



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Hedge 16C-22HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-36447			
Permanent Datum				SHL: 631' FNL 374' FEL			
Log Measured From				Lat/Long: 40.216081/-104.75514			
Drilling Measured From				SEC 22 TWP 3N RGE 66W			
Ground Level				Elevation			
Kelly Bushing				25 FT			
Kelly Bushing				4906'			
Other Services				Gauge Ring			
Elevation				K.B. 4931'			
				D.F. 4930'			
				G.L. 4906'			
Date				October 3, 2013			
Run Number				One			
Depth Driller				12238 FT			
Depth Logger				6832 FT			
Bottom Logged Interval				6832 FT			
Top Log Interval				Surface			
Open Hole Size				9.625"			
Type Fluid				Water			
Density / Viscosity				8.34 LB/GAL			
Max. Recorded Temp.				----			
Estimated Cement Top				60 FT			
Time Well Ready				ROA			
Time Logger on Bottom				---			
Equipment Number				HD 0134			
Location				Fort Lupton, CO			
Recorded By				Ryan Harris			
Witnessed By				Edgior Chavez			
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			
				6784 FT			
				12238 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 is Primary Log  
Correlated to Casing Tally Reported Liner Top @ 6784'  
Run RCBL from just below Liner Top to Surface  
RCBL Logged with 2200 PSI Induced pressure @ surface  
Estimated Top of Cement @ 60'

Corrected -2 @ Liner Top with zero @ KB

Thank you for choosing FMC Technologies Completion Services, Inc.



Main Pass

Logged With 2200 PSI @ Surface

Database File:05-123-36447\_anadarko\_hedge 16c-22hz\_cil\_rcbl\_10-03-13.db

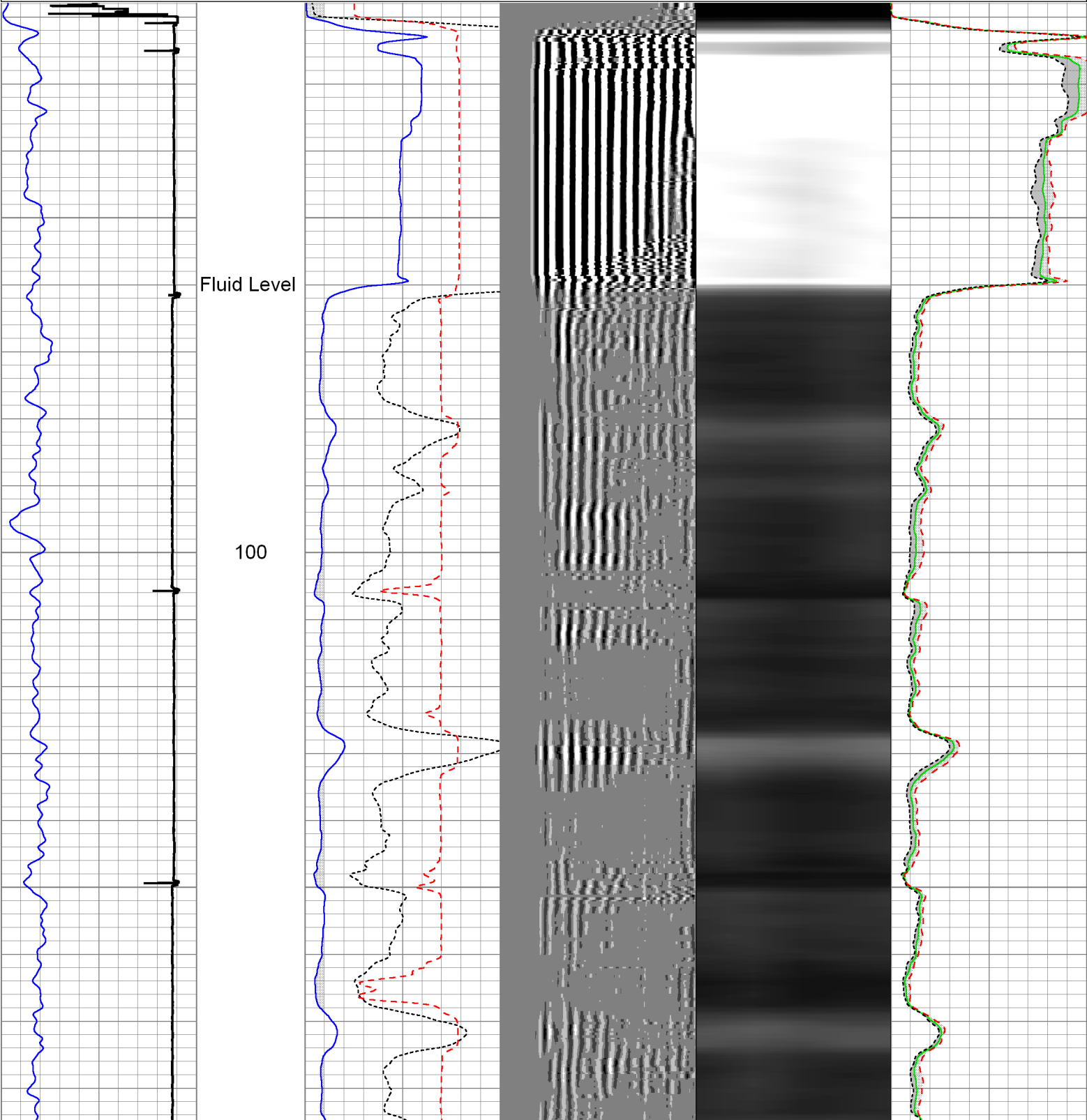
Dataset Pathname:main

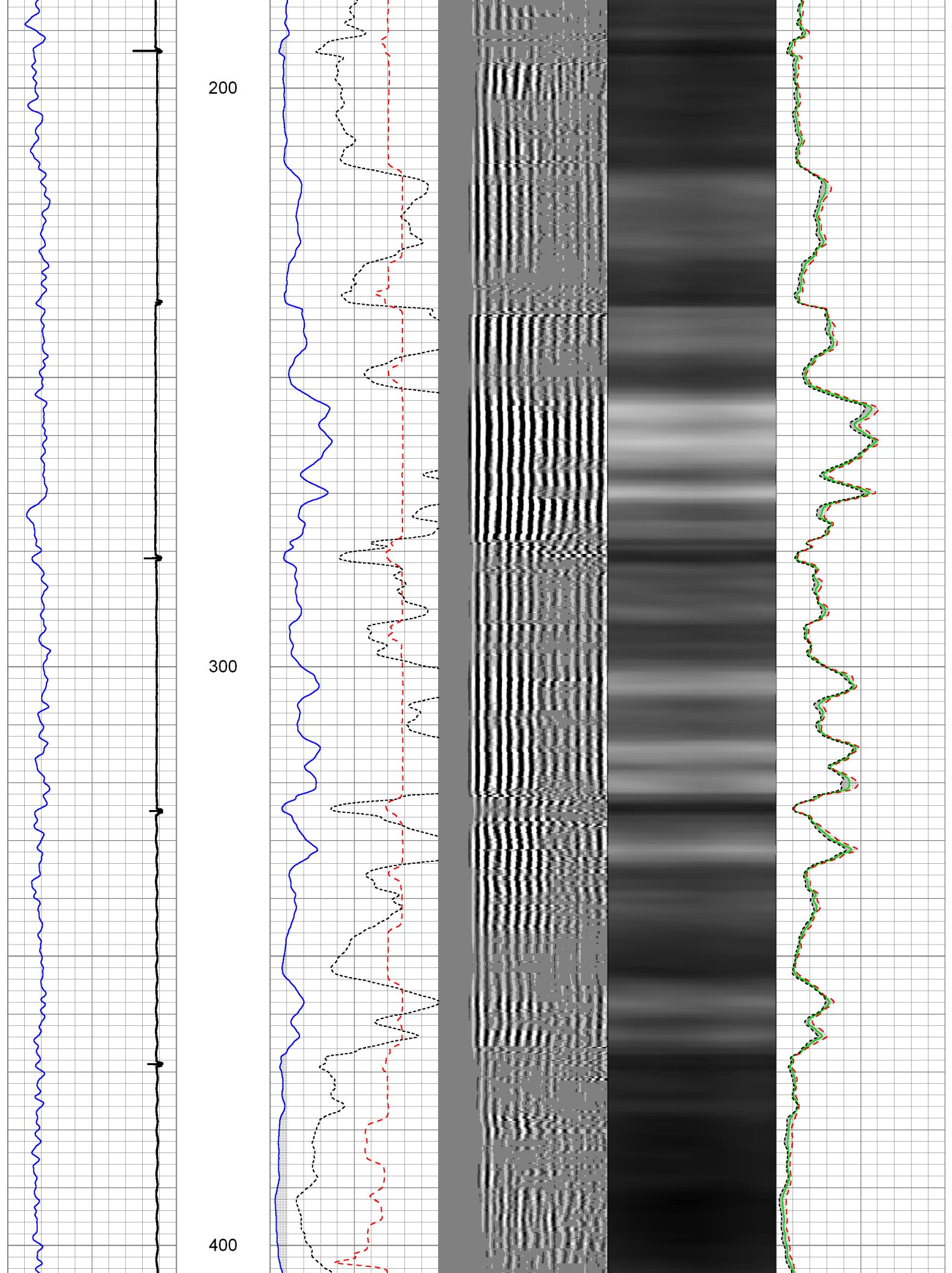
Presentation Format:rbt007

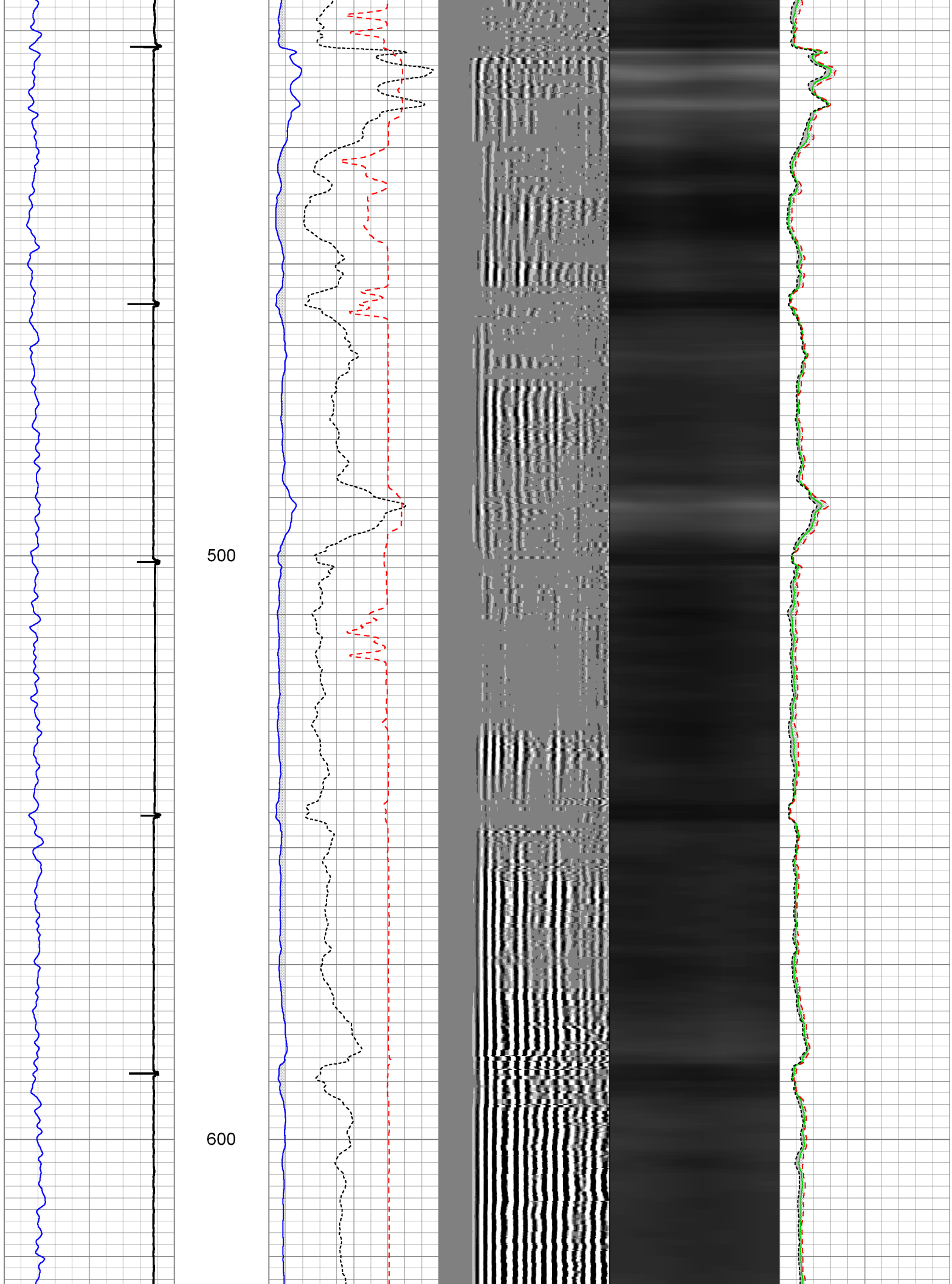
Dataset Creation:Thu Oct 03 17:52:18 2013 by Log Sondex V7.03

Charted by:Depth in Feet scaled 1:240

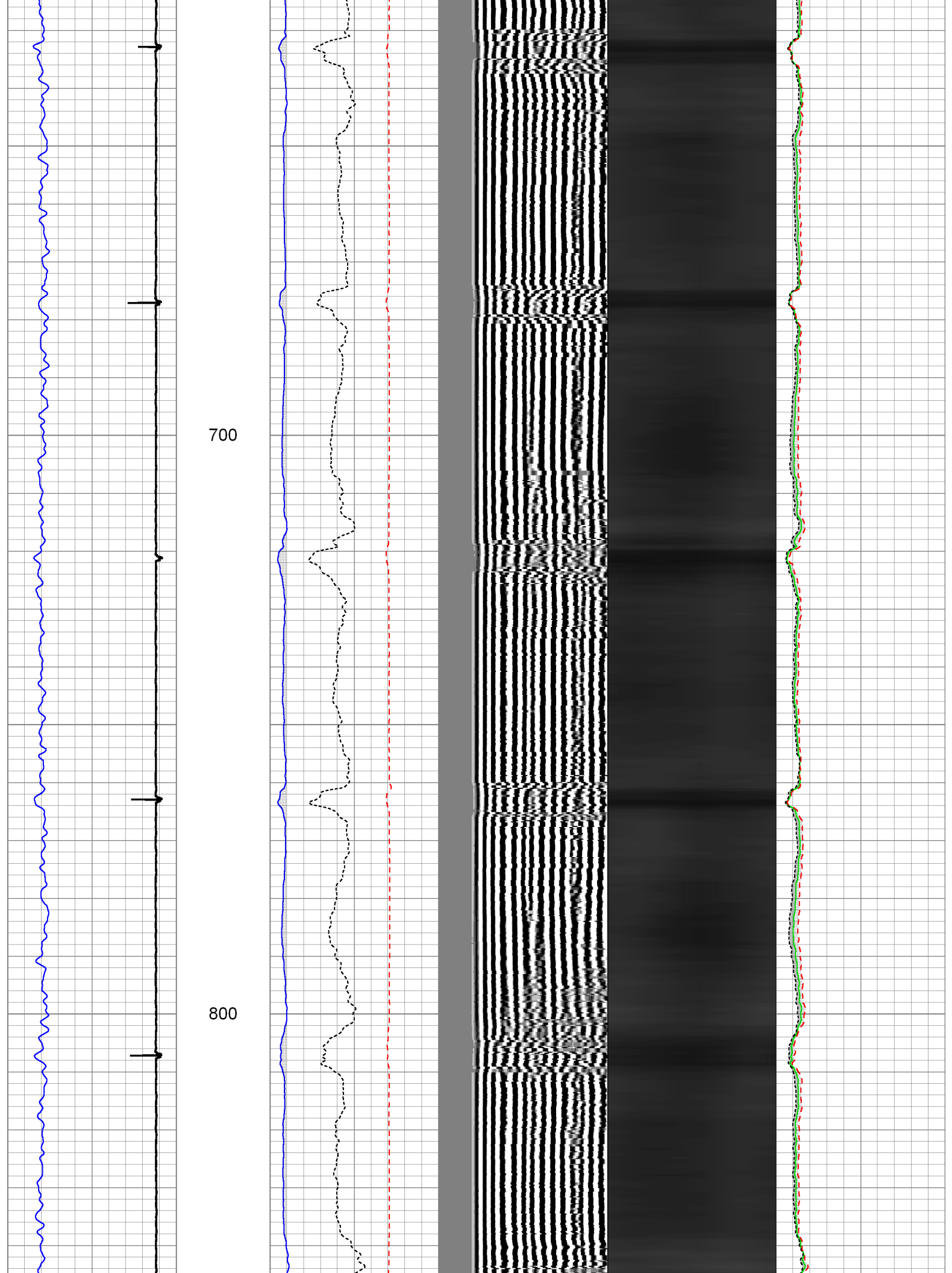
Gamma Ray		3' Amplitude		5' Variable Density Log	Sector Map	Average Amplitude	
0	(GAPI) 200	0	(mV) 100			0	100
Collar Locator		3' Amplitude x 5				Minimum Amplitude	
		0	(mV) 20			0	100
		3' Travel Time				Maximum Amplitude	
		650	(usec) 150			0	100

