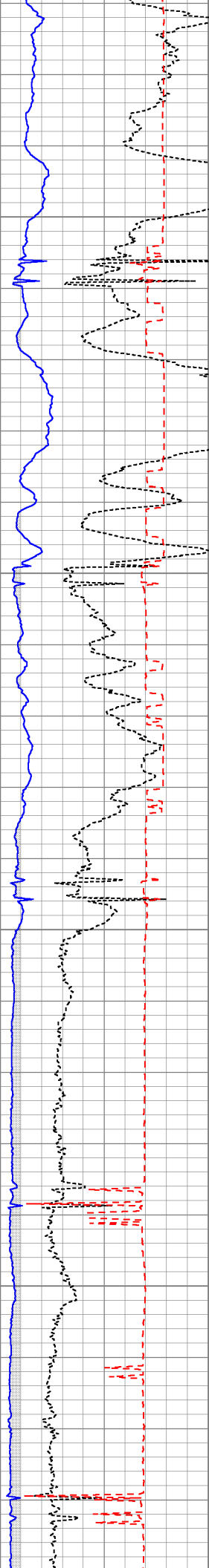
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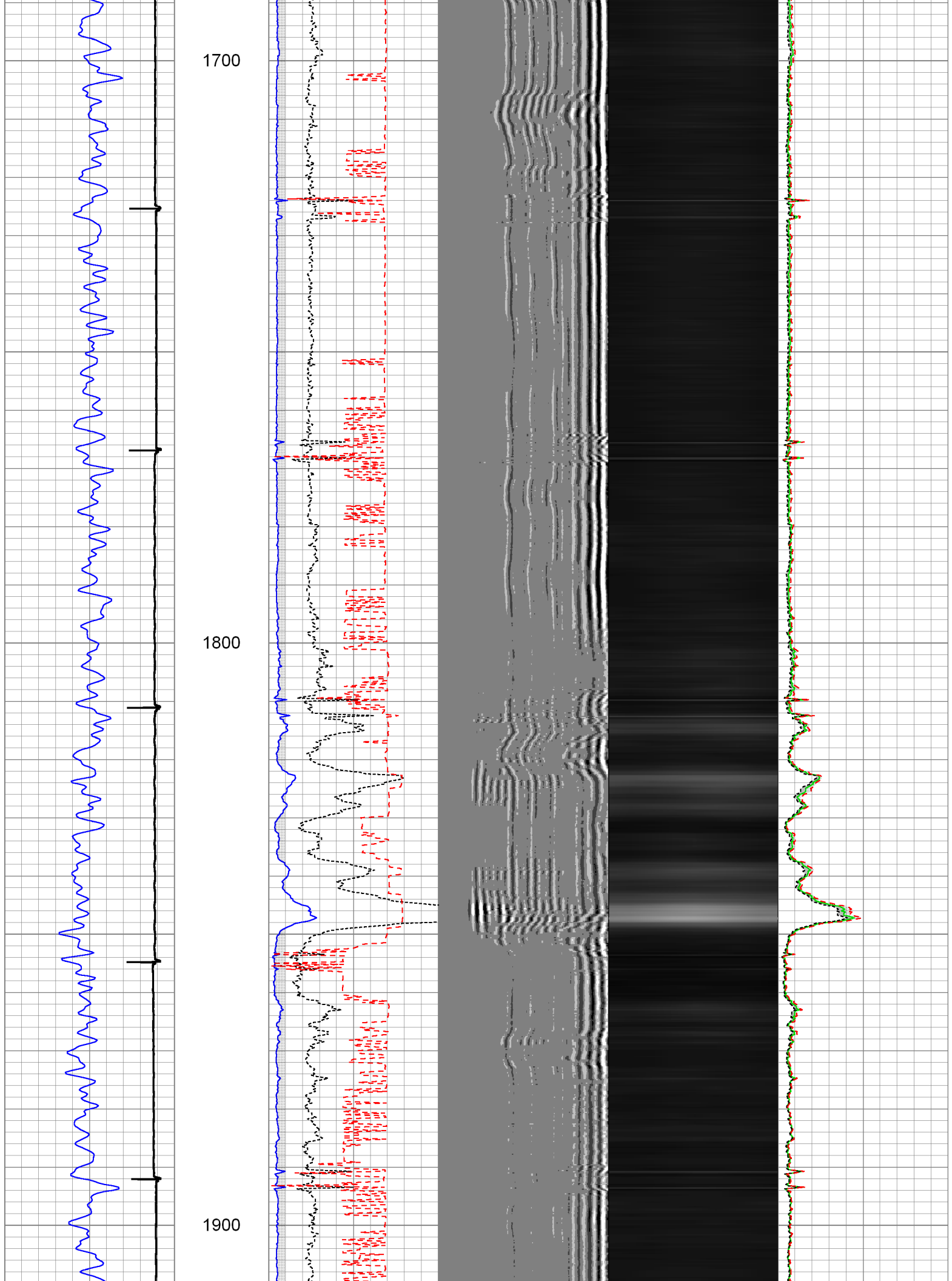




