

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Whiting Oil & Gas Corporation
Well	Razor 27J-3411A
Field	Wildcat
County	Weld
State	Colorado
Company	Whiting Oil & Gas Corporation
Well	Razor 27J-3411A
Field	Wildcat
County	Weld
State	Colorado
Location:	API #: 05-123-38061
Permanent Datum	SEC 27 TWP 10N RGE 58W
Log Measured From	Ground Level
Drilling Measured From	Kelly Bushing
	Elevation 4767'
	Other Services
	Gauge Ring
	Set RBP
	MIT
	Elevation
	K.B. 4788'
	D.F. 4787'
	G.L. 4767'

Date	16 November 2014
Run Number	One
Depth Driller	13.185 FT
Depth Logger	5187 FT
Bottom Logged Interval	5182 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	190°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	2:30 PM
Equipment Number	HD 0255
Location	Ft. Lupton, CO
Recorded By	Brent Kalkwarf
Witnessed By	Gary Chandler

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	1589 FT		
Intermediate #1	7	29	L-80	Surface	6070 FT		
Intermediate #2							
Liner	4 1/2	11.6	L-80	5111 FT	13180 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.

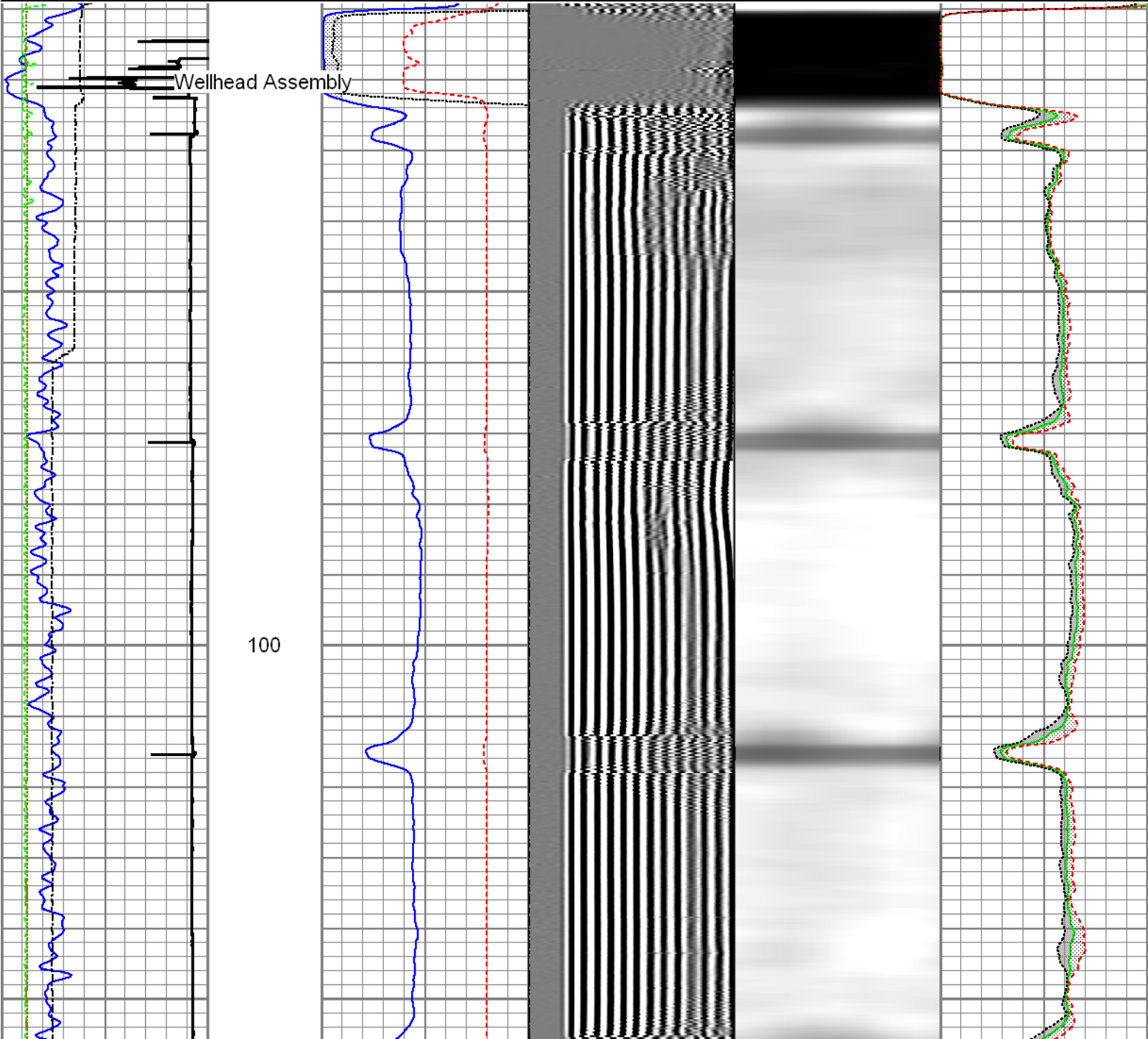
Comments

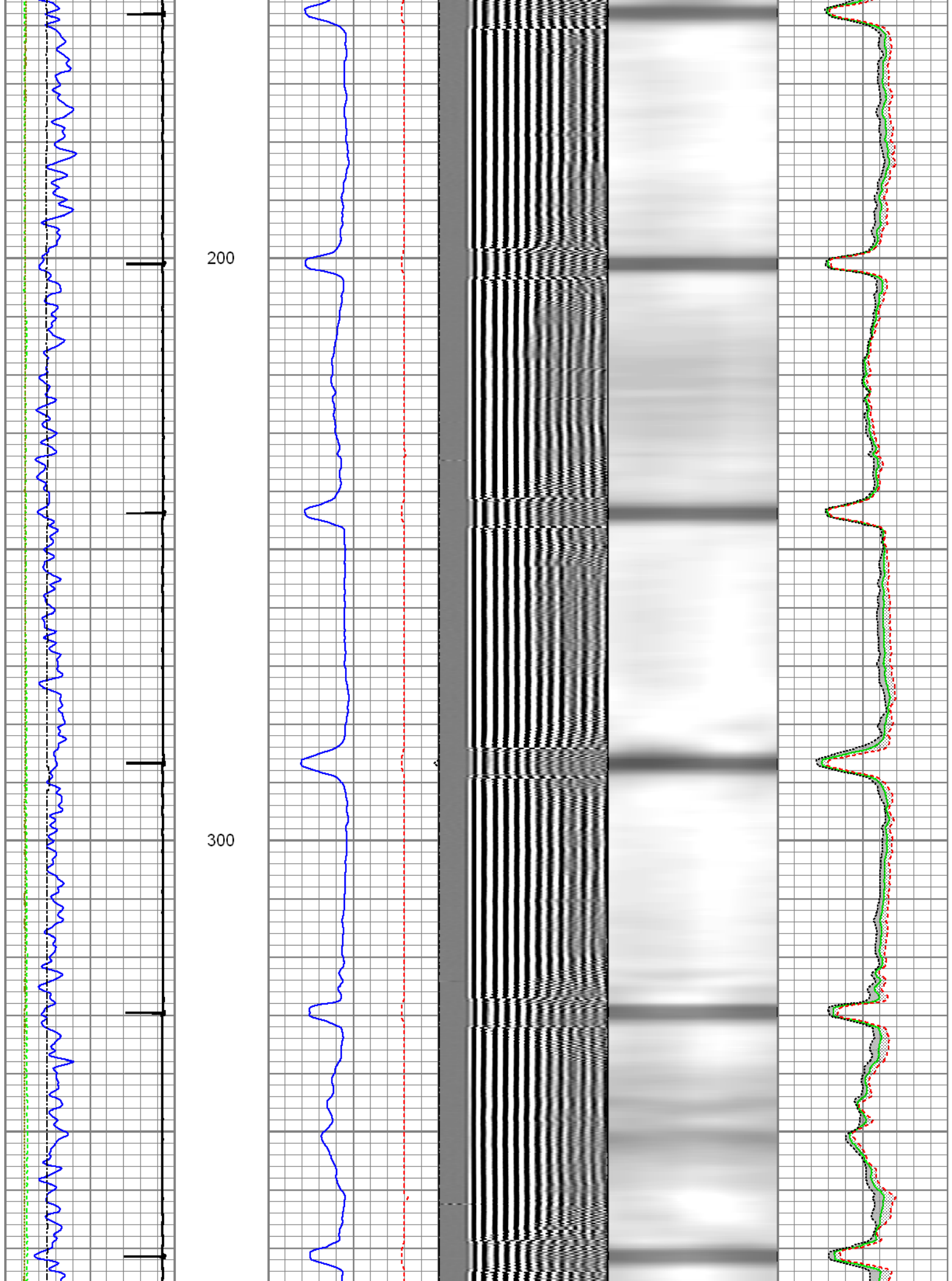
Log Ran As Per Customer Request
Depth Referenced to Kelly Bushing of 21FT
Adjusted log - 2.5 FT to correlate with KB
Gauge Ring/Junk Basket ran to 5259 FT prior to log run.
RBP set at 5180 FT prior to log run and was correlated off of Casing Tally Liner Top.
Log ran from 5190 FT to surface.
Log Ran with 1500 PSI Surface Induced Pressure