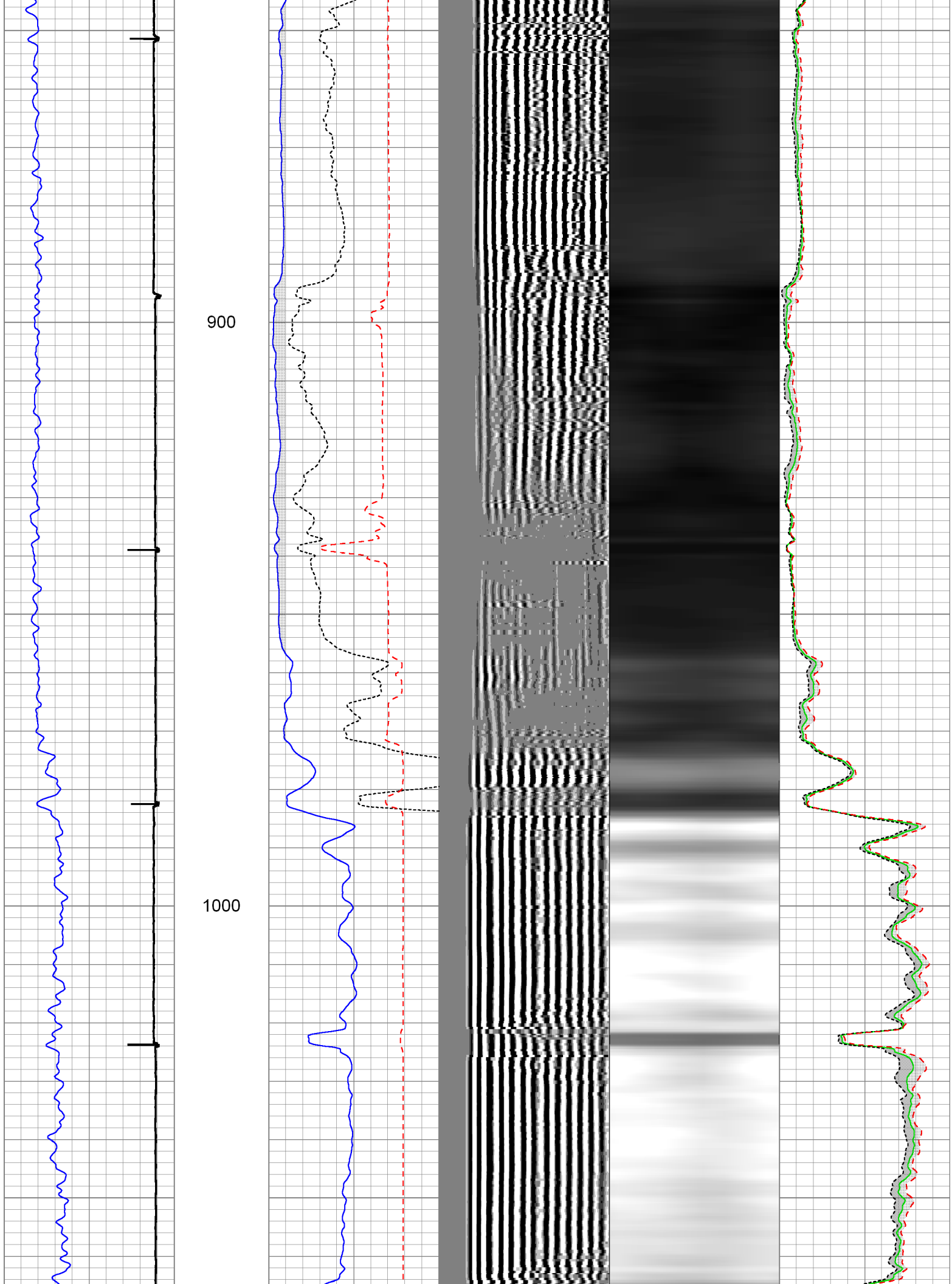






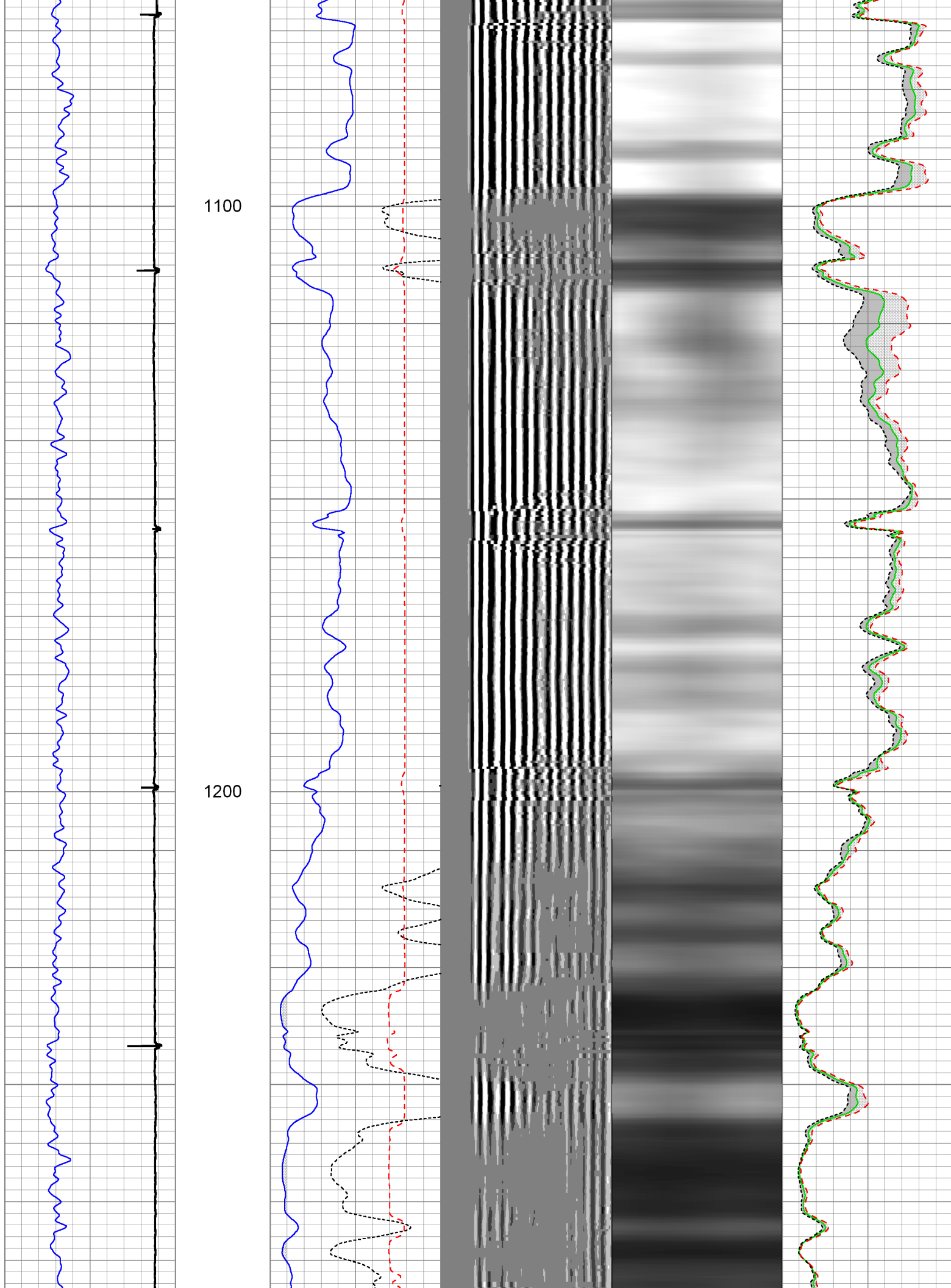






1100

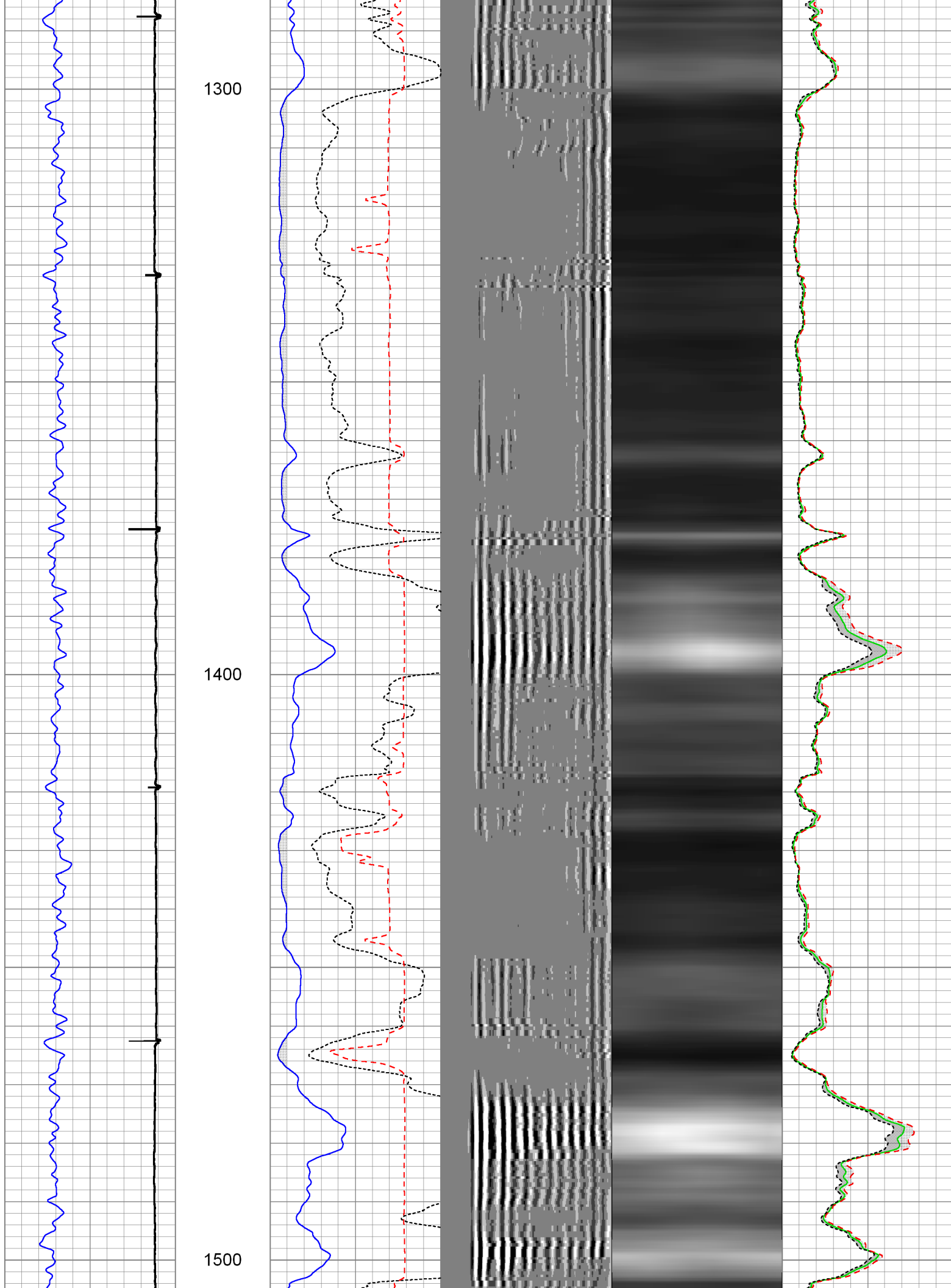
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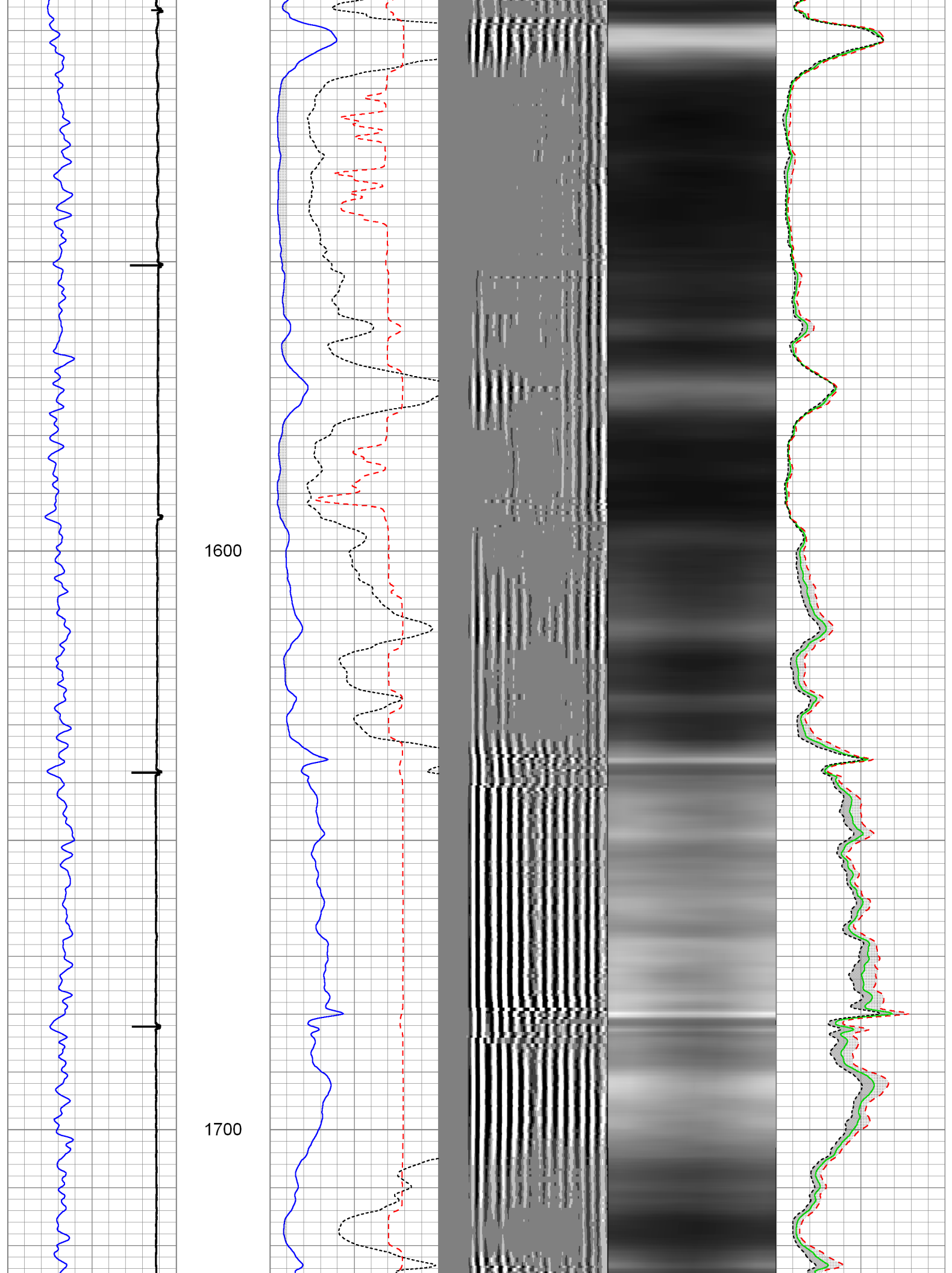


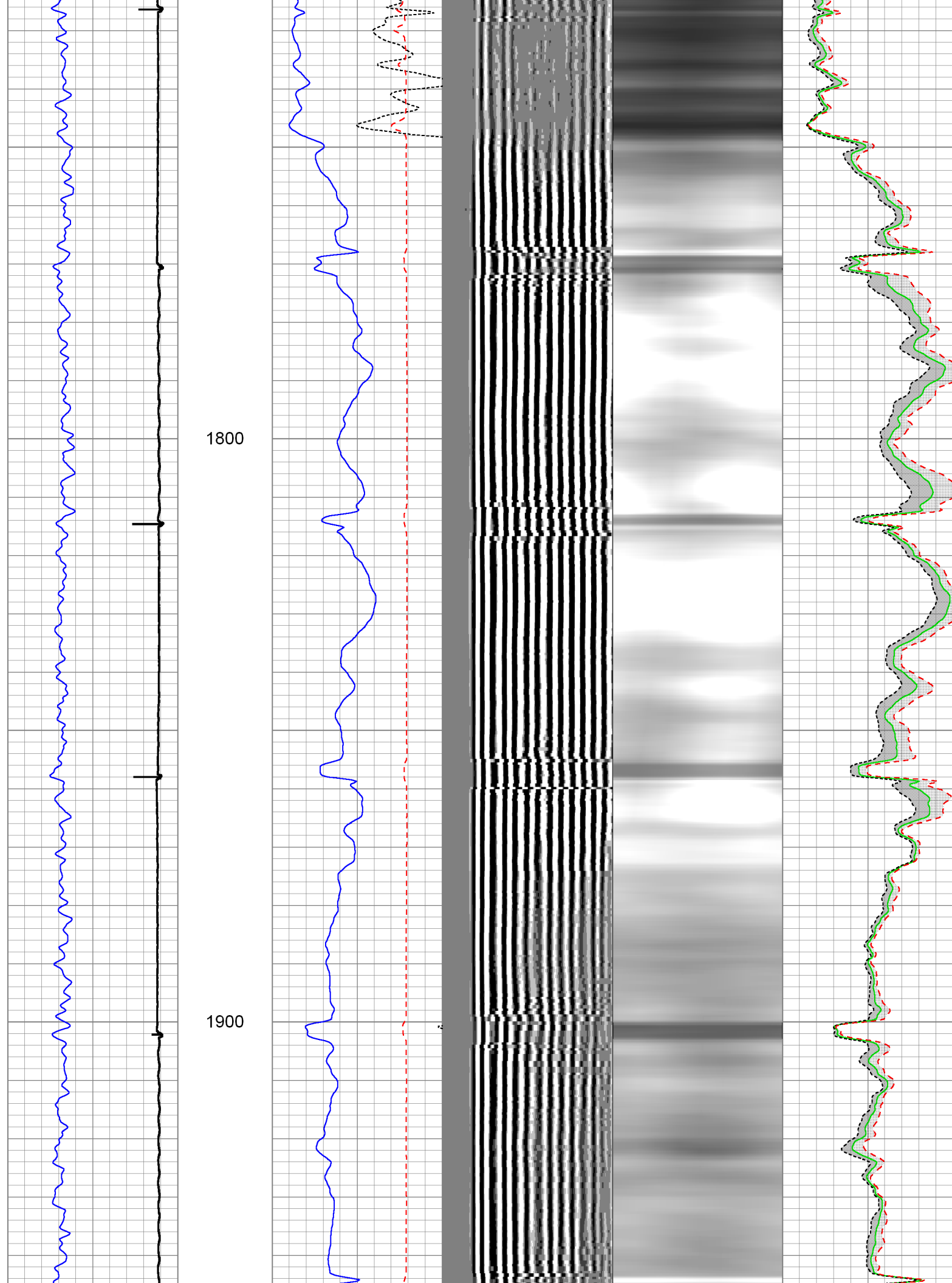
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1400

