Radial Cement Bond
Gamma Ray
Casing Collar Log

FMC Technologies

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Reynolds Cattle 28N-19HZ
Field Wattenberg
County Weld State Colorado

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well Reynolds Cattle 28N-19HZ

Field Wattenberg

County Weld State Colorado

Location: API # : 0512339137

SHL: 590' FNL & 155' FEL NENE

SEC 23 TWP 3N RGE 68W

Other Services
Gauge Ring
MIT

Permanent Datum	Ground Level	Elevation	4932'
Log Measured From	Kelly Bushing		16'
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 4948'
D.F. 4947'
G.L. 4932'

Date	July 27, 2014		
Run Number	One		
Depth Driller	14374 FT		
Depth Logger	7002 FT		
Bottom Logged Interval	6997 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lbm/gal		
Max. Recorded Temp.	217°F		
Estimated Cement Top	Surface		
Time Well Ready	ROA		
Time Logger on Bottom	8:45 a.m.		
Equipment Number	HD 0255		
Location	Longmont, Co		
Recorded By	Zach Fisher		
Witnessed By	Trevor Daniels		

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	1355 FT
Intermediate #1	7	26	HCP-110	Surface	7610 FT
Intermediate #2					
Liner	4 1/2	11.6	P-110	6406 FT	14374 FT

<<< Fold Here >>>

Comments

Log ran as per Customer request.
Depth reference to Casing Tally reported Liner Top at 6406 FT.
Adjusted log + 4 FT prior to log run.
Gauge Ring/Junk Basket ran to 7234 FT prior to log run.
Log ran from 7002 FT to surface.
Log ran with 2800 PSI surface induced pressure.

Thank you for choosing FMC Technologies Completion Services, Inc.!!

7" Main Pass

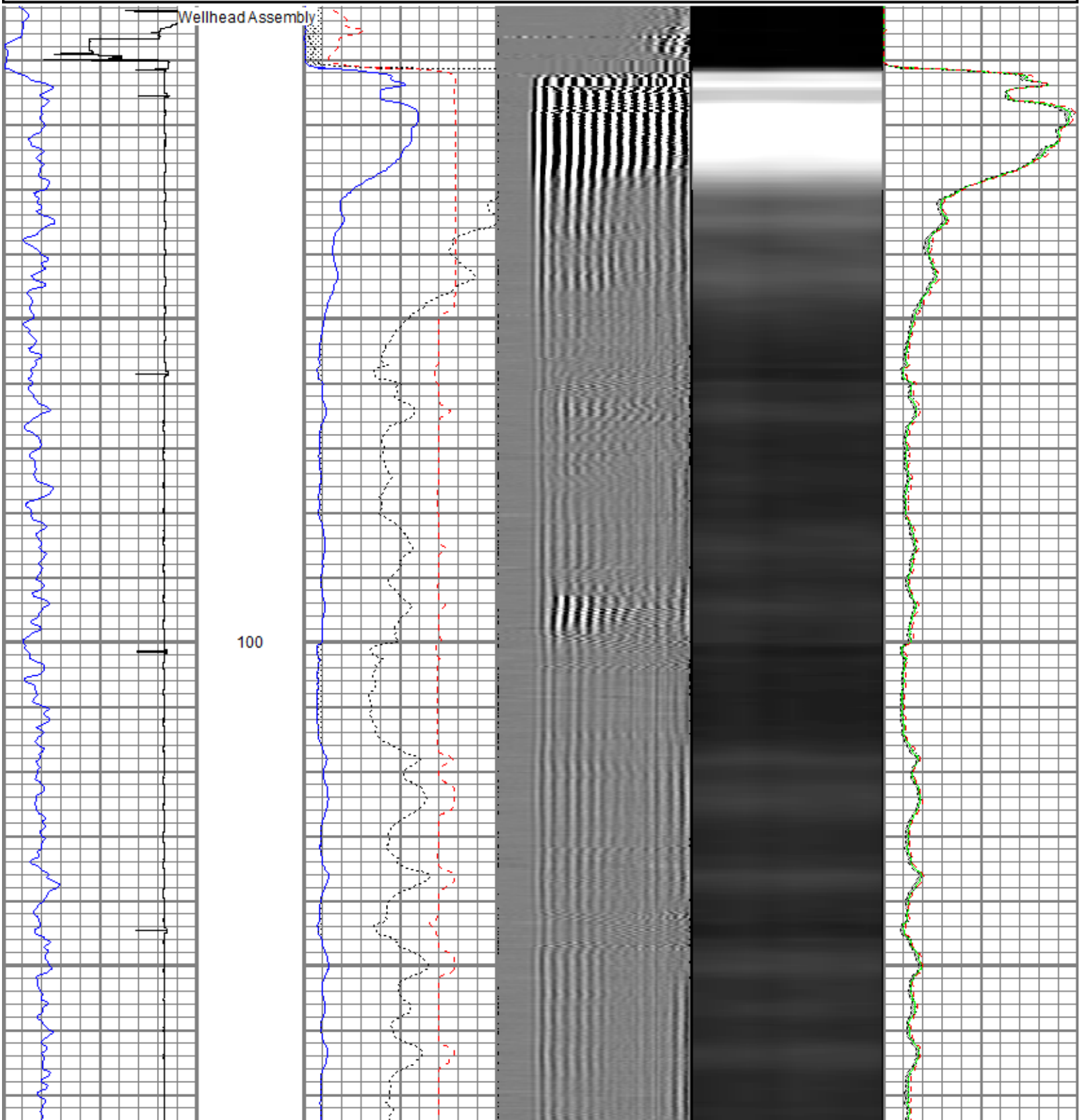
FMC Technologies

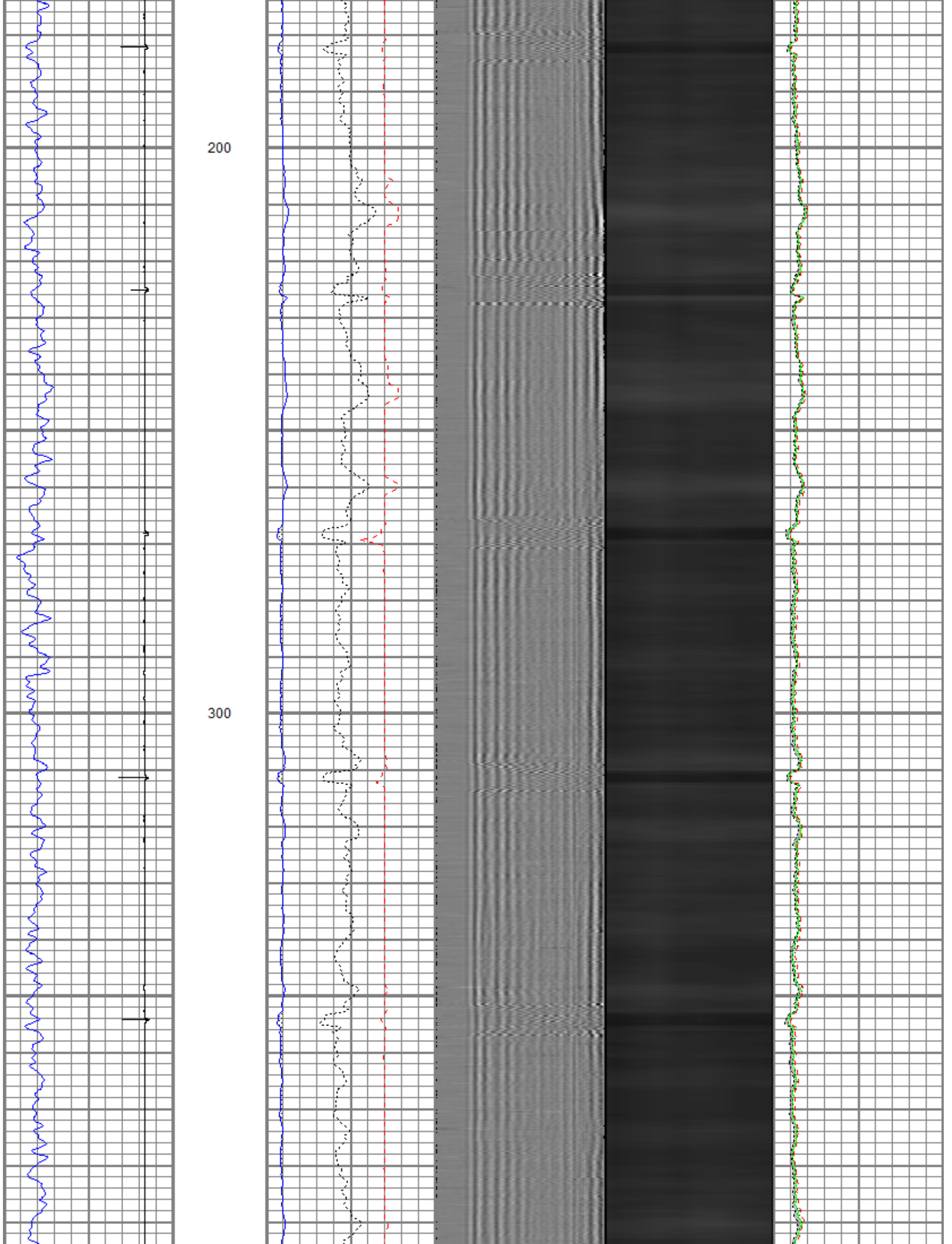
Logged with 2800 PSI surface induced pressure

Logged with 2800 PSI surface induced pressure.

Database File:	reunolds_cattle_28n-19hz.db
Dataset Pathname:	7Main
Presentation Format:	rbt4_mit
Dataset Creation:	Sun Jul 27 08:55:55 2014 by Log SCH 111116
Charted by:	Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 100	200 1200		0 100
8 AVEDIA (in) 6	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100