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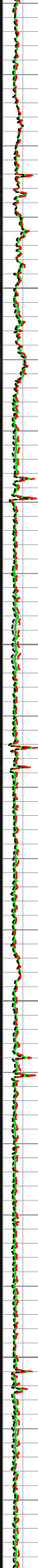
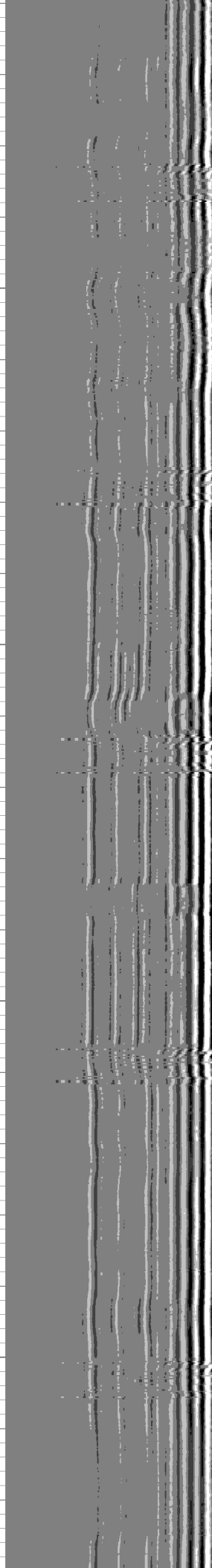
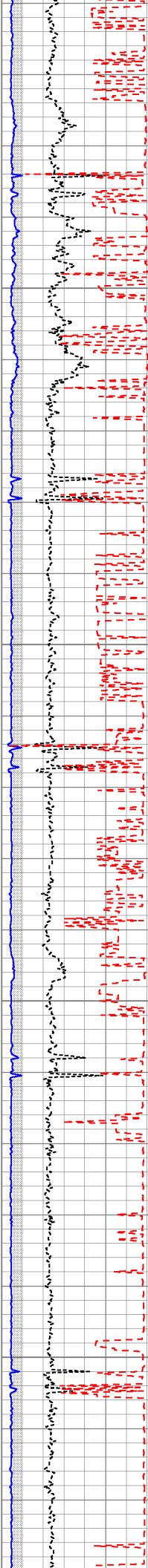
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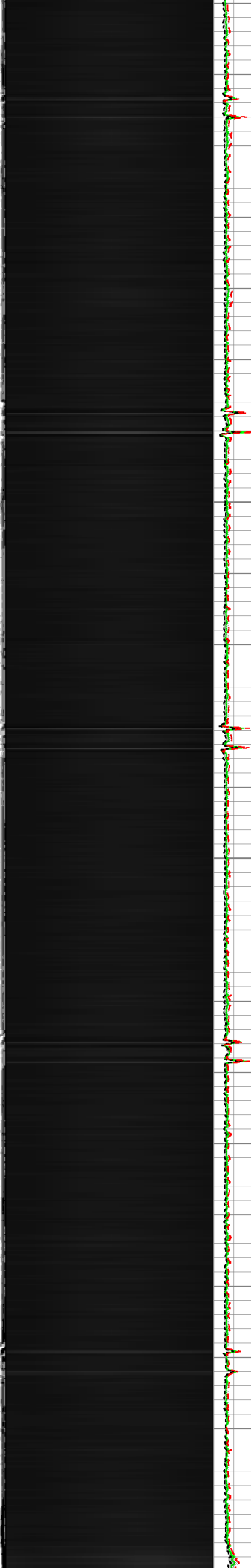
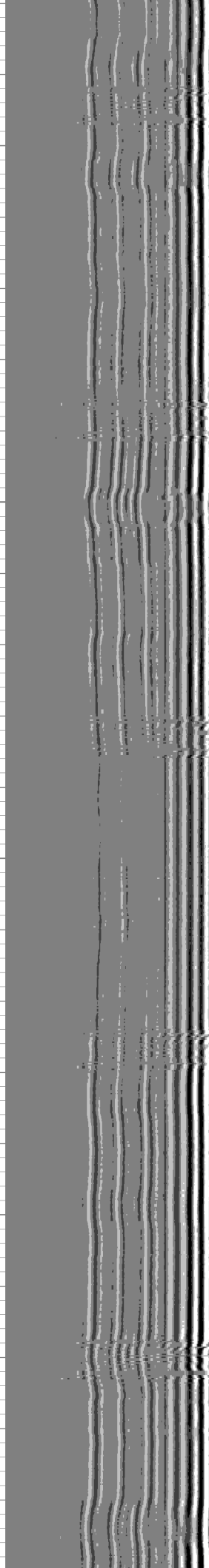
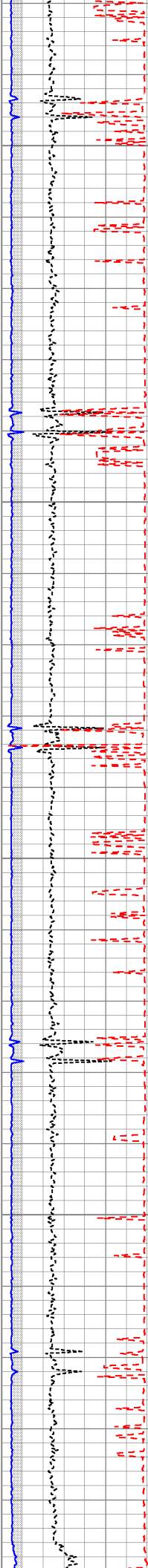
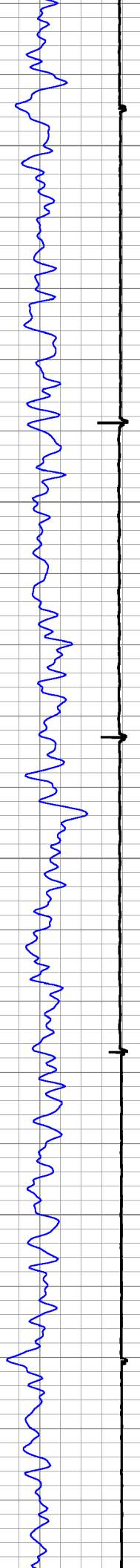
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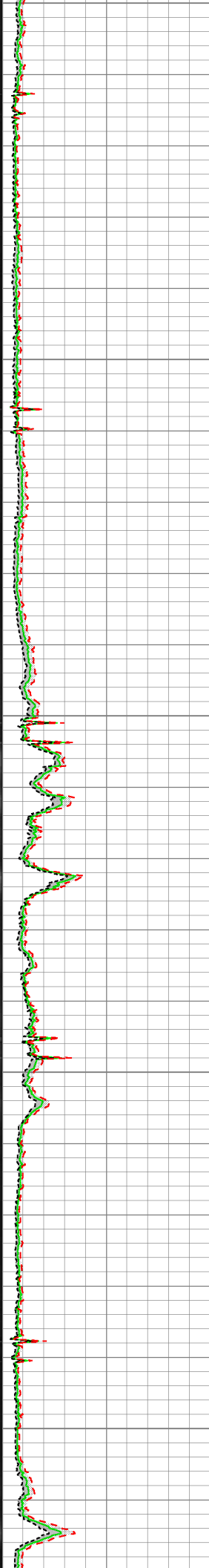
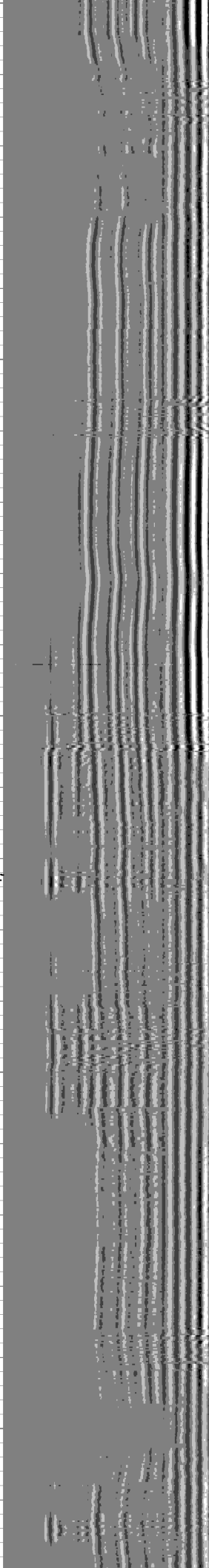
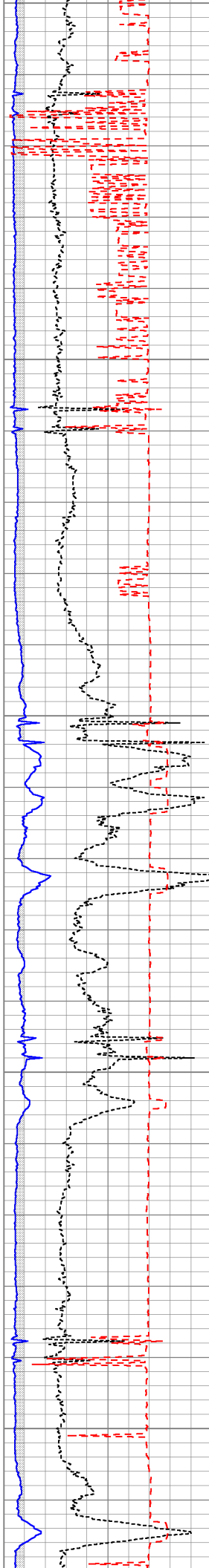
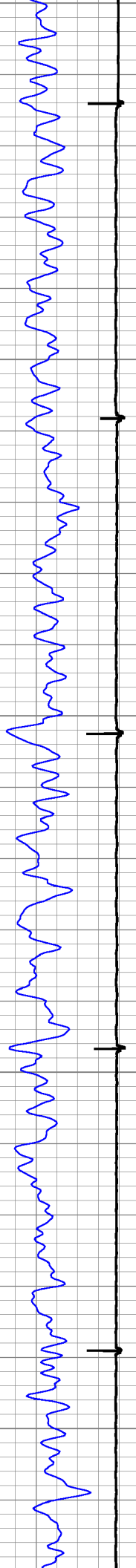
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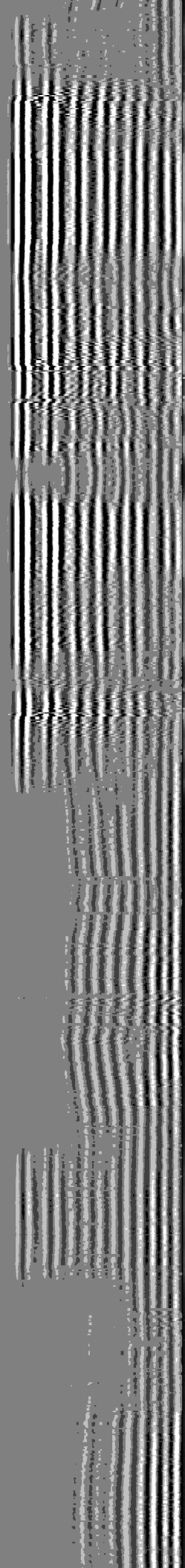
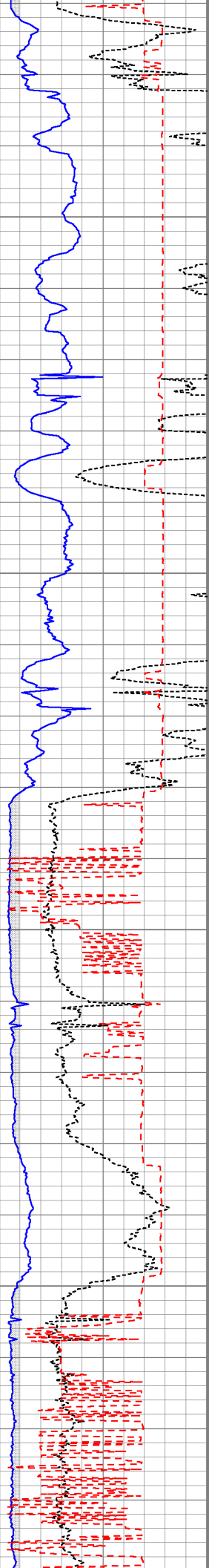
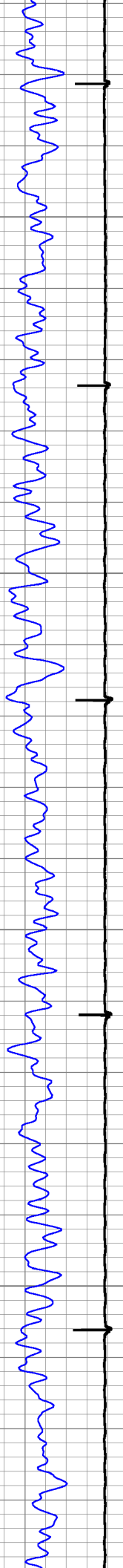
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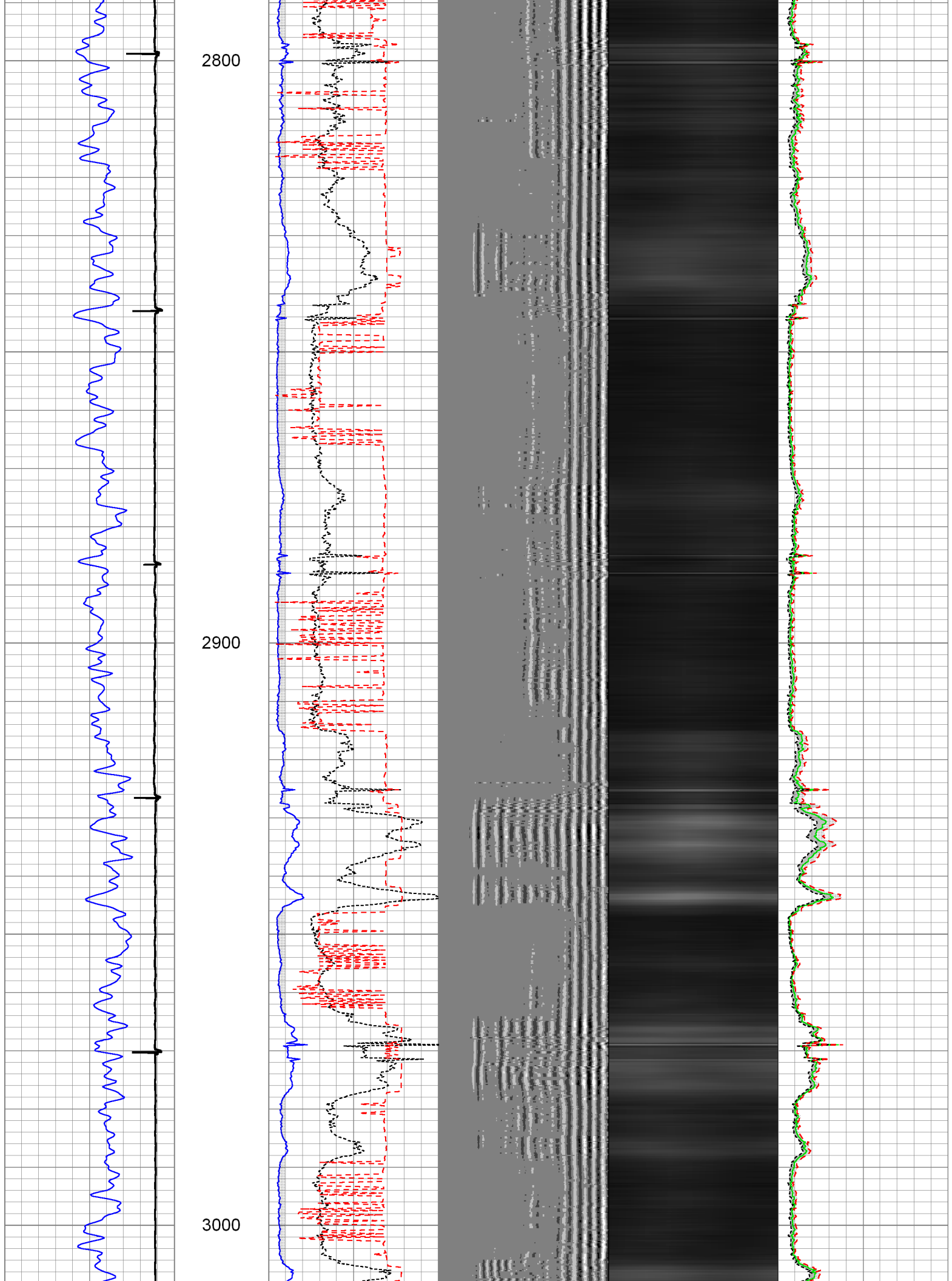
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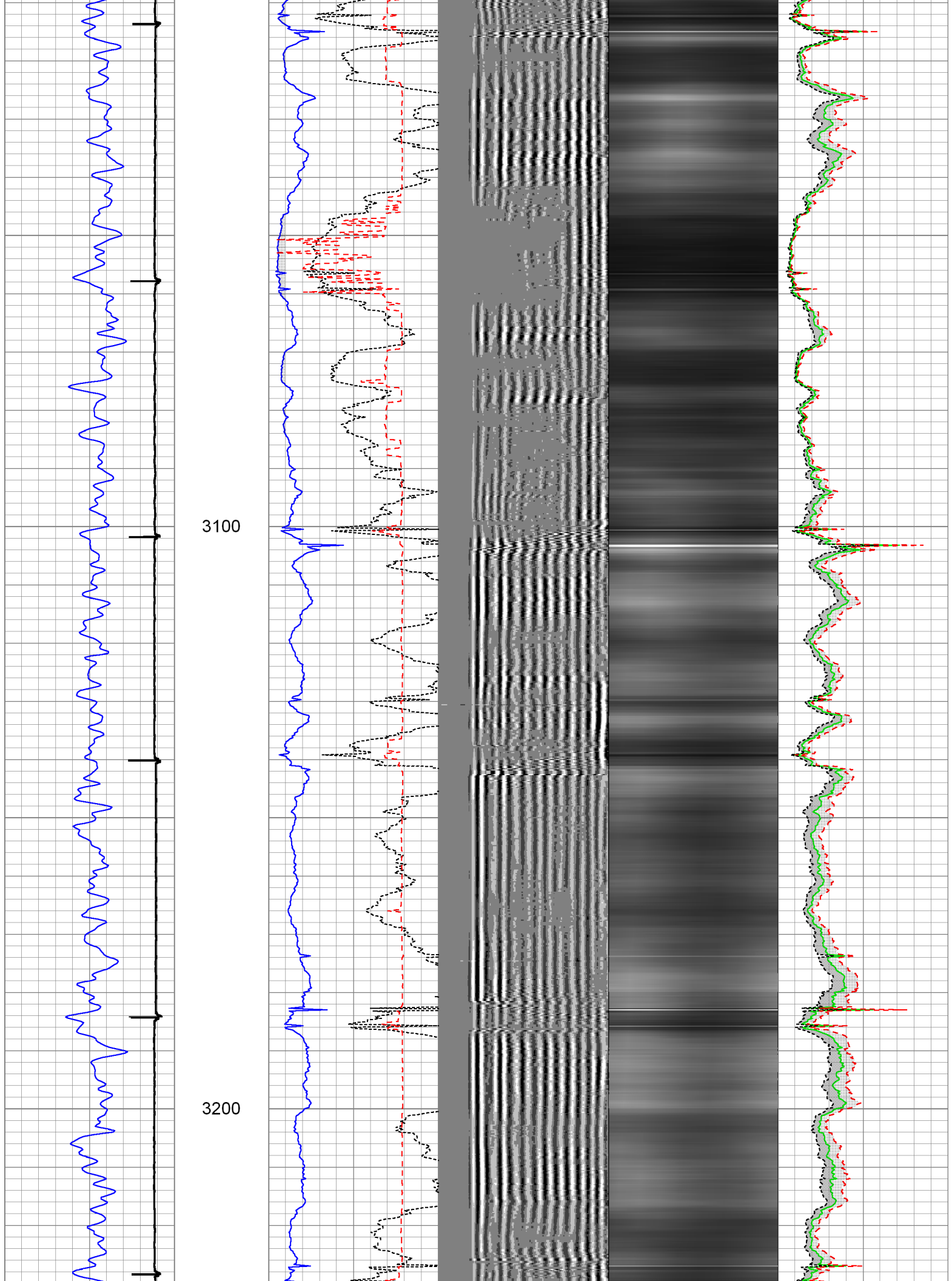