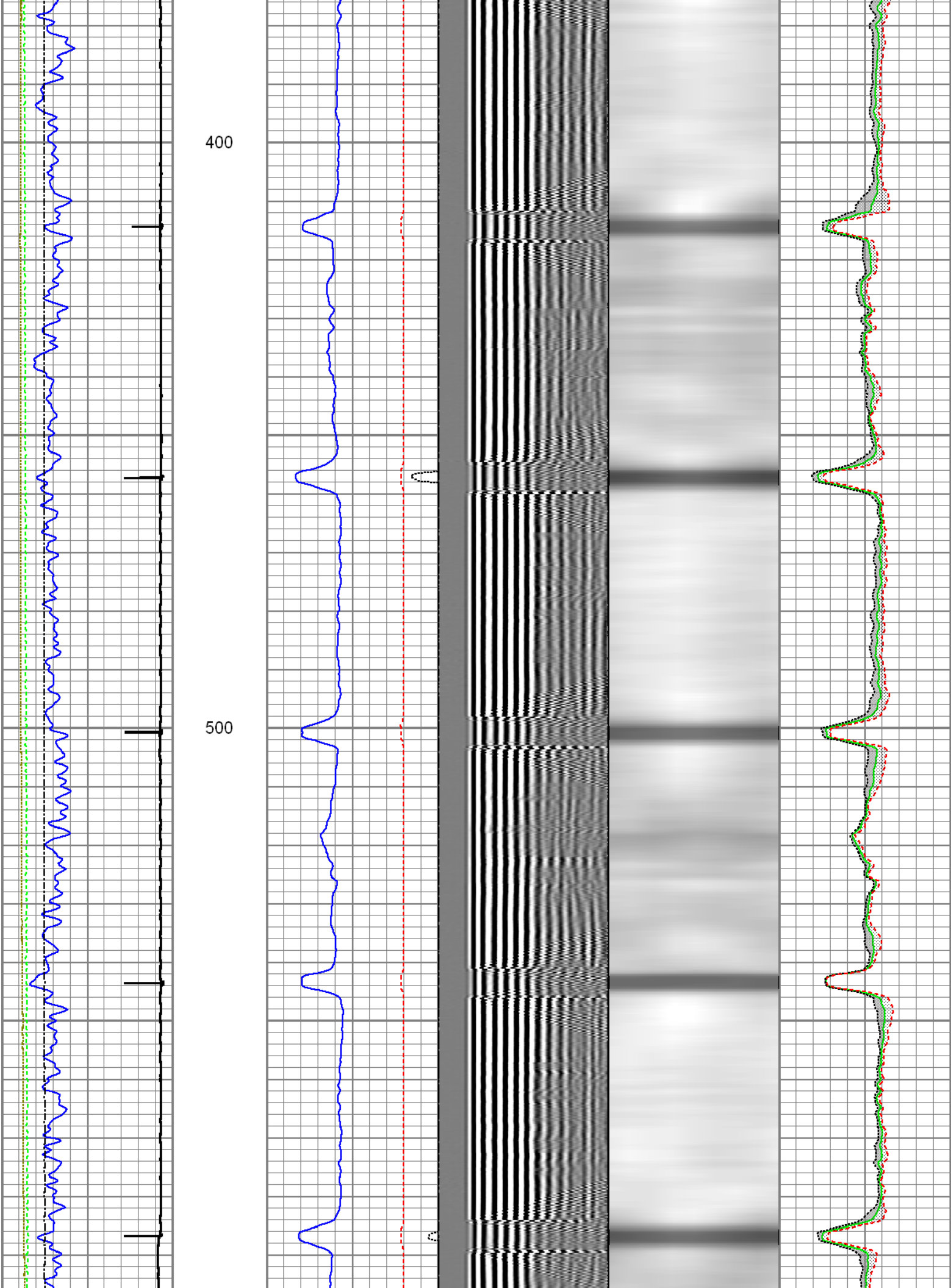
Thank you for choosing FMC Technologies Completion Services, Inc.!!

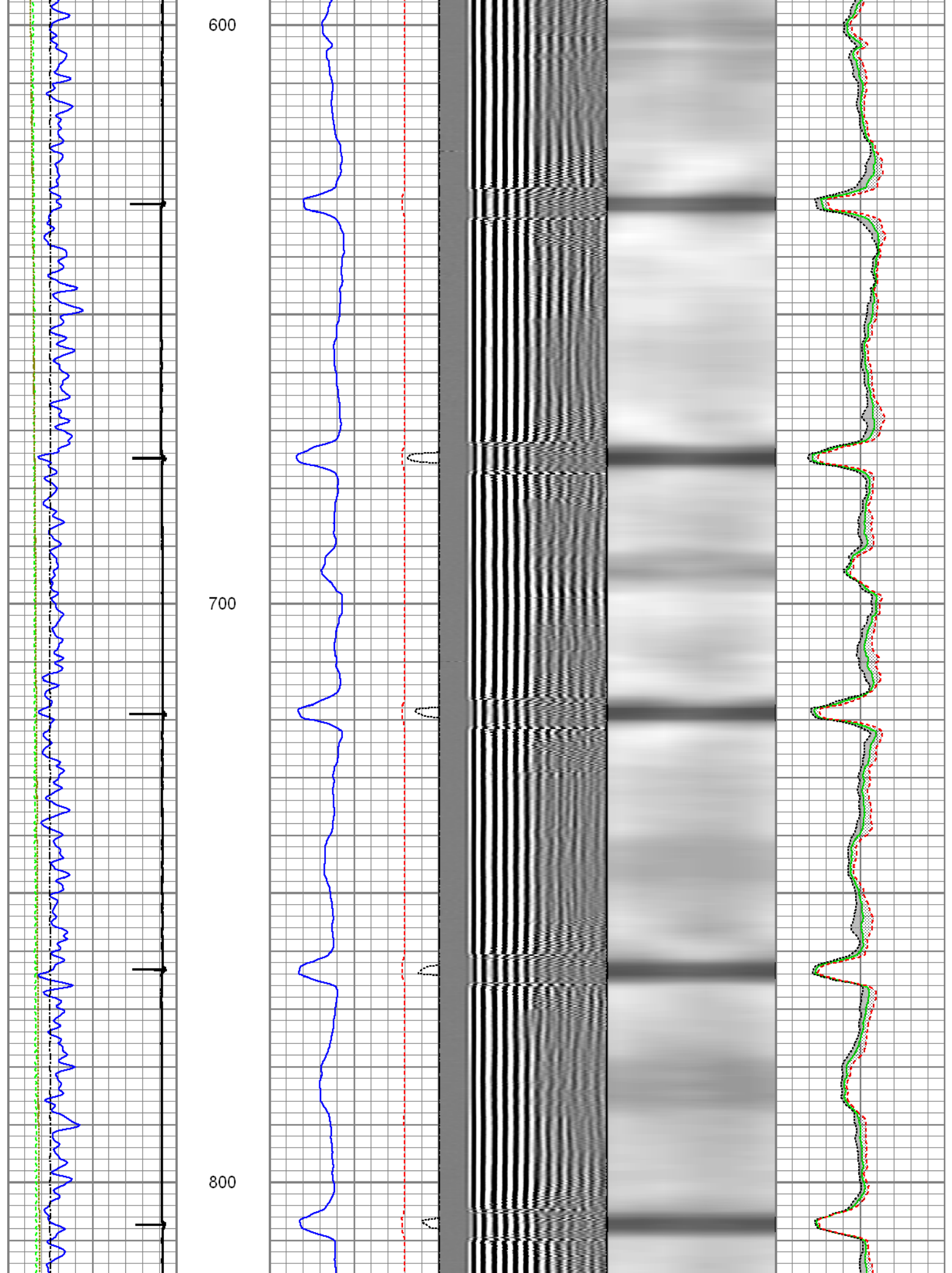
Database File: 11-16-14_whiting_razor 27j-3411a_mit_rbl.db
Dataset Pathname: pass4
Presentation Format: rbt4_mit
Dataset Creation: Sun Nov 16 14:32:01 2014 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

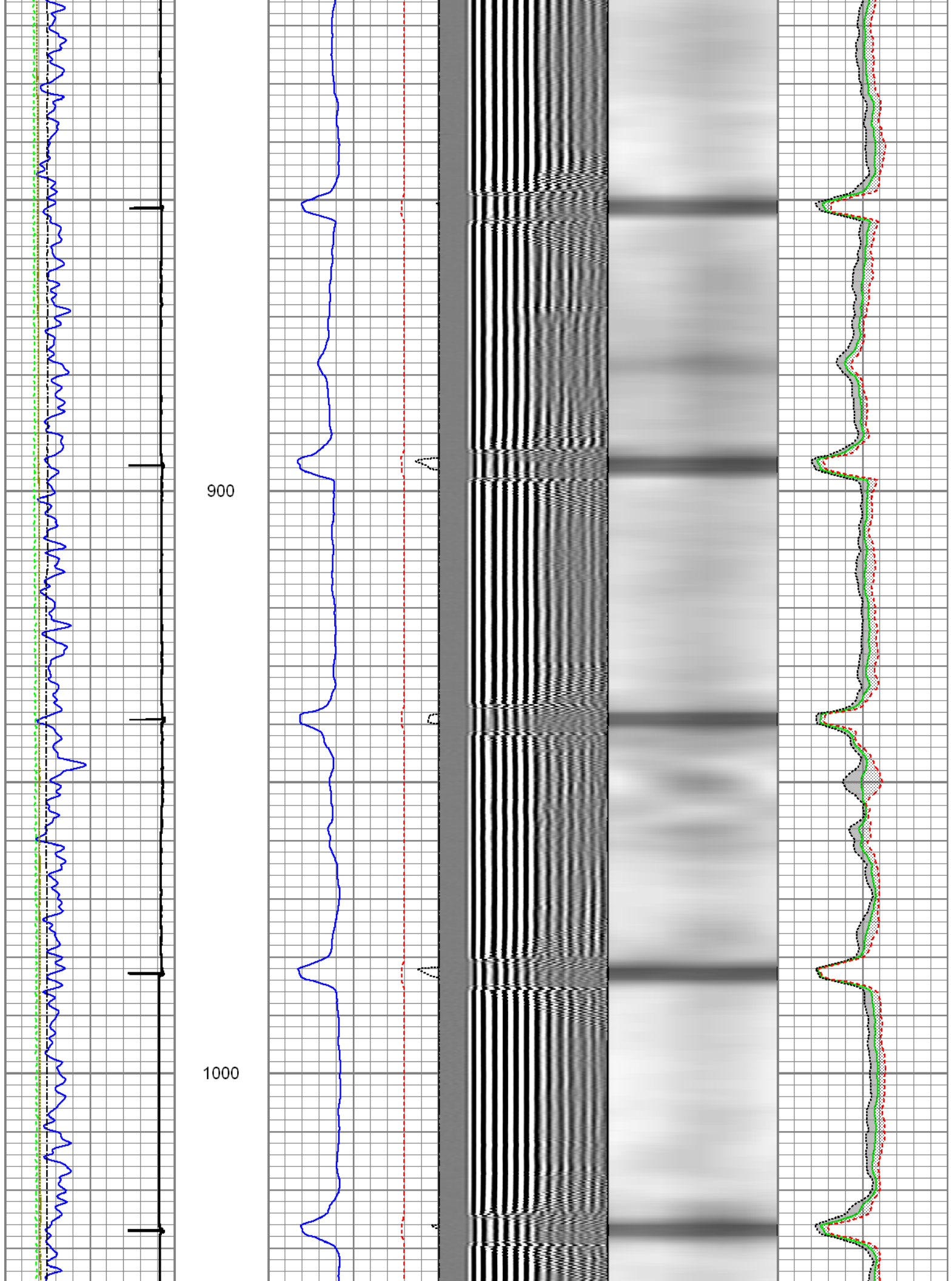
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Wellbore Deviation				
-10 (°) 90				