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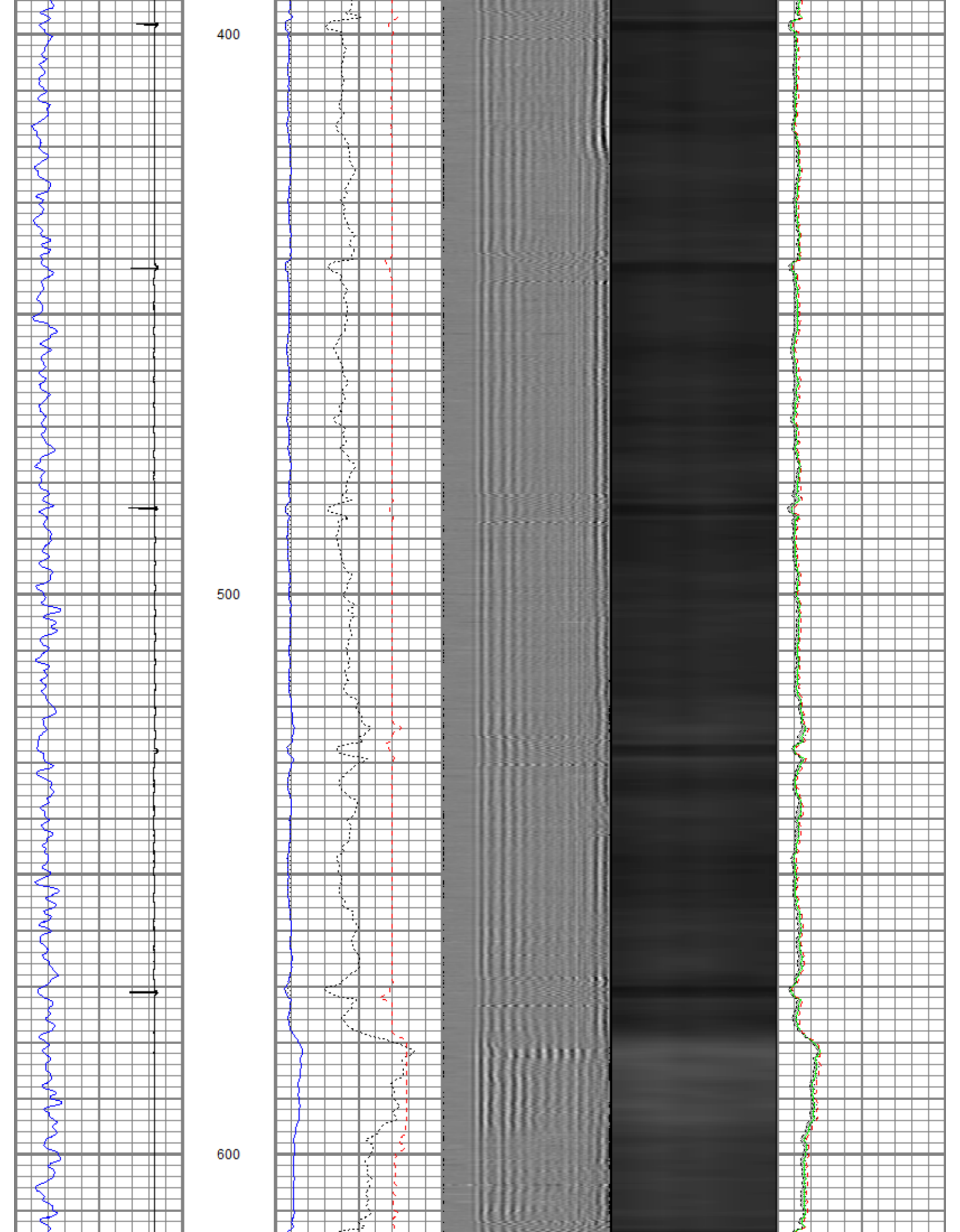
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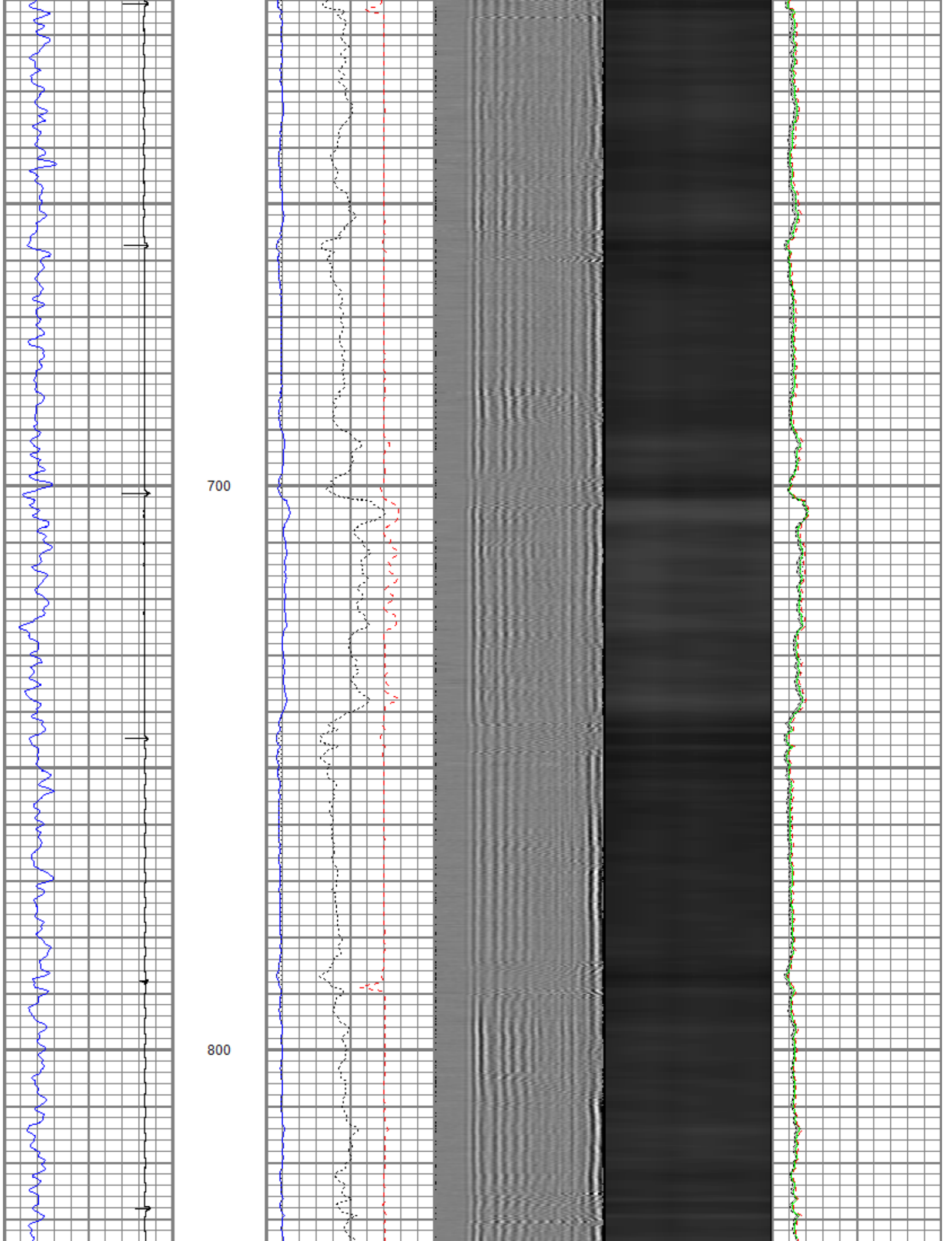
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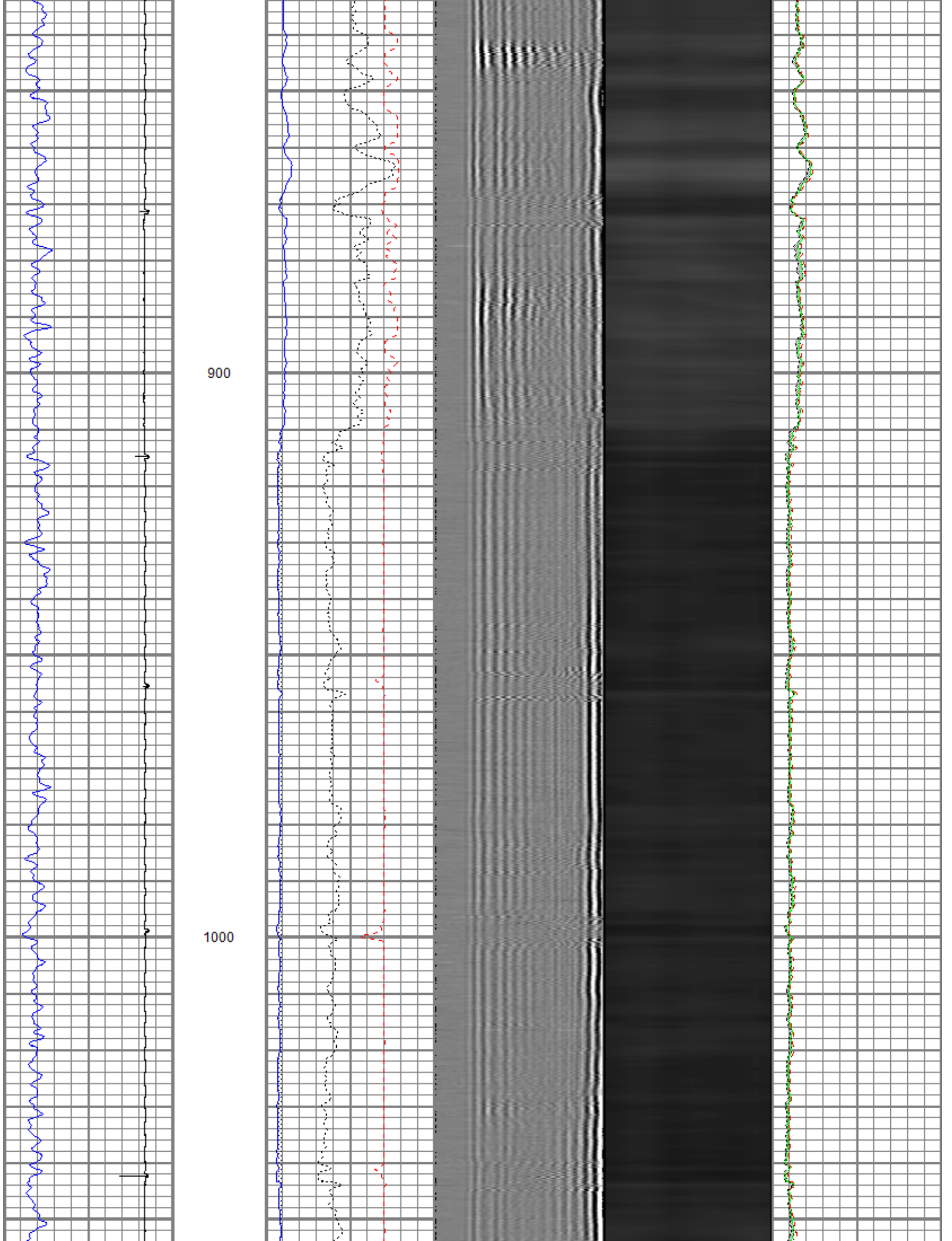
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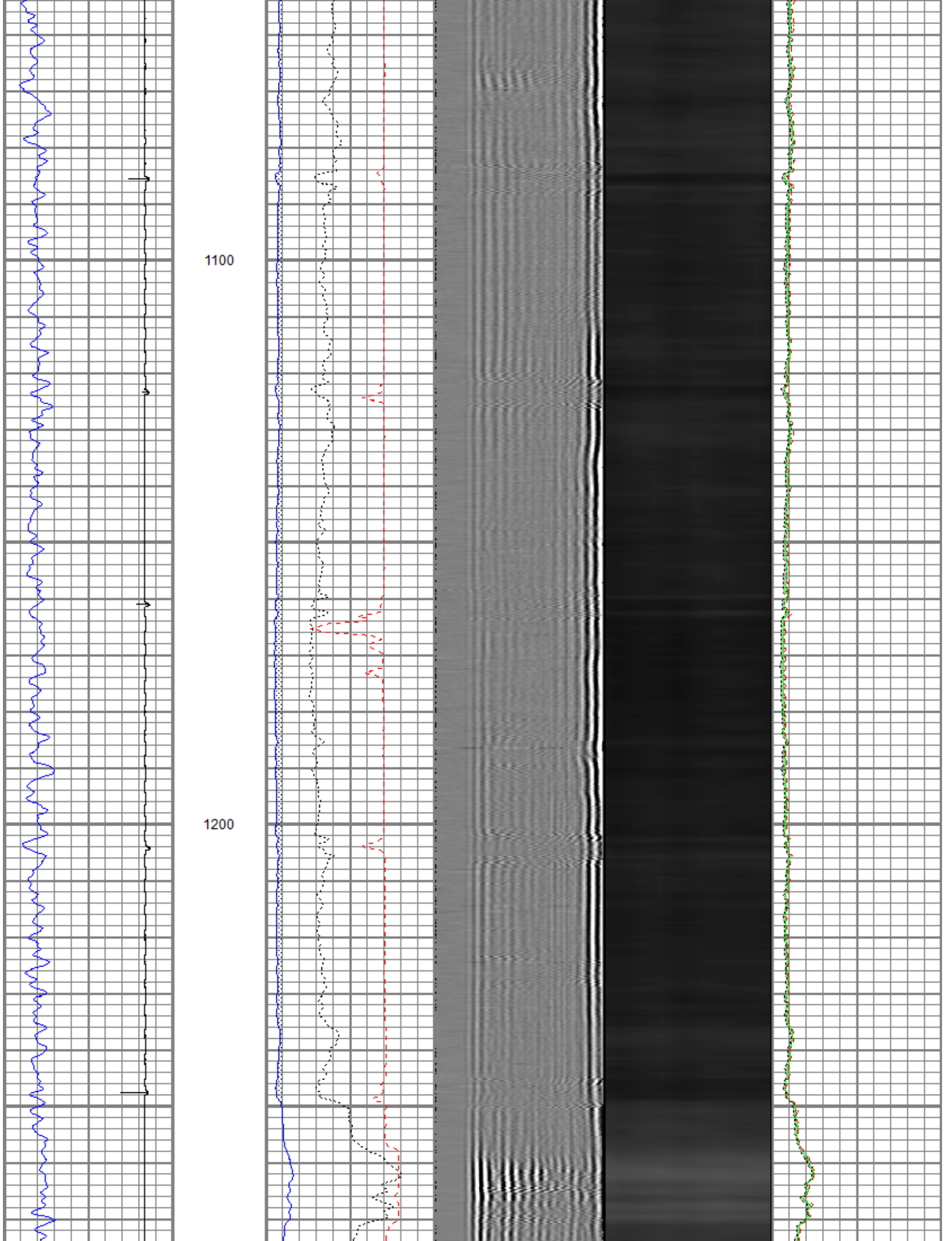
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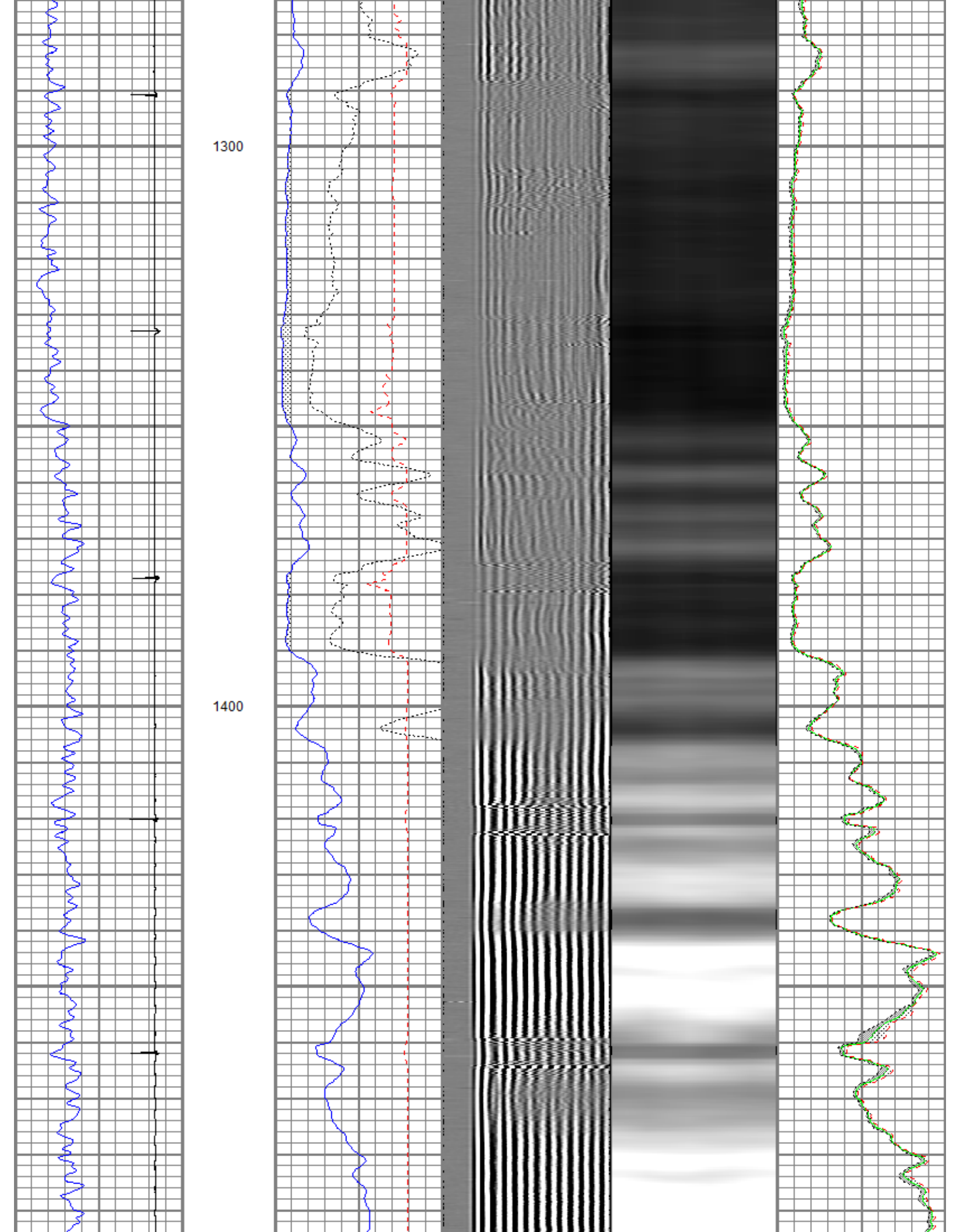
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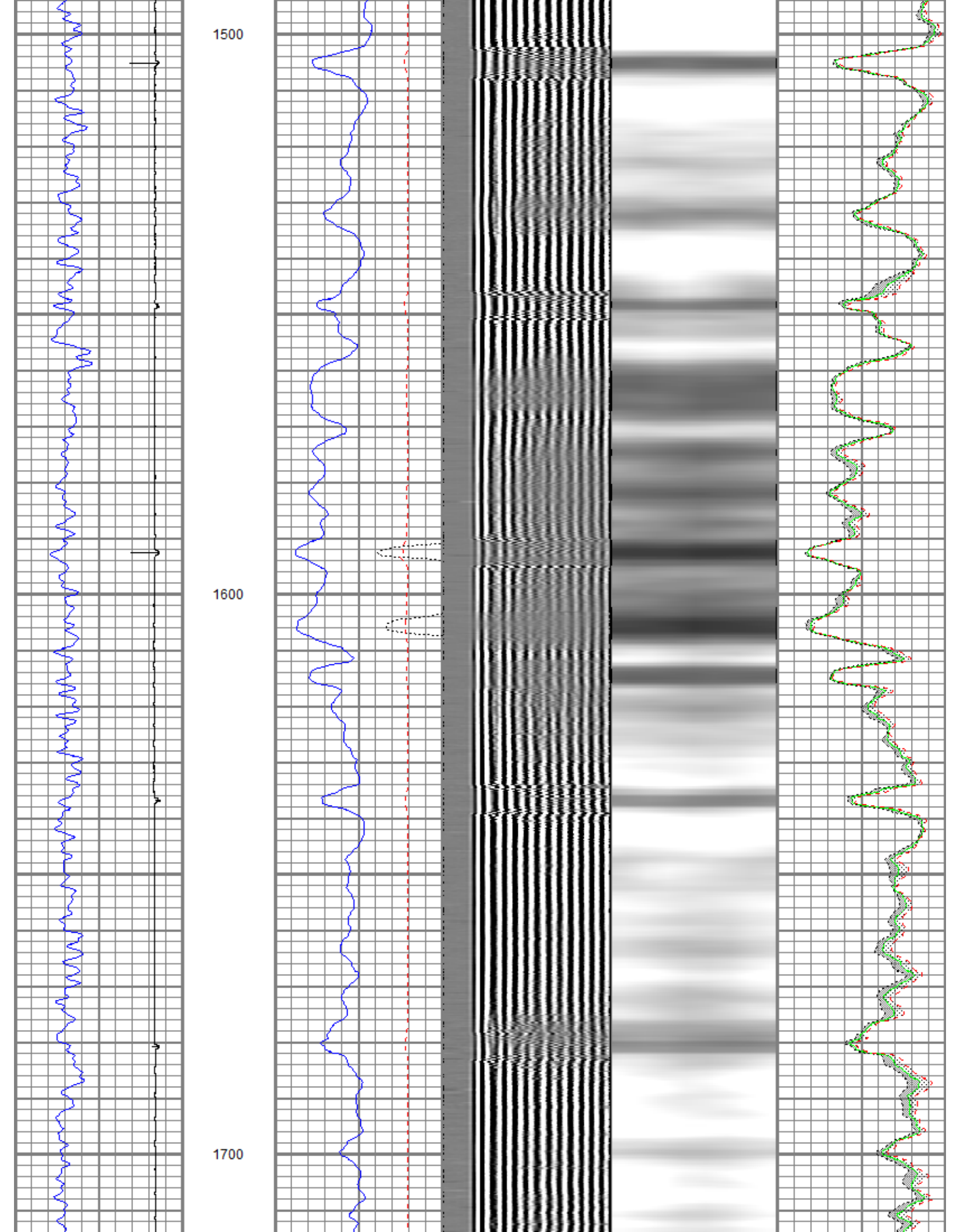
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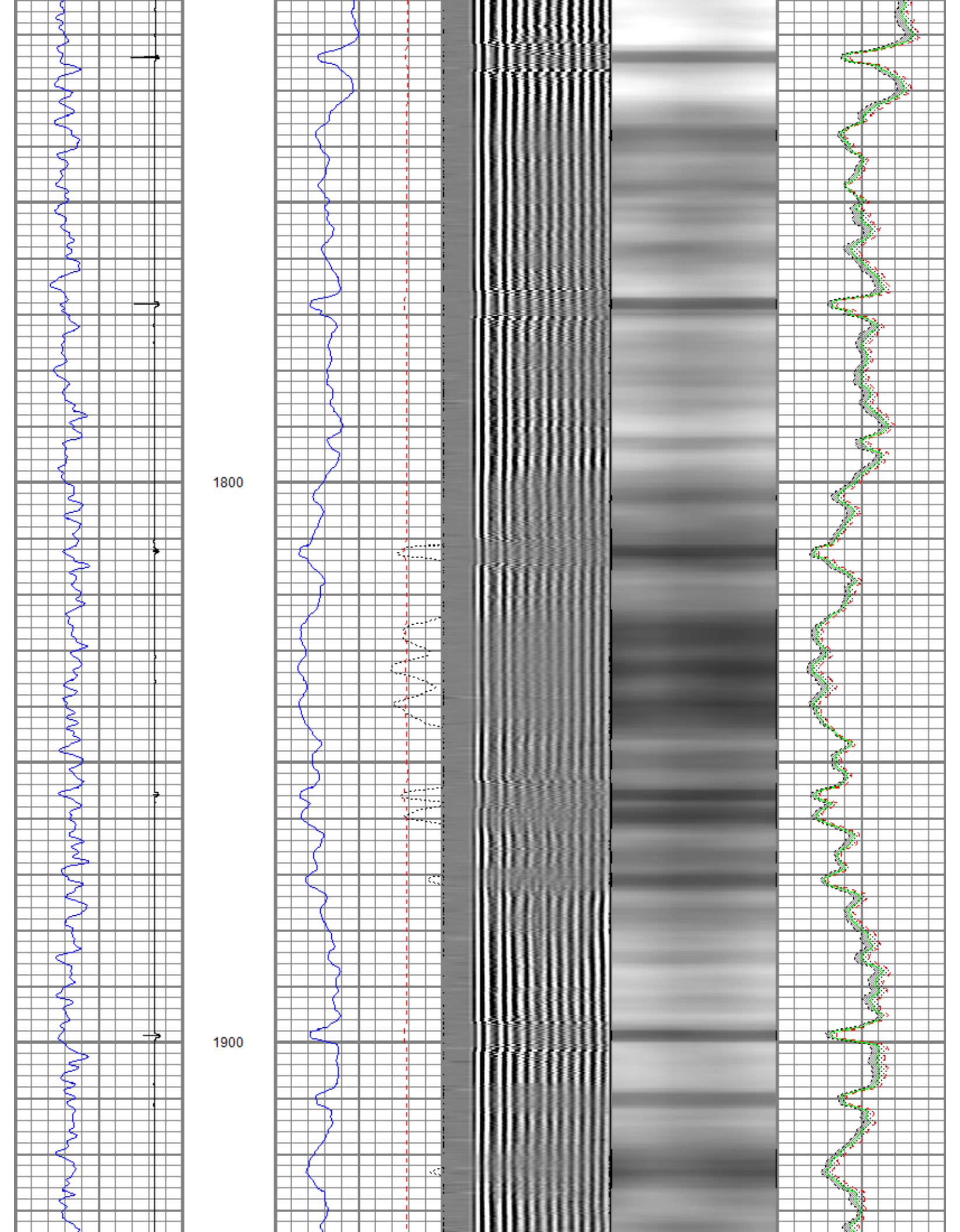