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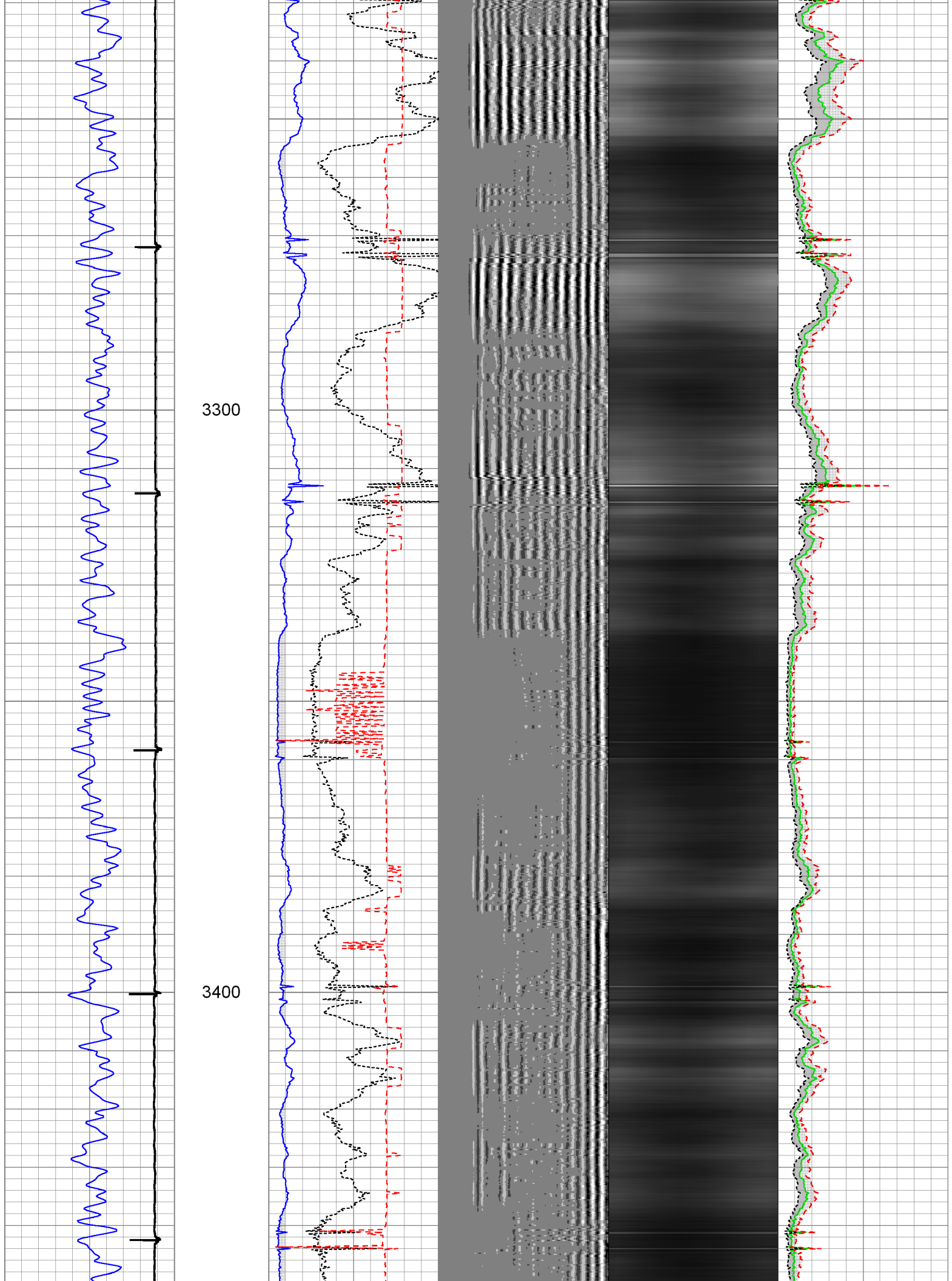