1500



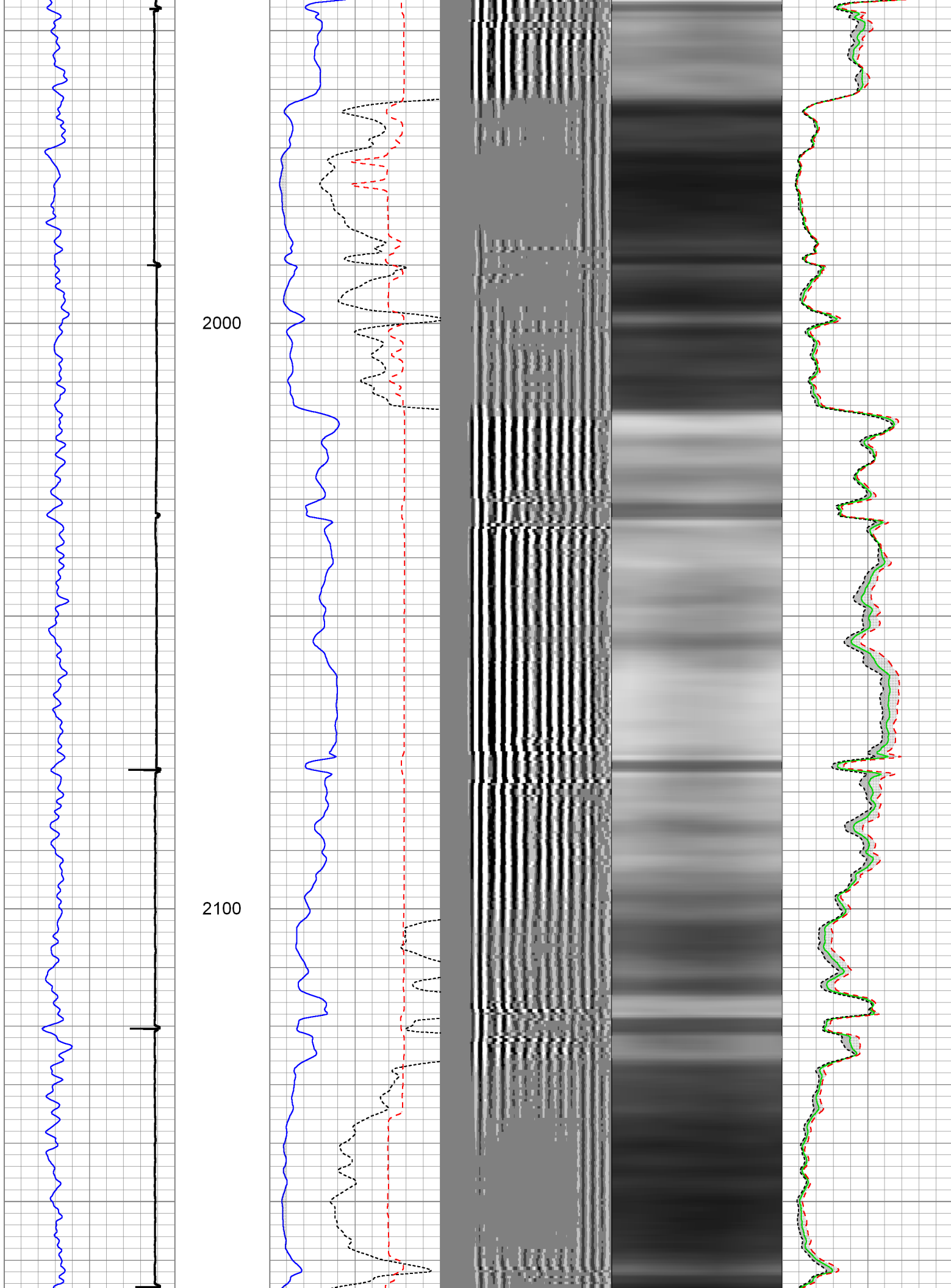






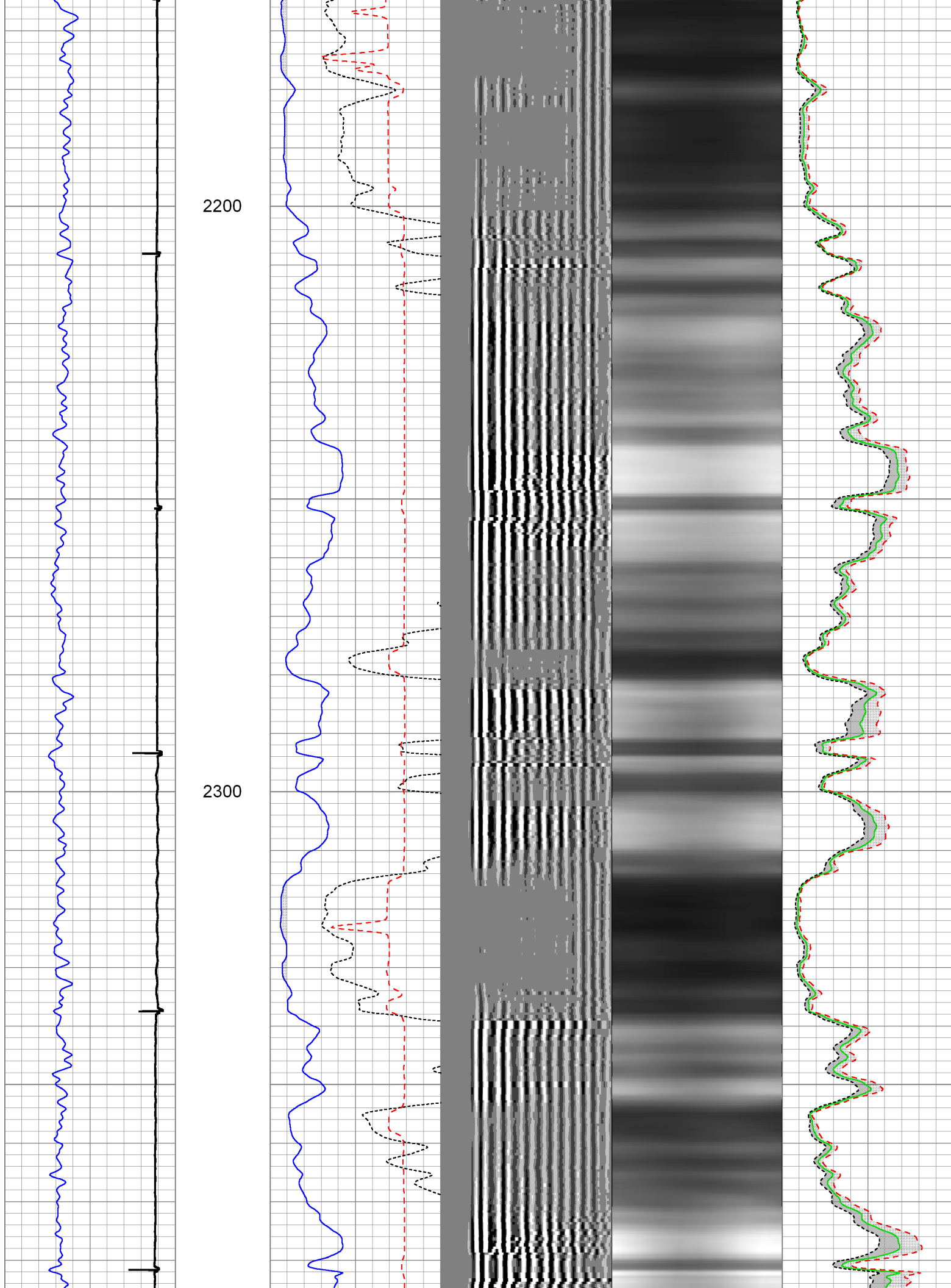
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2100



2200

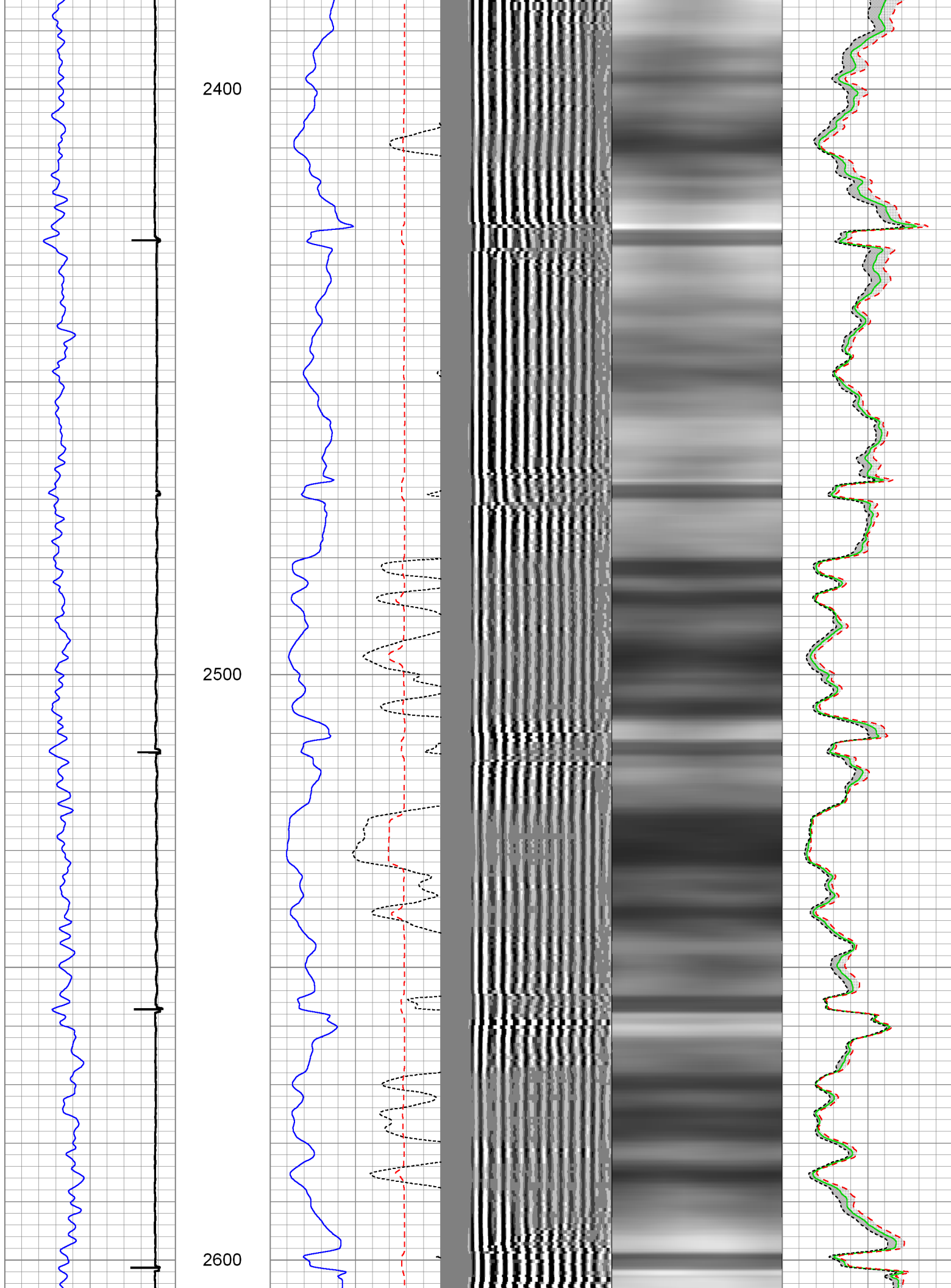
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2400

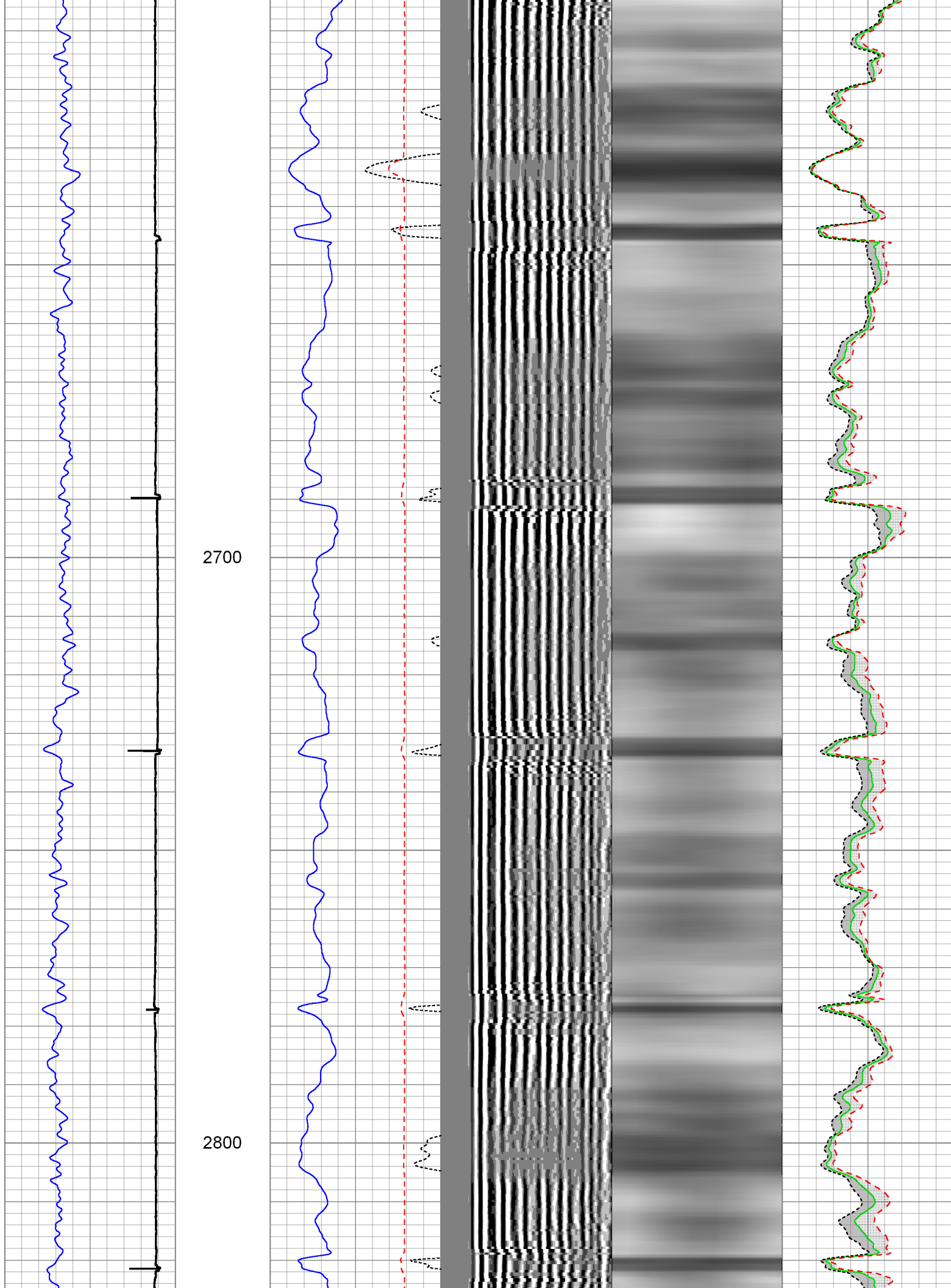
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2600