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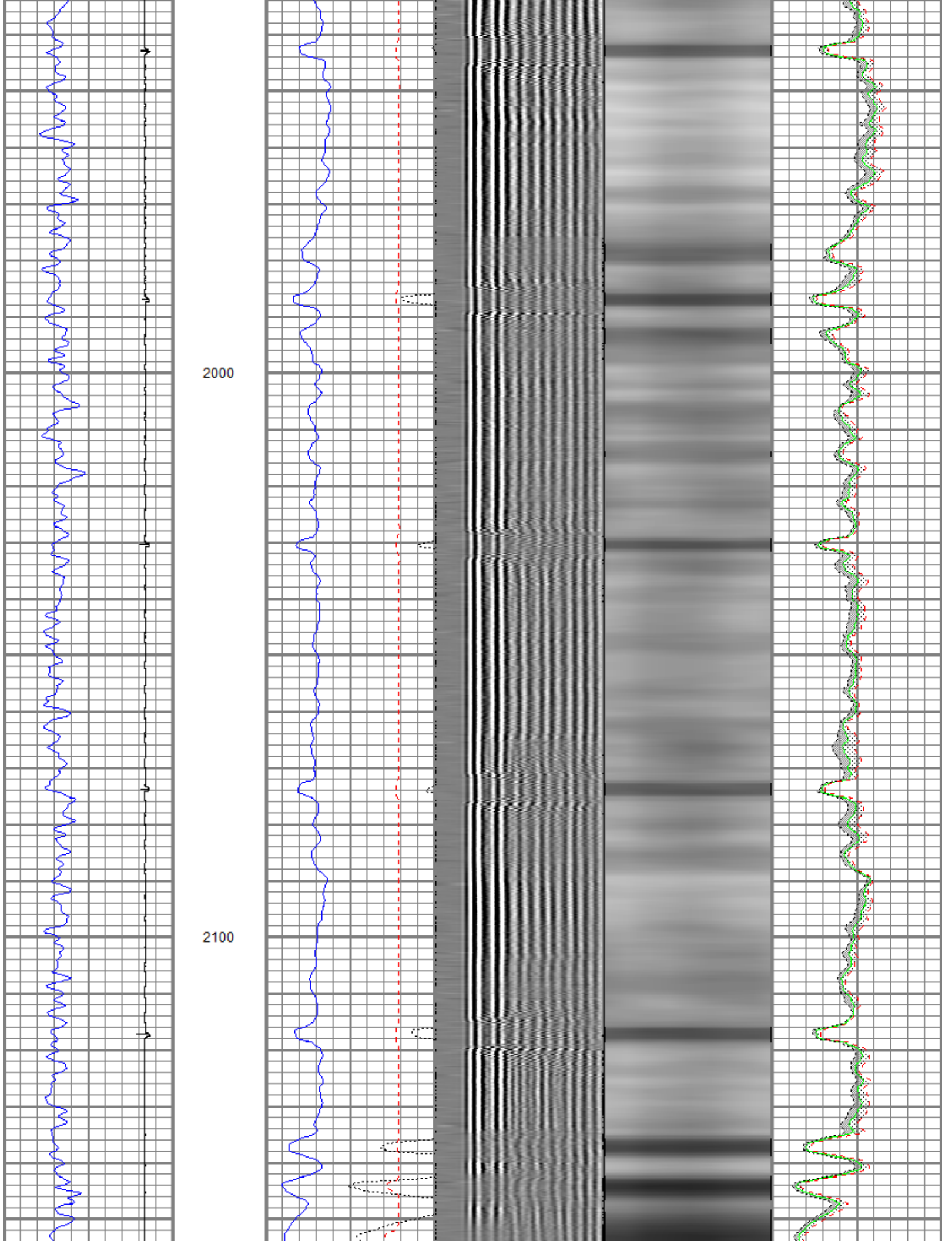
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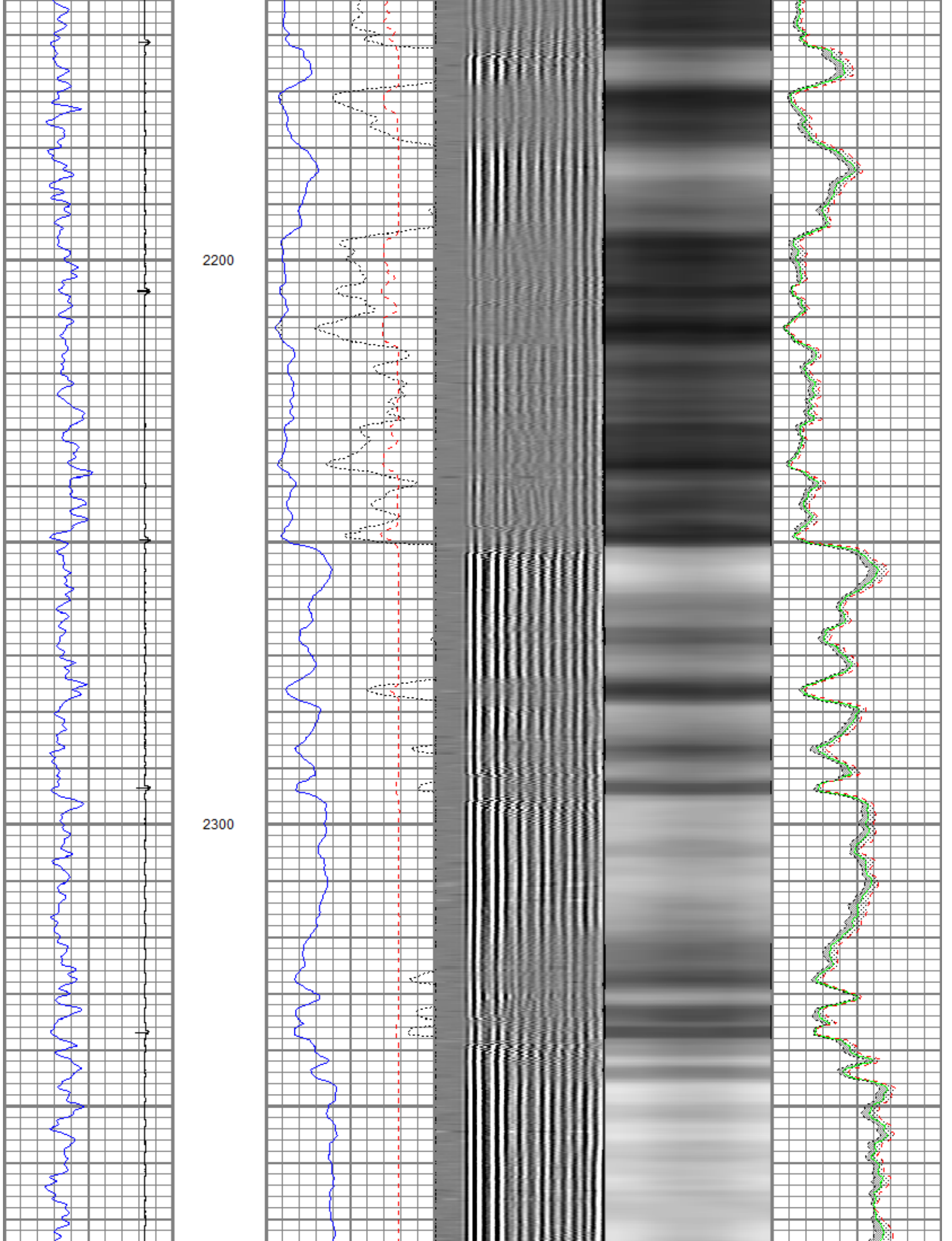
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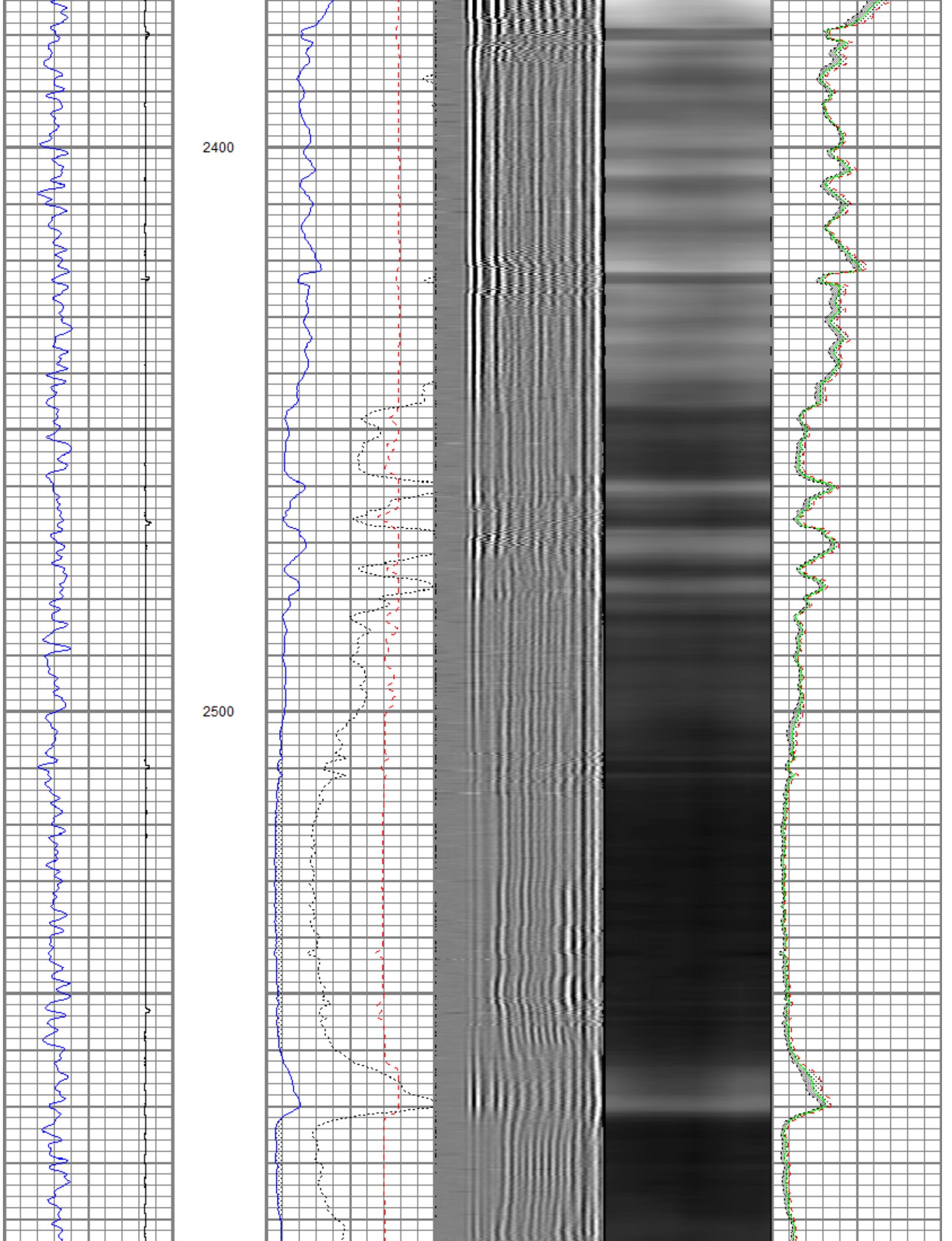
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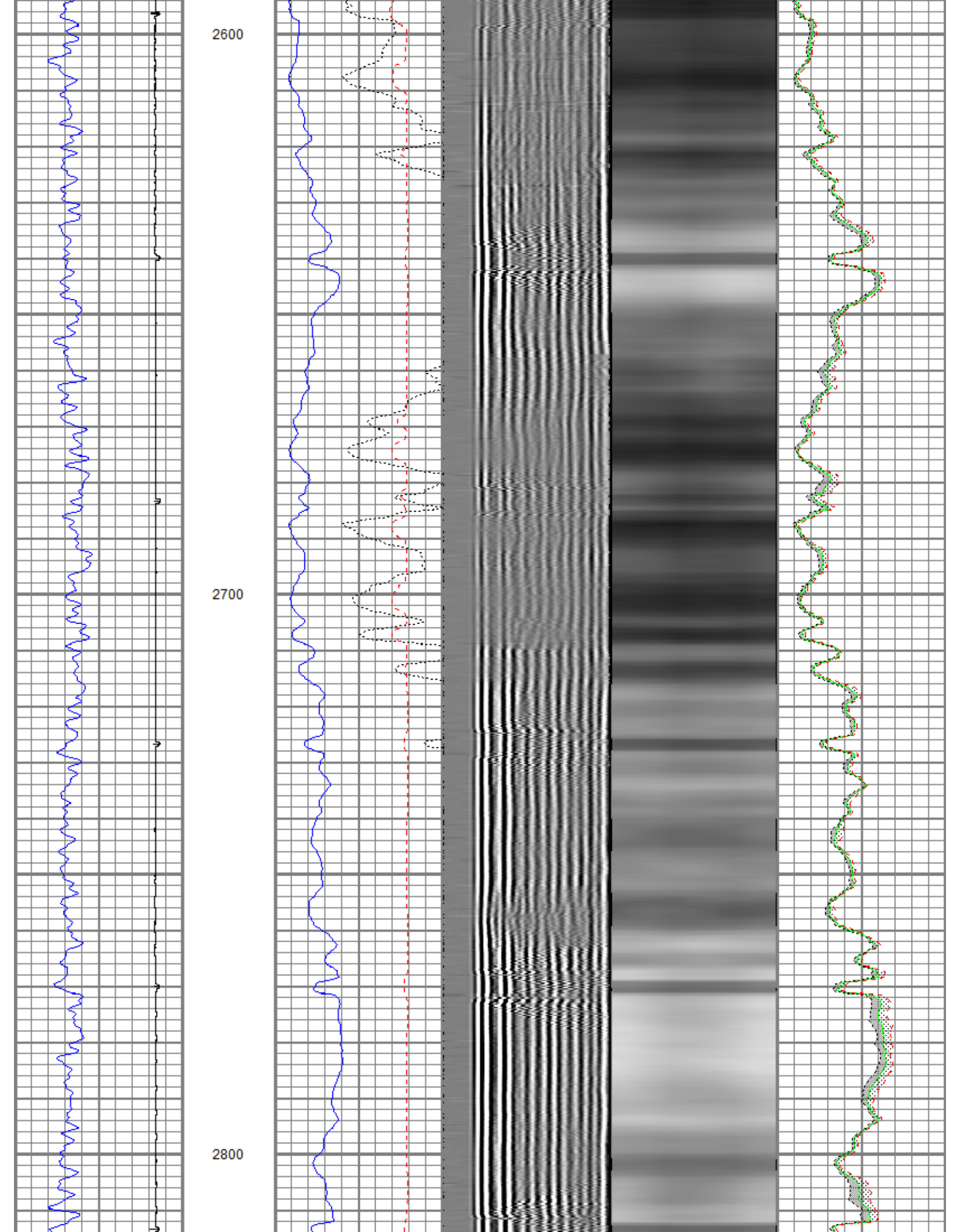
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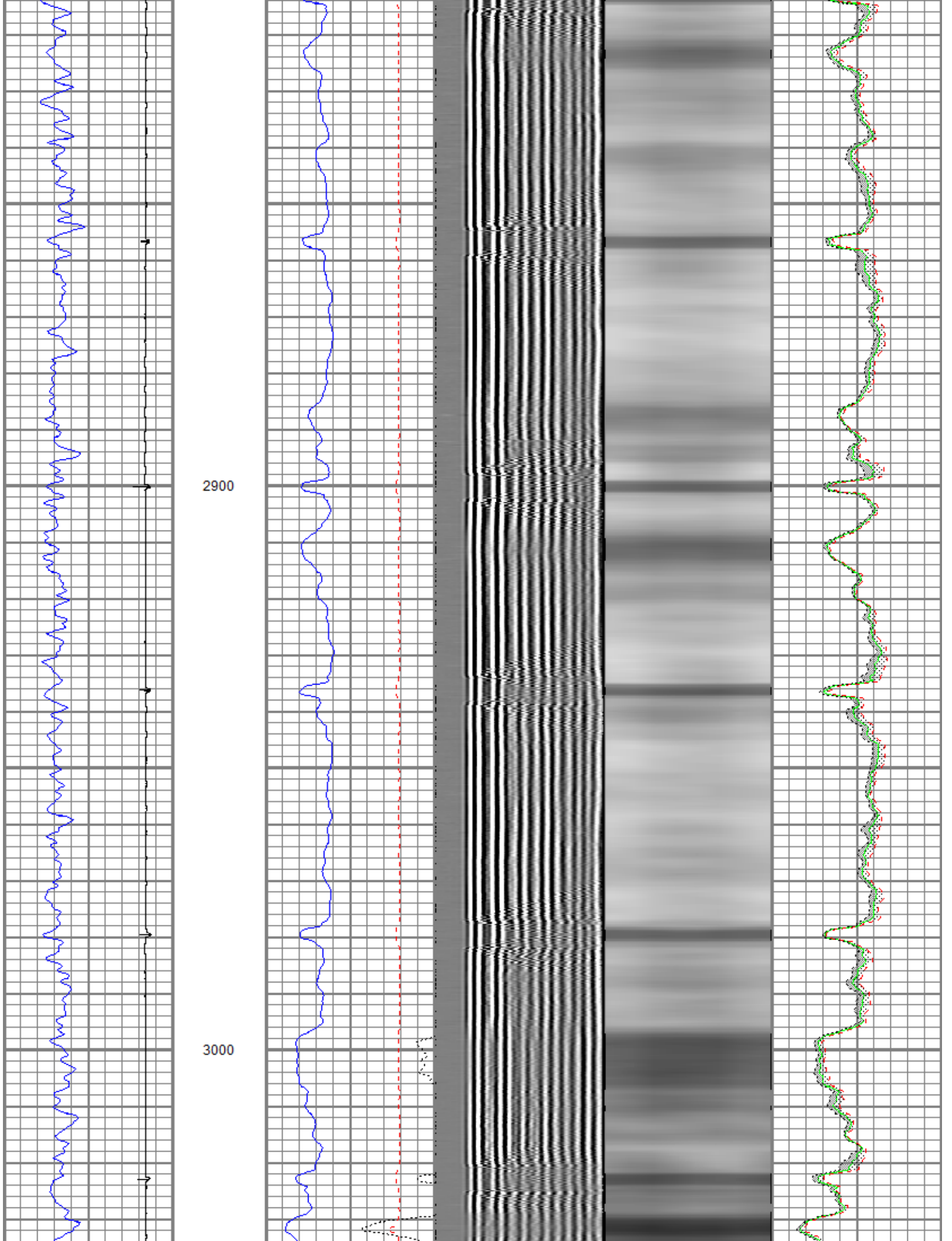
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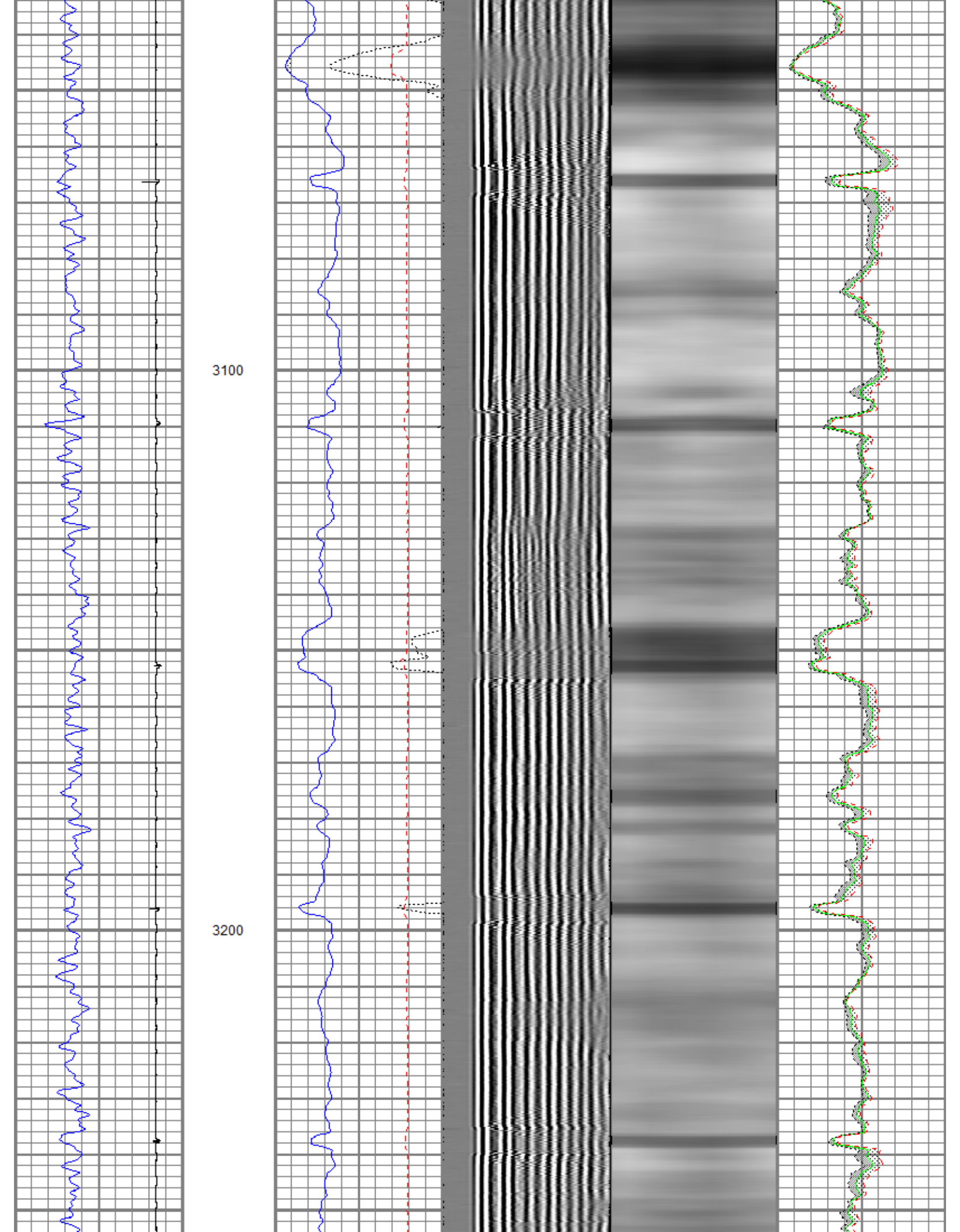
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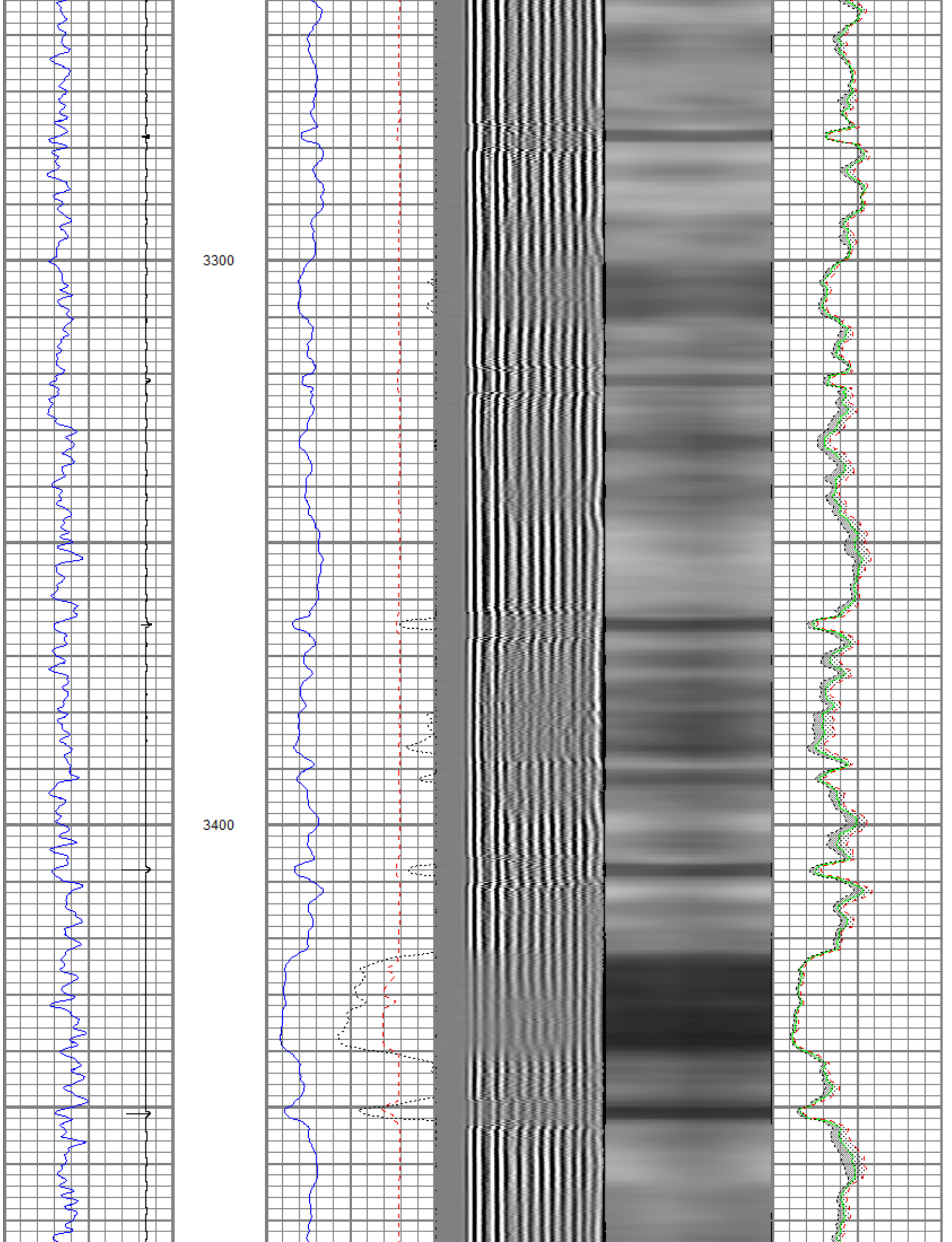