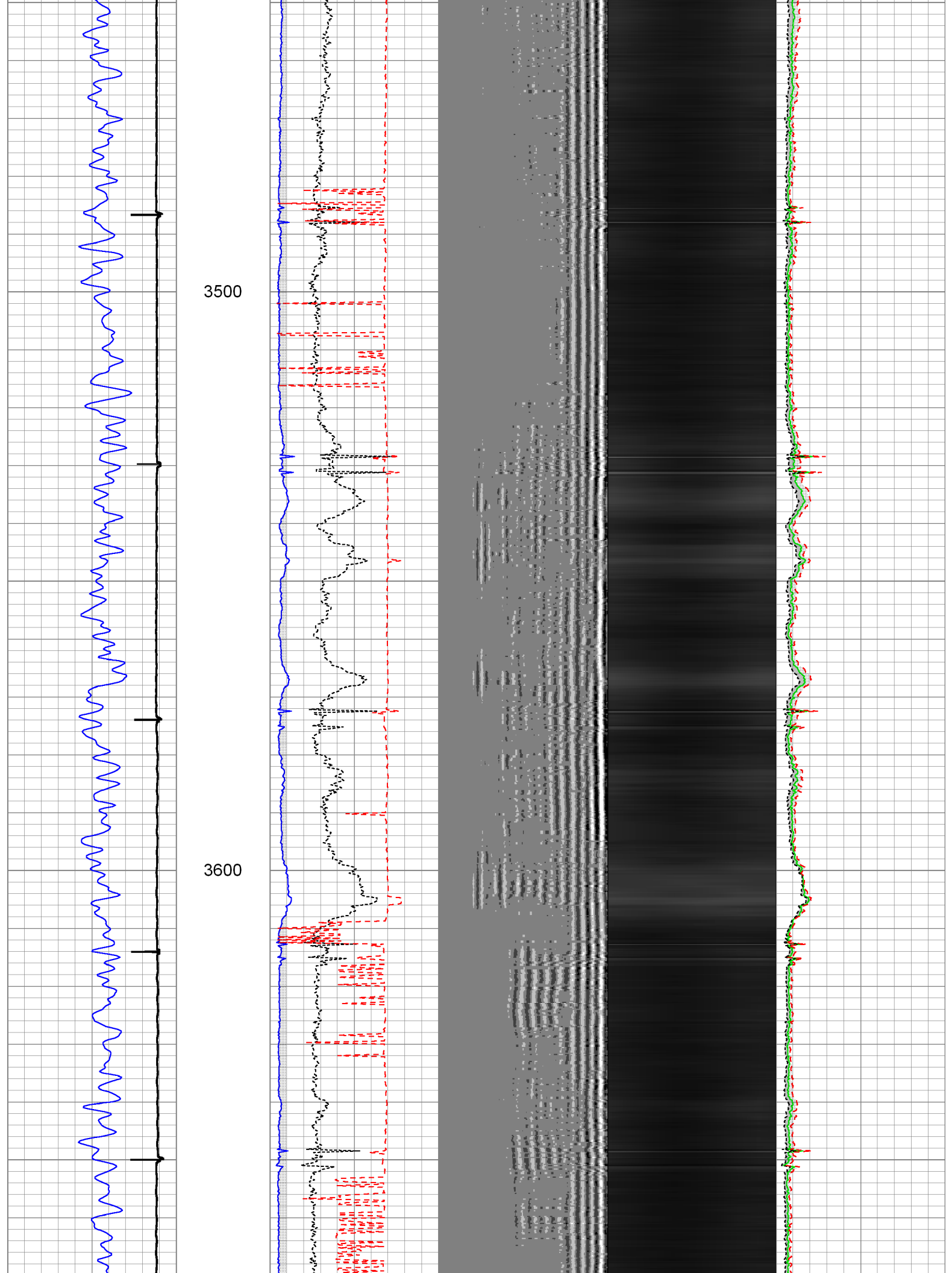




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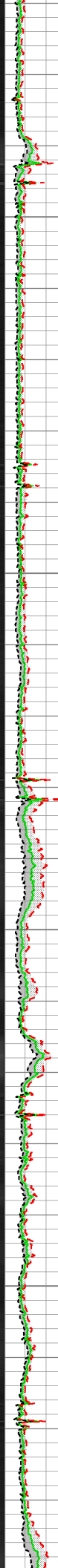
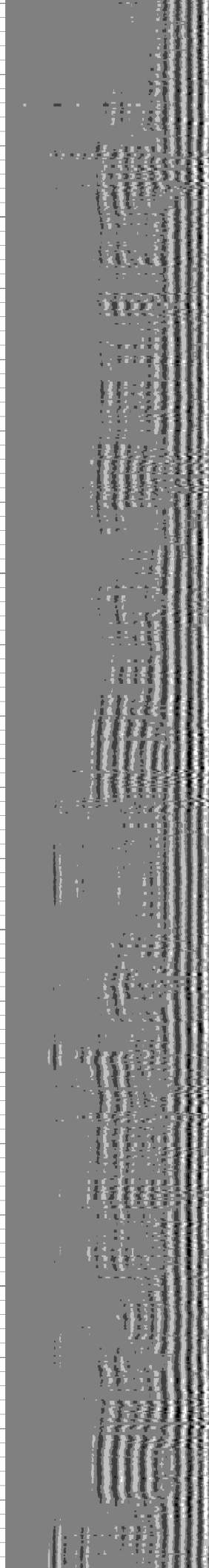
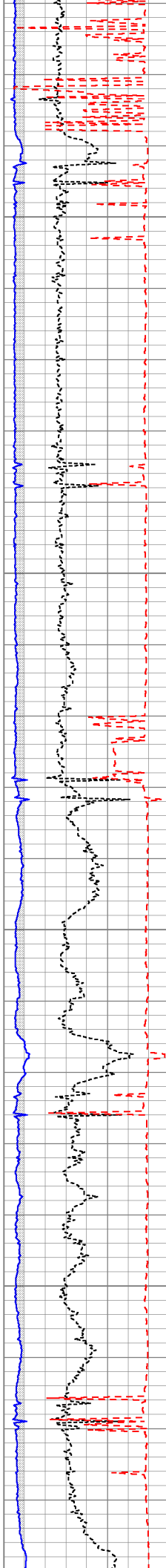
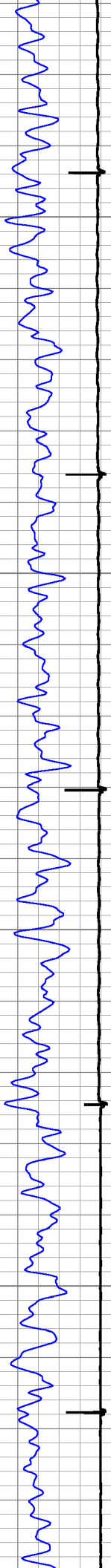
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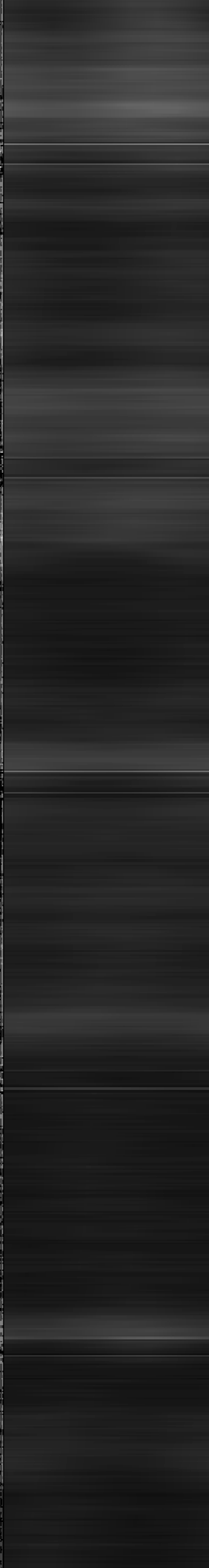
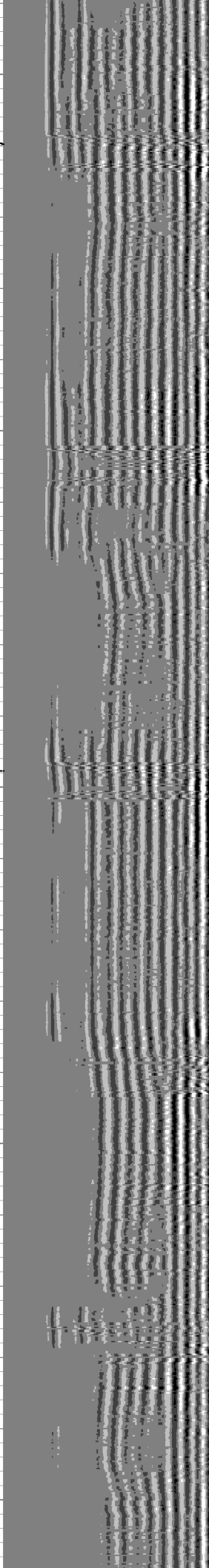
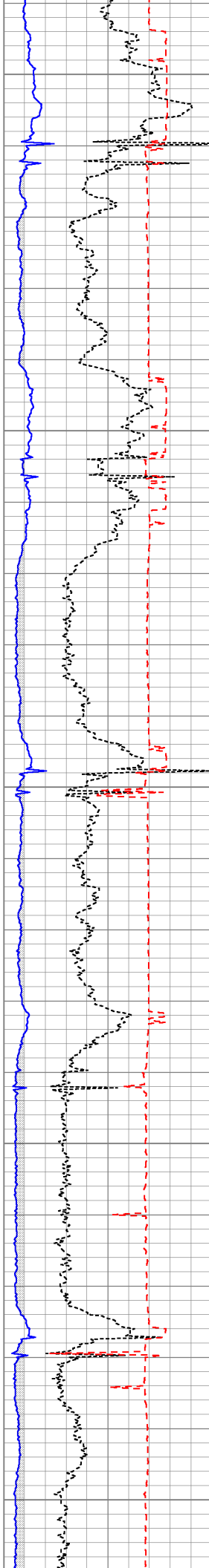
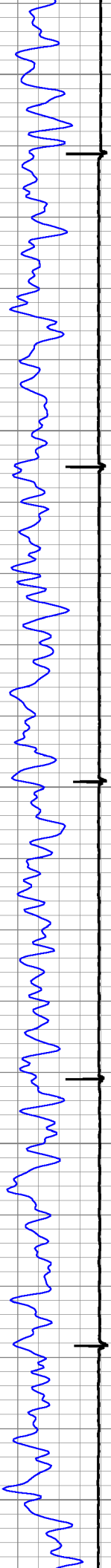
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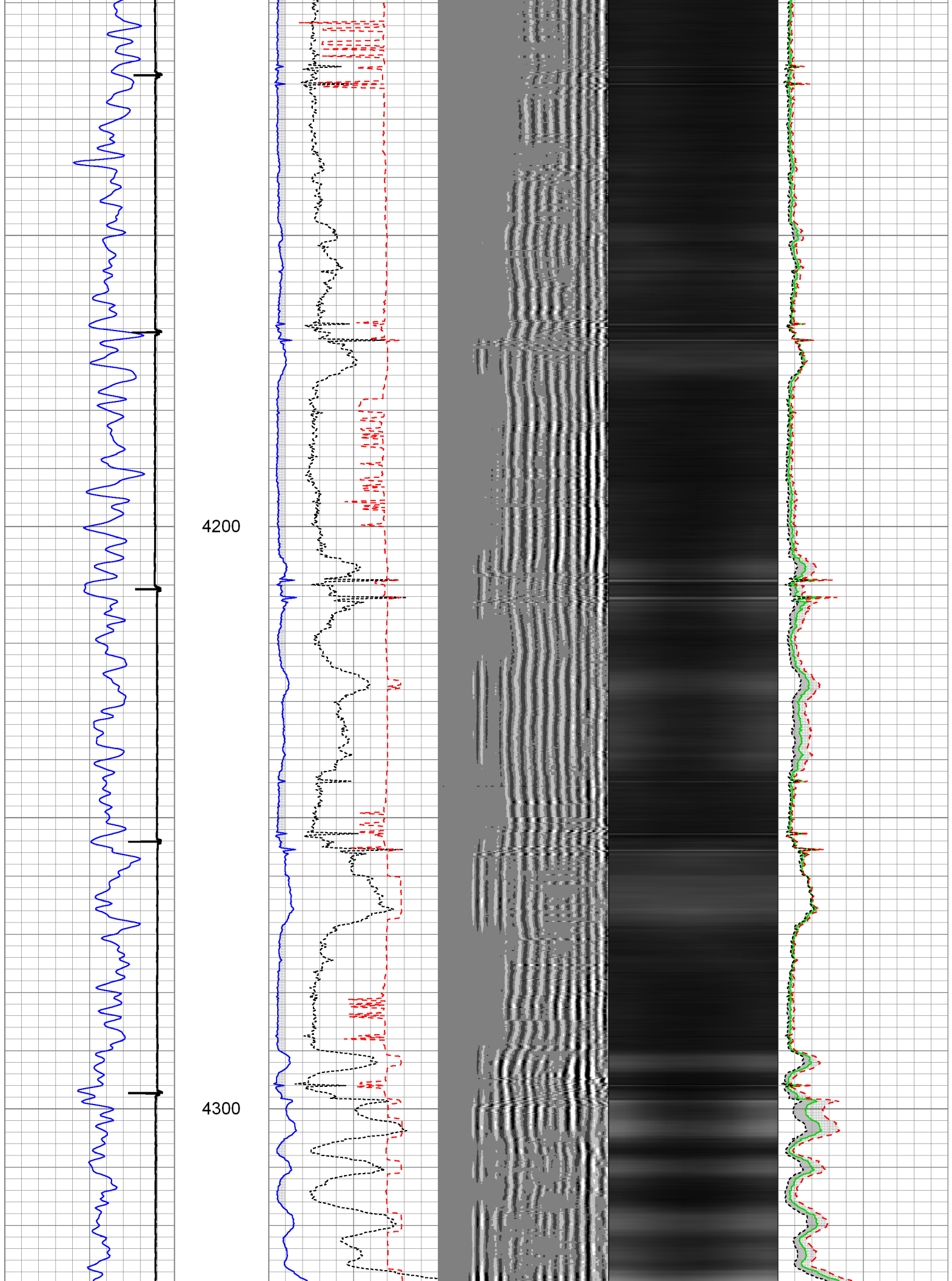
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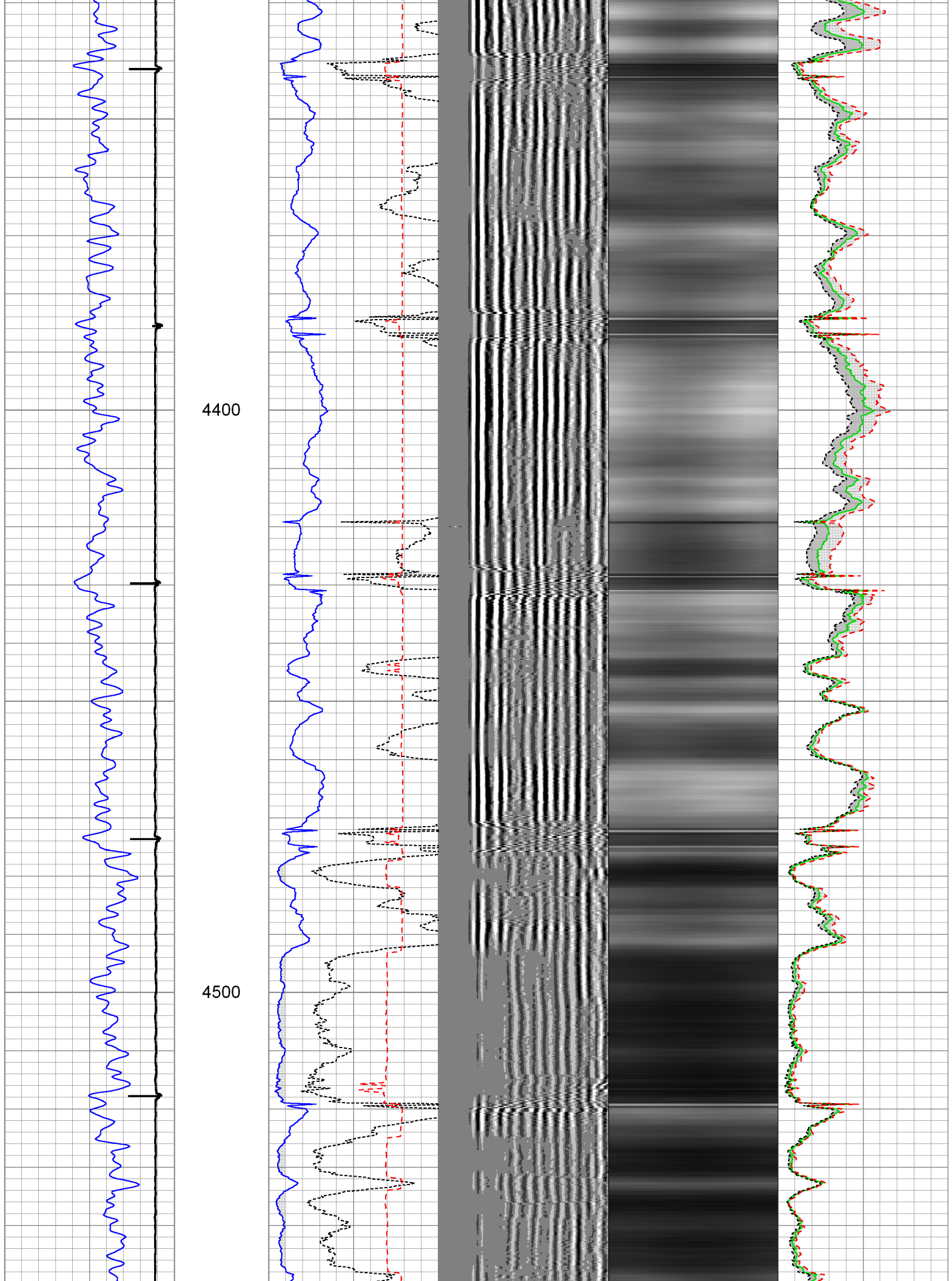
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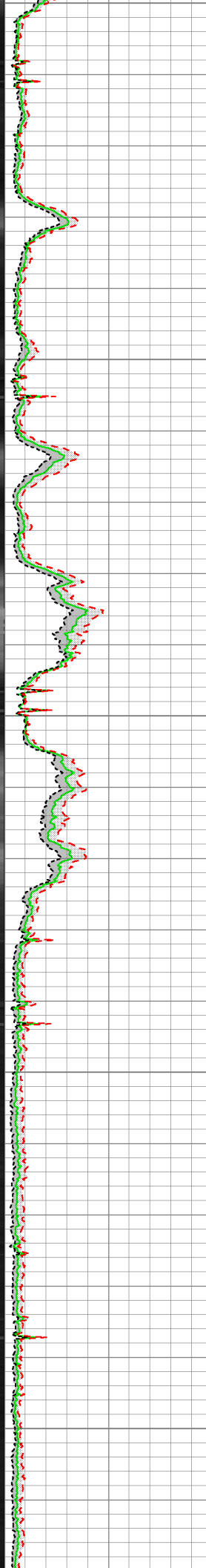
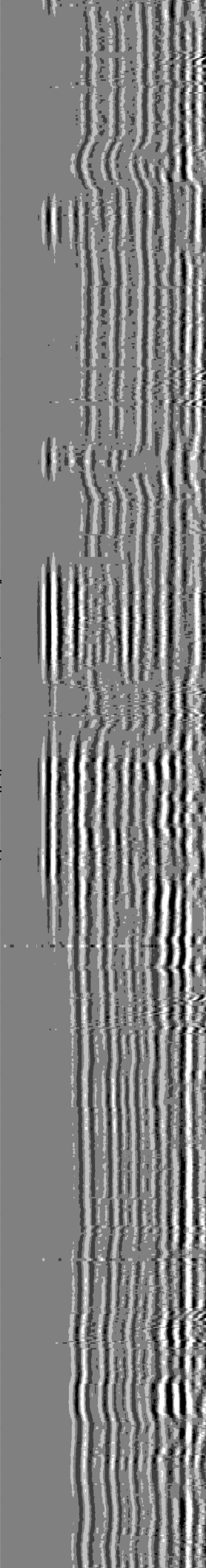
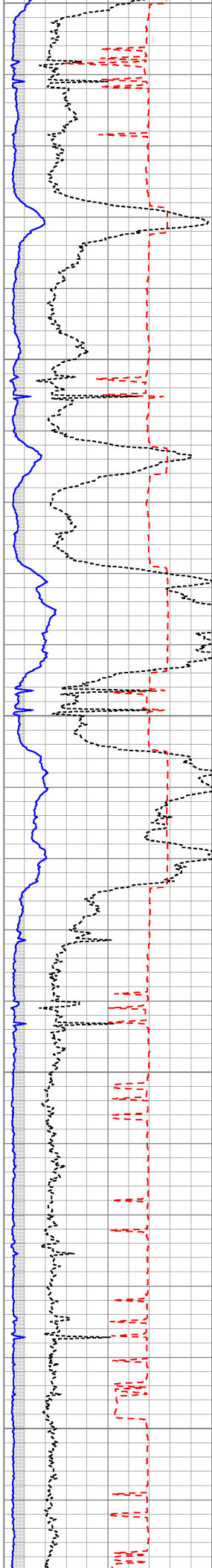
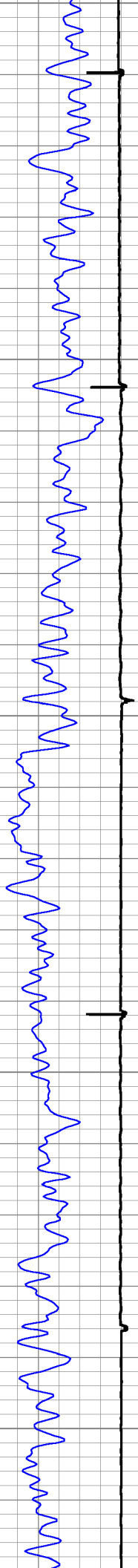
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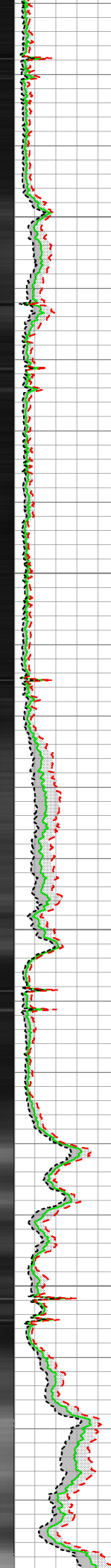
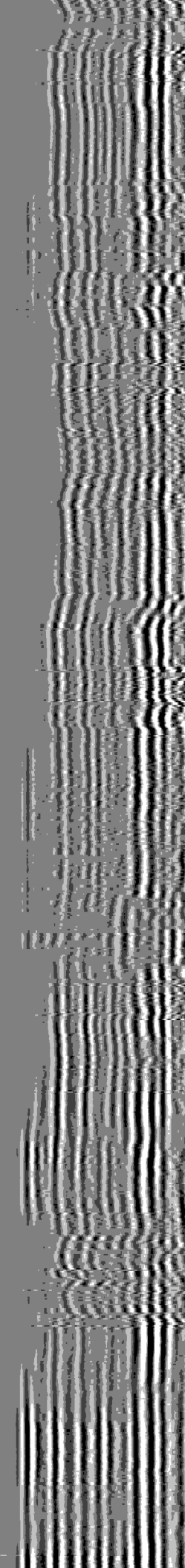
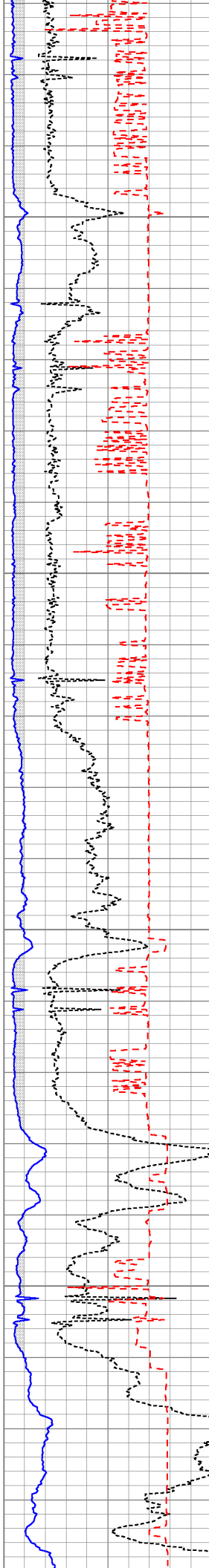
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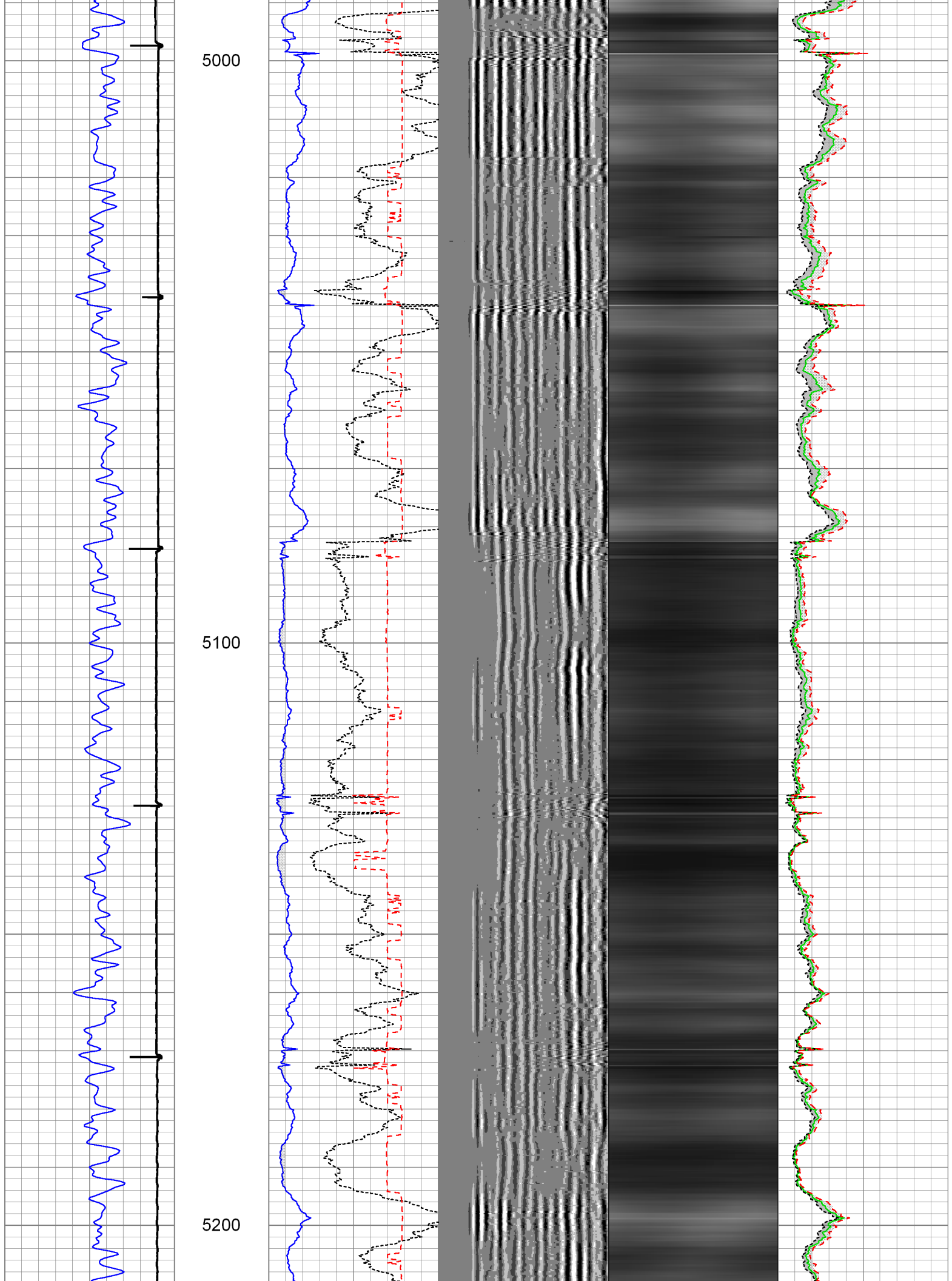
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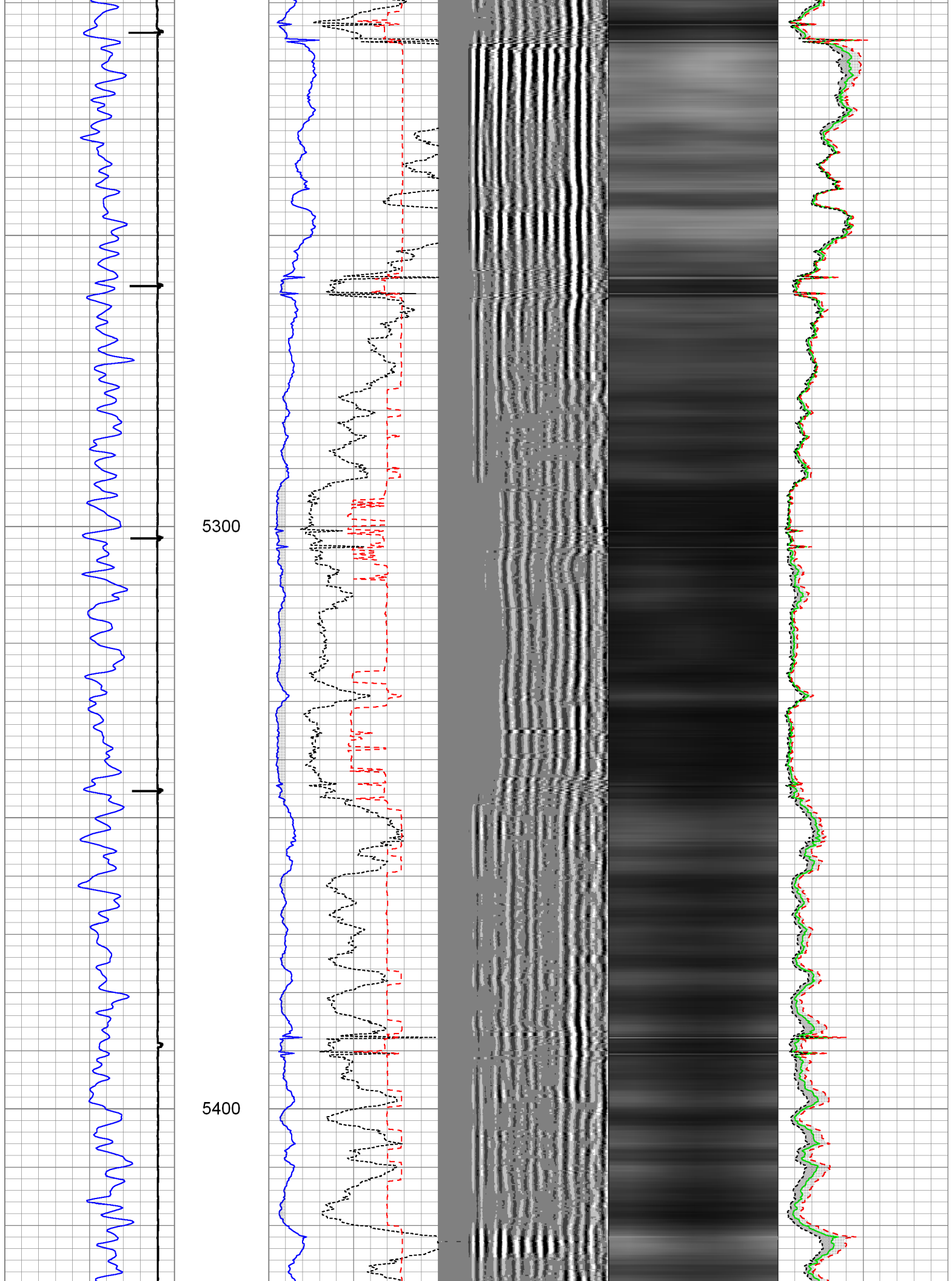