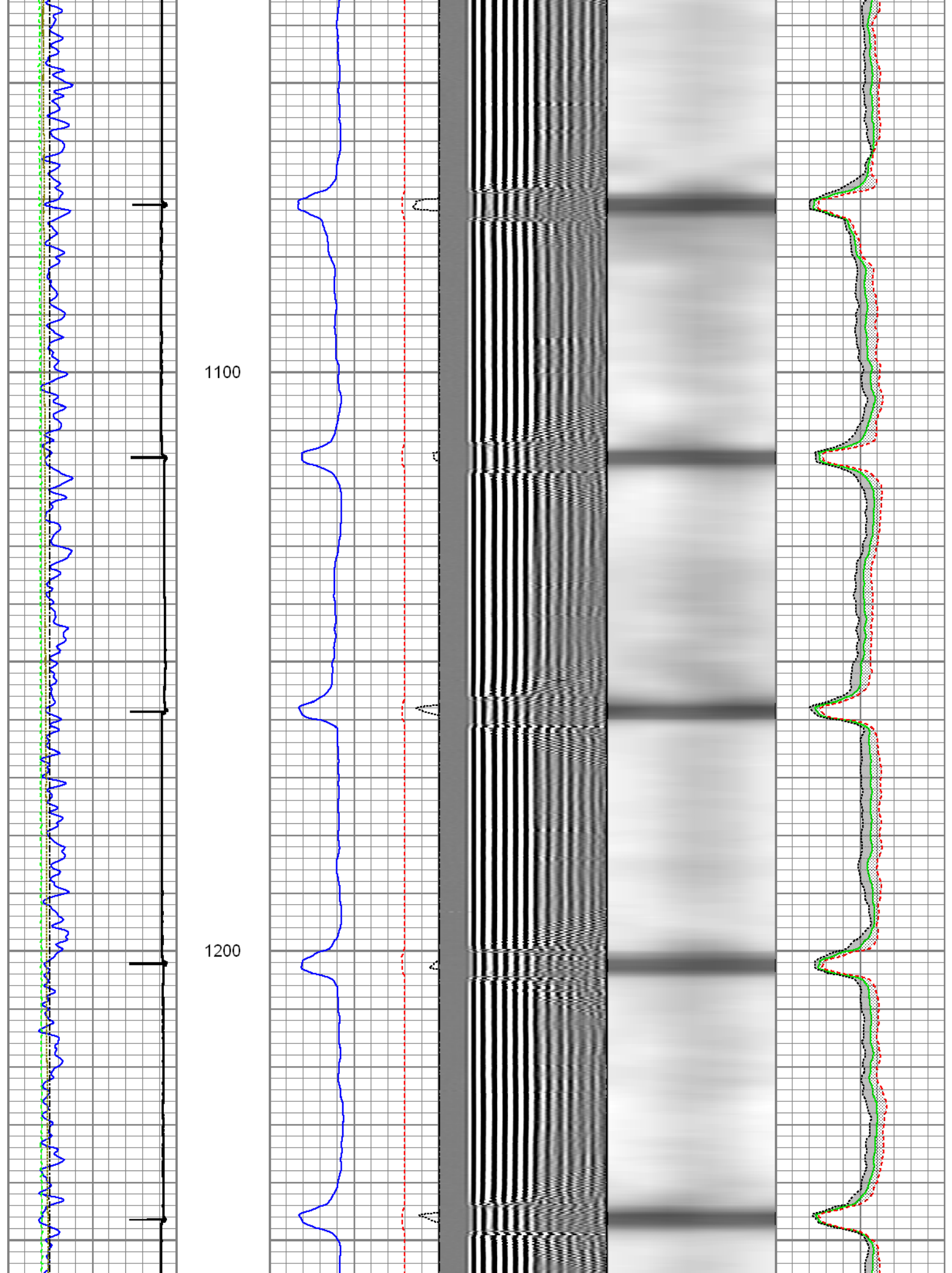


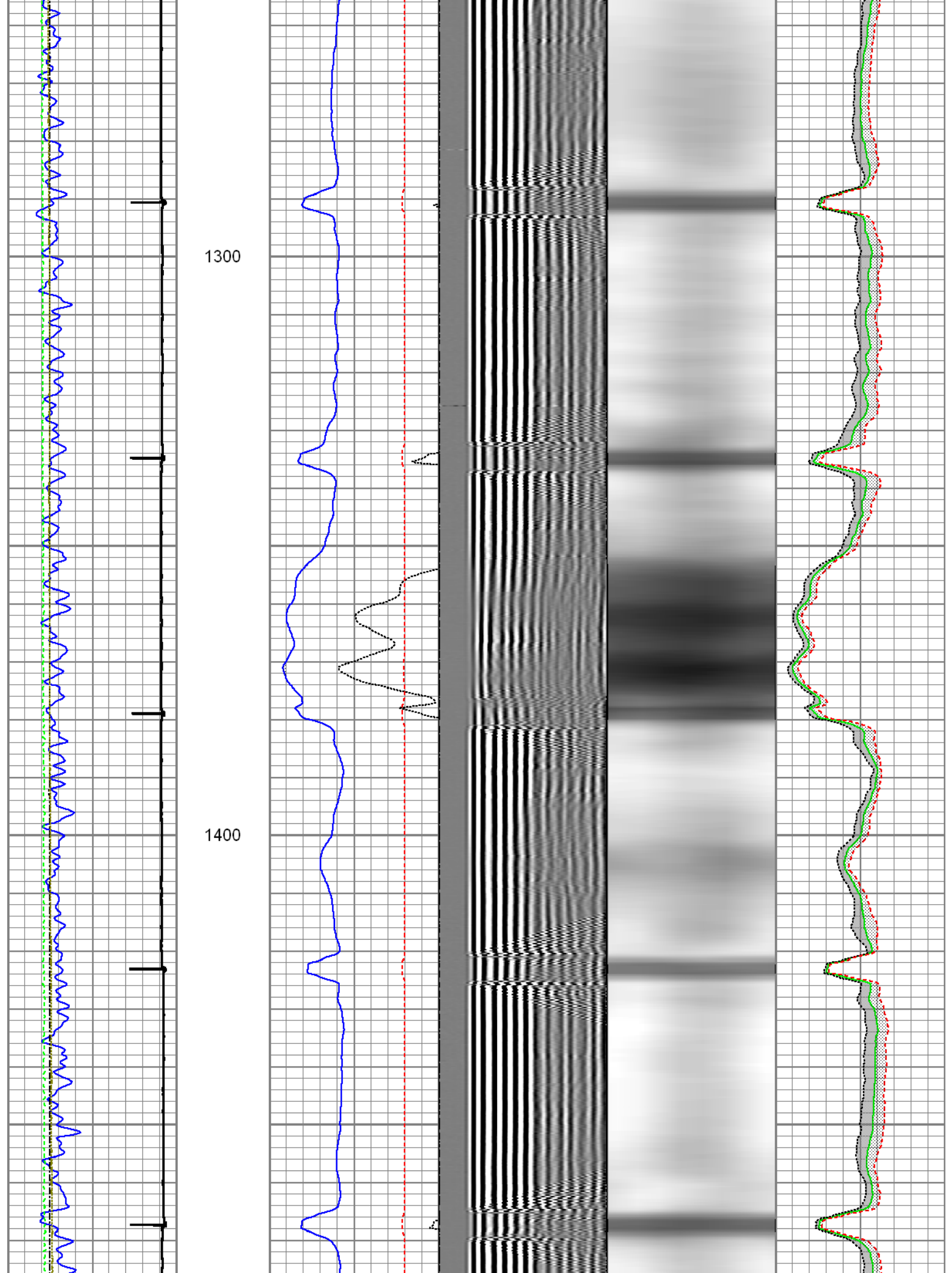


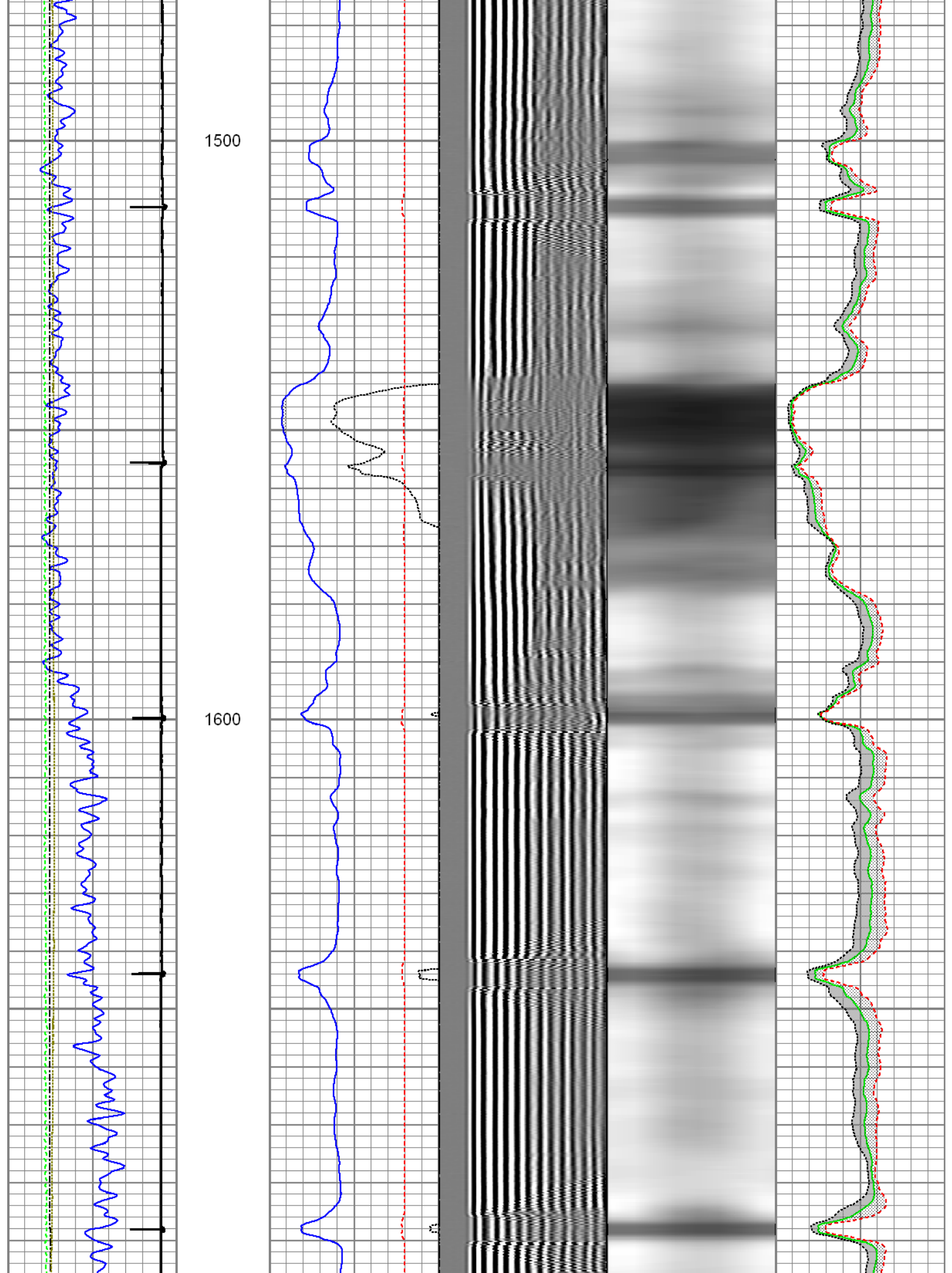