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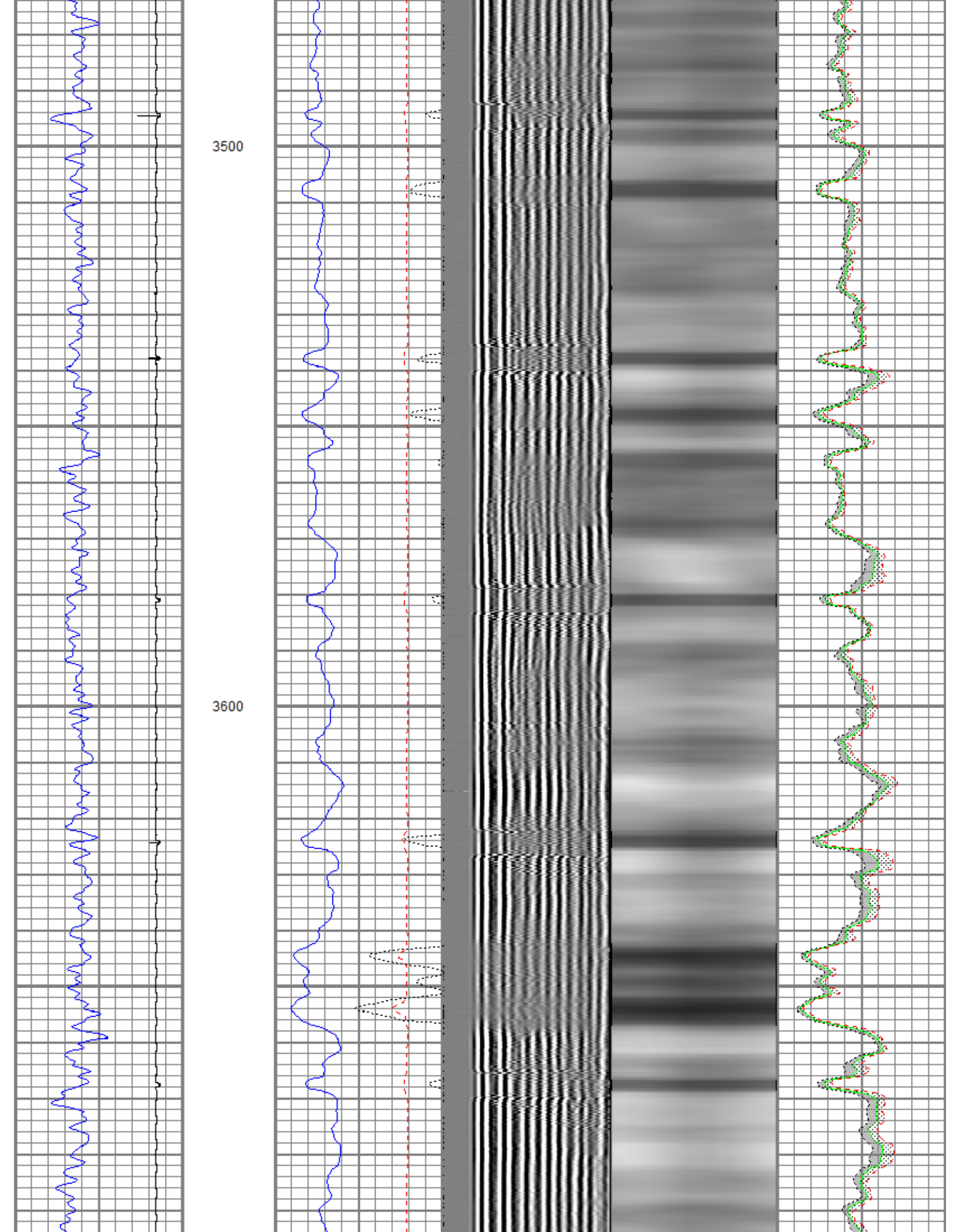
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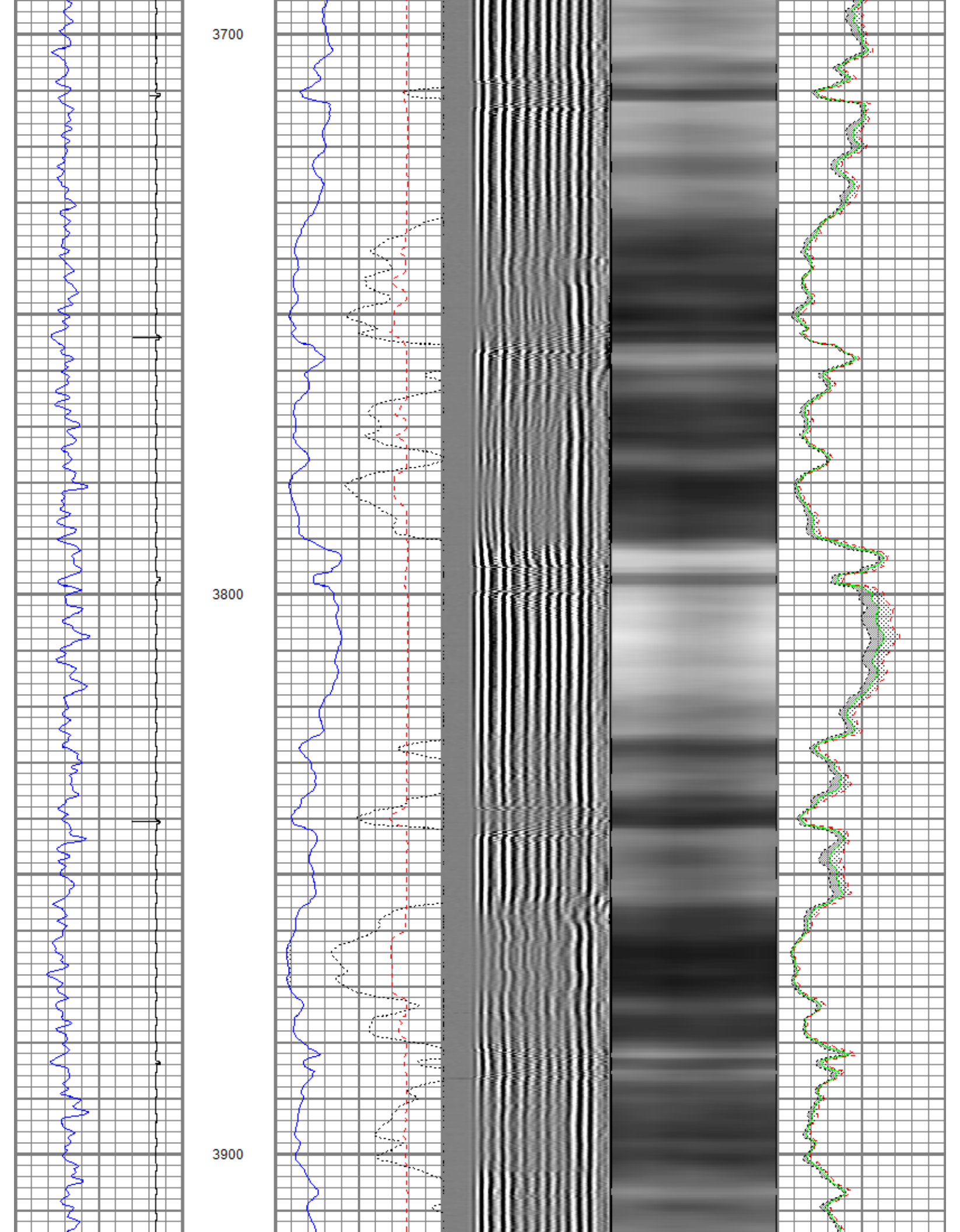
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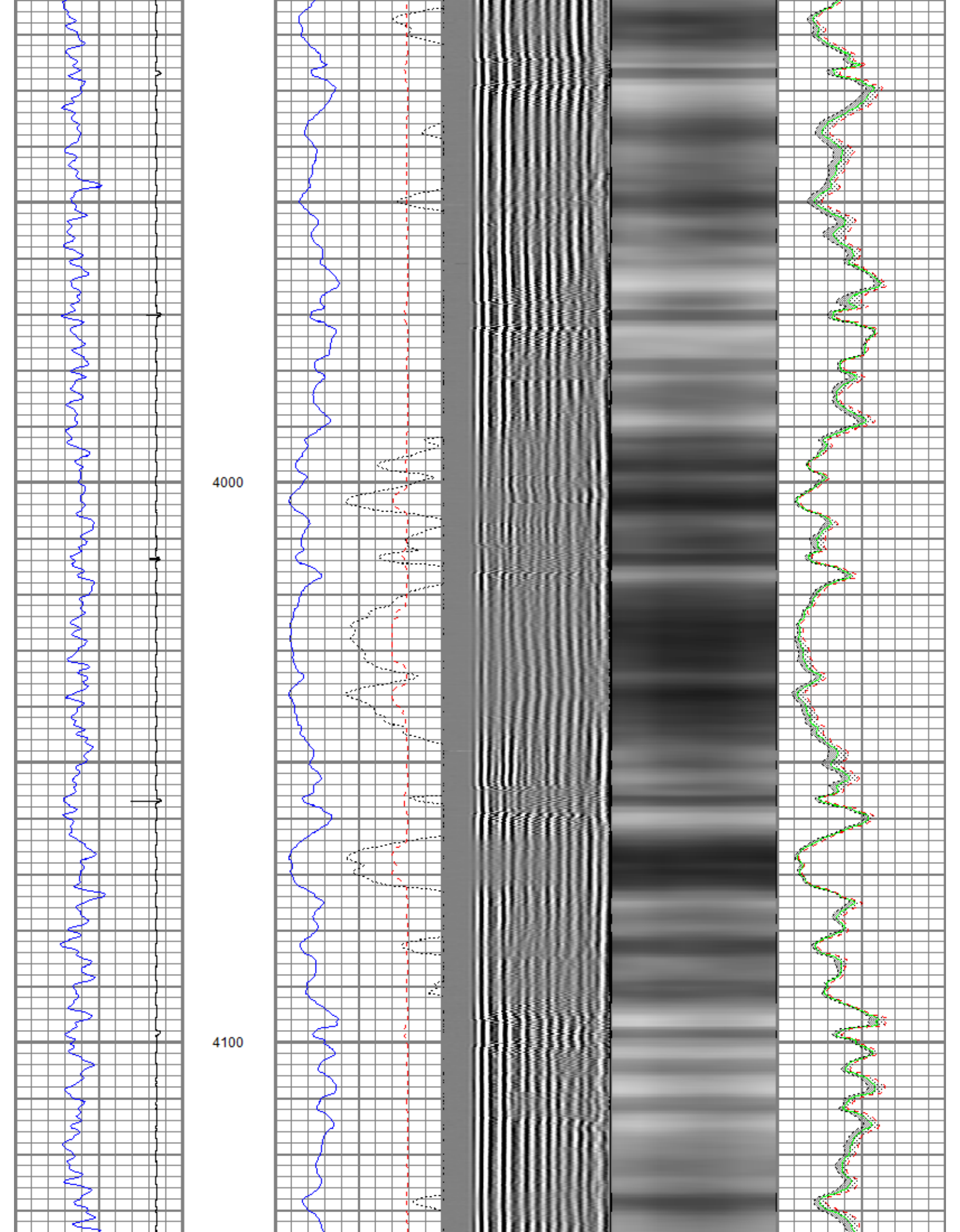
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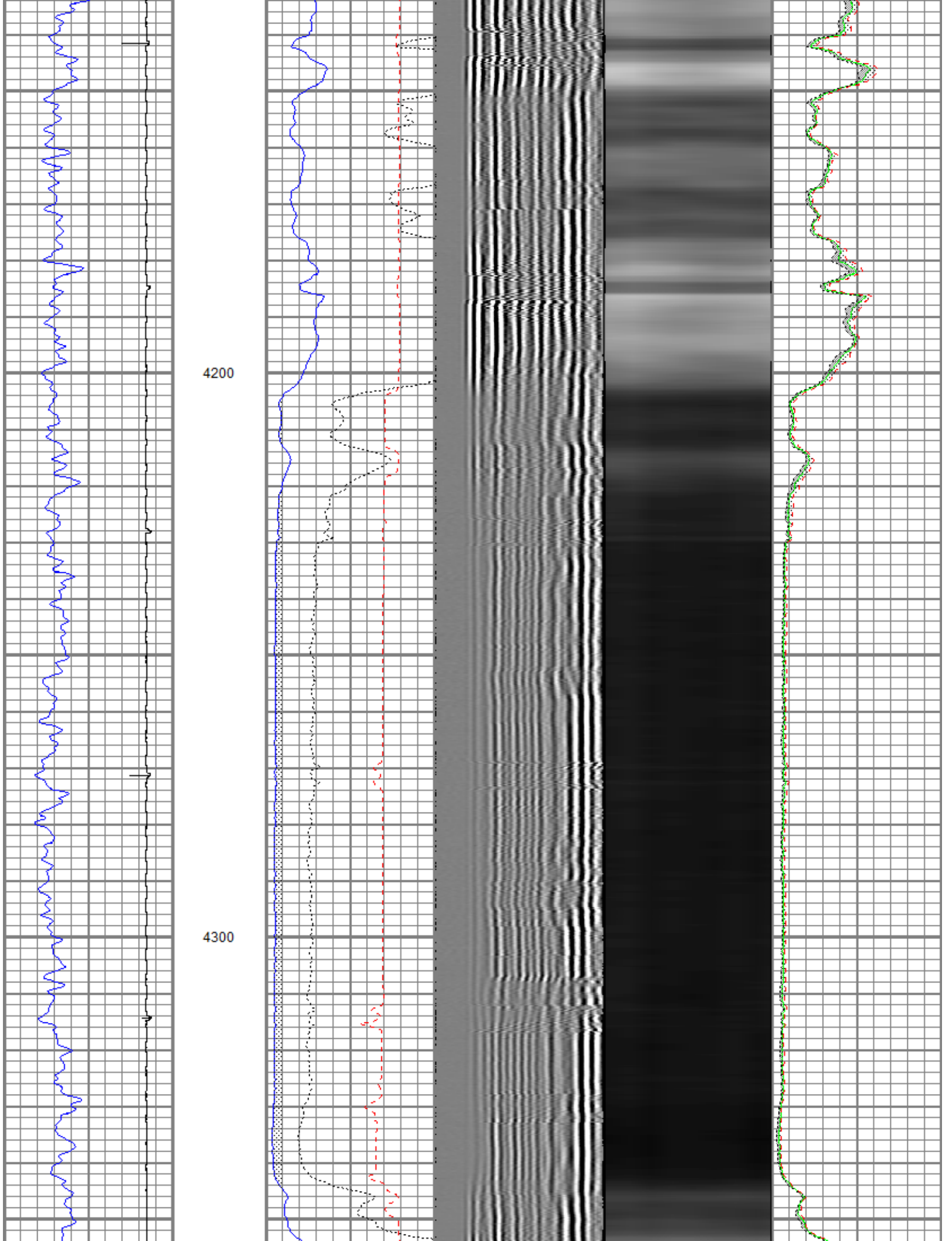
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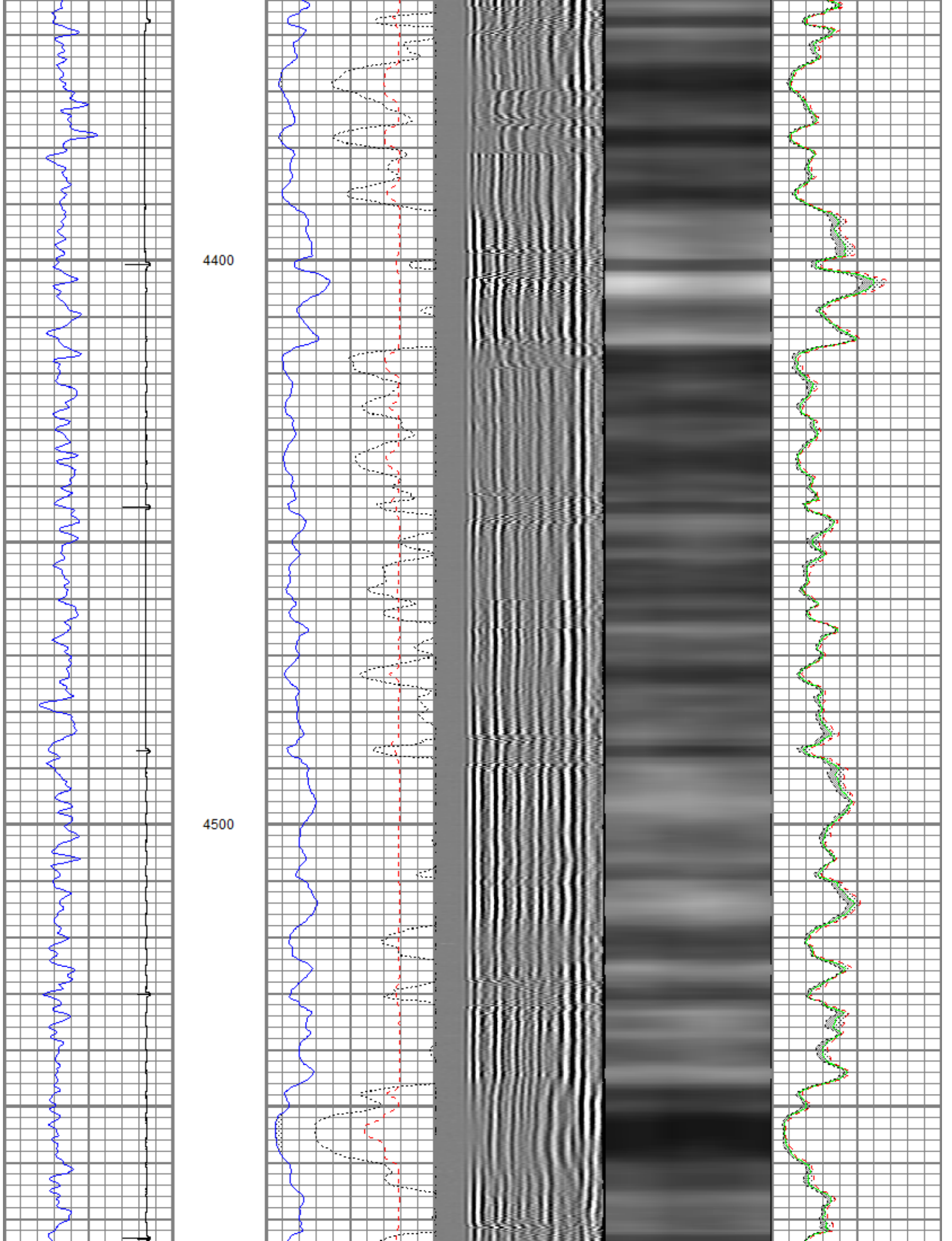
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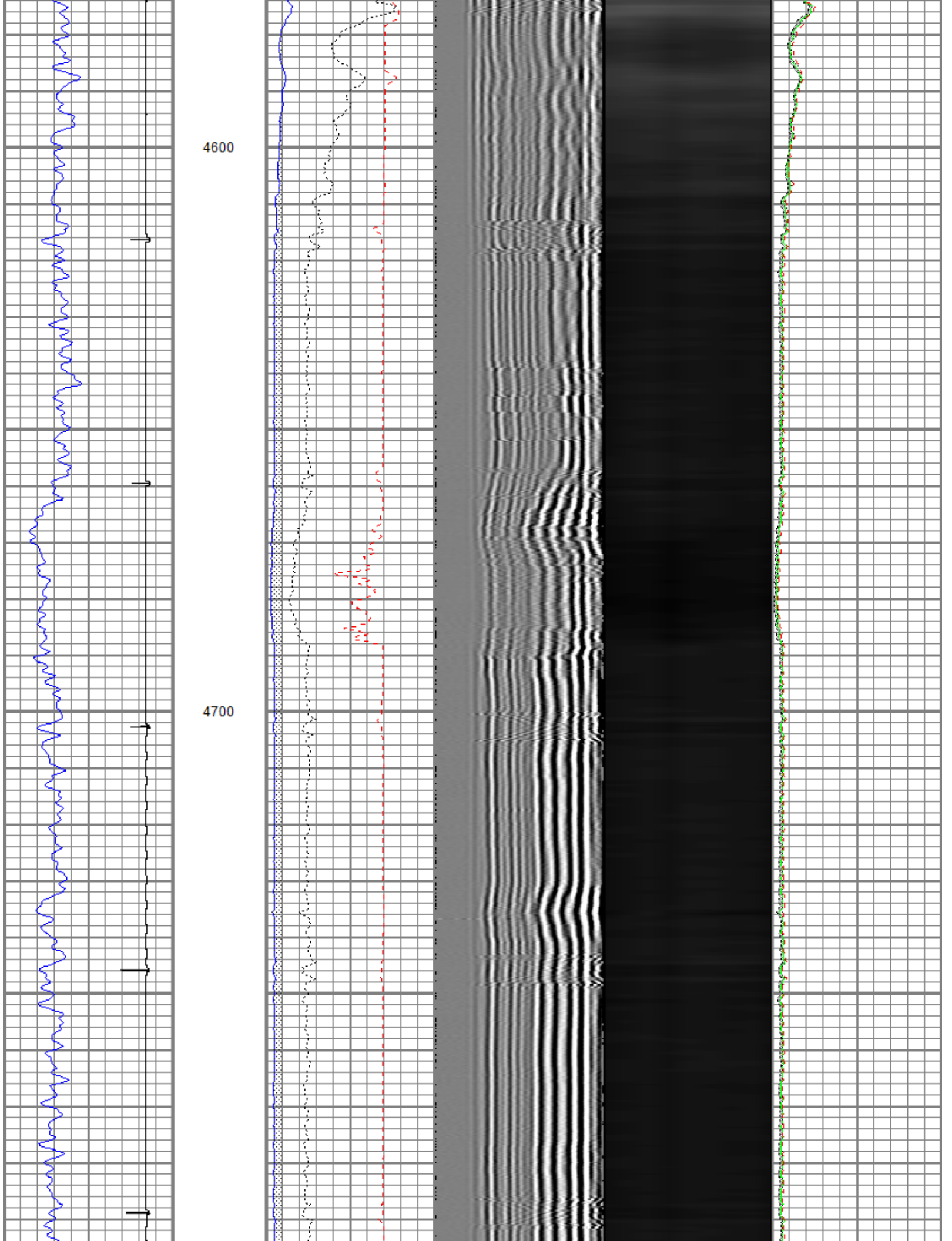
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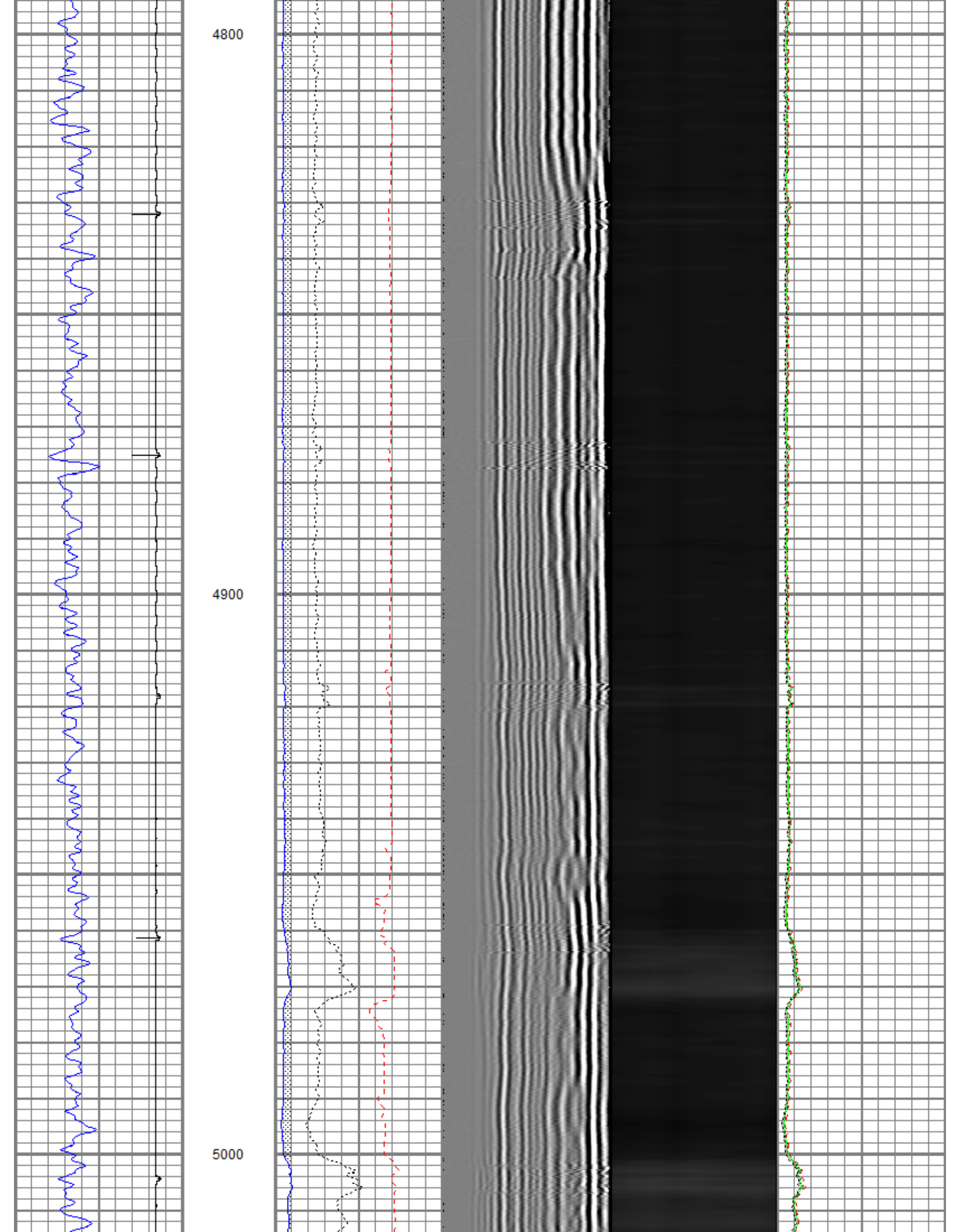