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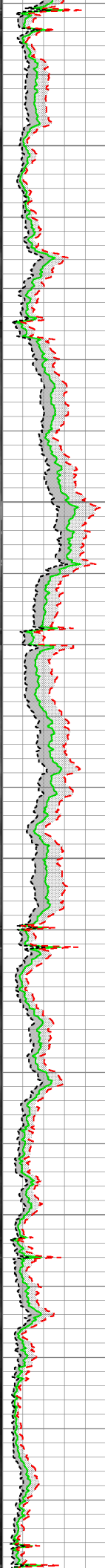
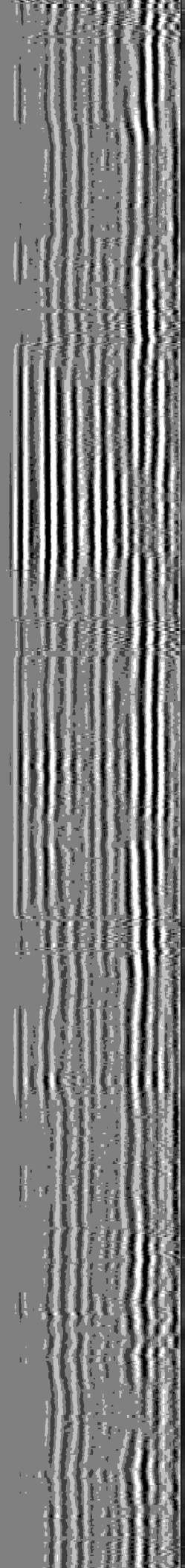
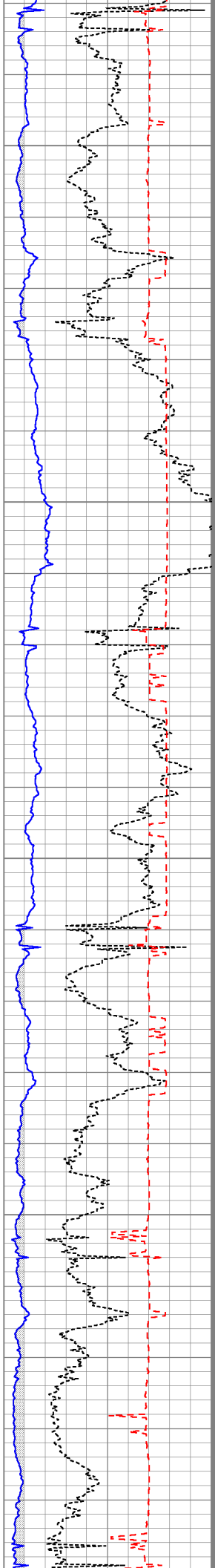
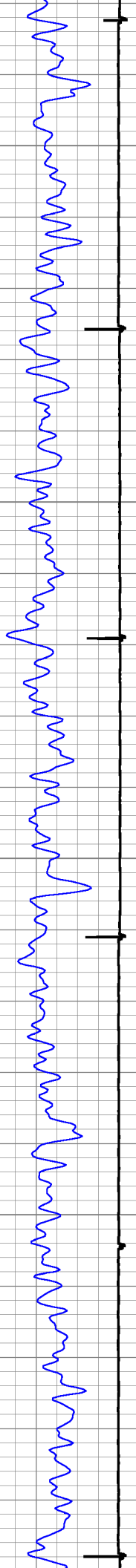