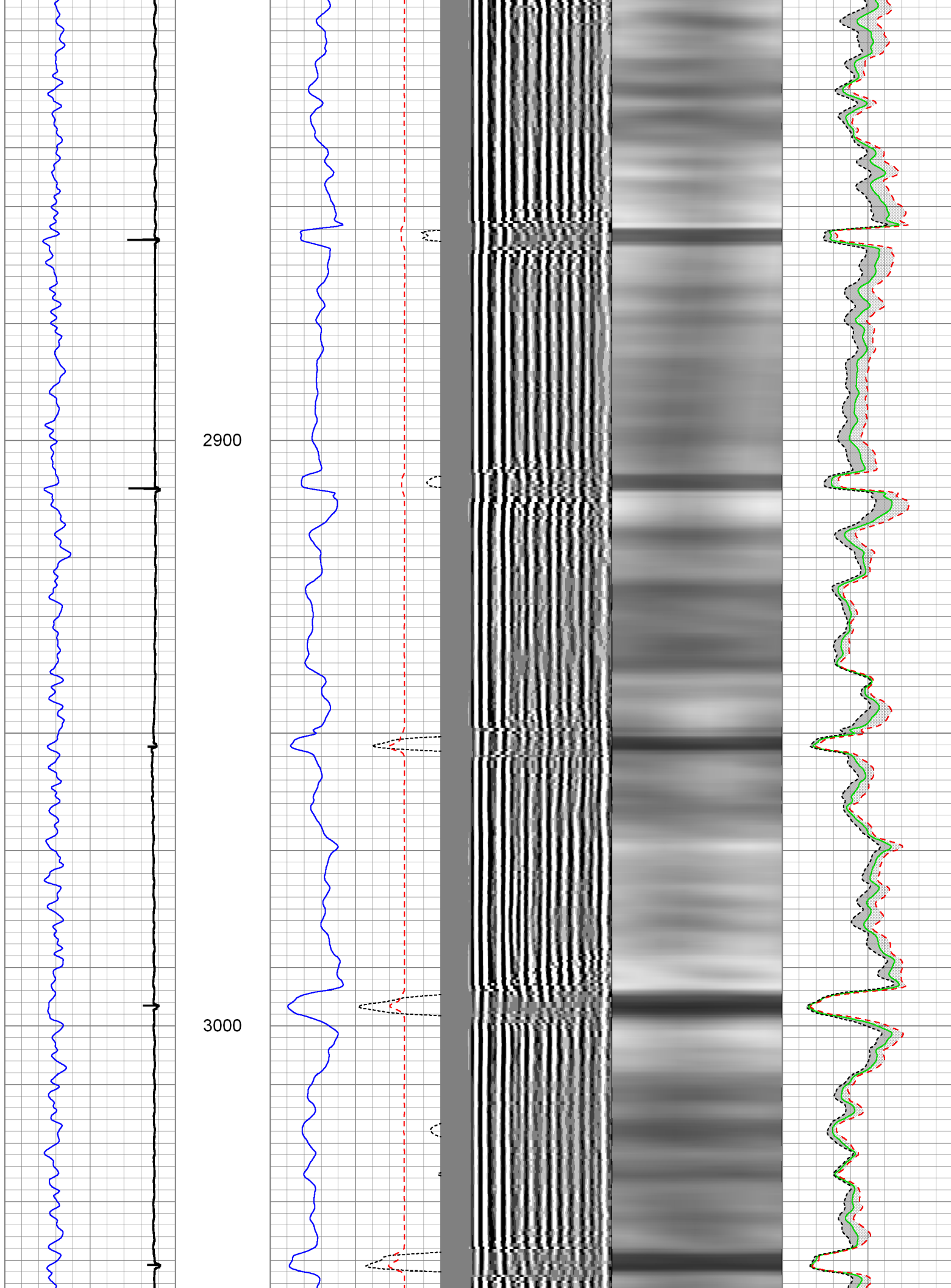
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2800



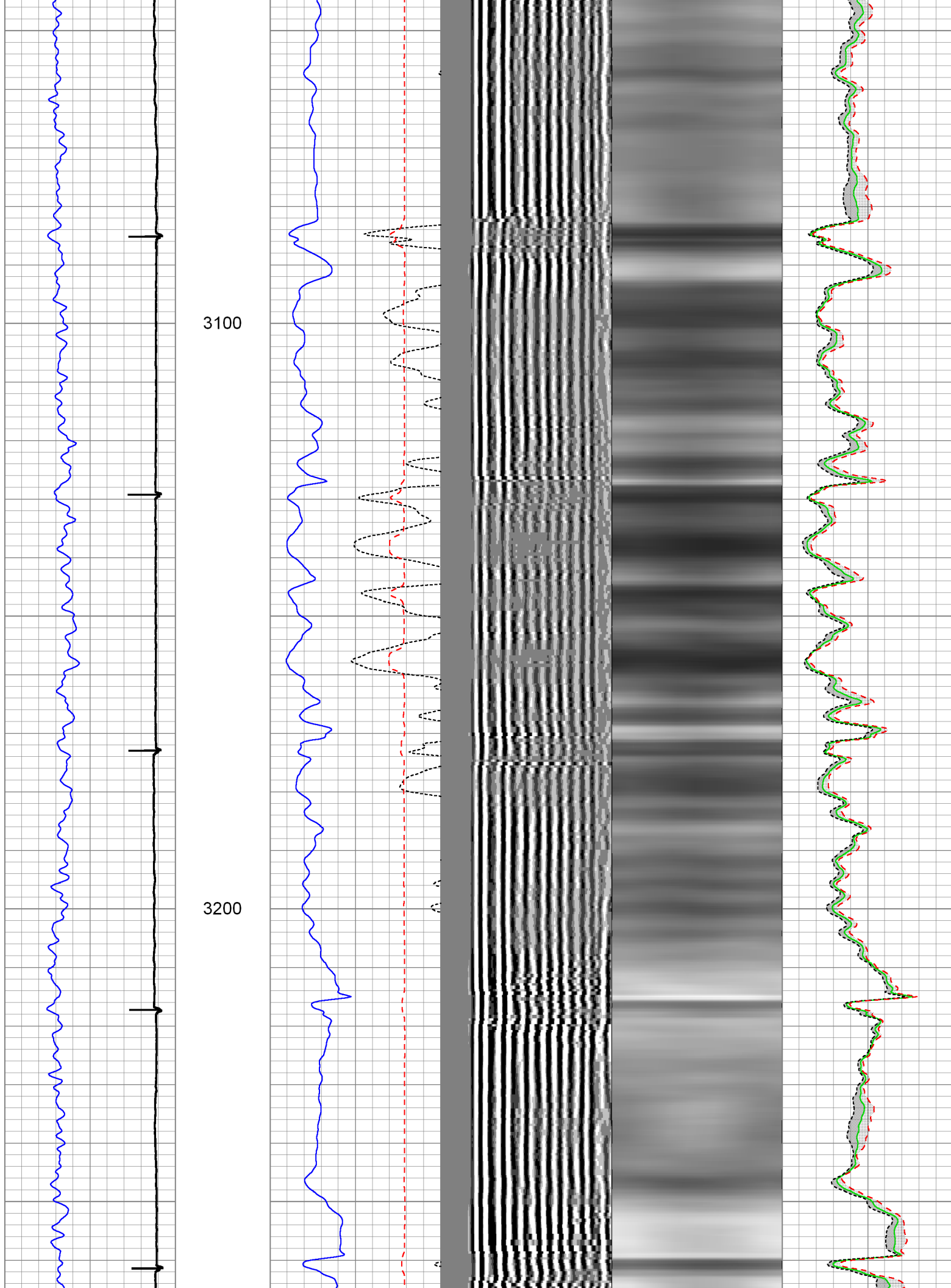
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3000



3100

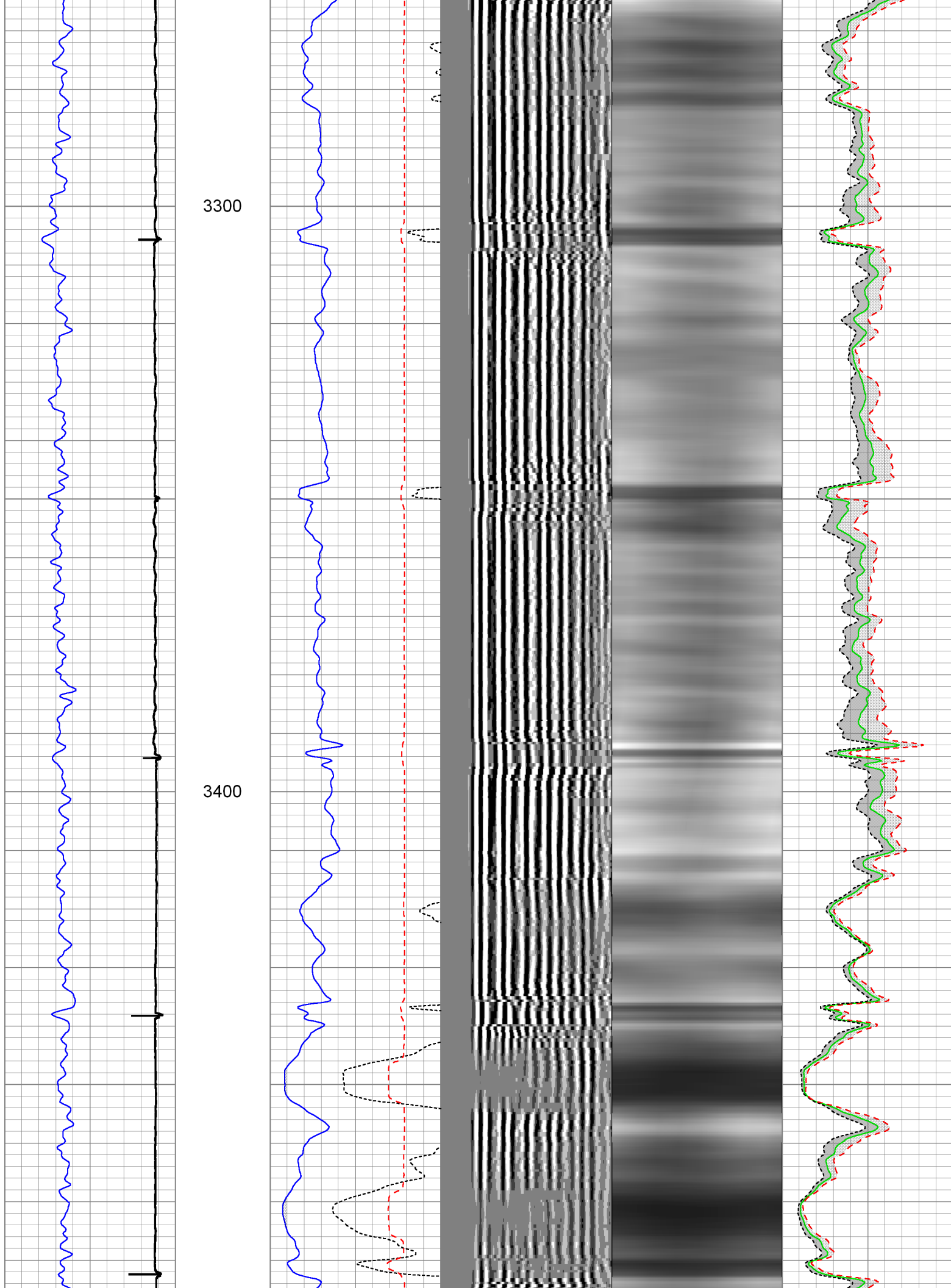
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3300

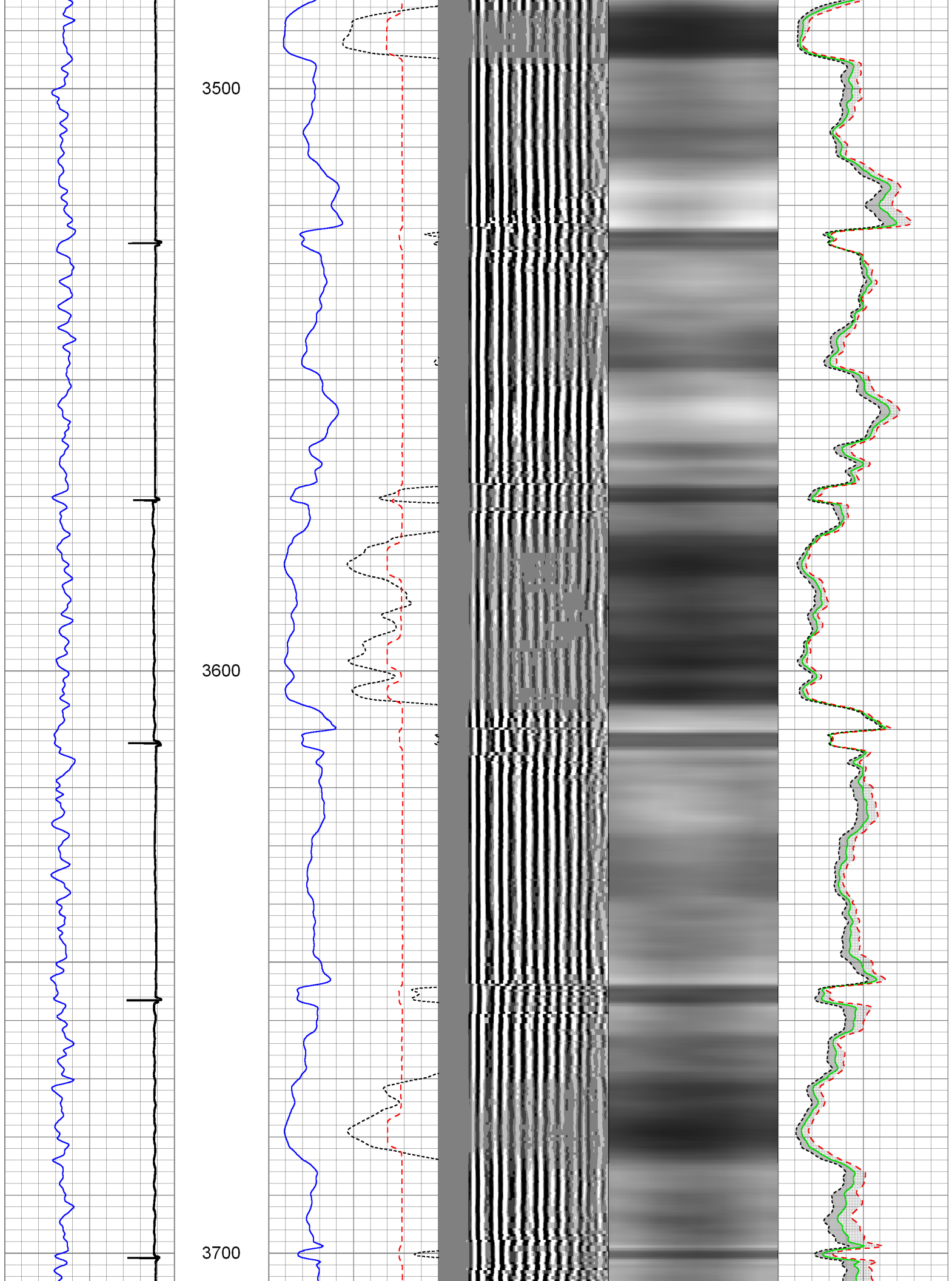
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3500