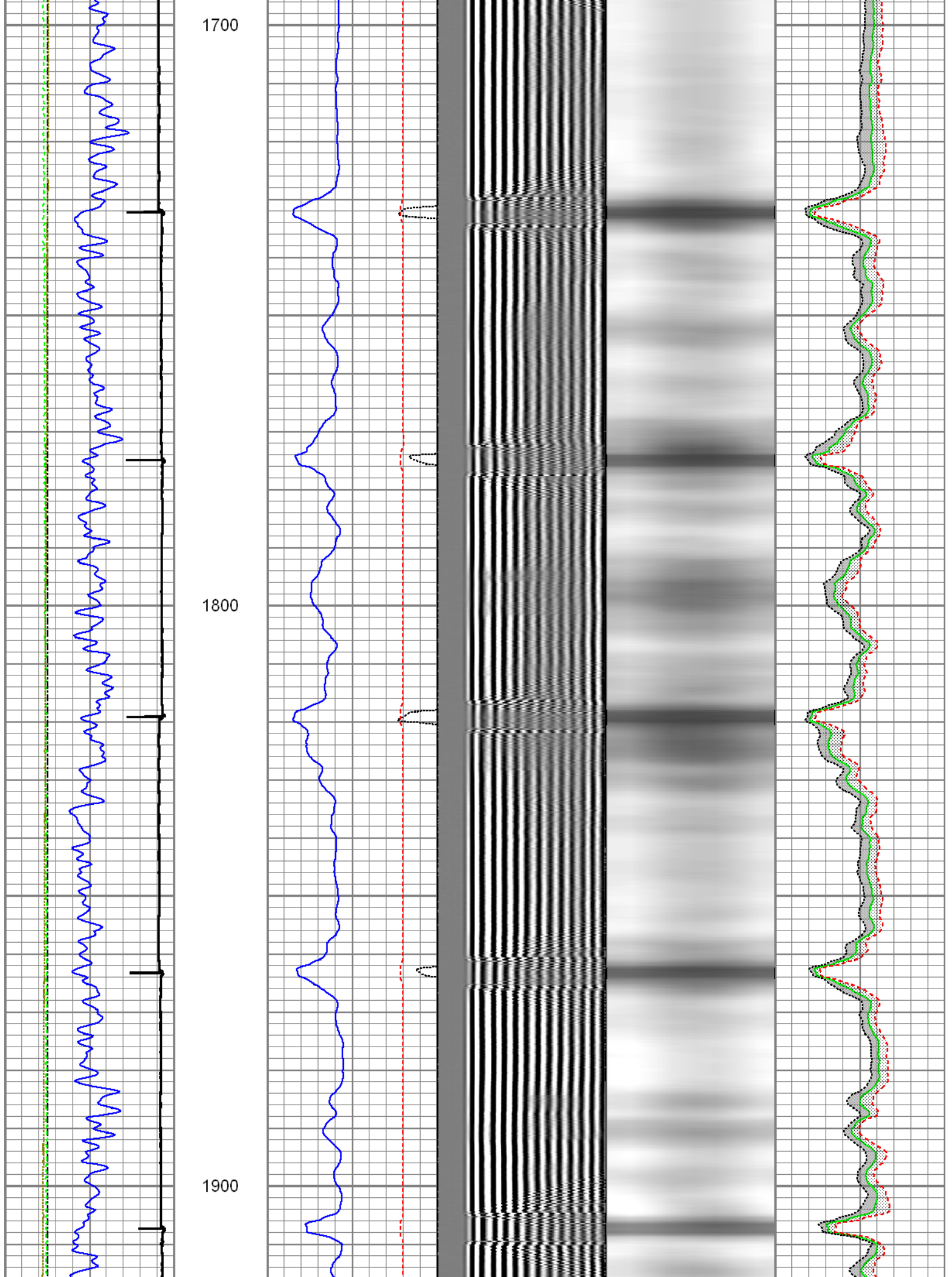






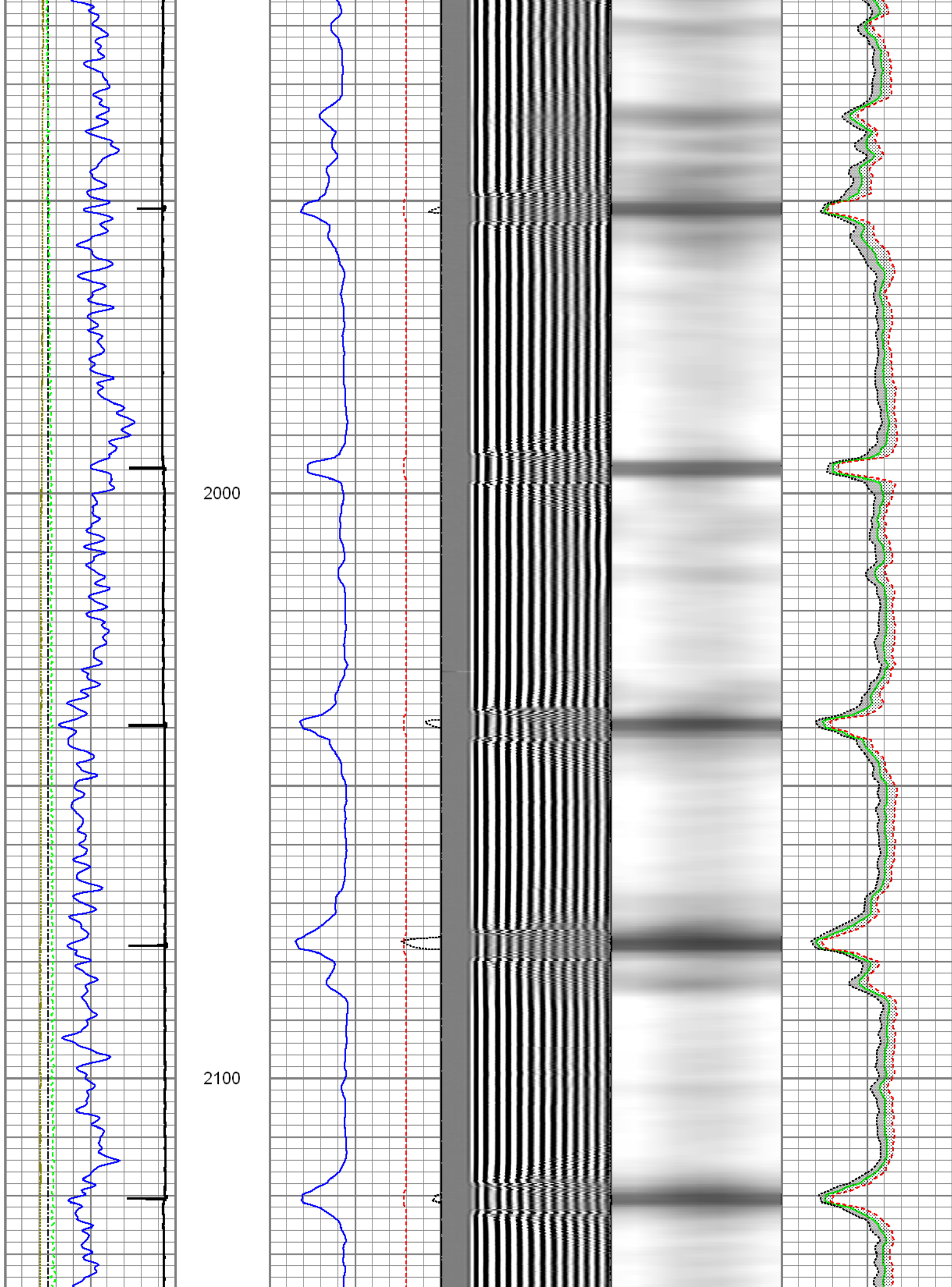






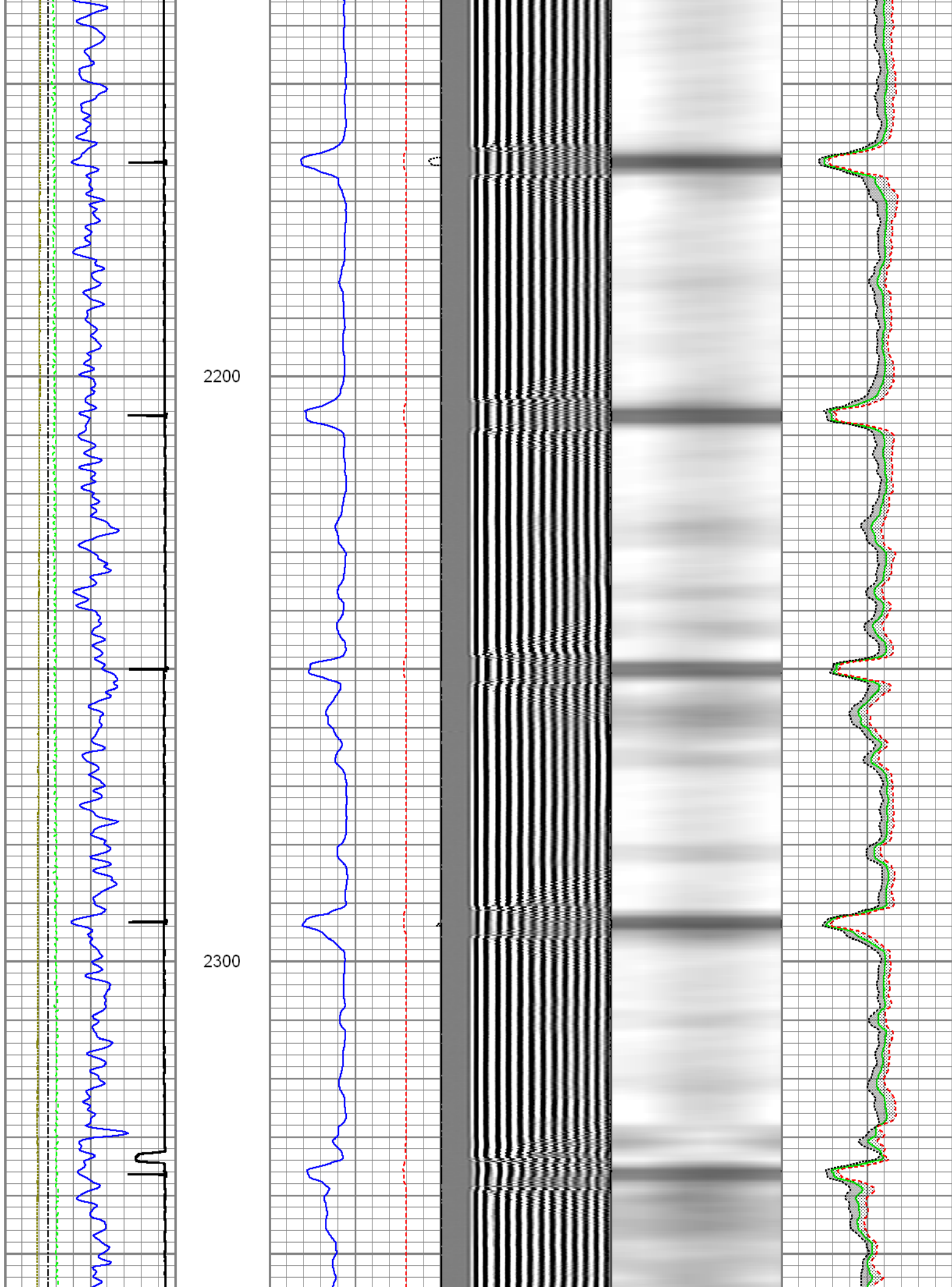