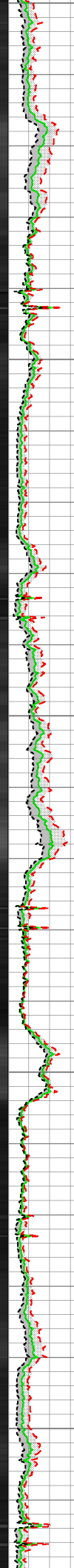
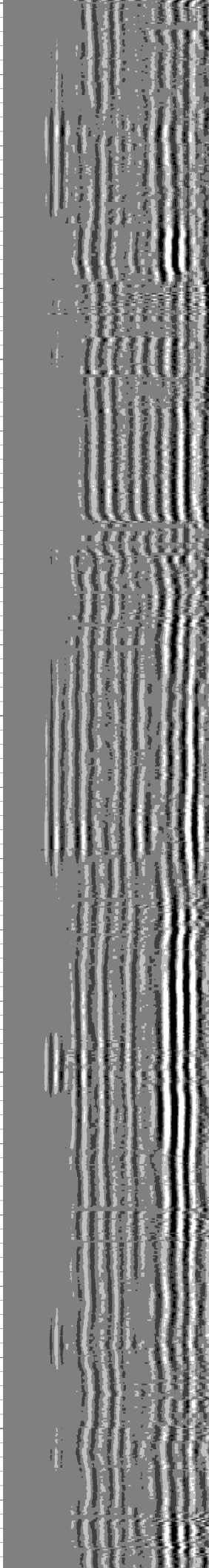
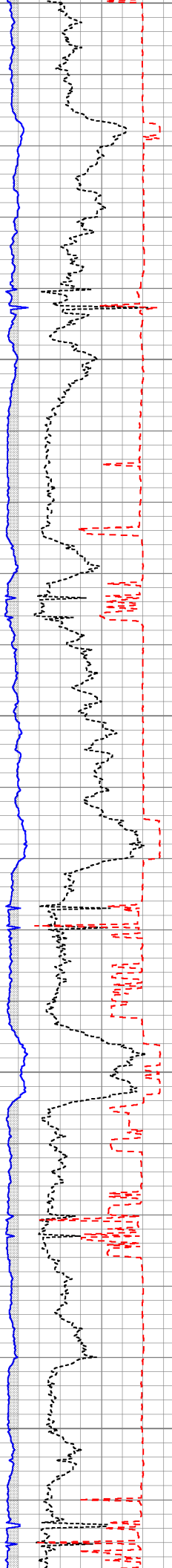
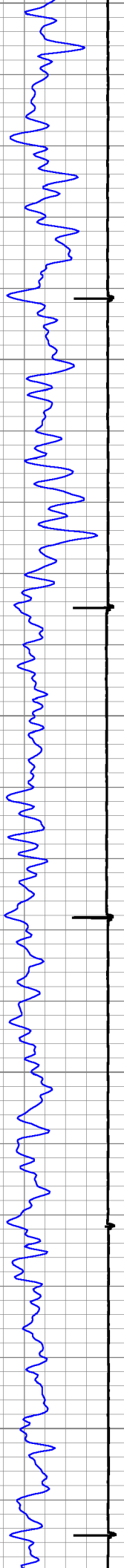
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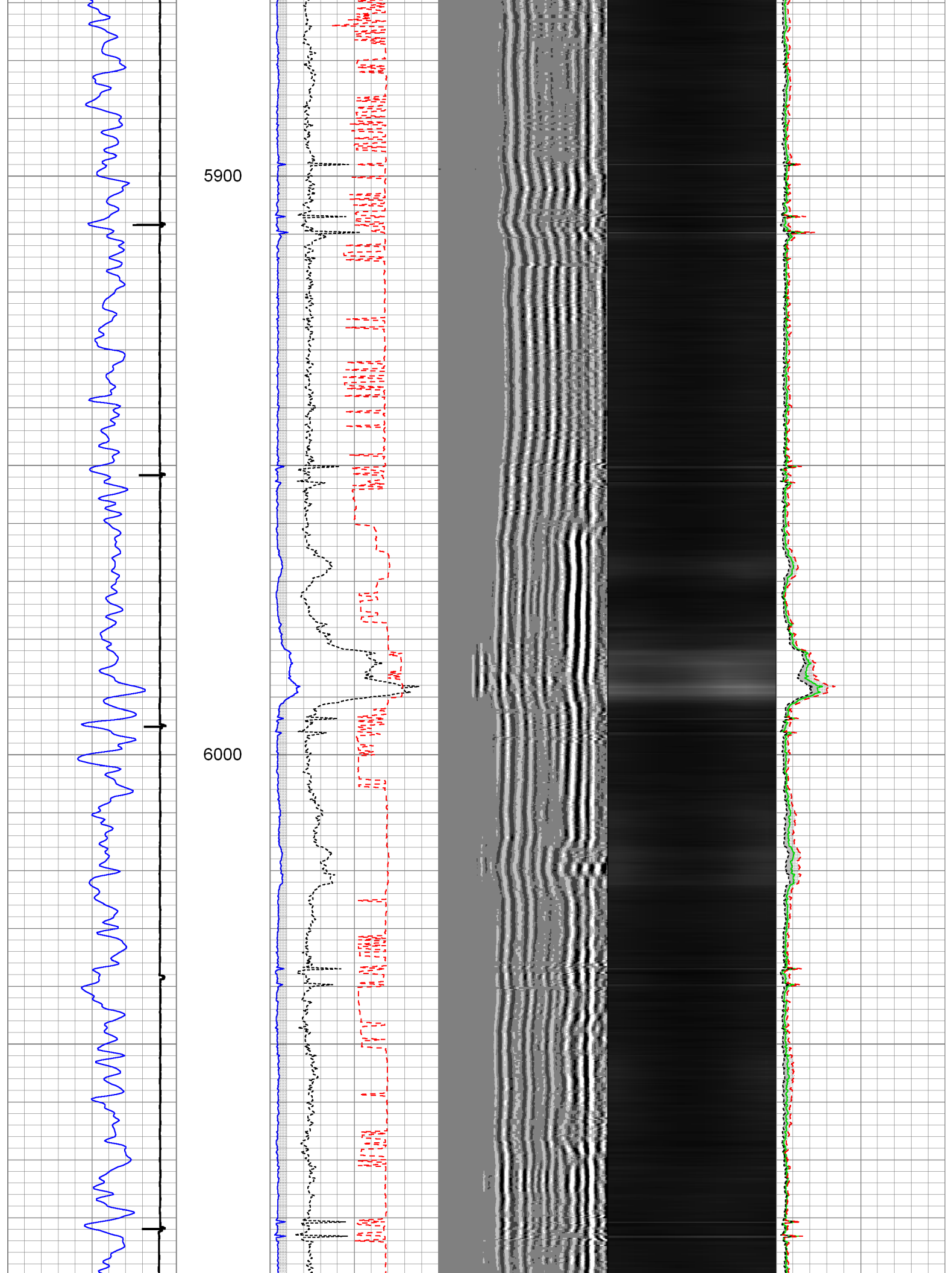
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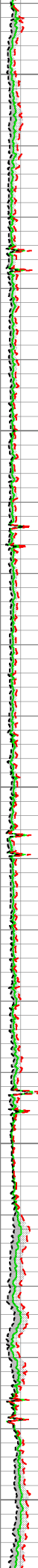
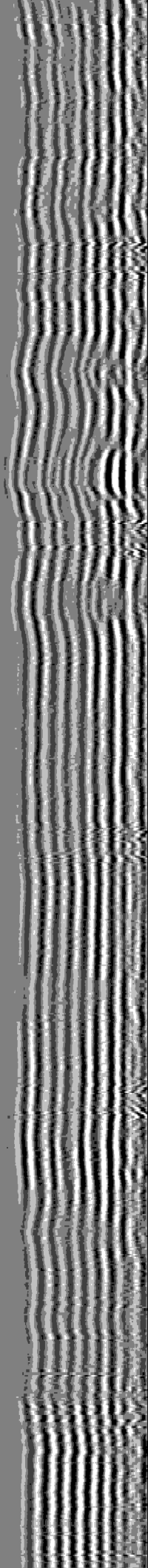
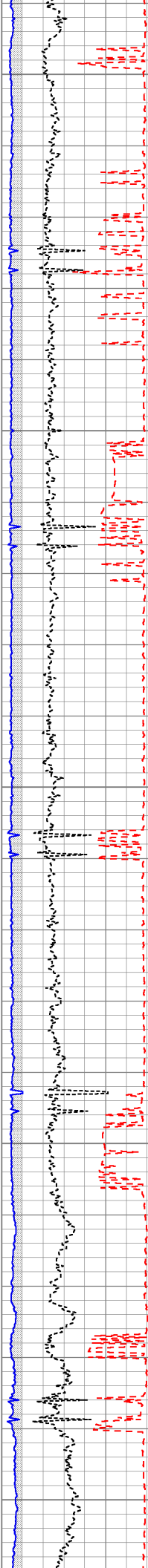
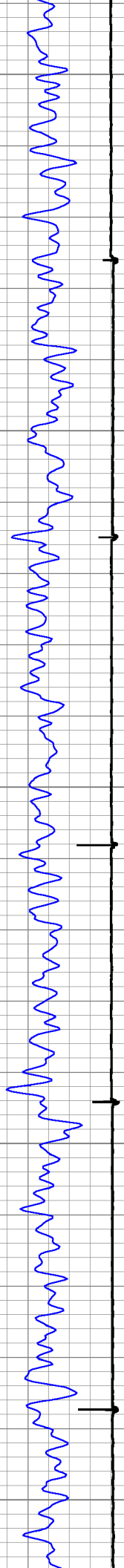