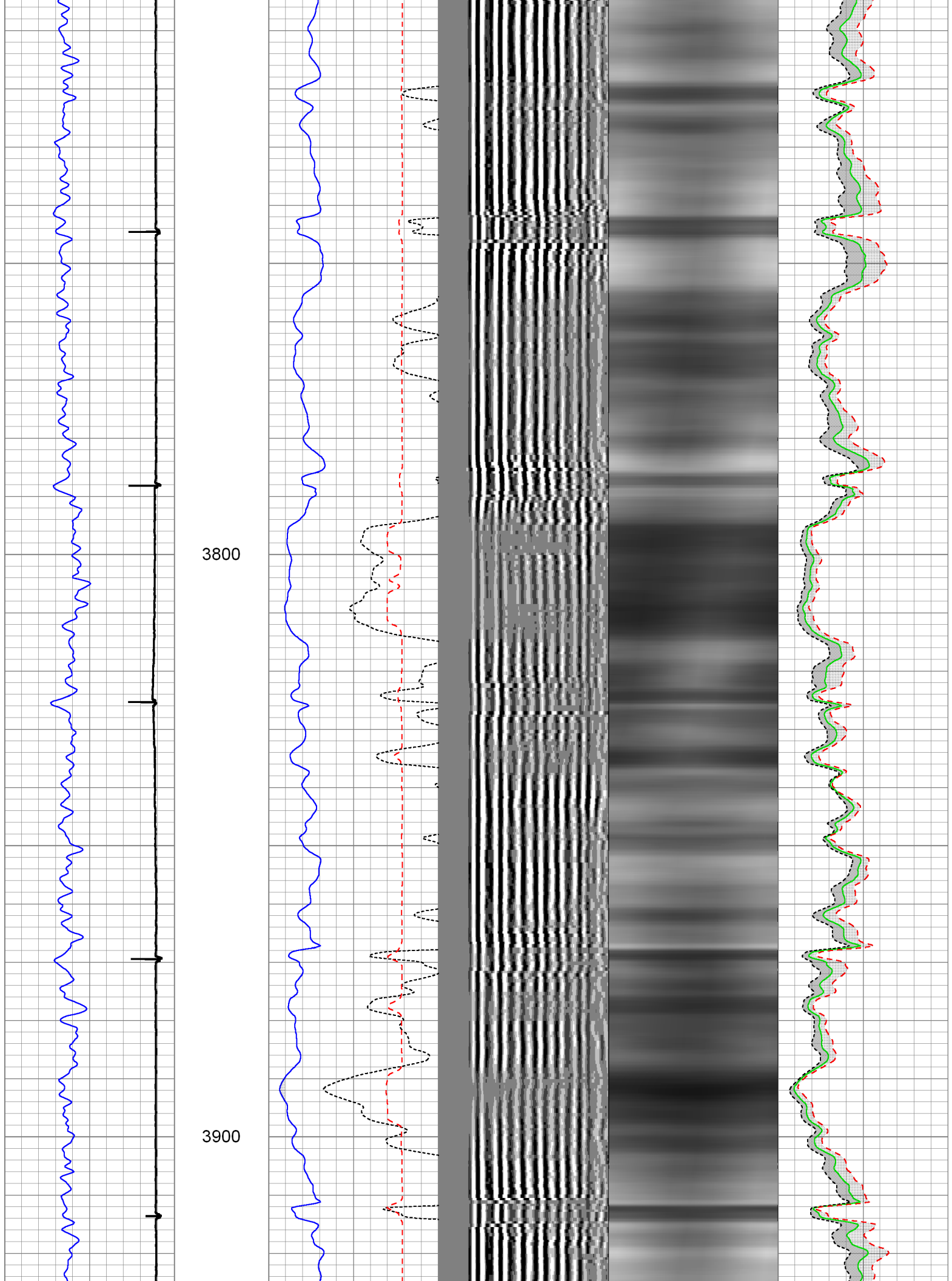
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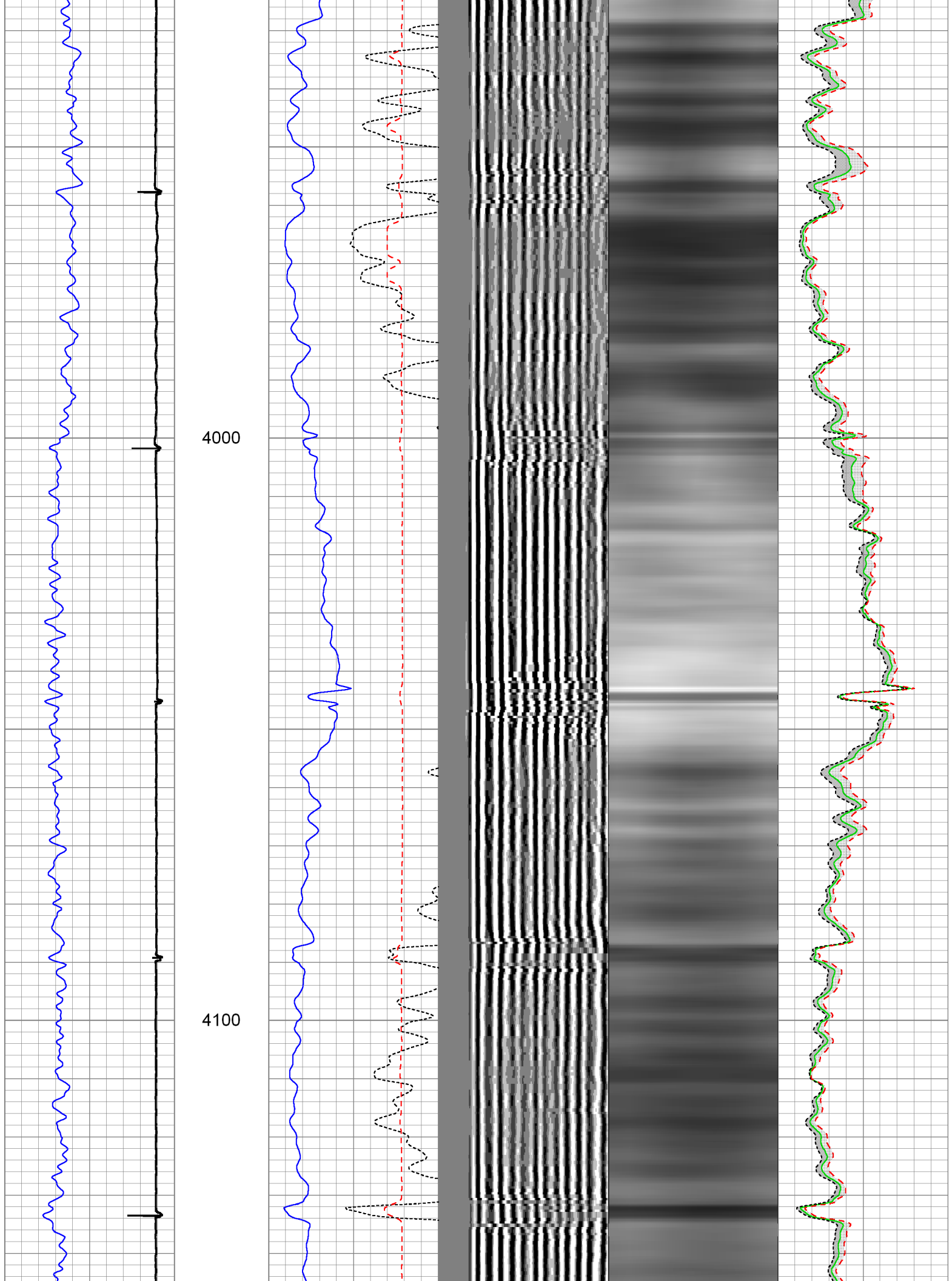
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3800

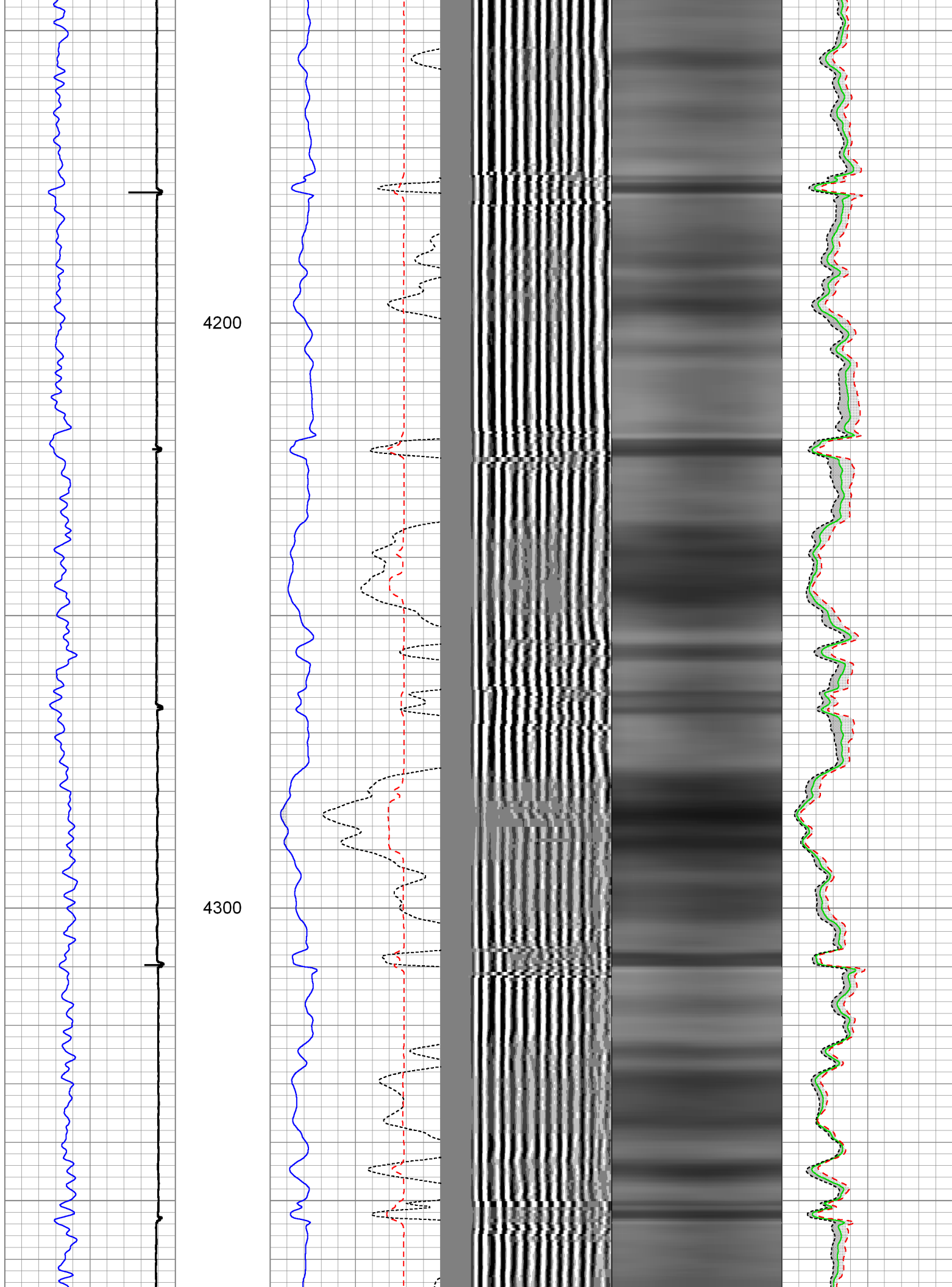
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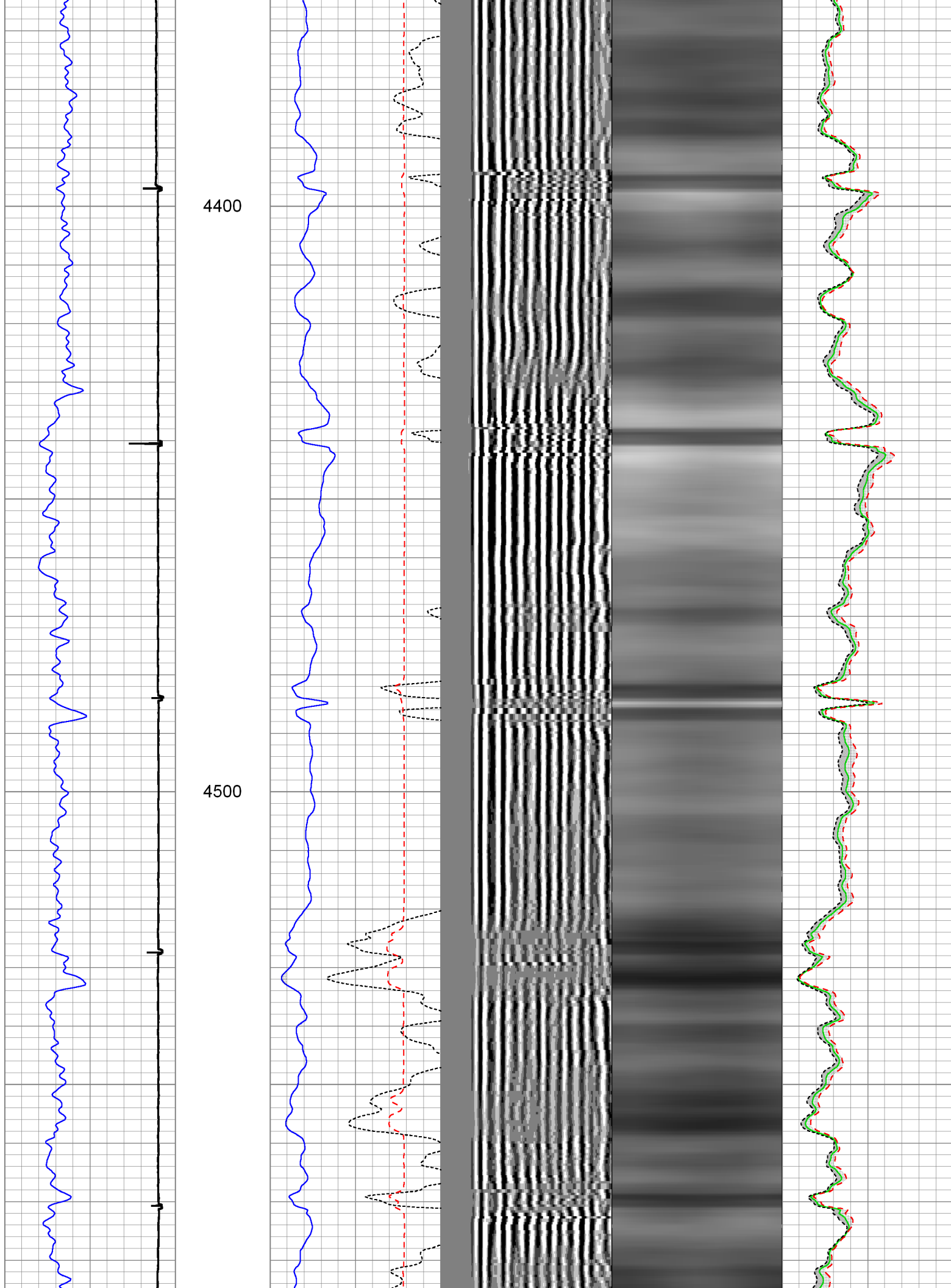
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4300



4400

4500

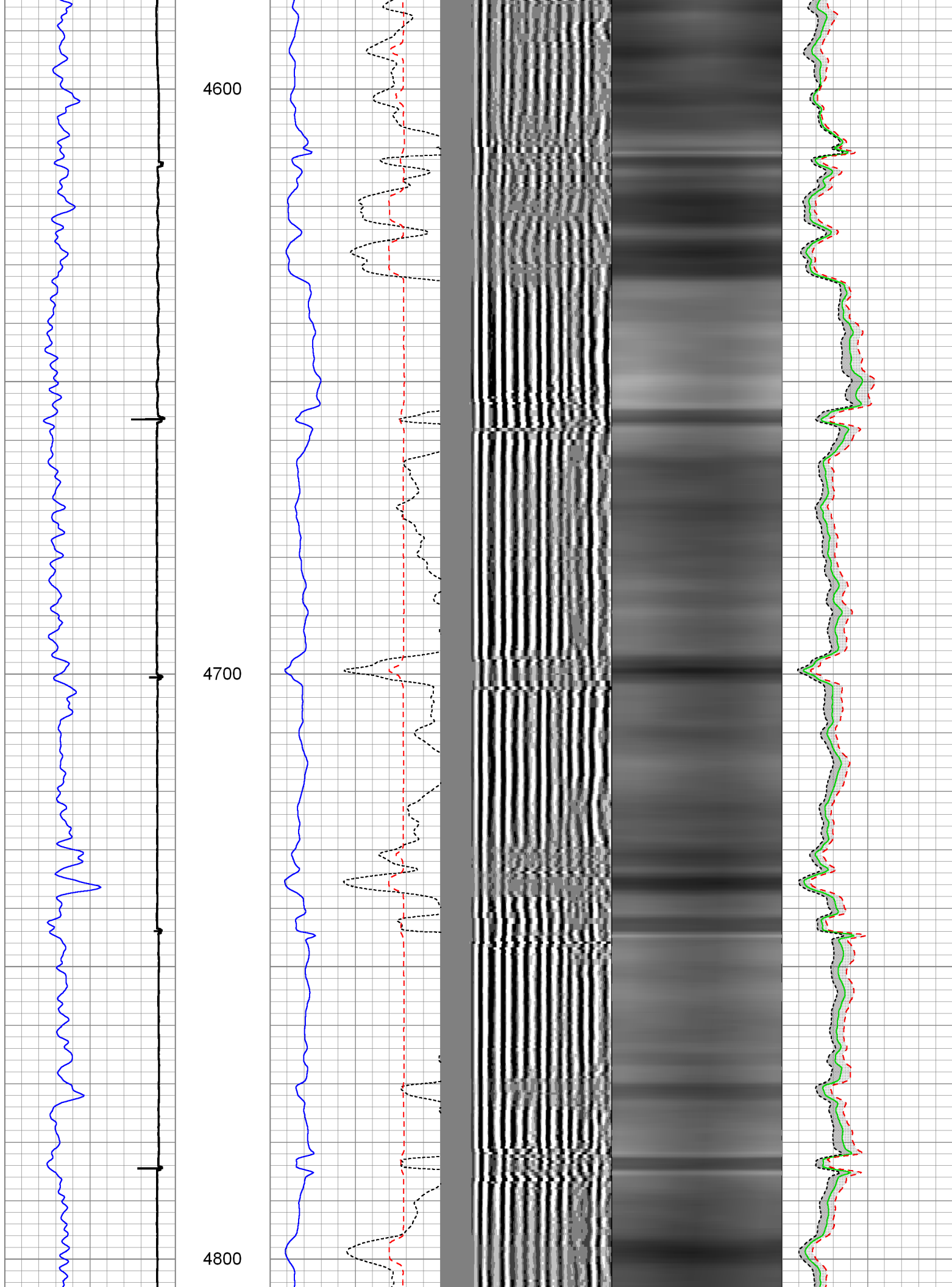




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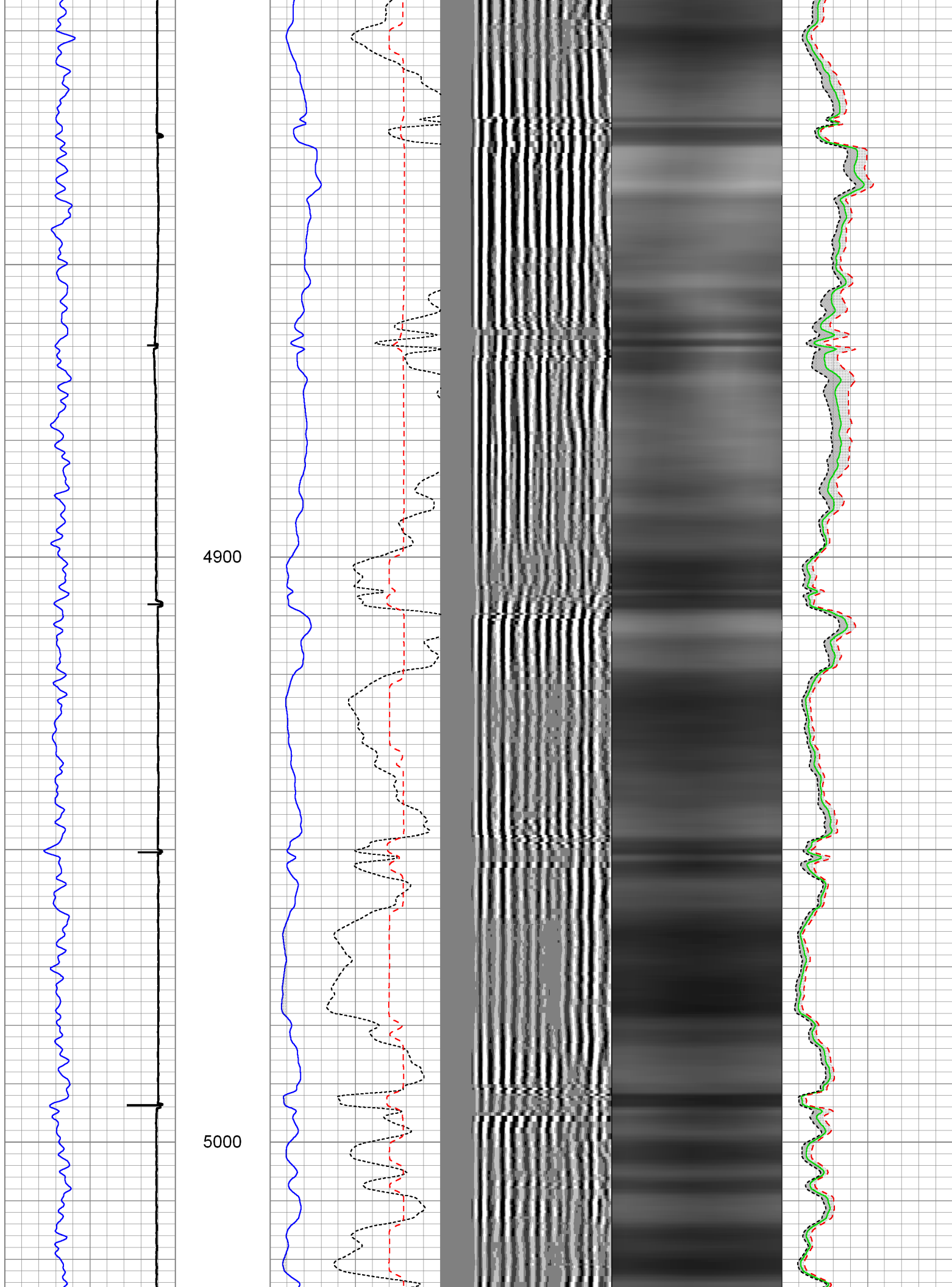
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4800