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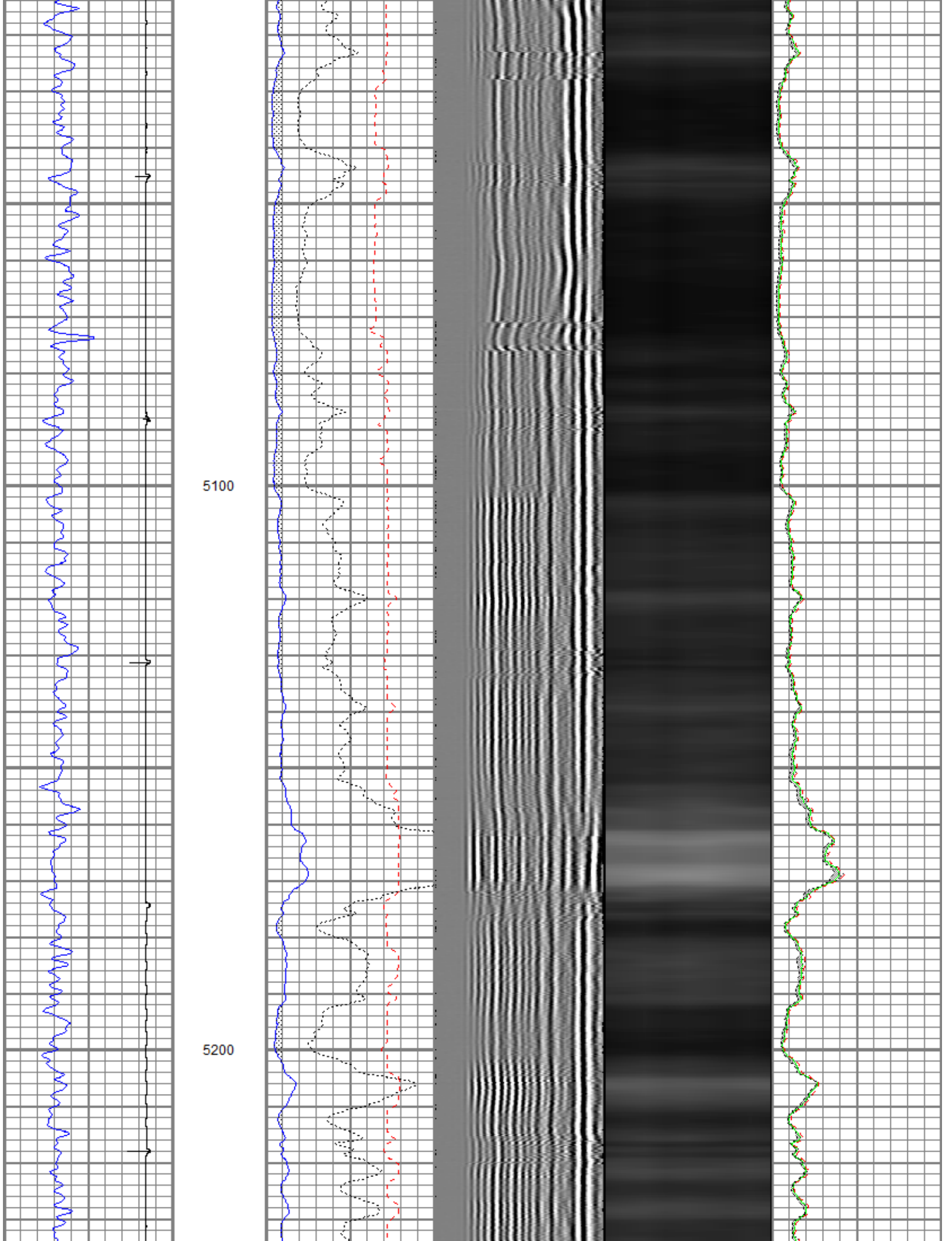
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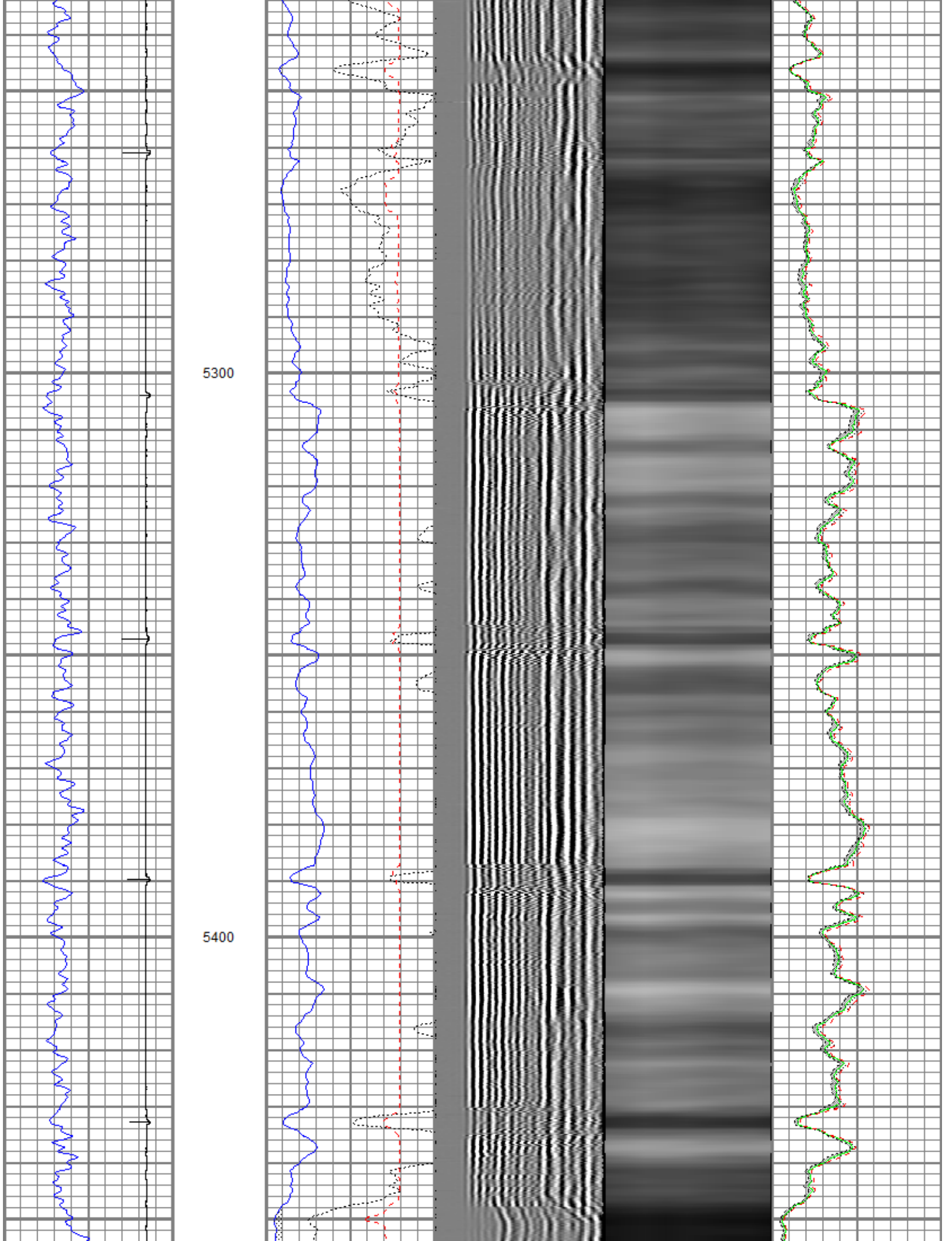
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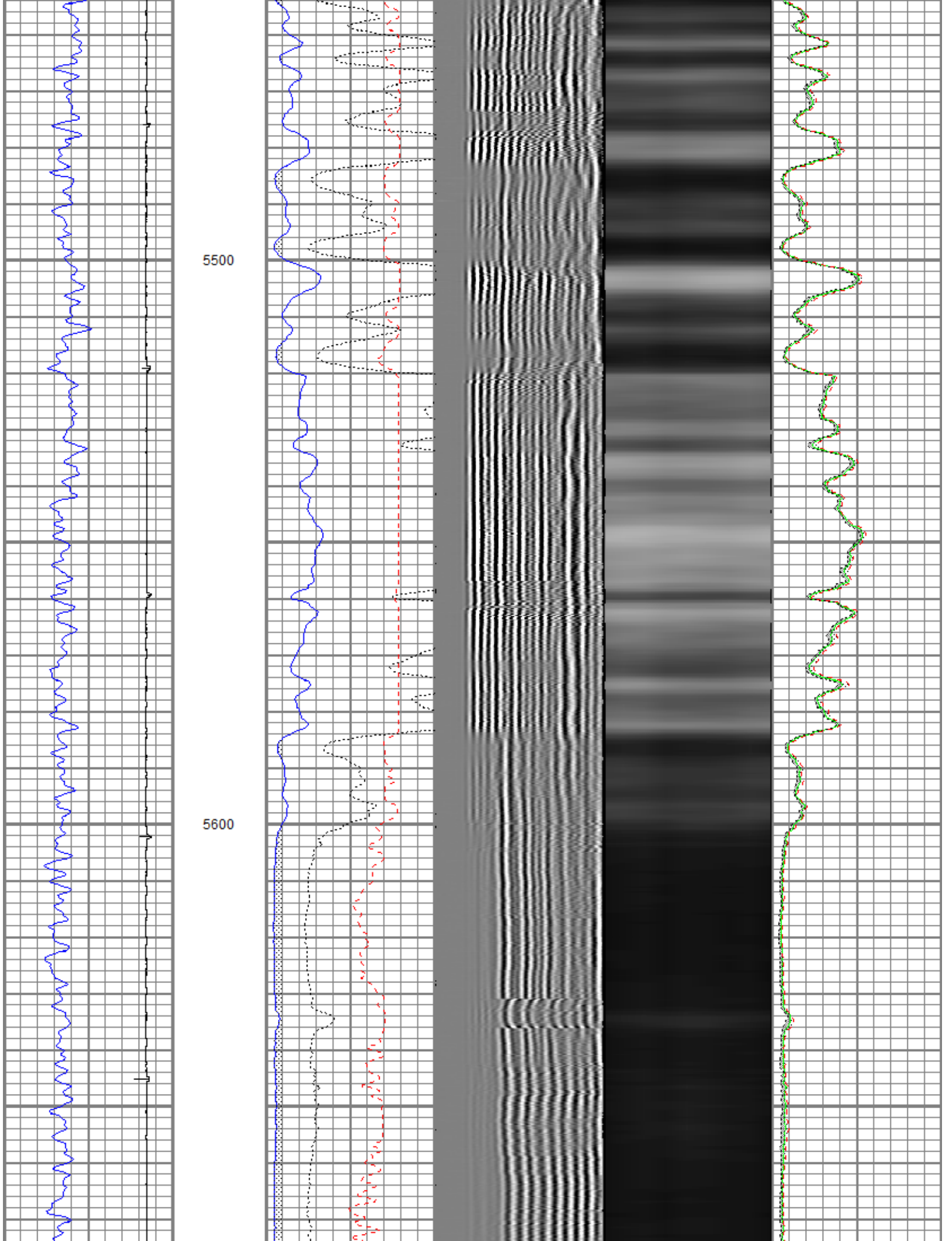
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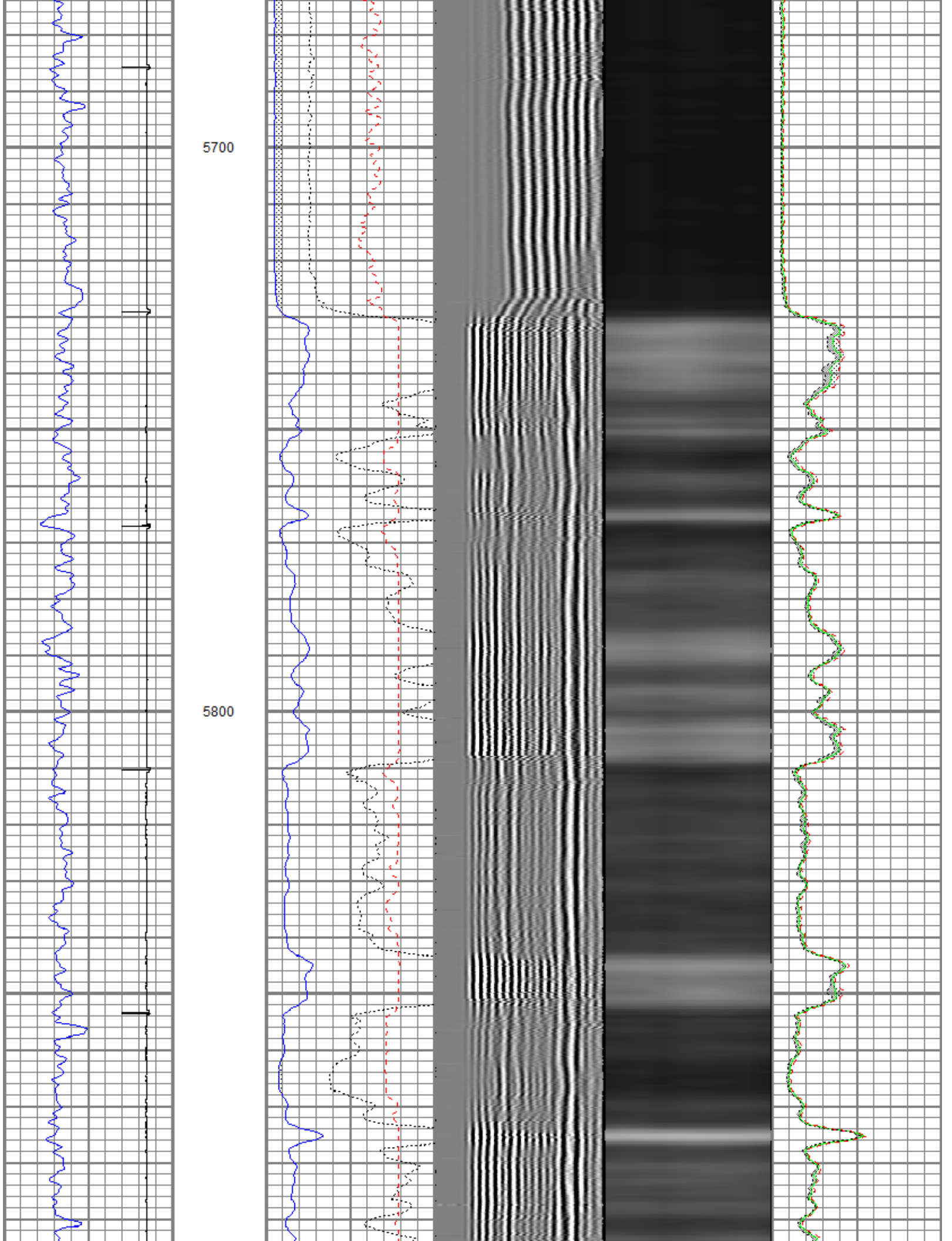
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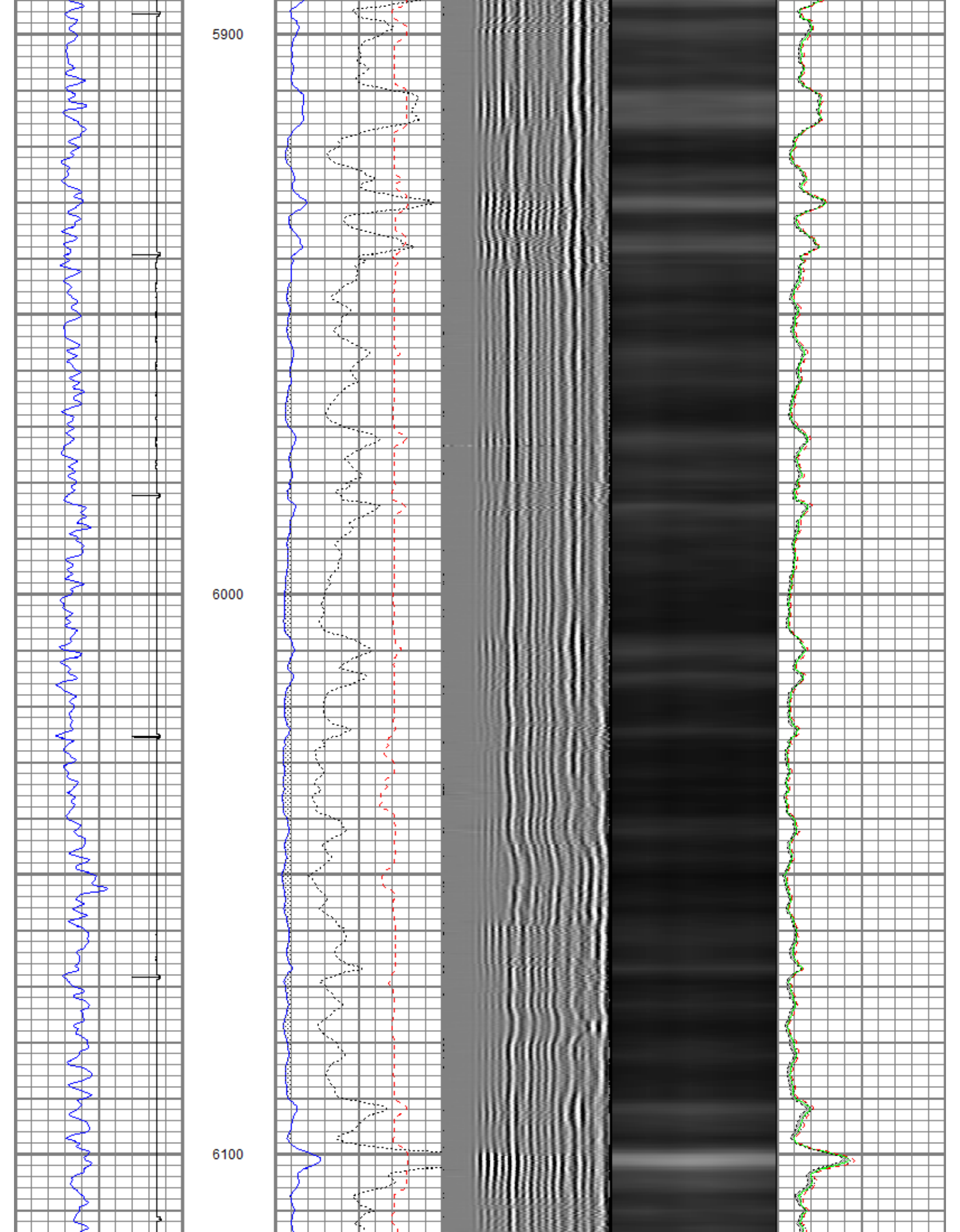
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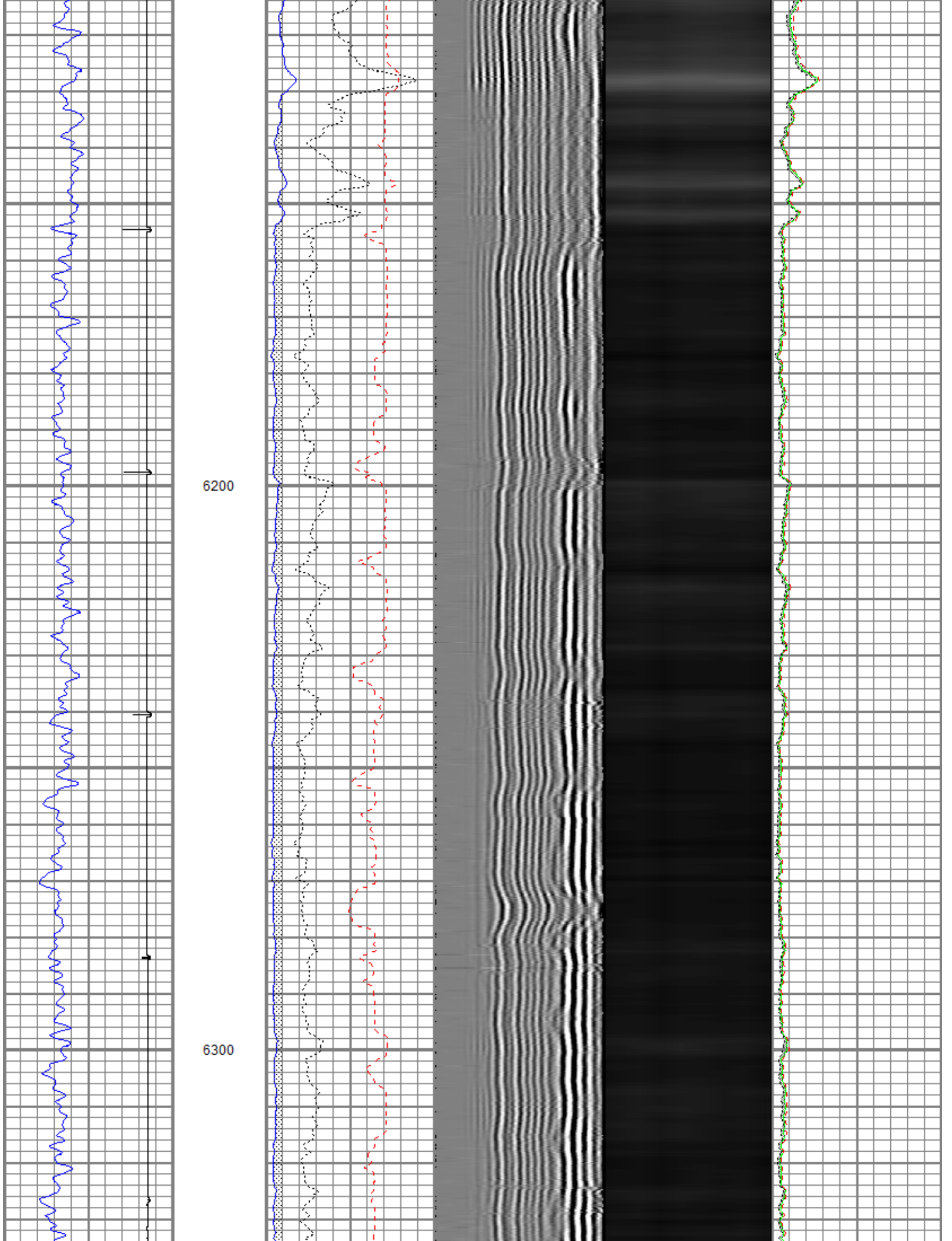
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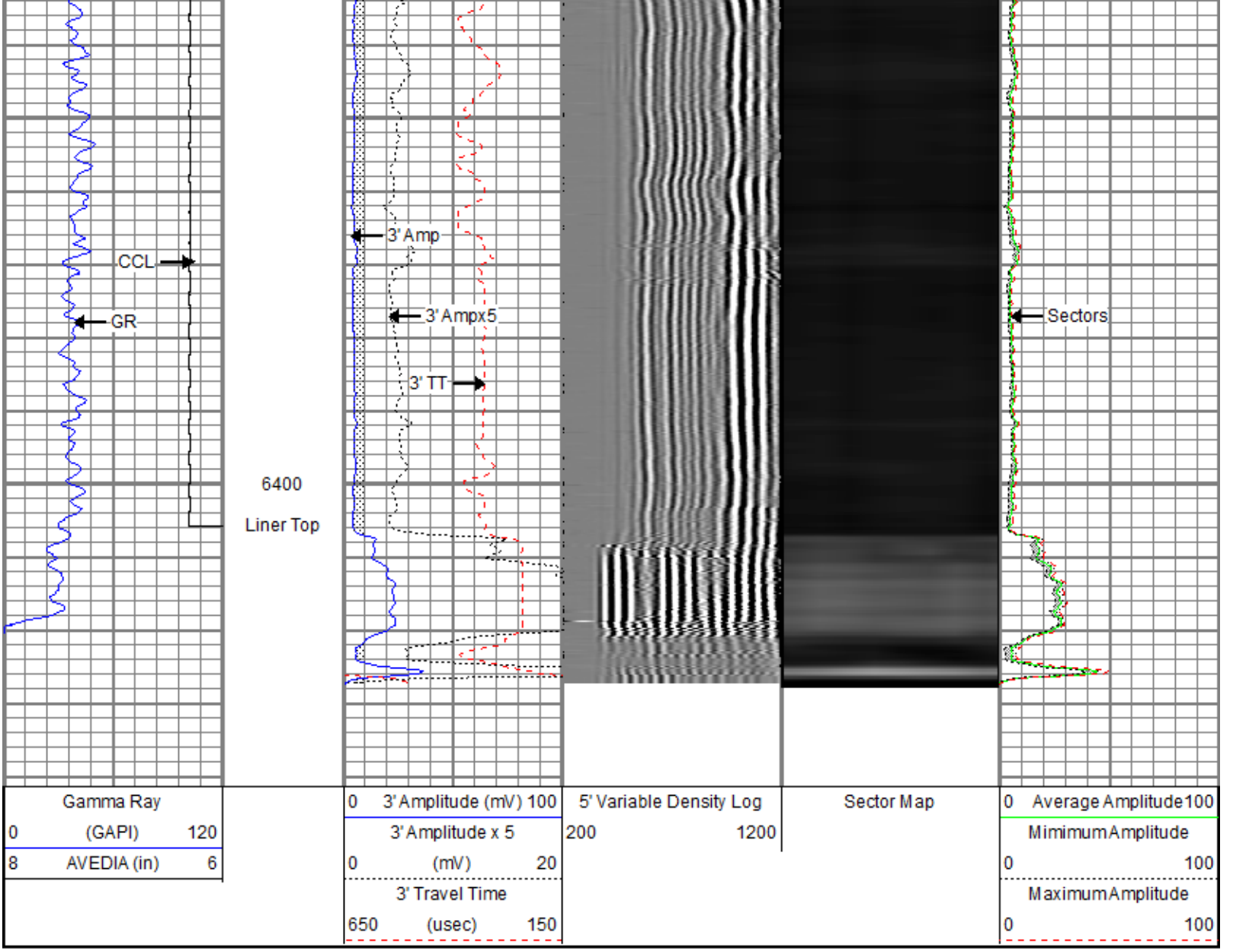