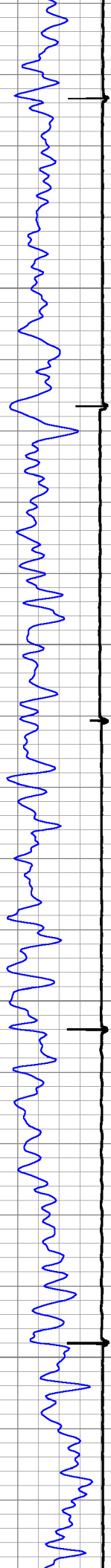


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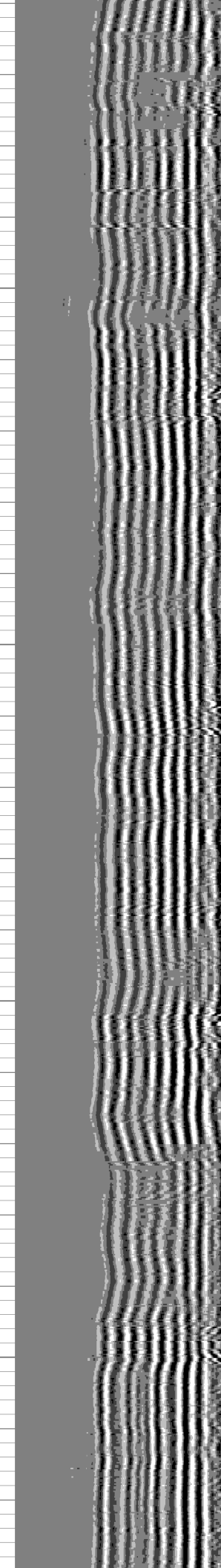
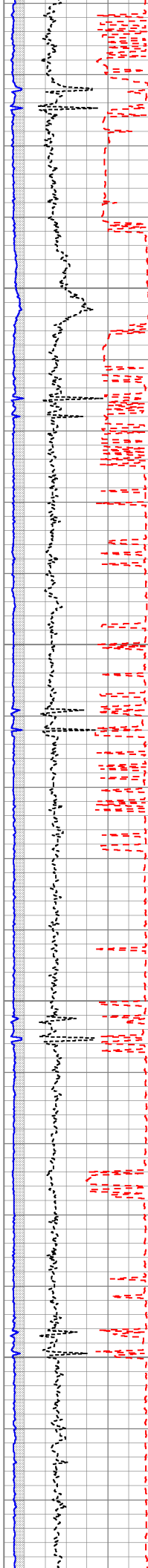
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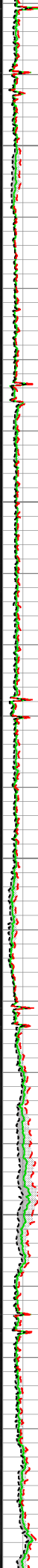
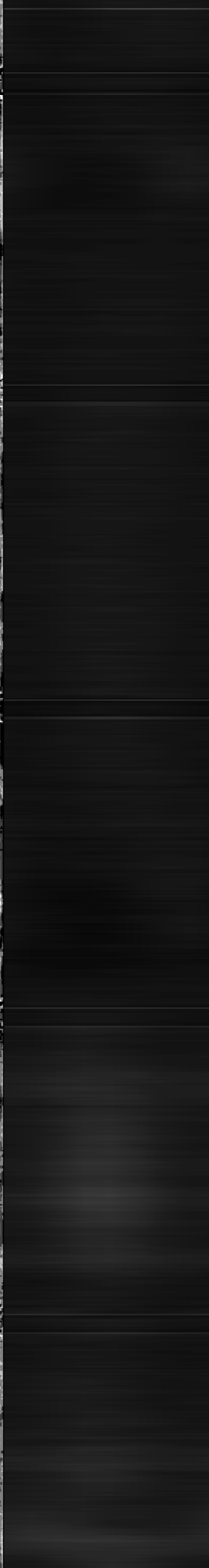
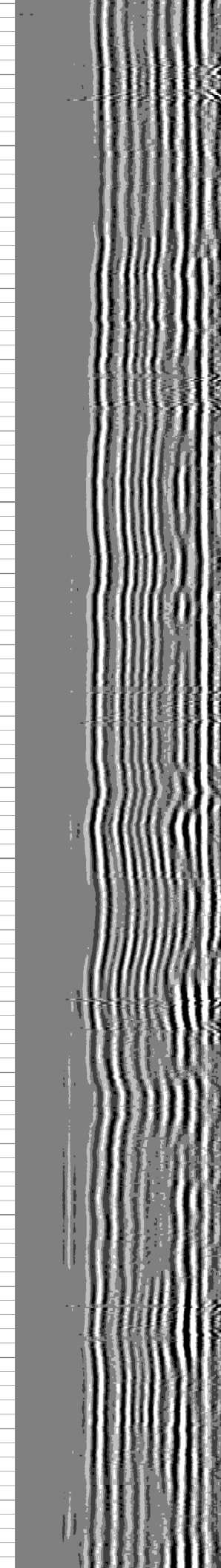
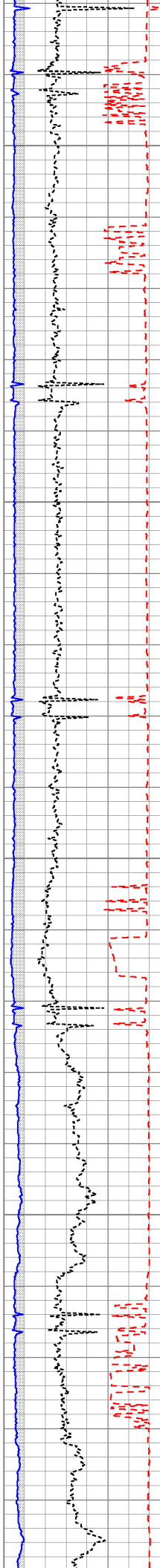
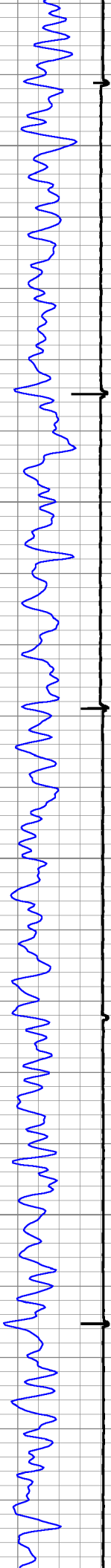
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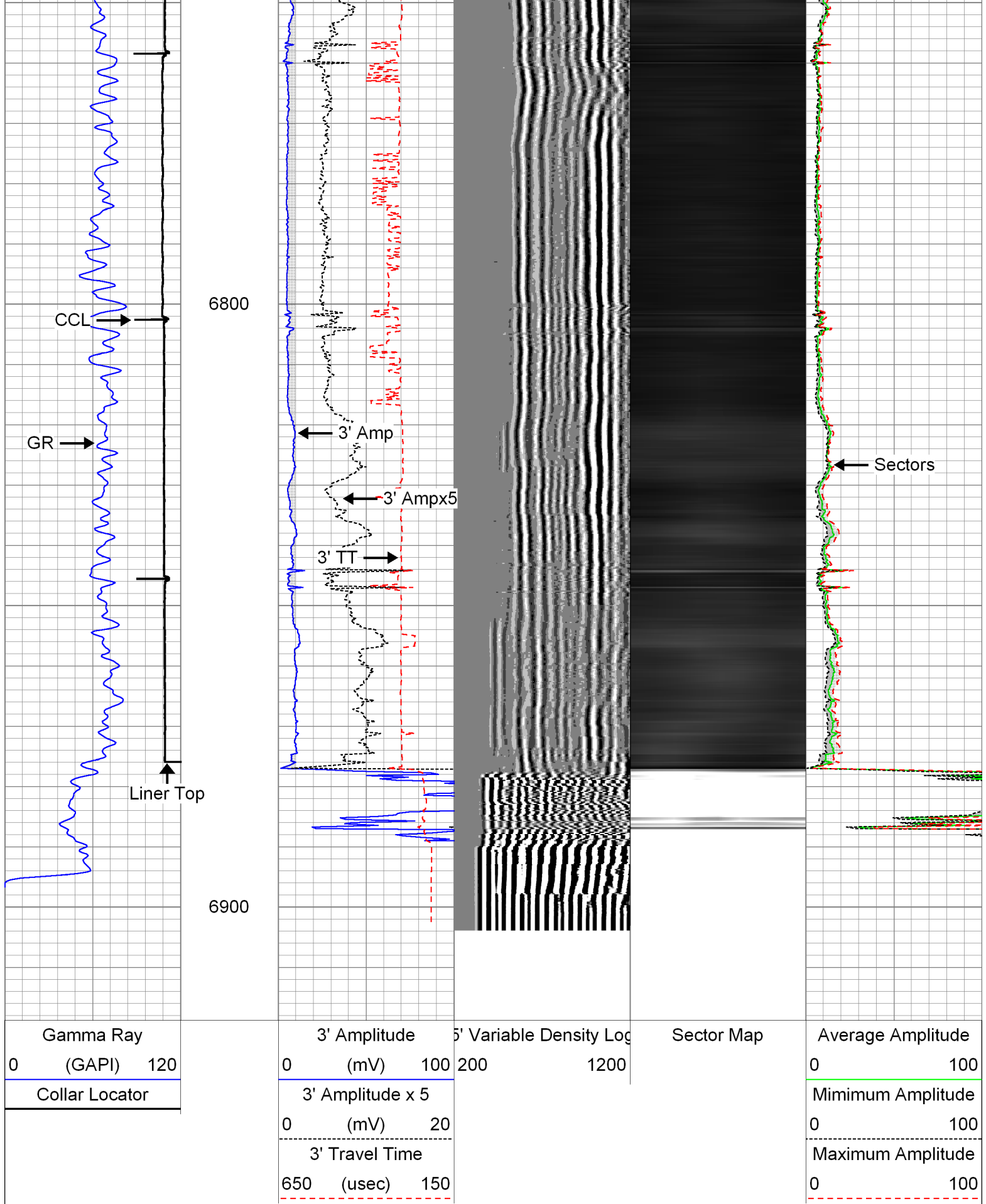
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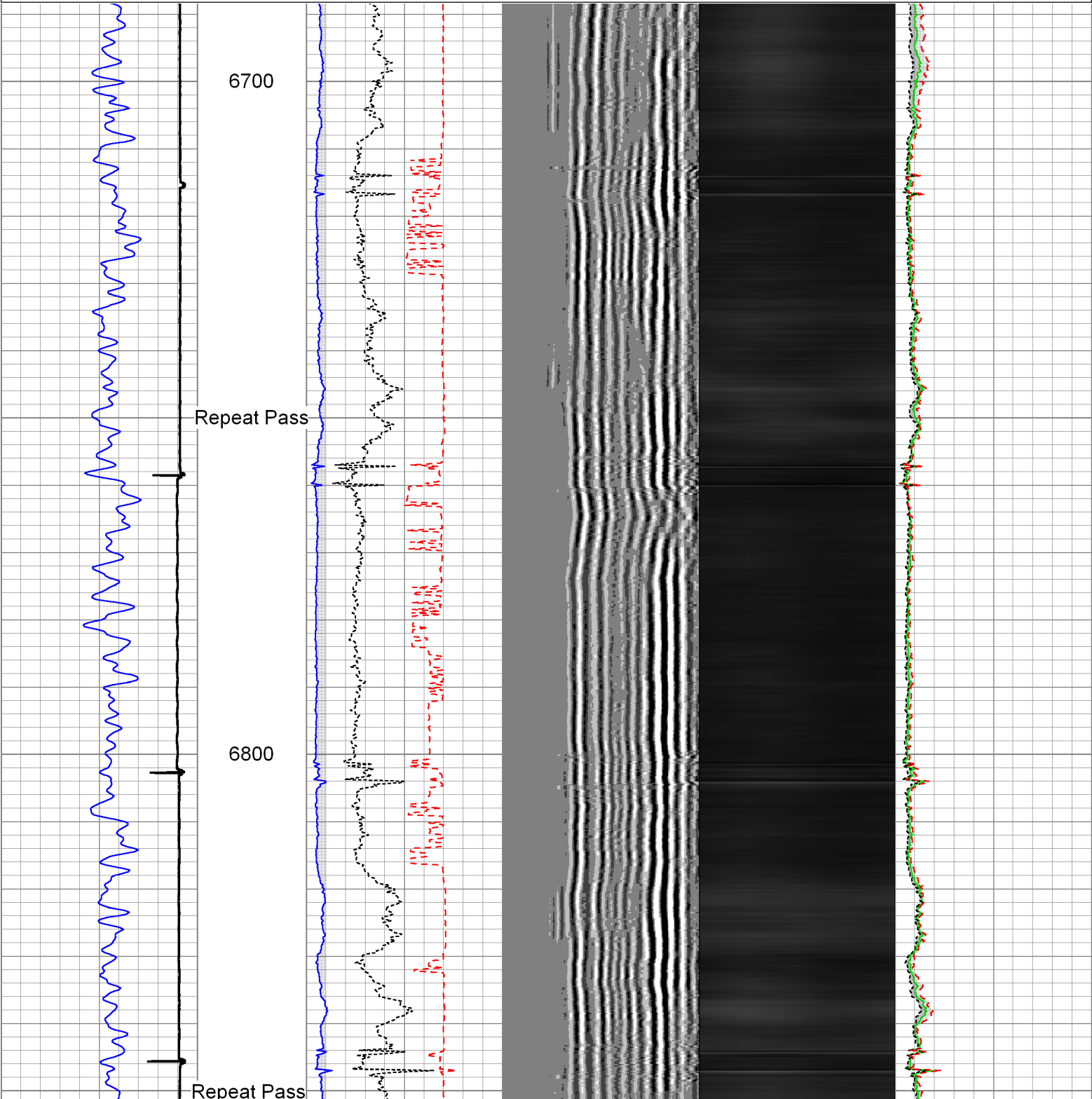
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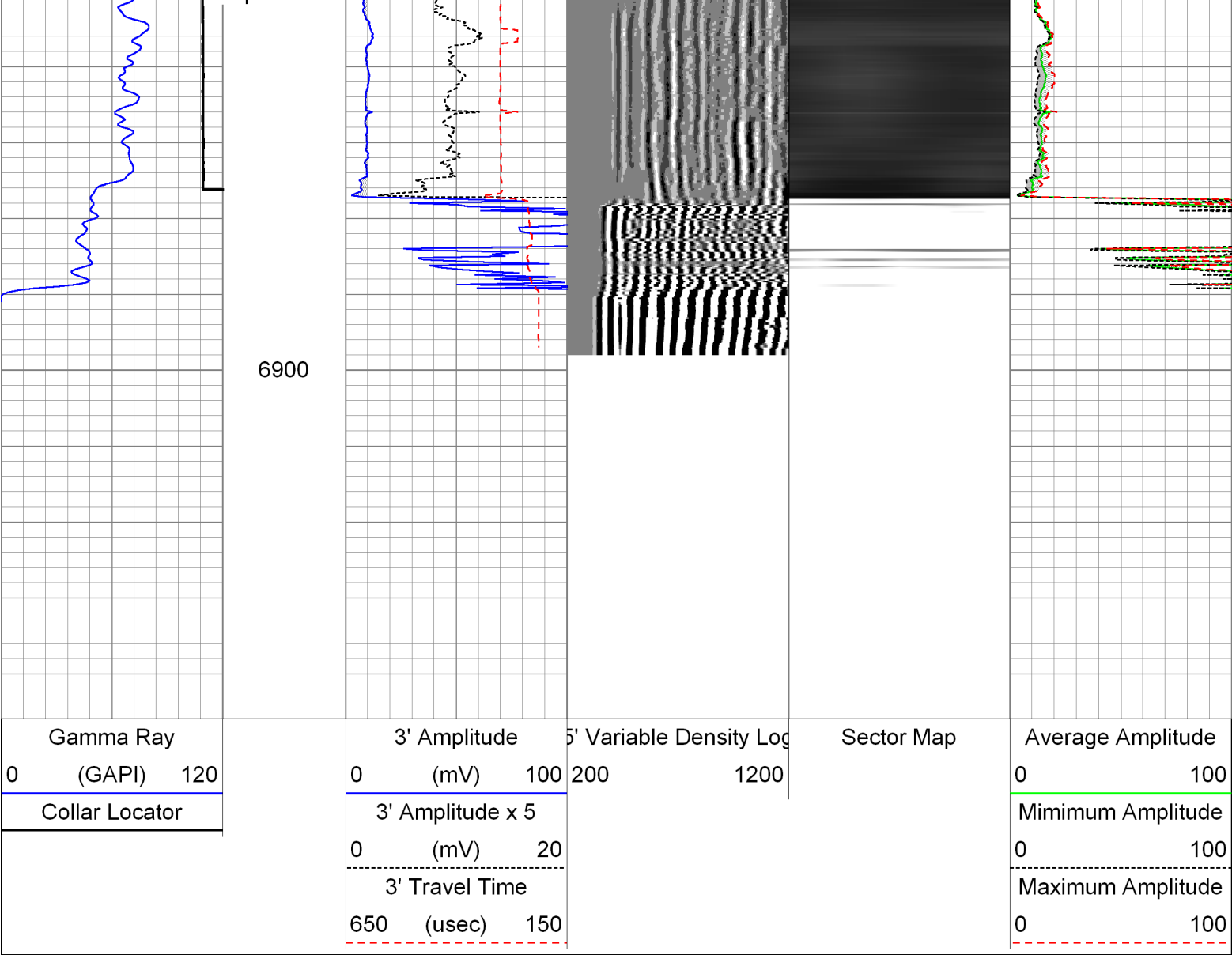