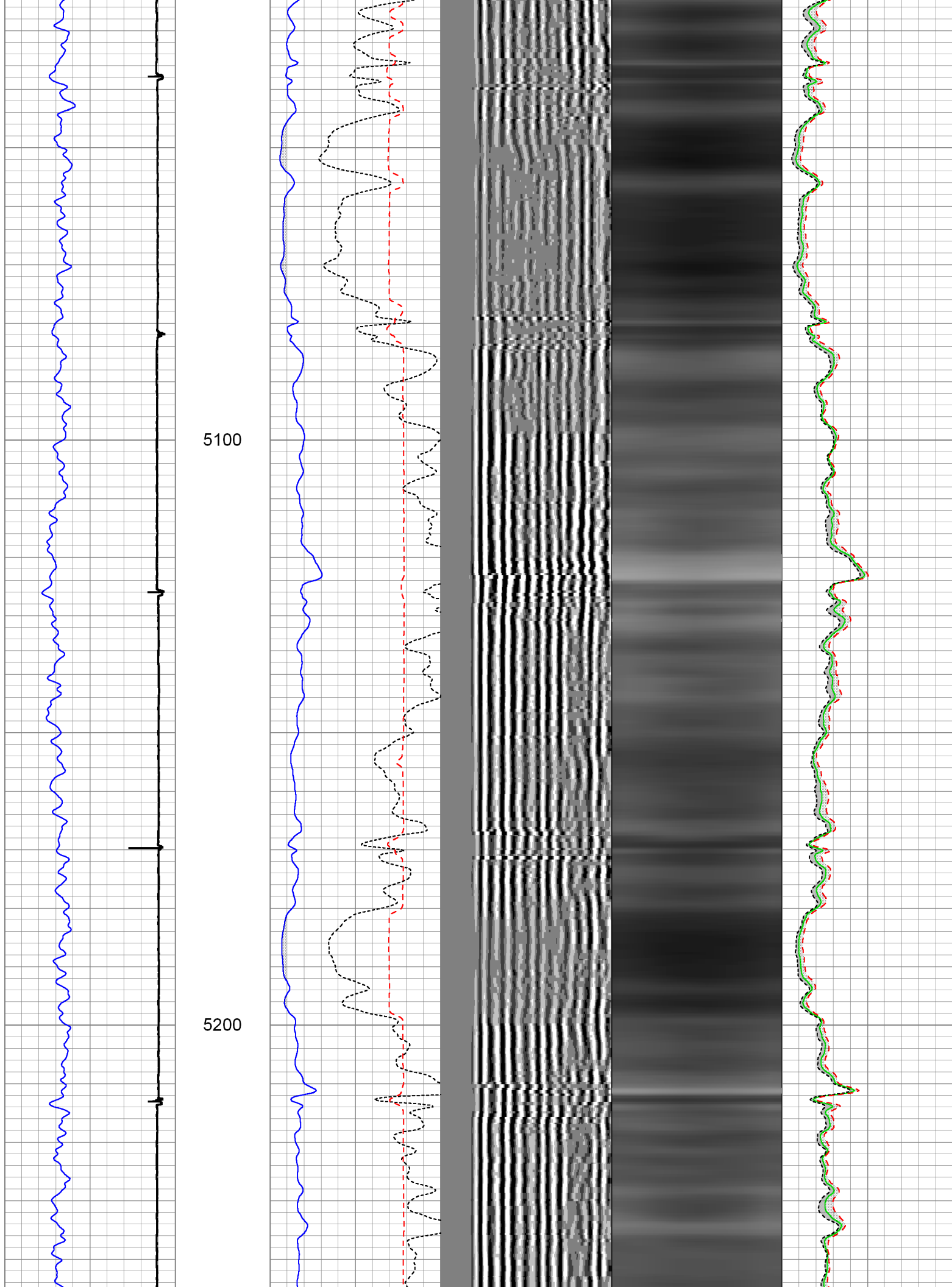
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5000



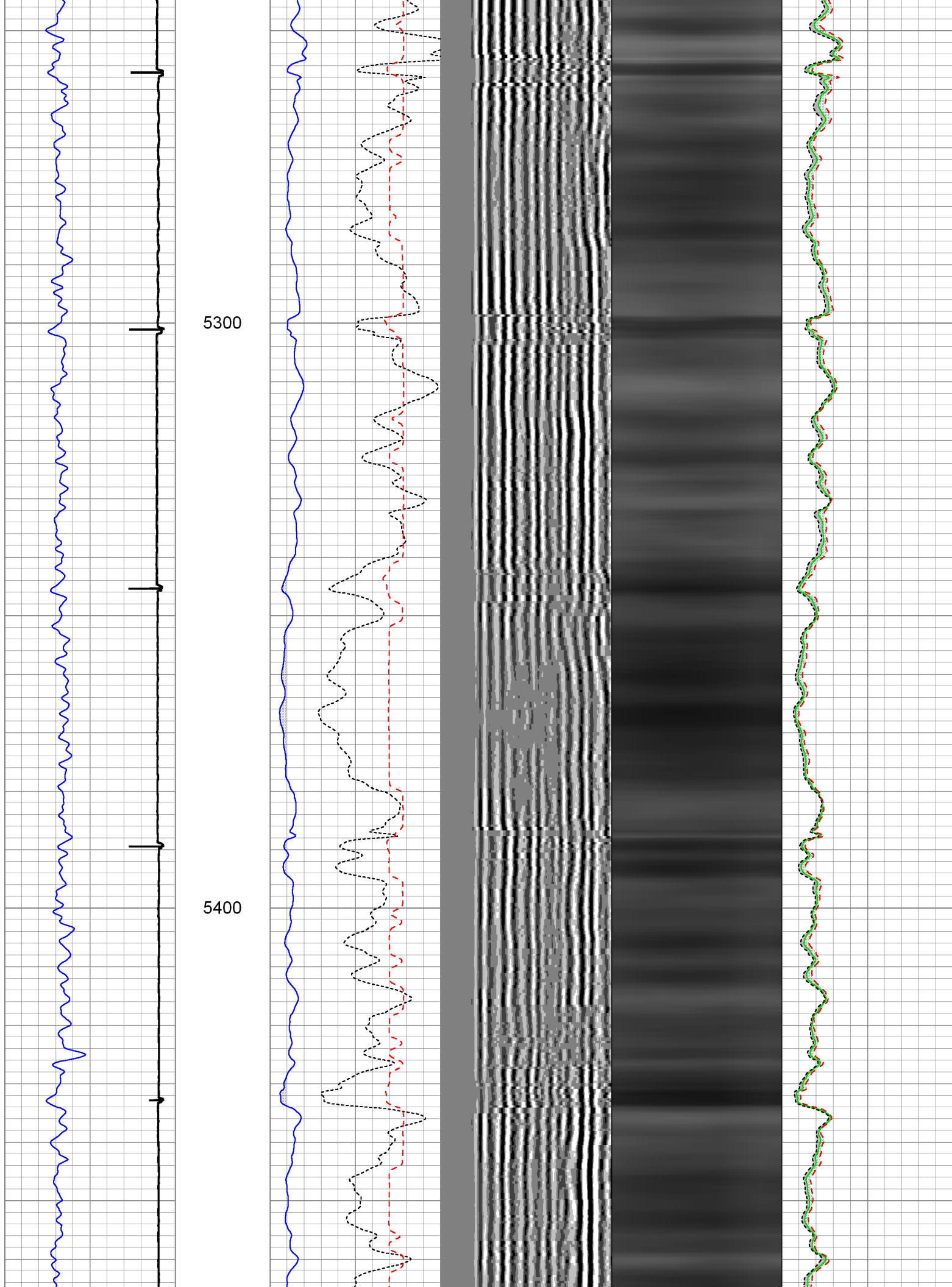
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5200



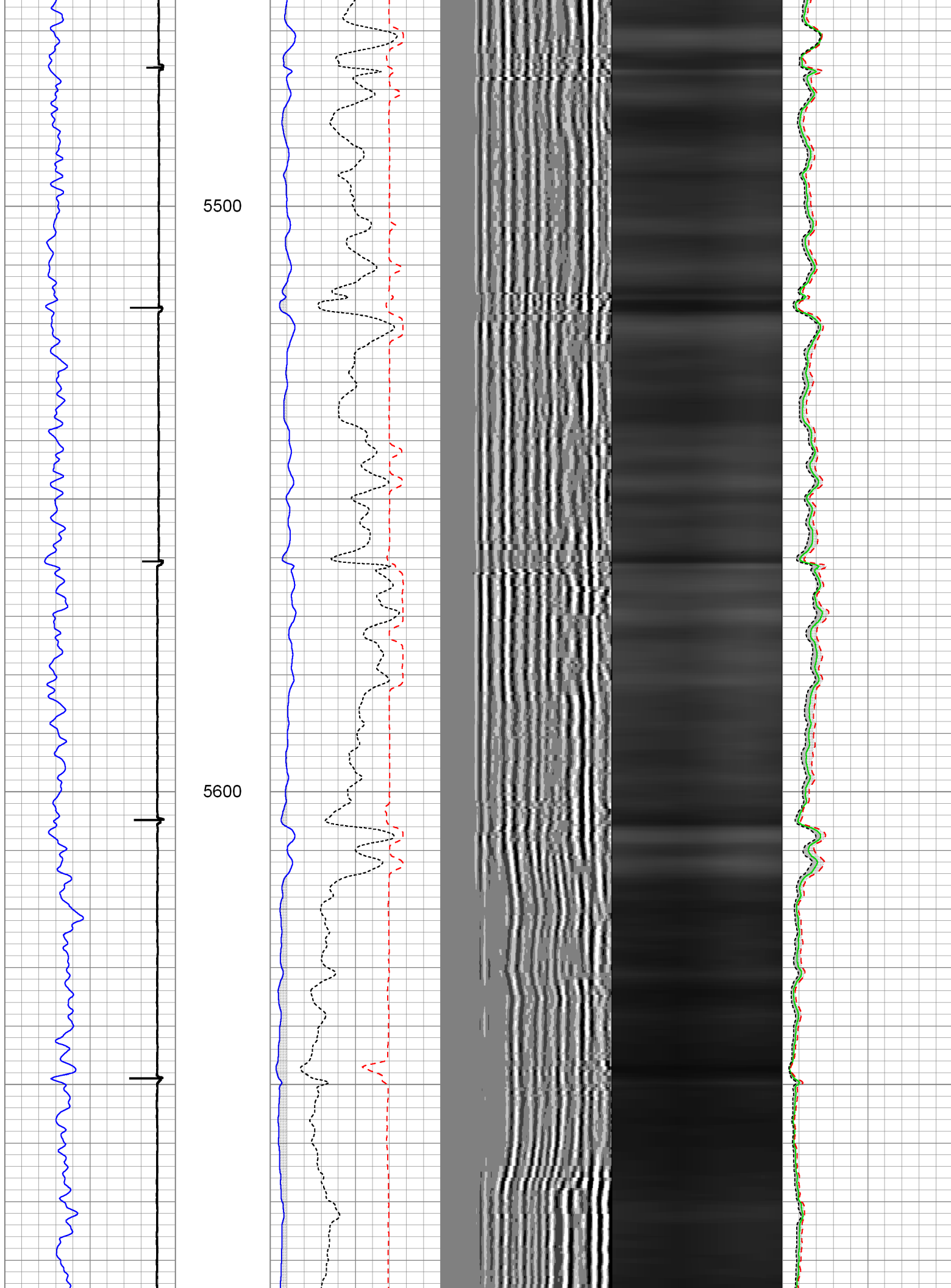
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5400