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2100



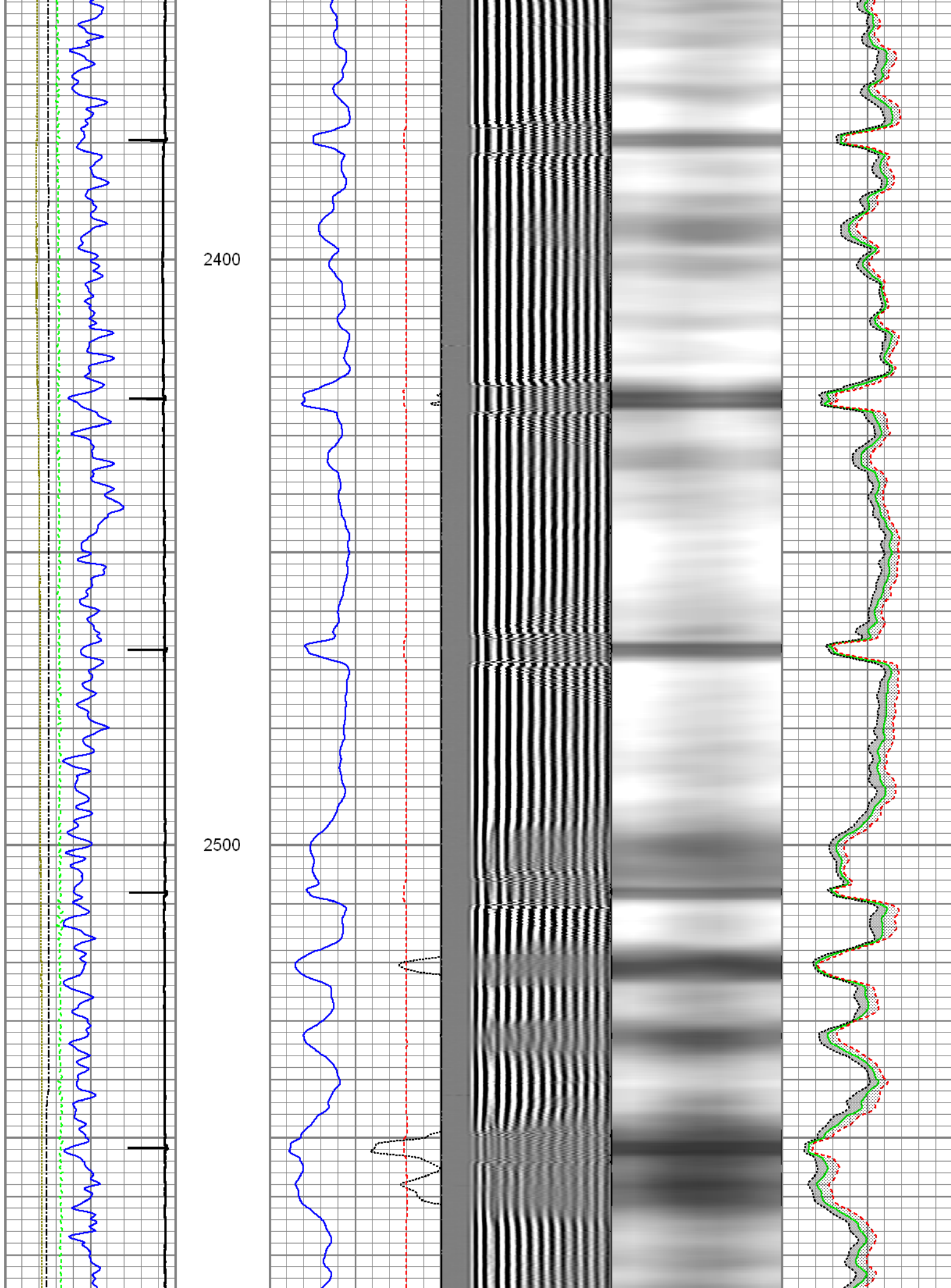
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2300