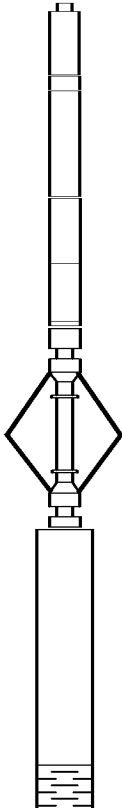


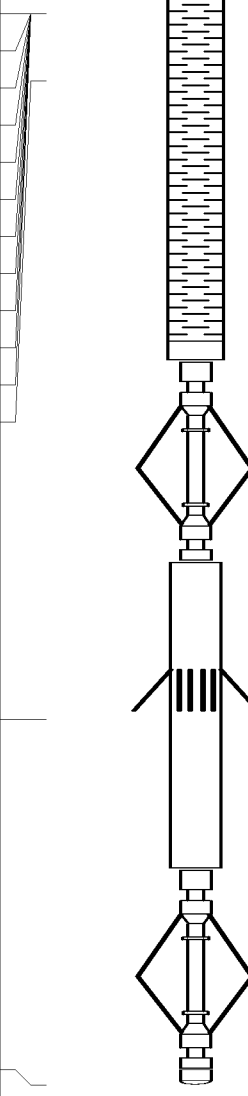
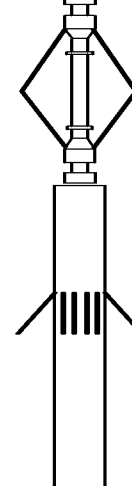
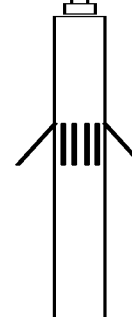
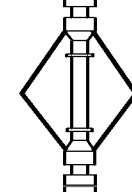
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Dataset Pathname: repeatpas
Presentation Format: rbt007
Dataset Creation: Fri Jan 31 13:27:03 2014 by Log Sondex V7.03
Charted by: Depth in Feet scaled 1:240

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





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 (10013454in7) 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-027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00		PRC-057 (1038) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			BUL-006 (219228) Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512338025_anadarko_highway 160 37n-2hz_01-31-14_mit_rbl.db: field/well/run1/main Total Length: 27.97 ft Total Weight: 316.30 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512338025_anadarko_highway 160 37n-2hz_01-31-14_mit_rbl.db		
Dataset Pathname:	main		
Dataset Creation:	Fri Jan 31 13:40:48 2014 by Log Sondex V7.03		
Multi-finger Imaging Tool Calibration Report			
Serial Number:		218950	
Number of Fingers:		40	
Tool Model:		027	
Inclinometer Calibration Report			
Performed:		Fri, Oct, 10 10:41:51 2008	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1996	1975
Finger 1 up:		2238	2226
Finger 31 up:		1760	2216
Finger 21 up:		1769	1745
Finger 11 up:		2250	1738
Sensitivity ratio:	1.00023		
X-axis angle:	314.283		
Deviation const.:	339.139		

Finger Calibration Report

Performed:

Fri Jan 31 12:28:17 2014

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1386	263.0	1649	288.0	1937	306.0	2243
Finger 02:	1572	255.0	1827	262.0	2089	269.0	2358
Finger 03:	1507	280.0	1787	297.0	2084	302.0	2386
Finger 04:	1538	268.0	1806	281.0	2087	289.0	2376
Finger 05:	1577	256.0	1833	262.0	2095	271.0	2366
Finger 06:	1571	266.0	1837	273.0	2110	285.0	2395
Finger 07:	1561	275.0	1836	280.0	2116	288.0	2404
Finger 08:	1613	255.0	1868	251.0	2119	262.0	2381
Finger 09:	1548	292.0	1840	288.0	2128	300.0	2428
Finger 10:	1597	278.0	1875	269.0	2144	275.0	2419
Finger 11:	1573	280.0	1853	274.0	2127	285.0	2412
Finger 12:	1554	295.0	1849	290.0	2139	302.0	2441
Finger 13:	1571	285.0	1856	276.0	2132	284.0	2416
Finger 14:	1564	290.0	1854	283.0	2137	293.0	2430
Finger 15:	1553	290.0	1843	284.0	2127	295.0	2422
Finger 16:	1555	290.0	1845	286.0	2131	298.0	2429
Finger 17:	1551	287.0	1838	286.0	2124	297.0	2421
Finger 18:	1598	274.0	1872	269.0	2141	276.0	2417
Finger 19:	1619	262.0	1881	260.0	2141	269.0	2410
Finger 20:	1491	285.0	1776	292.0	2068	302.0	2370
Finger 21:	1454	290.0	1744	301.0	2045	311.0	2356
Finger 22:	1506	282.0	1788	295.0	2083	302.0	2385
Finger 23:	1553	263.0	1816	273.0	2089	275.0	2364
Finger 24:	1540	262.0	1802	281.0	2083	288.0	2371
Finger 25:	1520	271.0	1791	292.0	2083	294.0	2377
Finger 26:	1455	275.0	1730	298.0	2028	305.0	2333
Finger 27:	1453	270.0	1723	294.0	2017	299.0	2316
Finger 28:	1487	273.0	1760	297.0	2057	301.0	2358
Finger 29:	1470	265.0	1735	292.0	2027	298.0	2325
Finger 30:	1479	269.0	1748	301.0	2049	302.0	2351
Finger 31:	1532	240.0	1772	262.0	2034	259.0	2293
Finger 32:	1496	259.0	1755	294.0	2049	294.0	2343
Finger 33:	1473	260.0	1733	293.0	2026	286.0	2312
Finger 34:	1471	266.0	1737	302.0	2039	302.0	2341
Finger 35:	1462	262.0	1724	295.0	2019	300.0	2319
Finger 36:	1675	248.0	1923	272.0	2195	272.0	2467
Finger 37:	1300	254.0	1554	288.0	1842	297.0	2139
Finger 38:	1471	265.0	1736	294.0	2030	298.0	2328
Finger 39:	1437	265.0	1702	294.0	1996	299.0	2295
Finger 40:	1552	265.0	1817	287.0	2104	299.0	2403

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454in7
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: -0.927 ft

Master Calibration, performed Fri Jan 31 12:24:19 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.732	0.800	62.165	83.886	0.800
5FT	-0.002	0.767	0.800	62.165	79.767	0.995
S1	0.000	0.701	0.000	100.000	142.775	-0.056
S2	-0.001	0.770	0.000	100.000	129.699	0.158
S3	0.000	0.810	0.000	100.000	122.043	0.000

S3	-0.000	0.819	0.000	100.000	122.043	0.009
S4	-0.001	0.816	0.000	100.000	122.406	0.149
S5	0.000	0.759	0.000	100.000	131.690	-0.005
S6	-0.001	0.695	0.000	100.000	143.697	0.168
S7	0.000	0.646	0.000	100.000	154.835	0.000
S8	-0.000	0.653	0.000	100.000	153.076	0.011

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	Highway 160 37N-2HZ
Field	Wattenberg
County	Weld
State	Colorado