5500

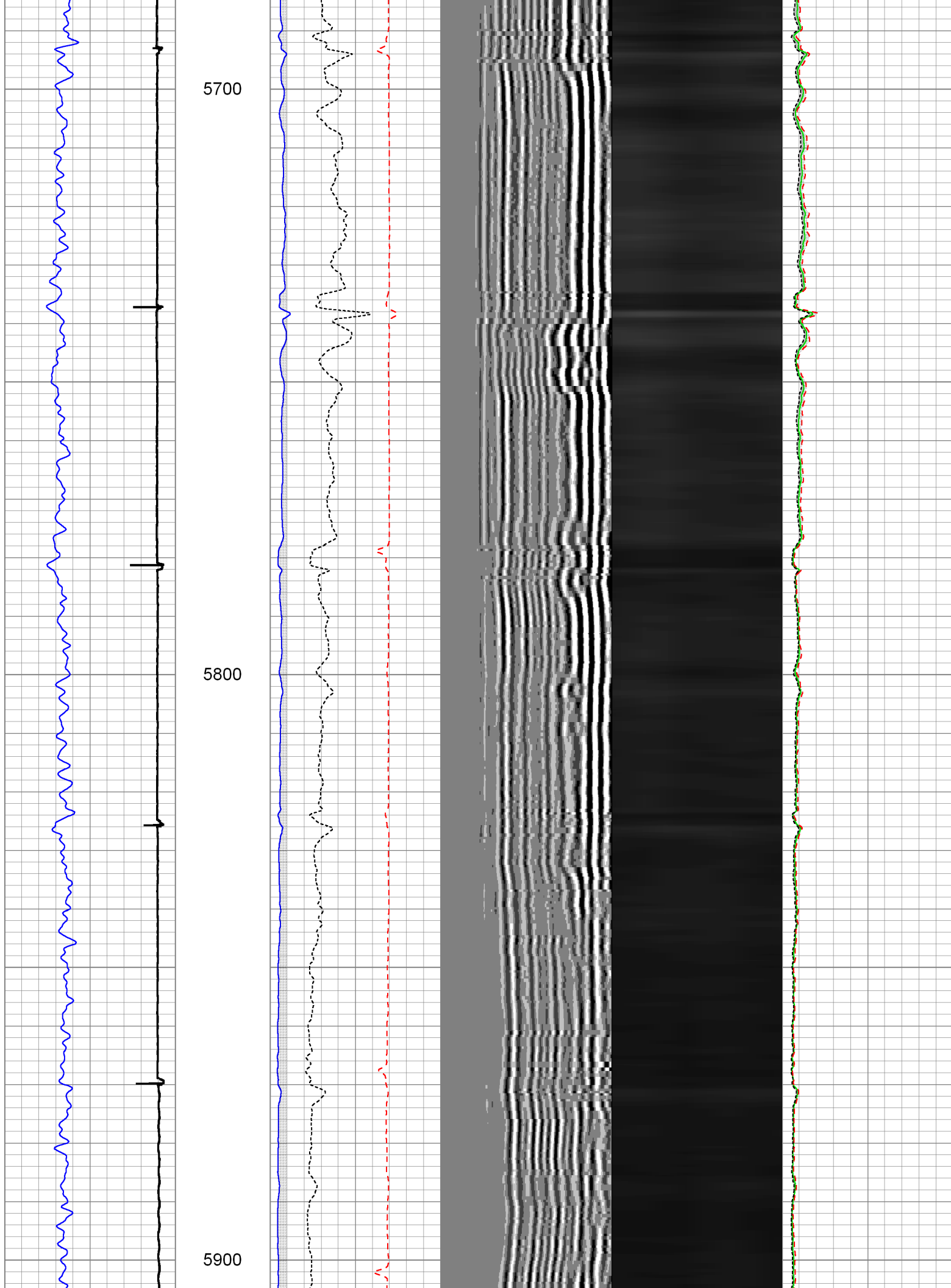
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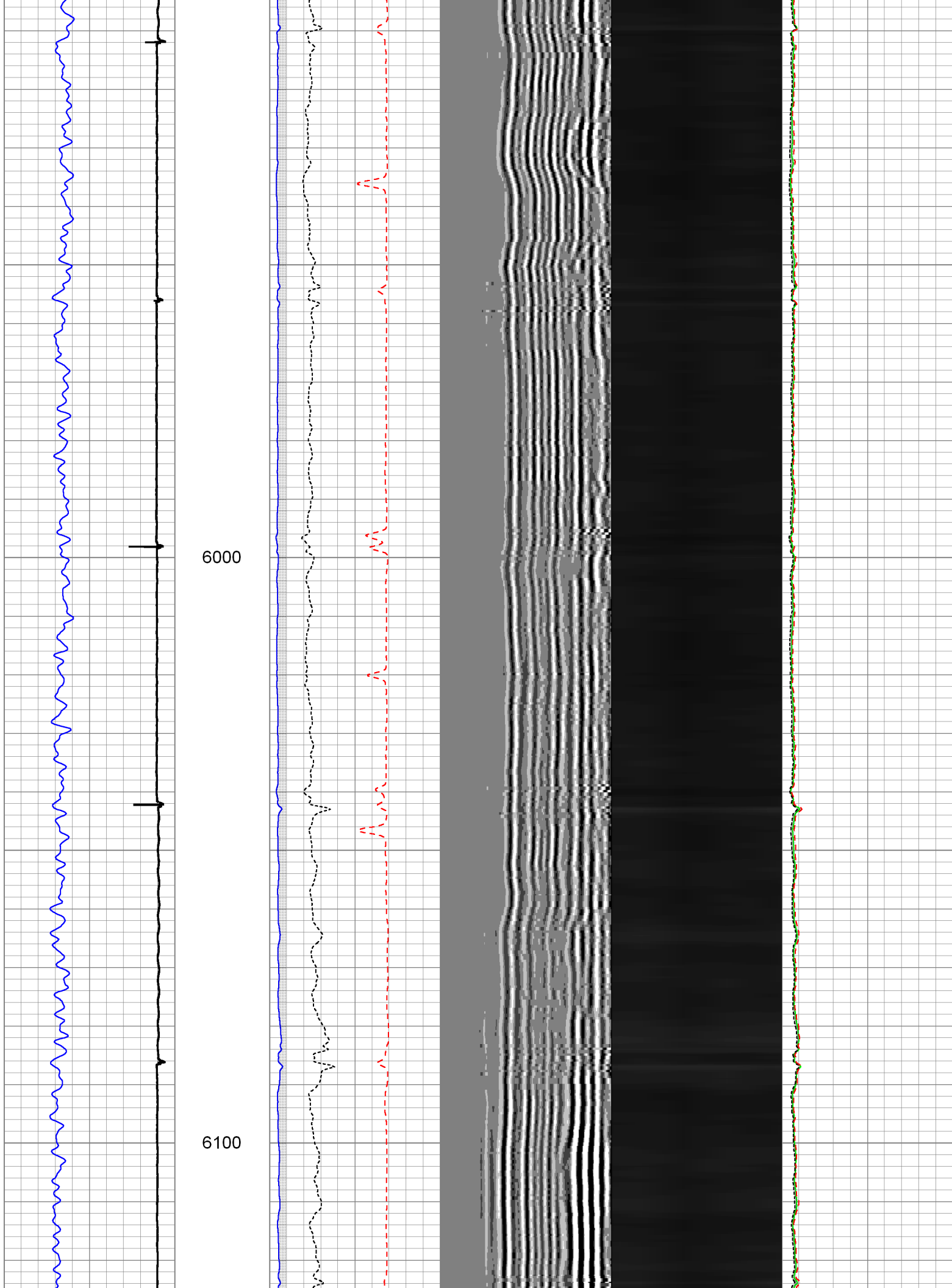
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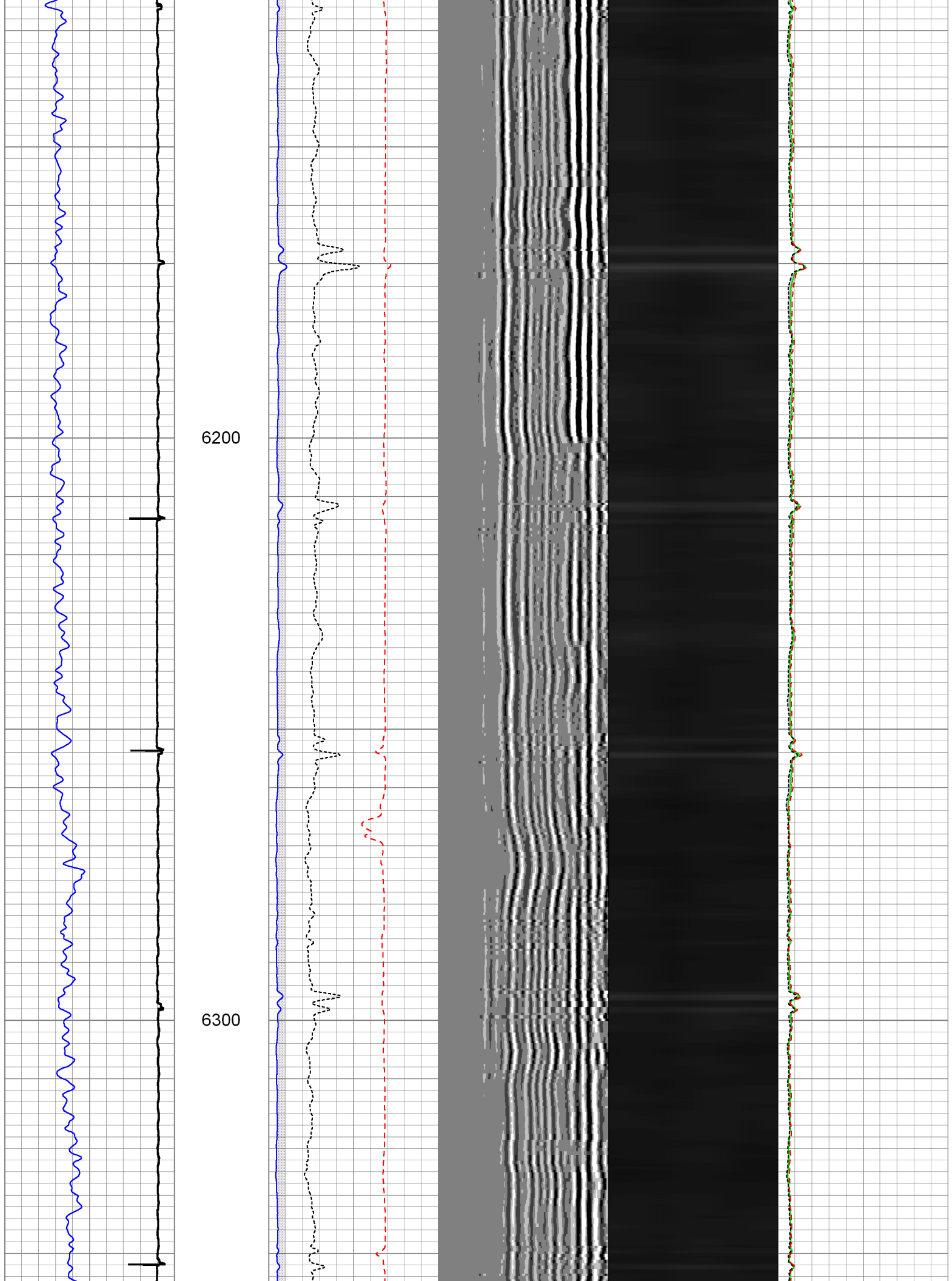
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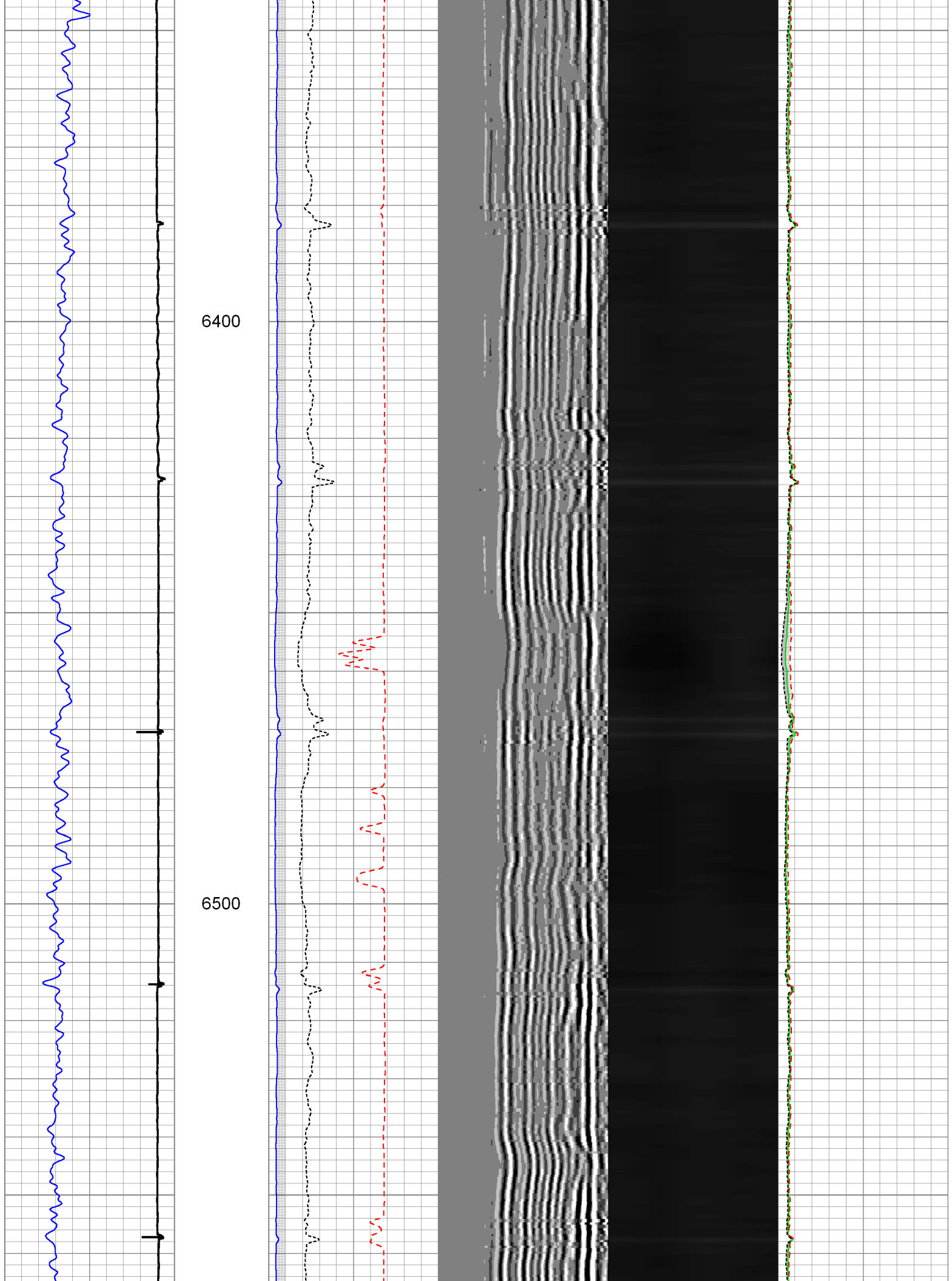
5900