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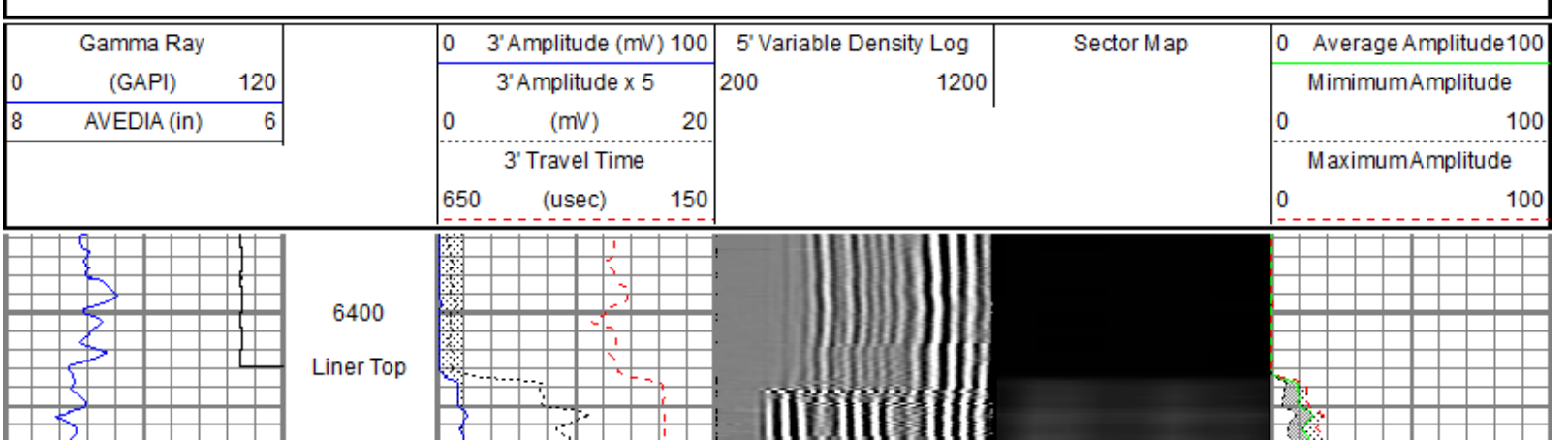
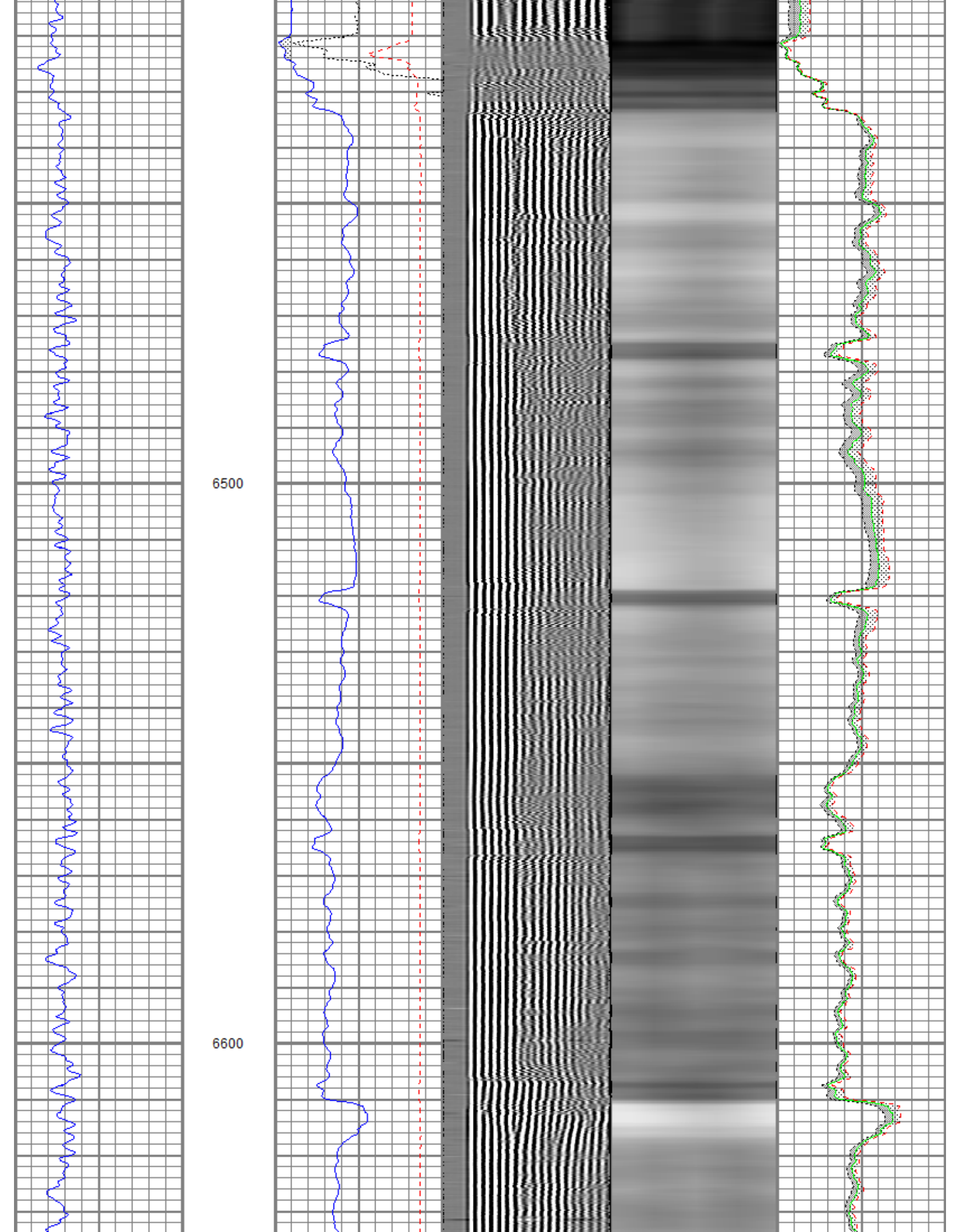
4.5" Main Pass