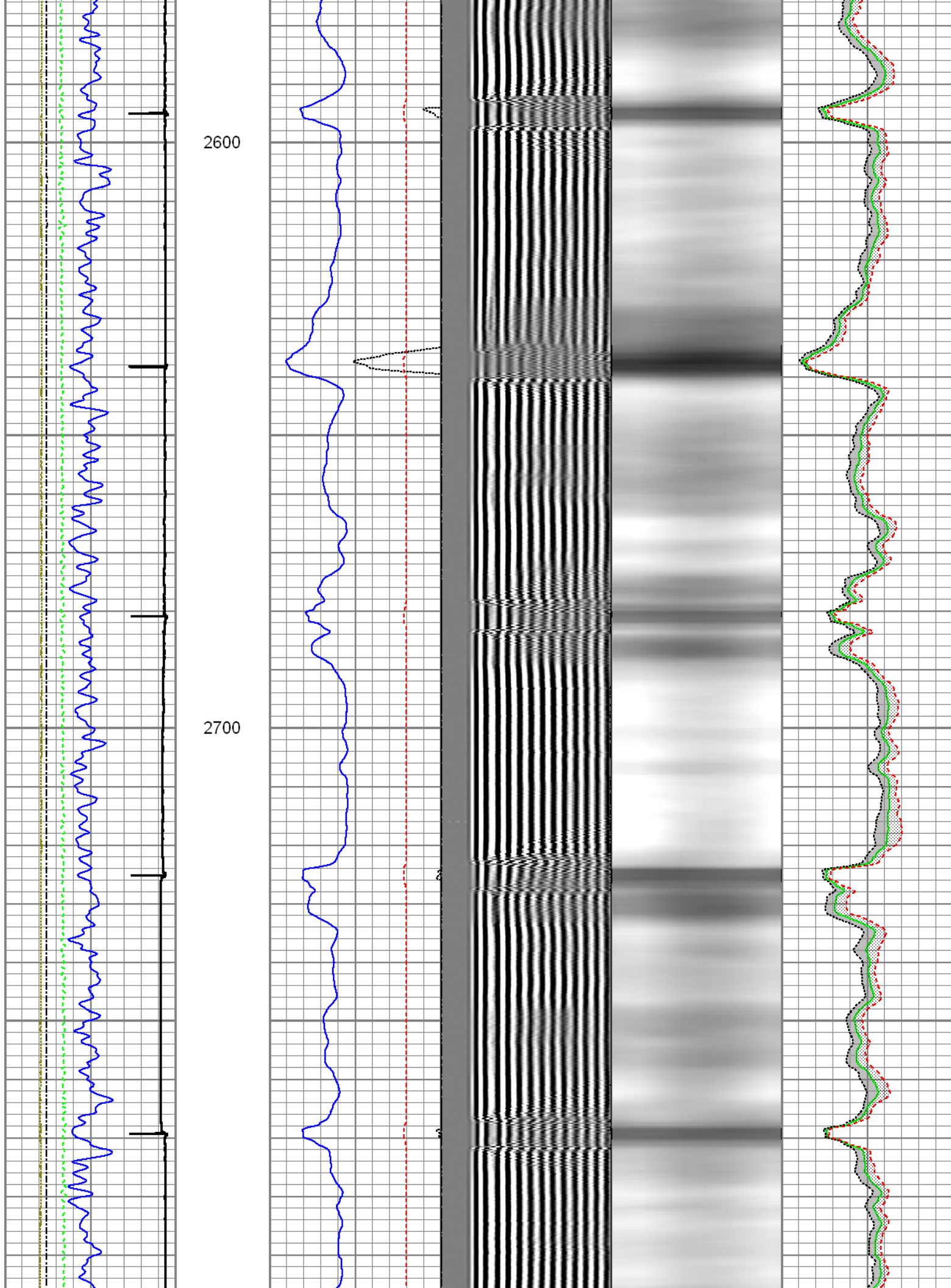
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2500



2600

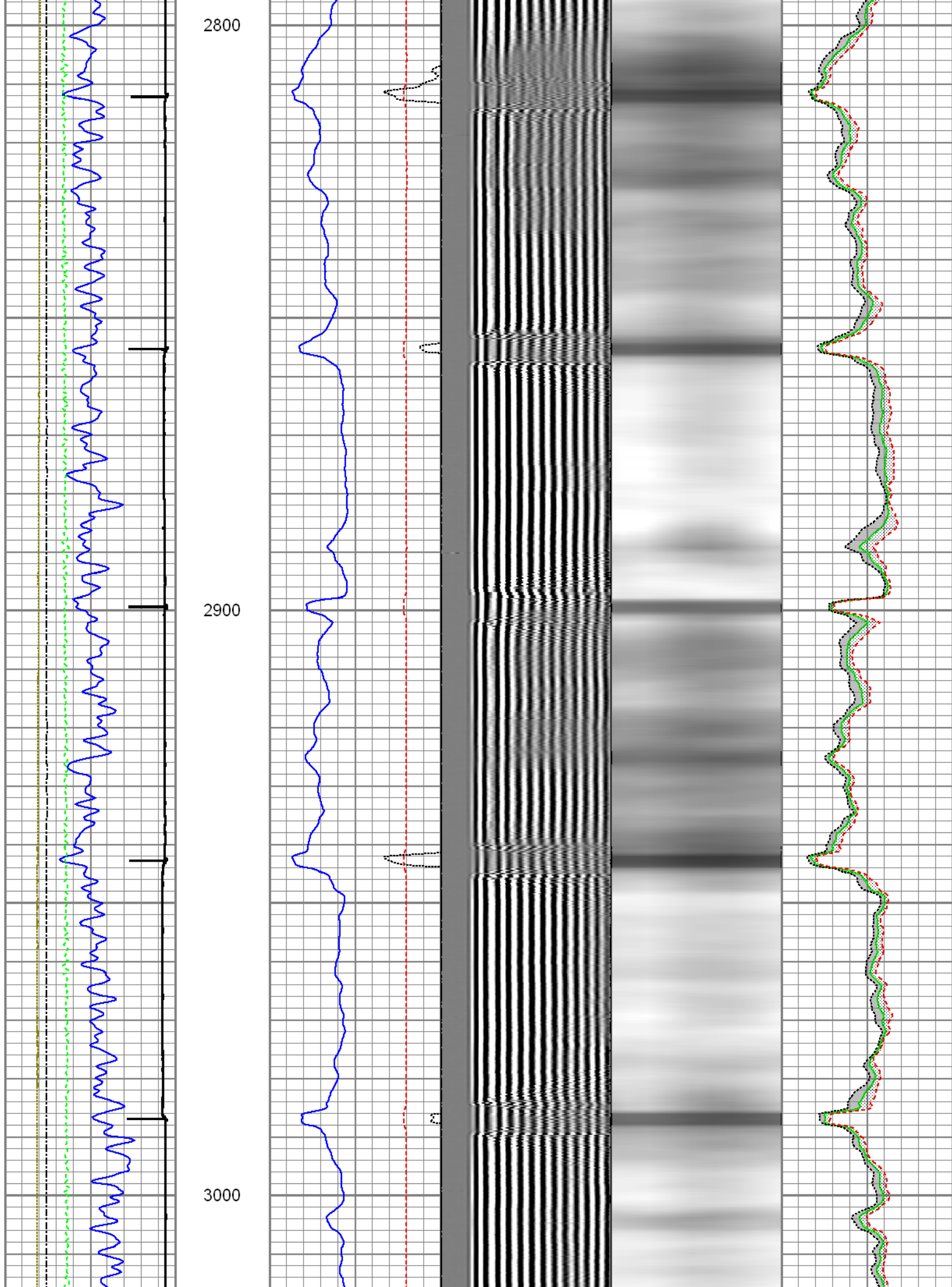
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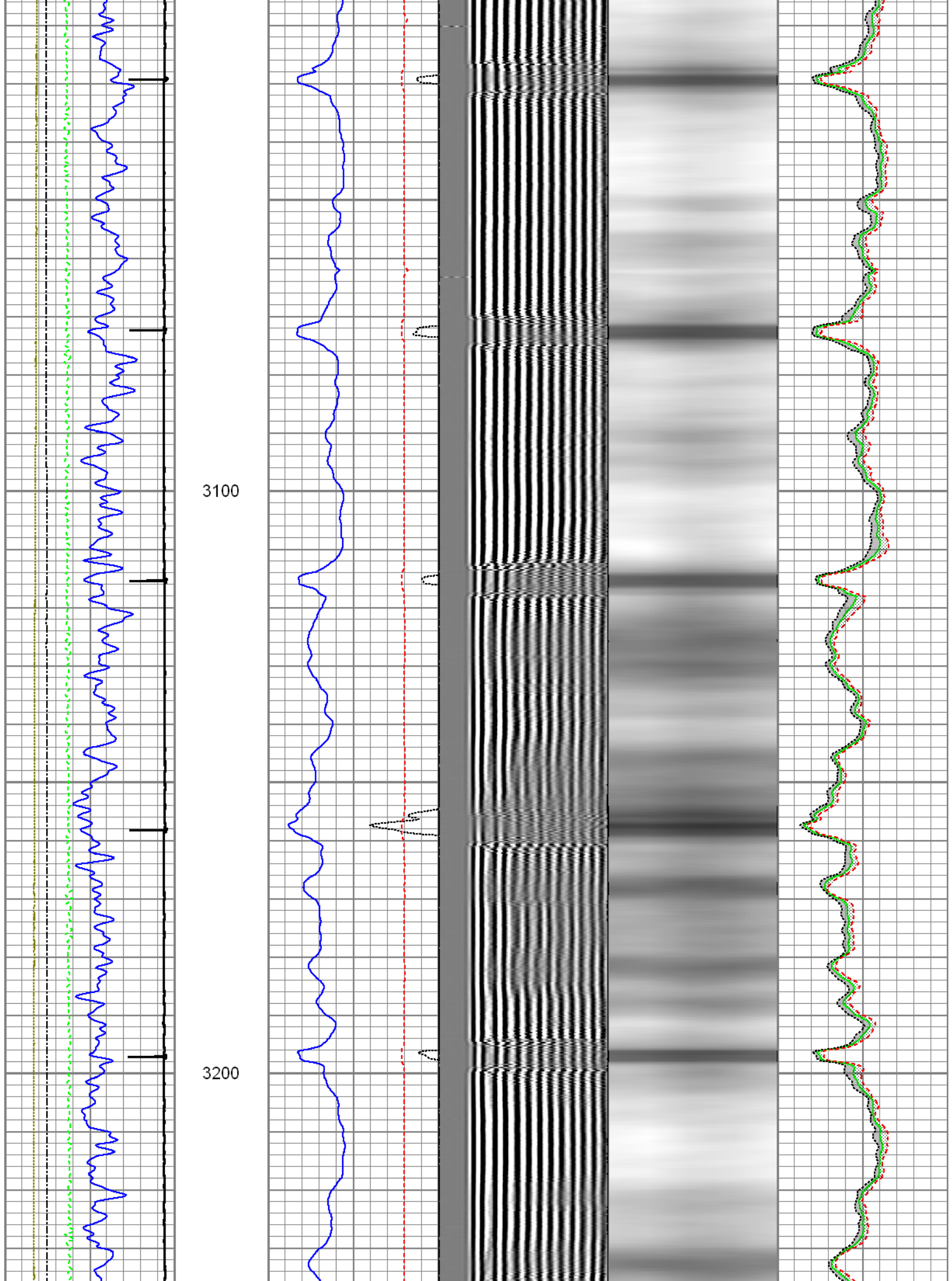