6600

6700

CCL →

← GR

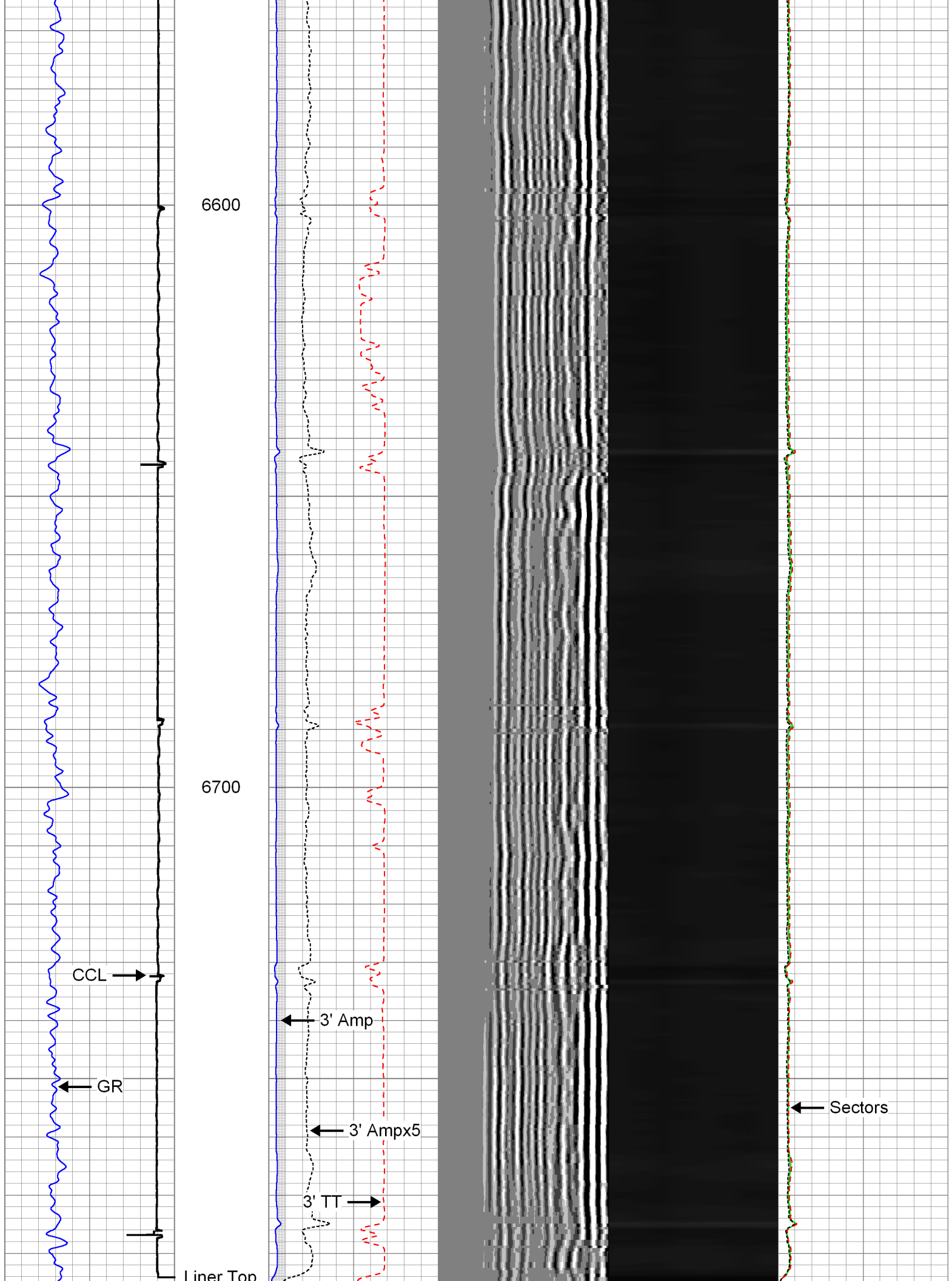
← 3' Amp

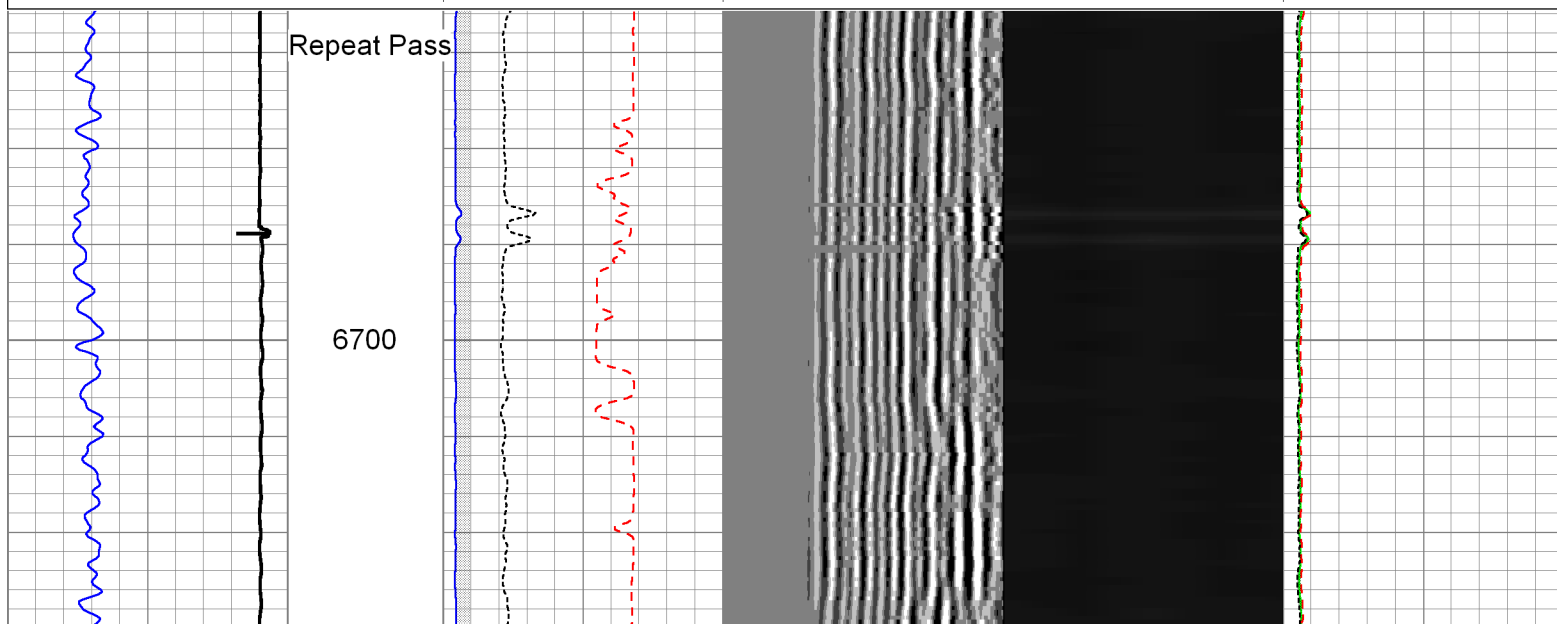
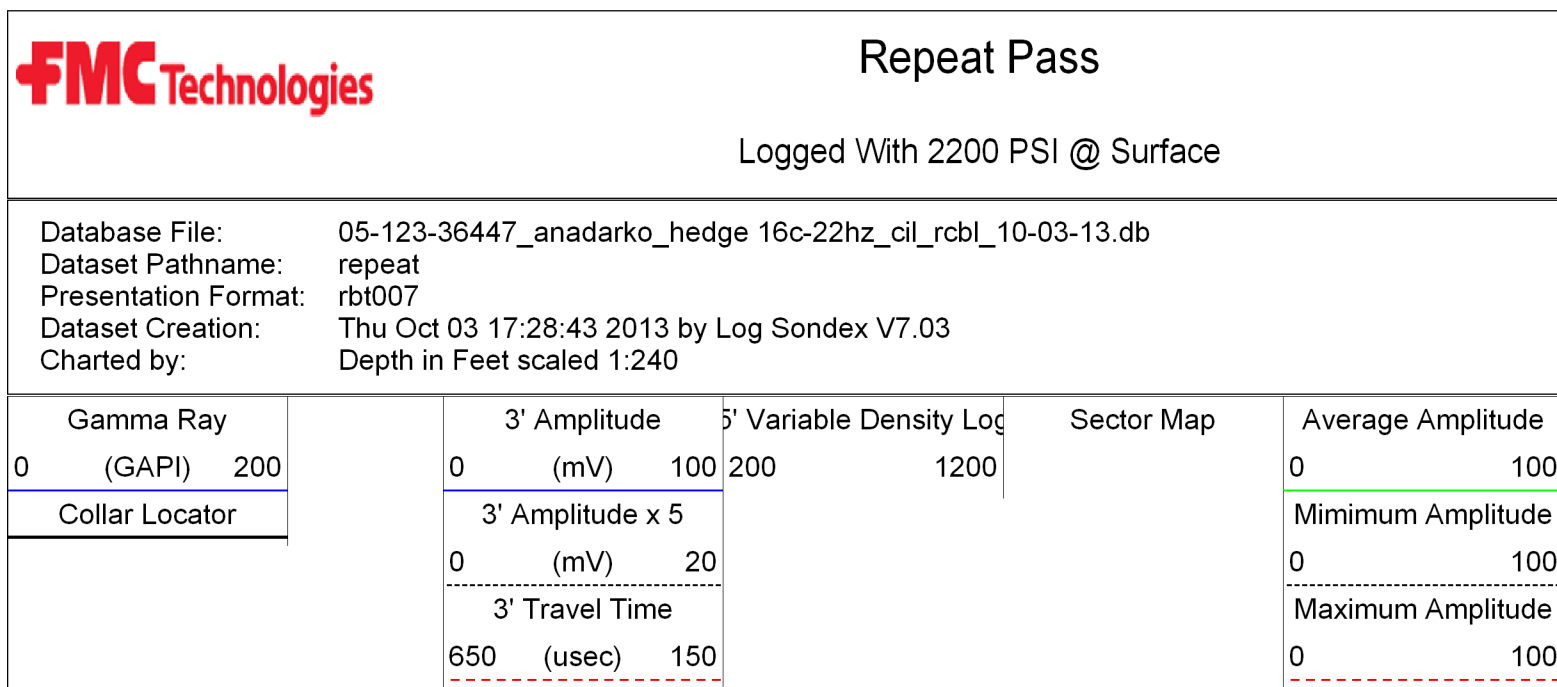
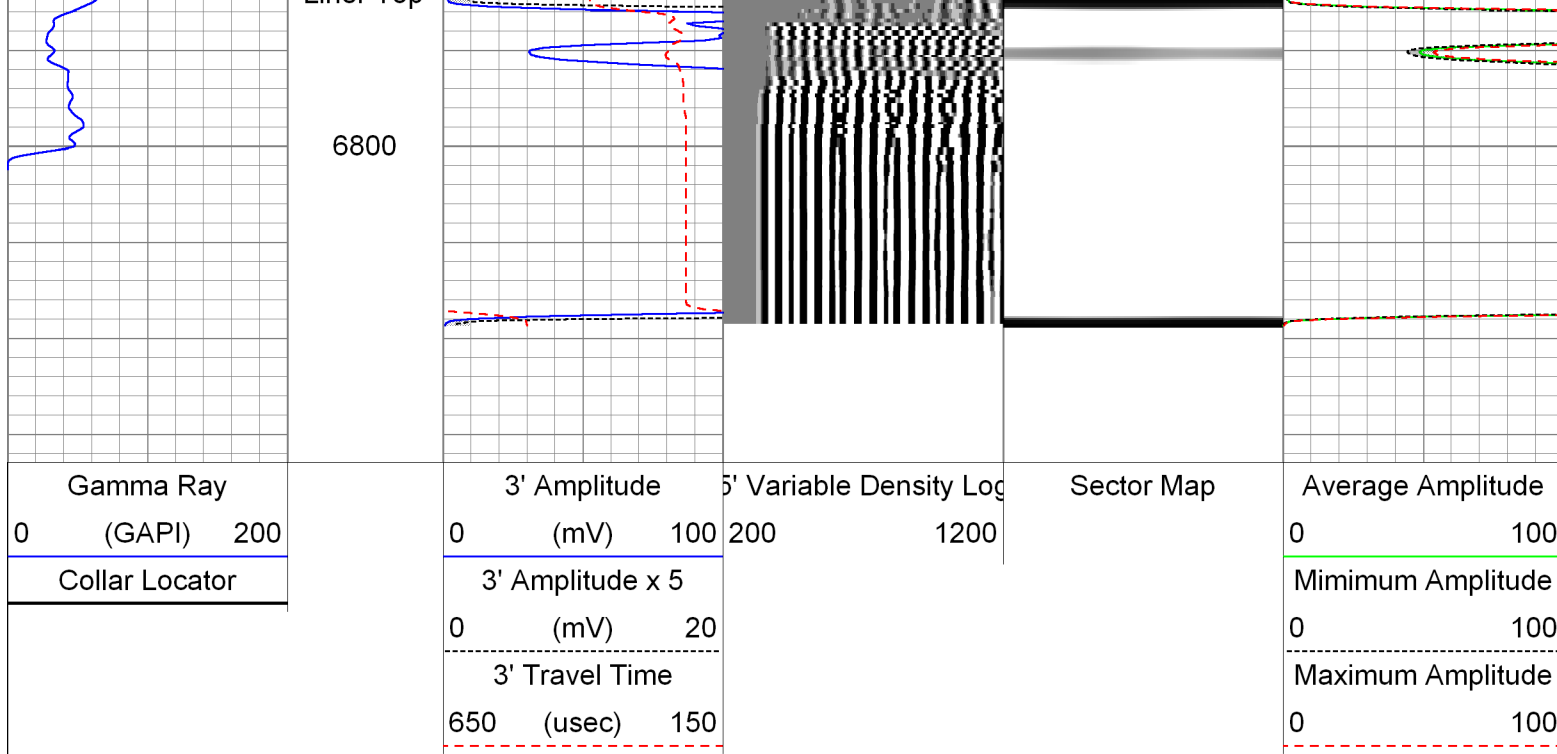
← 3' Ampx5

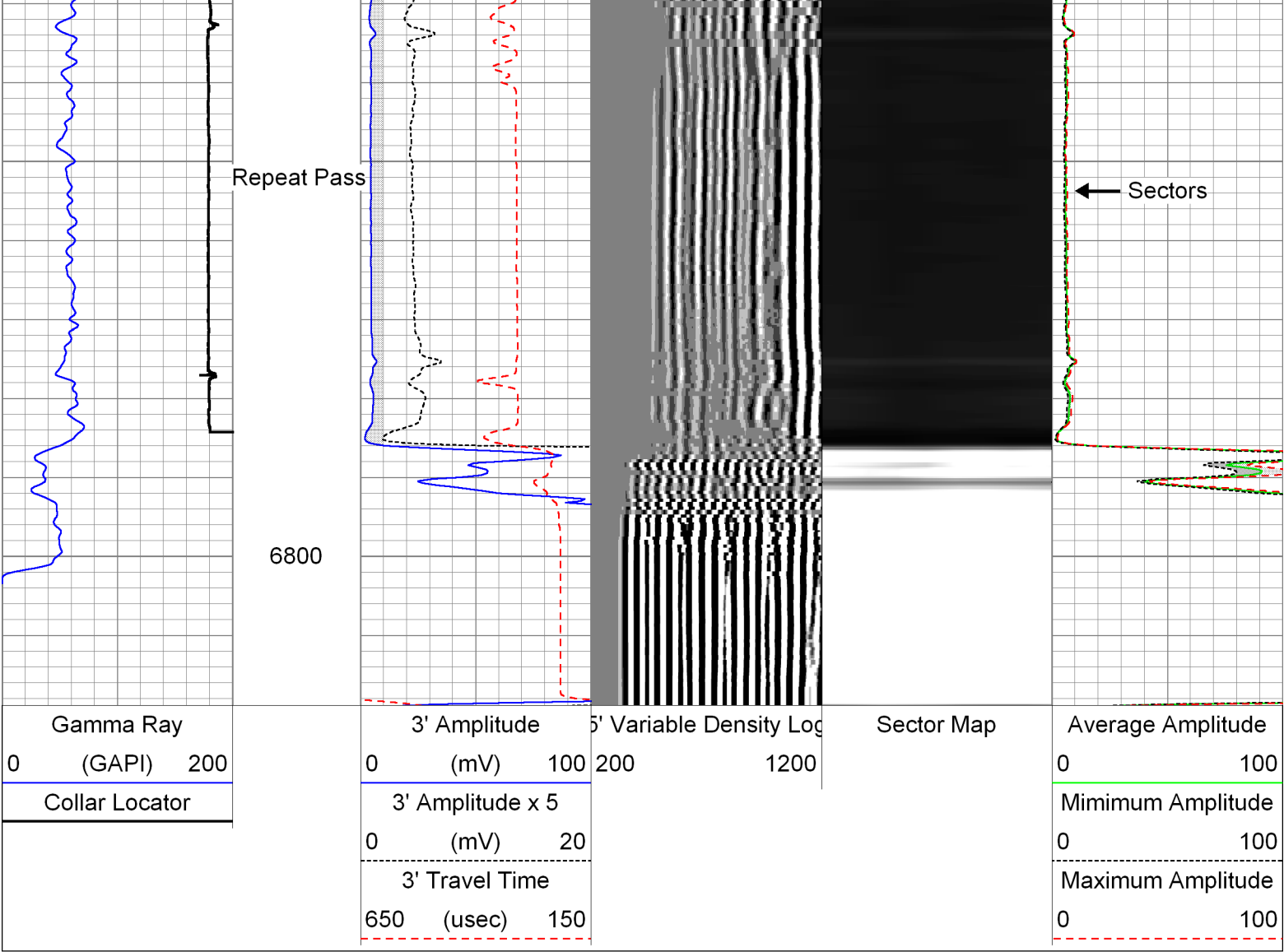
3' TT →

← Sectors

Liner Top

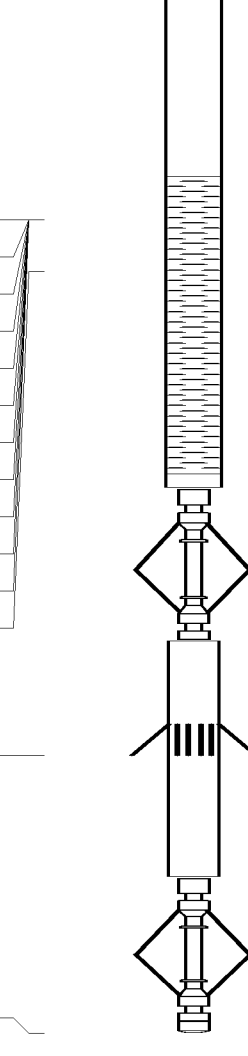






Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	32.07		CHD-AES (000001) Cable Head	1.04	1.69	2.00
			XTU-001 (000001) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (000001) Production Gamma Ray	1.93	1.69	9.50
			PRC-001 (000001) Production Roller Centraliser (3 Arm)	1.92	1.69	7.00
MTT	25.81		MTT-002 (000001) Magnetic Thickness Tool	6.86	1.69	30.00
			PRC-034 (erty) Production Roller Centraliser (4 Arm)	2.91	1.69	13.00



WVF3FT	15.54		RBT-004 (2639) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	15.54					
WVFS2	15.54					
WVFS3	15.54					
WVFS4	15.54					
WVFS5	15.54					
WVFS6	15.54					
WVFS7	15.54					
WVFS8	15.54					
CBLTEMP	15.54					
CBLROT	15.54		PRC-034 (rtu) Production Roller Centraliser (4 Arm)	2.91	1.69	13.00
WVF5FT	14.54					
MIT	5.30		MIT-027 (218950) Multifinger Imaging Tool (UW 40F)	4.54	2.75	61.10
			PRC-057 (000007) Production Roller Centraliser (4 Arm)	2.74	2.75	32.00
			BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 05-123-36447_anadarko_hedge 16c-22hz_cil_rcbl_10-03-13.db: field/well/run1/main Total Length: 36.11 ft Total Weight: 315.30 lb O.D.: 3.13 in						

Calibration Report Database File: 05-123-36447_anadarko_hedge 16c-22hz_cil_rcbl_10-03-13.db Dataset Pathname: main Dataset Creation: Thu Oct 03 17:52:18 2013 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		
Vertical: 1996 Finger 1 up: 2238 Finger 31 up: 1760 Finger 21 up: 1769 Finger 11 up: 2250 Sensitivity ratio: 1.00023 X-axis angle: 314.283 Deviation const.: 339.139		Inc X 1975 Inc Y 2226 2216 1745 1738

Finger Calibration Report		
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Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1383	233.0	1616	295.0	1911	321.0	2232
Finger 02:	1570	225.0	1795	272.0	2067	291.0	2358
Finger 03:	1509	248.0	1757	306.0	2063	330.0	2393
Finger 04:	1539	239.0	1778	289.0	2067	313.0	2380
Finger 05:	1580	230.0	1810	272.0	2082	295.0	2377
Finger 06:	1574	244.0	1818	282.0	2100	309.0	2409
Finger 07:	1566	257.0	1823	289.0	2112	311.0	2423
Finger 08:	1618	238.0	1856	260.0	2116	282.0	2398
Finger 09:	1556	277.0	1833	297.0	2130	315.0	2445
Finger 10:	1604	271.0	1875	277.0	2152	290.0	2442
Finger 11:	1581	276.0	1857	280.0	2137	295.0	2432
Finger 12:	1565	295.0	1860	294.0	2154	310.0	2464
Finger 13:	1578	291.0	1869	282.0	2151	288.0	2439
Finger 14:	1574	299.0	1873	283.0	2156	291.0	2447
Finger 15:	1561	303.0	1864	283.0	2147	289.0	2436
Finger 16:	1563	309.0	1872	283.0	2155	287.0	2442
Finger 17:	1556	309.0	1865	284.0	2149	285.0	2434
Finger 18:	1598	298.0	1896	267.0	2163	261.0	2424
Finger 19:	1618	290.0	1908	256.0	2164	252.0	2416
Finger 20:	1488	318.0	1806	285.0	2091	283.0	2374
Finger 21:	1453	320.0	1773	295.0	2068	287.0	2355
Finger 22:	1500	318.0	1818	286.0	2104	277.0	2381
Finger 23:	1547	293.0	1840	265.0	2105	255.0	2360
Finger 24:	1522	293.0	1815	274.0	2089	267.0	2356
Finger 25:	1502	303.0	1805	283.0	2088	274.0	2362
Finger 26:	1443	302.0	1745	288.0	2033	281.0	2314
Finger 27:	1440	291.0	1731	286.0	2017	278.0	2295
Finger 28:	1472	288.0	1760	290.0	2050	283.0	2333
Finger 29:	1455	278.0	1733	285.0	2018	283.0	2301
Finger 30:	1462	276.0	1738	291.0	2029	292.0	2321
Finger 31:	1512	242.0	1754	258.0	2012	256.0	2268
Finger 32:	1479	259.0	1738	290.0	2028	293.0	2321
Finger 33:	1450	258.0	1708	293.0	2001	287.0	2288
Finger 34:	1454	254.0	1708	300.0	2008	308.0	2316
Finger 35:	1450	249.0	1699	292.0	1991	306.0	2297
Finger 36:	1657	237.0	1894	275.0	2169	280.0	2449
Finger 37:	1289	232.0	1521	290.0	1811	310.0	2121
Finger 38:	1462	240.0	1702	298.0	2000	315.0	2315
Finger 39:	1428	237.0	1665	298.0	1963	320.0	2283
Finger 40:	1542	240.0	1782	299.0	2081	317.0	2398

## Segmented Cement Bond Log Calibration Report

Serial Number: 2639  
Tool Model: 004


Calibration Casing Diameter: 7.000 in  
Calibration Depth: 3.141 ft

Master Calibration, performed Thu Oct 03 16:08:40 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.706	0.800	62.165	86.862	0.800
5FT	-0.004	0.756	0.800	62.165	80.650	1.159
S1	0.000	0.726	0.000	100.000	137.743	-0.054
S2	-0.001	0.649	0.000	100.000	153.734	0.163
S3	-0.001	0.616	0.000	100.000	162.087	0.105
S4	-0.002	0.628	0.000	100.000	158.745	0.388

S5	-0.000	0.685	0.000	100.000	145.955	0.014
S6	0.000	0.767	0.000	100.000	130.390	-0.032
S7	-0.001	0.822	0.000	100.000	121.506	0.148
S8	-0.001	0.802	0.000	100.000	124.450	0.144

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	Hedge 16C-22HZ
	Field	Wattenberg
	County	Weld
	State	Colorado