Logged with 2800 PSI surface induced pressure.

Database File:	reunolds_cattle_28n-19hz.db
Dataset Pathname:	4Main
Presentation Format:	rbt4_mit
Dataset Creation:	Sun Jul 27 08:40:30 2014 by Log SCH 111116
Charted by:	Depth in Feet scaled 1:240

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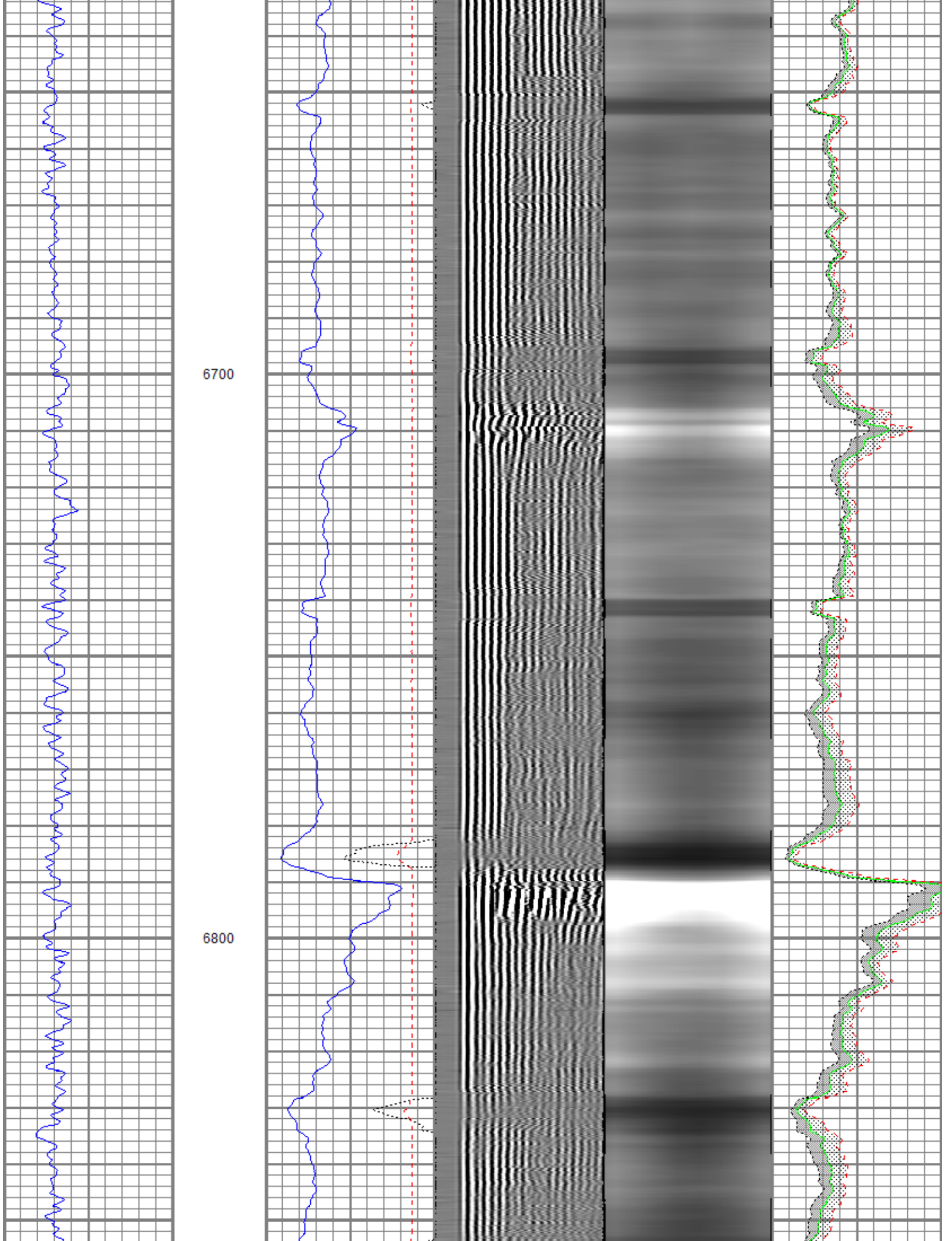
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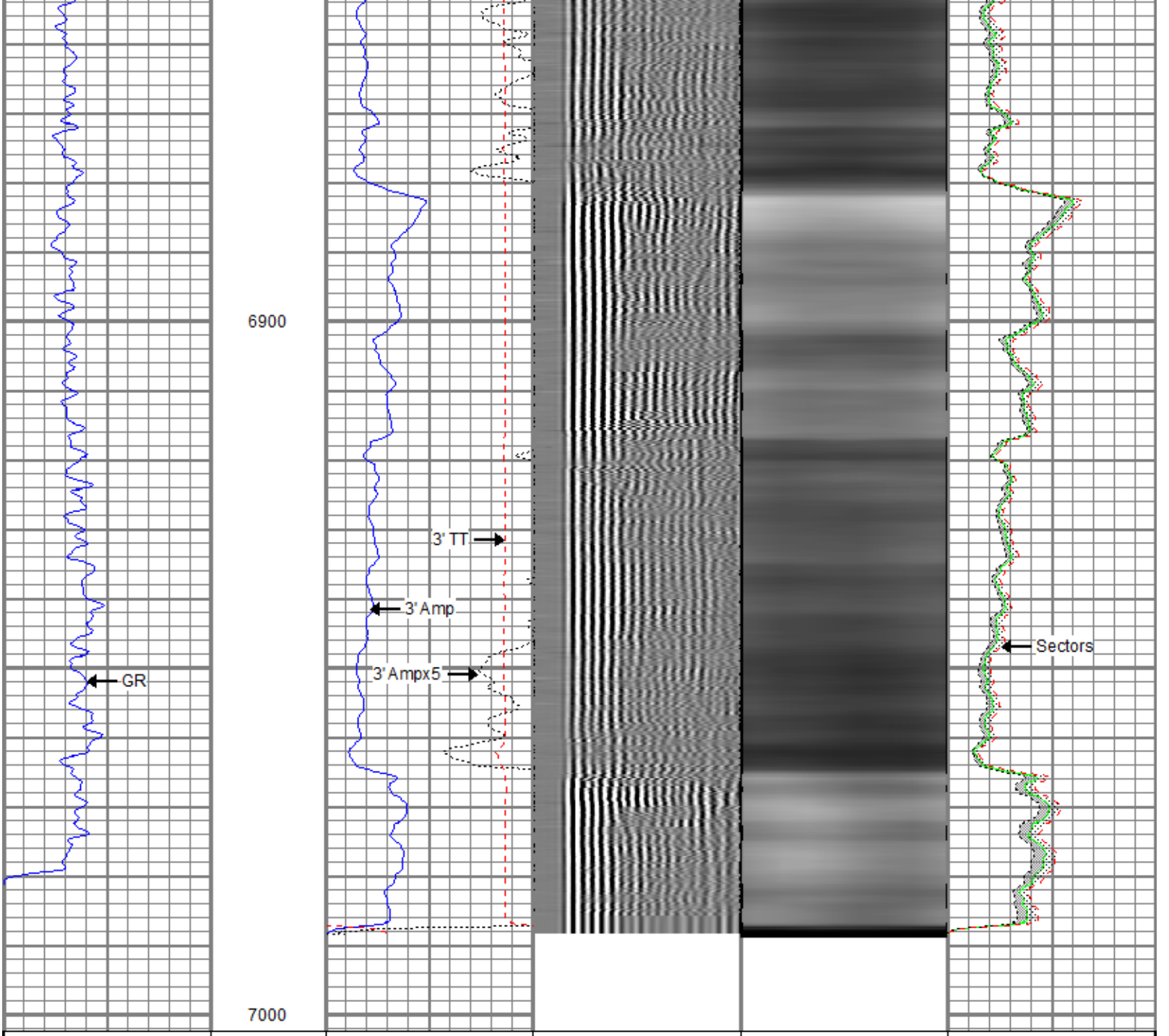