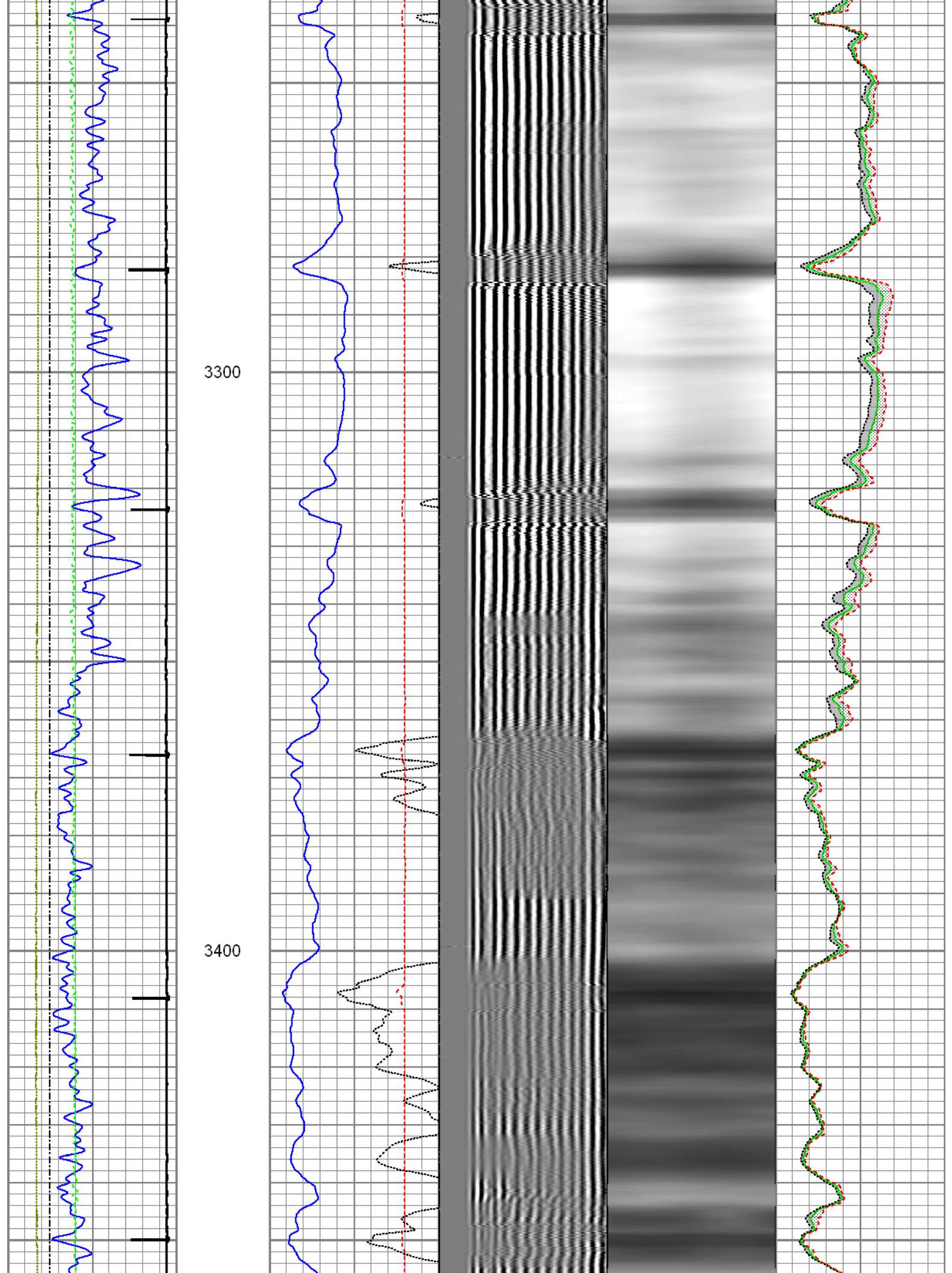
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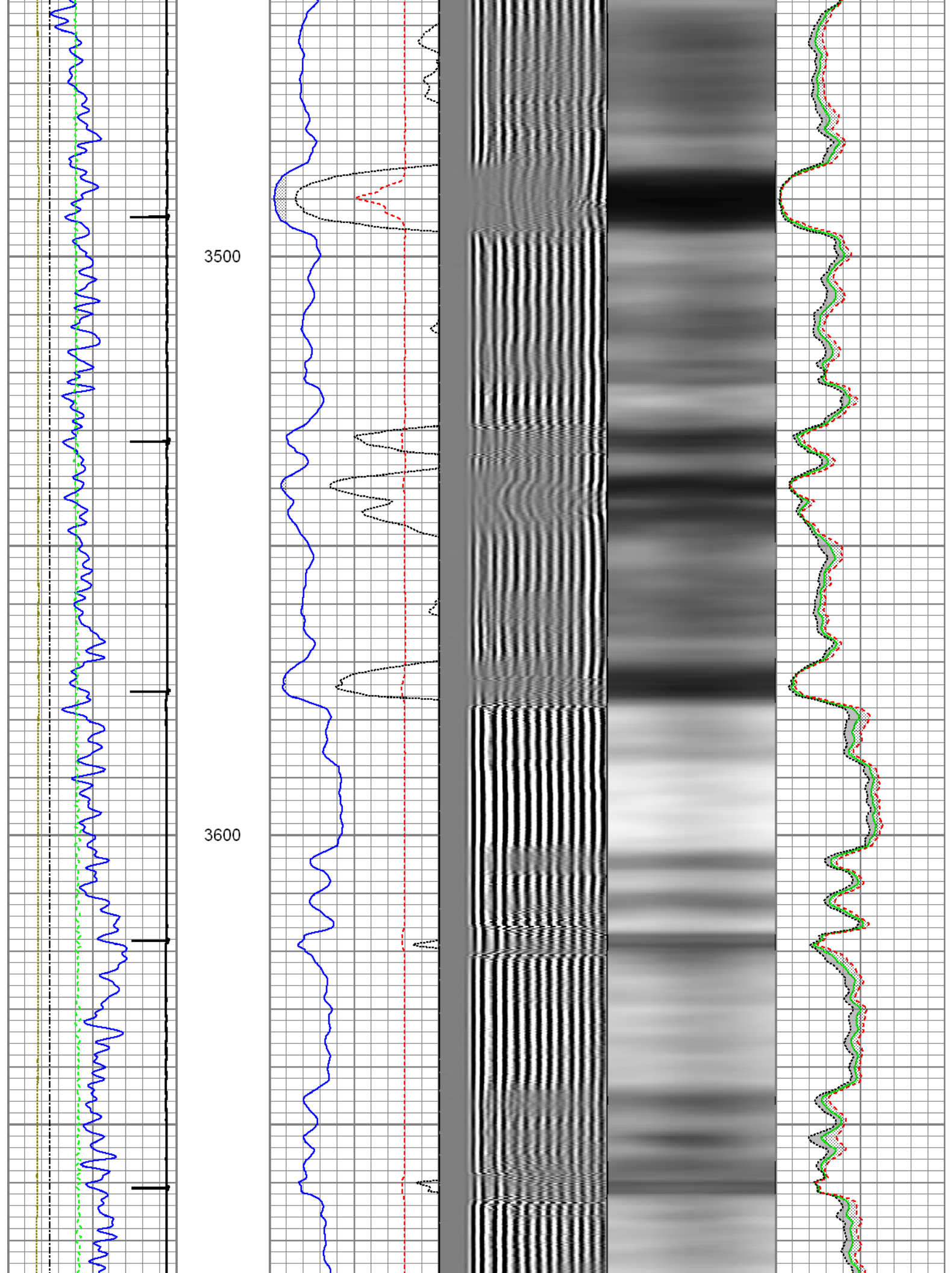
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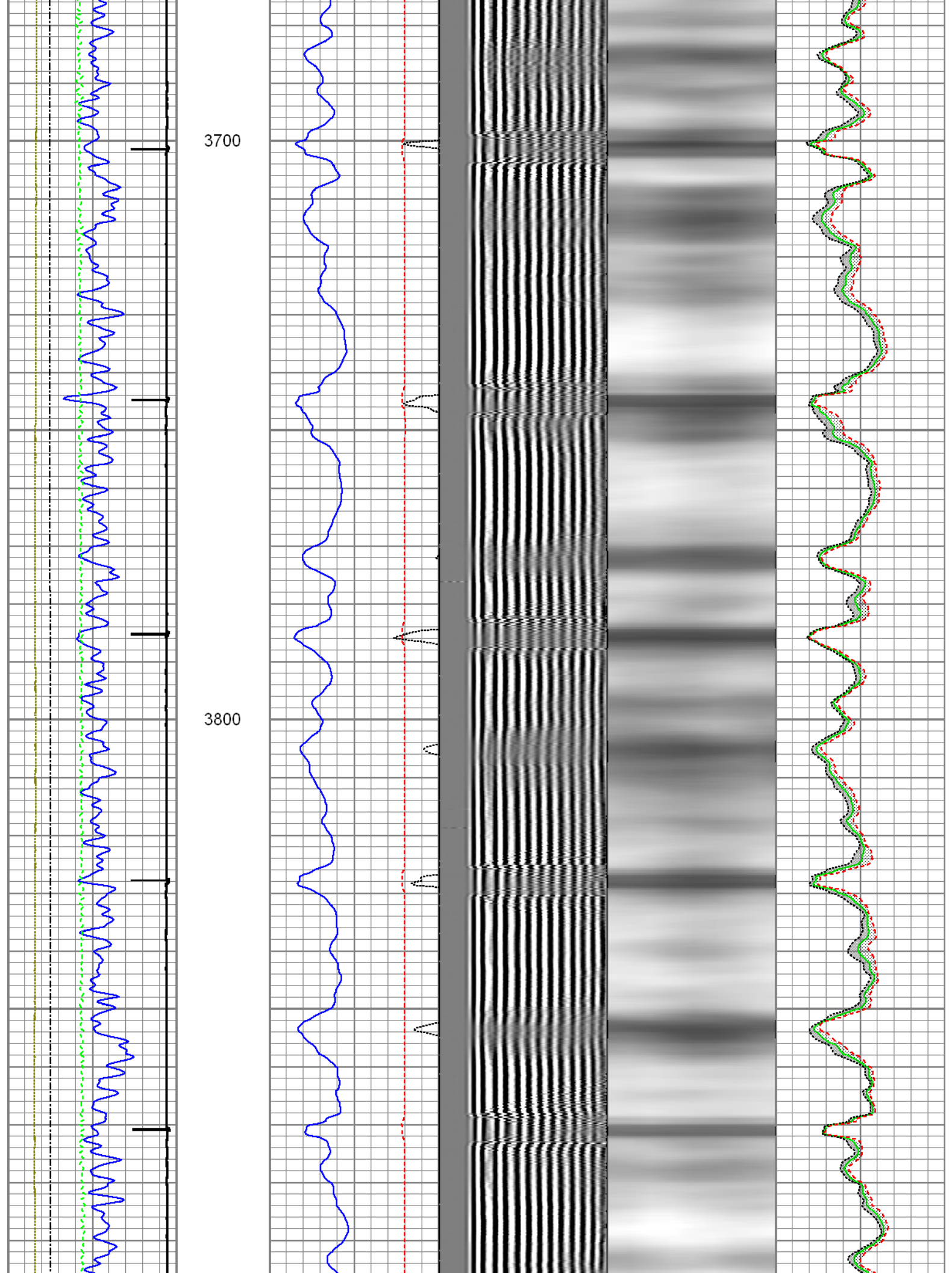
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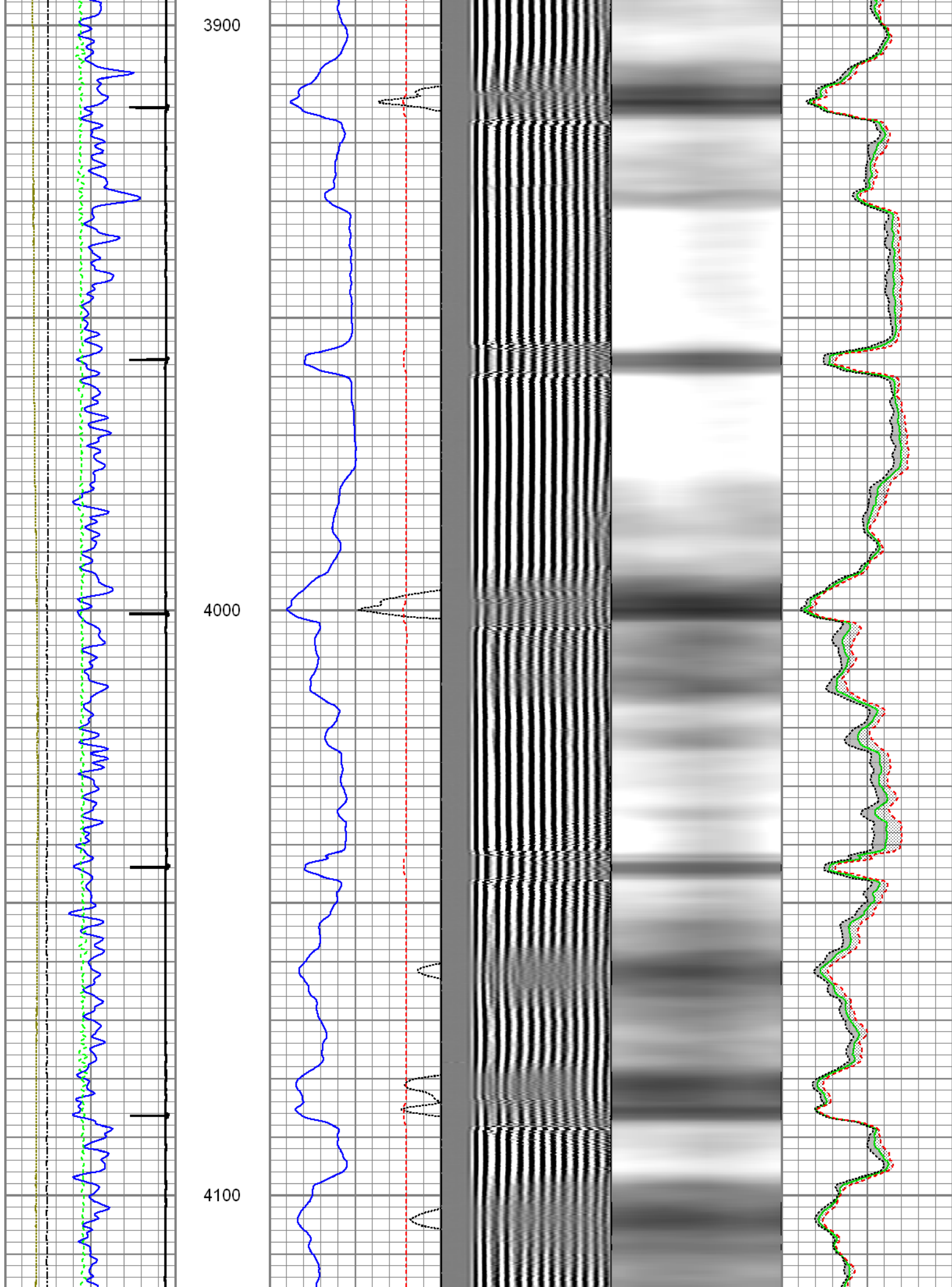