Gamma Ray		0 3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0 Average Amplitude 100
0 (GAPI) 120		3' Amplitude x 5	200 1200		Mimimum Amplitude
8 AVEDIA (in) 6		0 (mV) 20			0 100
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 100

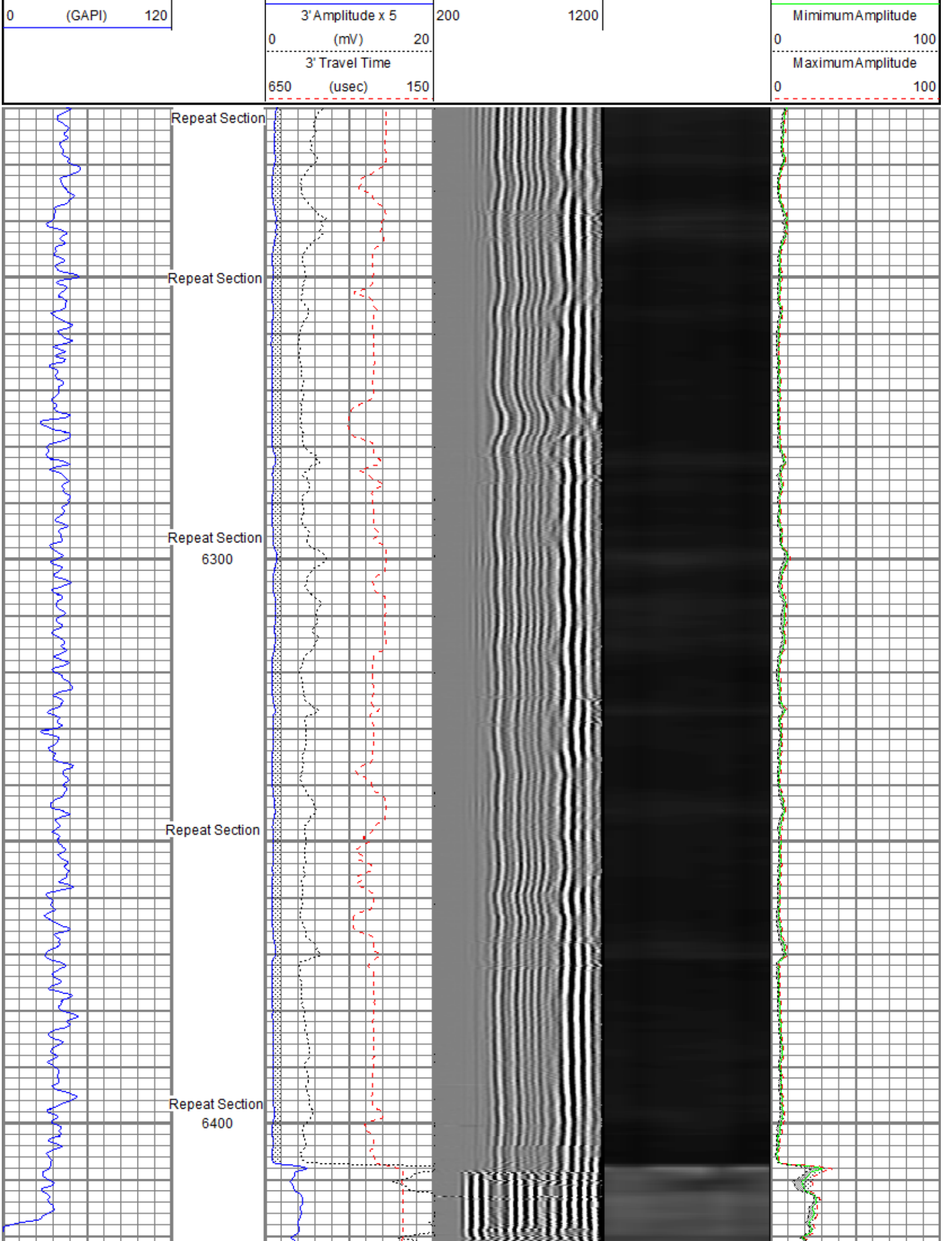
FMC Technologies

Repeat Section

Logged with 2800 PSI surface induced pressure.

Database File:	reunolds_cattle_28n-19hz.db
Dataset Pathname:	RepeatPas
Presentation Format:	rbt4_mit
Dataset Creation:	Sun Jul 27 08:20:49 2014 by Log SCH 111116
Charted by:	Depth in Feet scaled 1:240

Gamma Ray		0 3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0 Average Amplitude 100
0 (GAPI) 120		3' Amplitude x 5	200 1200		Mimimum Amplitude
8 AVEDIA (in) 6		0 (mV) 20			0 100
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 100


0
(GAPI)
120
3' Amplitude x 5
0
(mV)
20
3' Travel Time
650
(usec)
150
200
1200
MimimumAmplitude
0
100
MaximumAmplitude
0
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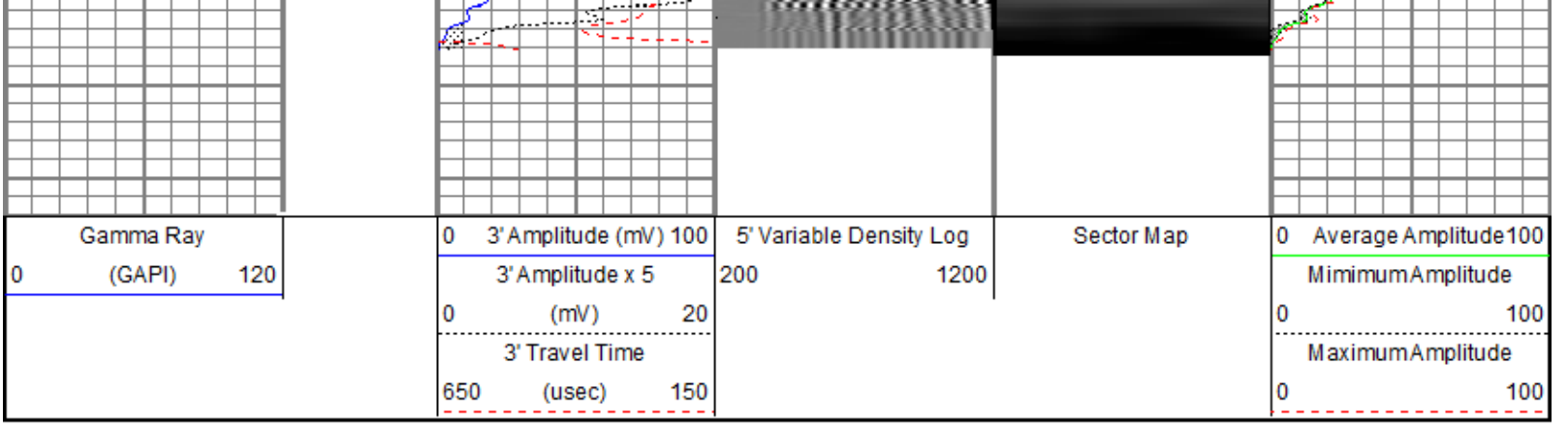
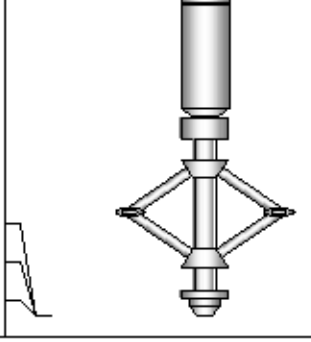
Repeat Section
Repeat Section
Repeat Section
6300
Repeat Section
Repeat Section
6400



Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (211461) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
GR	22.37		UW_PGR-UW_PGR_020 (050836) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	14.99					
WVFS1	14.99		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS2	14.99					
WVFS3	14.99					
WVFS4	14.99					
WVFS5	14.99					
WVFS6	14.99					
WVFS7	14.99					
WVFS8	14.99					
CBLTEMP	14.99					
CBLROT	14.99					
WVF5FT	13.99					
			UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	4.97		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10

TSTAMP	0.00		UW_PRC #3 -DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
ITEMPX	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
HVOLTX	0.00					

Dataset: reunolds_cattle_28n-19hz.db: field/well/run1/7Main
Total Length: 26.62 ft
Total Weight: 319.30 lb
O.D. 3.13 in

Calibration Report

Database File: reunolds_cattle_28n-19hz.db
Dataset Pathname: CalReport
Dataset Creation: Sun Jul 27 11:36:55 2014 by Log SCH 111116

Multi-finger Imaging Tool Calibration Report

Serial Number: 10014703
Number of Fingers: 40
Tool Model: UW_MIT40_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: Sun Jul 27 07:34:43 2014

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1205	360.0	1565	375.0	1940	385.0	2325
Finger 02:	1147	374.0	1521	399.0	1920	409.0	2329
Finger 03:	1150	360.0	1510	382.0	1892	396.0	2288
Finger 04:	1097	376.0	1473	409.0	1882	427.0	2309
Finger 05:	1109	355.0	1464	380.0	1844	393.0	2237
Finger 06:	1110	368.0	1478	397.0	1875	411.0	2286
Finger 07:	1130	360.0	1490	382.0	1872	397.0	2269
Finger 08:	1087	365.0	1452	398.0	1850	414.0	2264
Finger 09:	1161	369.0	1530	387.0	1917	393.0	2310
Finger 10:	1100	359.0	1459	386.0	1845	395.0	2240
Finger 11:	1099	361.0	1460	392.0	1852	406.0	2258
Finger 12:	1172	359.0	1531	373.0	1904	376.0	2280
Finger 13:	1121	356.0	1477	389.0	1866	406.0	2272
Finger 14:	1094	366.0	1460	404.0	1864	418.0	2282
Finger 15:	1057	364.0	1421	409.0	1830	427.0	2257
Finger 16:	1131	360.0	1491	392.0	1883	407.0	2290
Finger 17:	1140	357.0	1497	378.0	1875	394.0	2269
Finger 18:	1189	352.0	1541	383.0	1924	398.0	2322
Finger 19:	1141	357.0	1498	392.0	1890	407.0	2297
Finger 20:	1056	359.0	1415	403.0	1818	421.0	2239
Finger 21:	1139	351.0	1490	387.0	1877	408.0	2285
Finger 22:	1136	355.0	1491	391.0	1882	411.0	2293
Finger 23:	1232	336.0	1568	364.0	1932	382.0	2314
Finger 24:	1149	362.0	1511	398.0	1909	415.0	2324

Finger 25:	1150	354.0	1504	395.0	1899	417.0	2316	
Finger 26:	1189	356.0	1545	387.0	1932	402.0	2334	
Finger 27:	1198	344.0	1542	379.0	1921	402.0	2323	
Finger 28:	1165	360.0	1525	396.0	1921	416.0	2337	
Finger 29:	1143	362.0	1505	404.0	1909	426.0	2335	
Finger 30:	1144	358.0	1502	397.0	1899	423.0	2322	
Finger 31:	1200	352.0	1552	380.0	1932	396.0	2328	
Finger 32:	1146	362.0	1508	396.0	1904	420.0	2324	
Finger 33:	1157	363.0	1520	394.0	1914	414.0	2328	
Finger 34:	1139	368.0	1507	402.0	1909	421.0	2330	
Finger 35:	1198	353.0	1551	378.0	1929	396.0	2325	
Finger 36:	1137	366.0	1503	398.0	1901	416.0	2317	
Finger 37:	1200	351.0	1551	373.0	1924	393.0	2317	
Finger 38:	1229	354.0	1583	374.0	1957	390.0	2347	
Finger 39:	1131	362.0	1493	389.0	1882	410.0	2292	
Finger 40:	1081	378.0	1459	412.0	1871	433.0	2304	

Post Survey Calibration Check

Performed: Sun Jul 27 11:35:44 2014

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.015	0.008	5.008	0.004	6.006	0.003	7.008	0.004
Finger 02:	4.011	0.005	5.005	0.002	6.002	0.001	7.012	0.006
Finger 03:	4.015	0.007	5.007	0.004	6.004	0.002	7.010	0.005
Finger 04:	4.012	0.006	5.007	0.004	6.005	0.002	7.007	0.003
Finger 05:	4.012	0.006	5.008	0.004	6.004	0.002	7.007	0.003
Finger 06:	4.008	0.004	5.008	0.004	6.005	0.003	7.006	0.003
Finger 07:	4.014	0.007	5.011	0.006	6.011	0.005	7.006	0.003
Finger 08:	4.008	0.004	5.010	0.005	6.005	0.003	7.003	0.002
Finger 09:	4.014	0.007	5.007	0.004	6.007	0.004	7.003	0.001
Finger 10:	4.013	0.006	5.010	0.005	6.008	0.004	7.005	0.003
Finger 11:	4.013	0.006	5.007	0.003	6.004	0.002	7.005	0.002
Finger 12:	4.015	0.008	5.007	0.003	6.005	0.002	6.999	-0.000
Finger 13:	4.013	0.007	5.009	0.004	6.005	0.002	7.001	0.001
Finger 14:	4.010	0.005	5.005	0.003	6.003	0.001	7.003	0.002
Finger 15:	4.013	0.006	5.008	0.004	6.005	0.003	7.005	0.003
Finger 16:	4.011	0.006	5.004	0.002	6.003	0.002	7.005	0.003
Finger 17:	4.013	0.007	5.015	0.007	5.997	-0.001	7.031	0.015
Finger 18:	4.017	0.008	5.009	0.004	6.005	0.002	7.000	0.000
Finger 19:	4.014	0.007	5.011	0.005	6.005	0.003	7.005	0.002
Finger 20:	4.009	0.004	5.005	0.003	6.002	0.001	7.005	0.002
Finger 21:	4.016	0.008	5.009	0.005	6.004	0.002	7.002	0.001
Finger 22:	4.012	0.006	5.009	0.004	6.005	0.003	7.003	0.001
Finger 23:	4.014	0.007	5.008	0.004	6.008	0.004	7.006	0.003
Finger 24:	4.012	0.006	5.008	0.004	6.008	0.004	7.005	0.003
Finger 25:	4.016	0.008	5.009	0.004	6.007	0.004	7.008	0.004
Finger 26:	4.011	0.006	5.005	0.003	6.005	0.003	7.006	0.003
Finger 27:	4.011	0.005	5.007	0.004	6.007	0.004	7.006	0.003
Finger 28:	4.014	0.007	5.008	0.004	6.007	0.004	7.006	0.003
Finger 29:	4.013	0.006	5.008	0.004	6.005	0.002	7.007	0.003
Finger 30:	4.013	0.006	5.011	0.005	6.007	0.003	7.005	0.002
Finger 31:	4.011	0.006	5.012	0.006	6.008	0.004	7.008	0.004
Finger 32:	4.016	0.008	5.007	0.003	6.003	0.001	7.005	0.003
Finger 33:	3.999	-0.000	4.999	-0.000	5.992	-0.004	7.001	0.001
Finger 34:	4.012	0.006	5.007	0.004	6.005	0.002	7.006	0.003
Finger 35:	4.014	0.007	5.009	0.004	6.005	0.003	7.004	0.002
Finger 36:	4.014	0.007	5.011	0.006	6.005	0.003	7.004	0.002
Finger 37:	4.017	0.009	5.011	0.006	6.005	0.003	7.005	0.002
Finger 38:	4.015	0.008	5.012	0.006	6.007	0.003	7.007	0.004
Finger 39:	4.015	0.007	5.007	0.004	6.005	0.002	7.002	0.001
Finger 40:	4.014	0.007	5.008	0.004	6.006	0.003	7.005	0.002
Average:	4.013	0.006	5.008	0.004	6.005	0.002	7.006	0.003

Segmented Cement Bond Log Calibration Report

Serial Number:	10013454	
Tool Model:	UW_RBT_004	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	231.353	ft

Master Calibration, performed Sun Jul 27 07:47:56 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.719	0.800	62.165	85.324	0.800
5FT	-0.001	0.796	0.800	62.165	76.934	0.894
S1	0.000	0.732	0.000	100.000	136.570	0.000
S2	0.007	0.721	0.000	100.000	140.174	-1.027
S3	0.002	0.702	0.000	100.000	142.895	-0.260
S4	-0.002	0.697	0.000	100.000	143.027	0.339
S5	0.007	0.703	0.000	100.000	143.689	-1.040
S6	-0.001	0.719	0.000	100.000	138.933	0.170
S7	-0.000	0.729	0.000	100.000	137.162	0.028
S8	0.001	0.736	0.000	100.000	136.042	-0.141

Gamma Ray Calibration Report

Serial Number:	050836	
Tool Model:	UW_PGR_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

FMC Technologies

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Reynolds Cattle 28N-19HZ
Field	Wattenberg
County	Weld
State	Colorado

Country