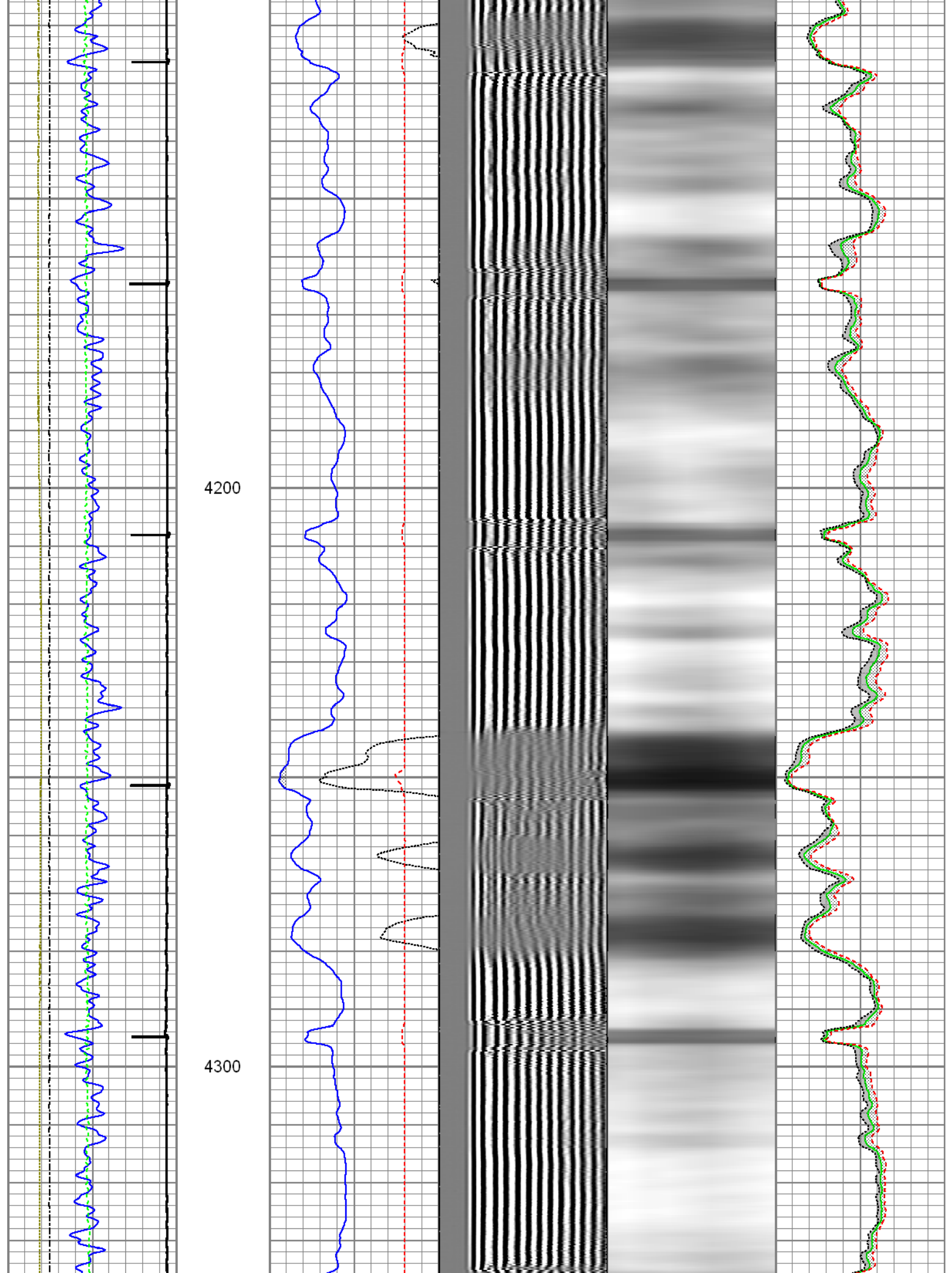


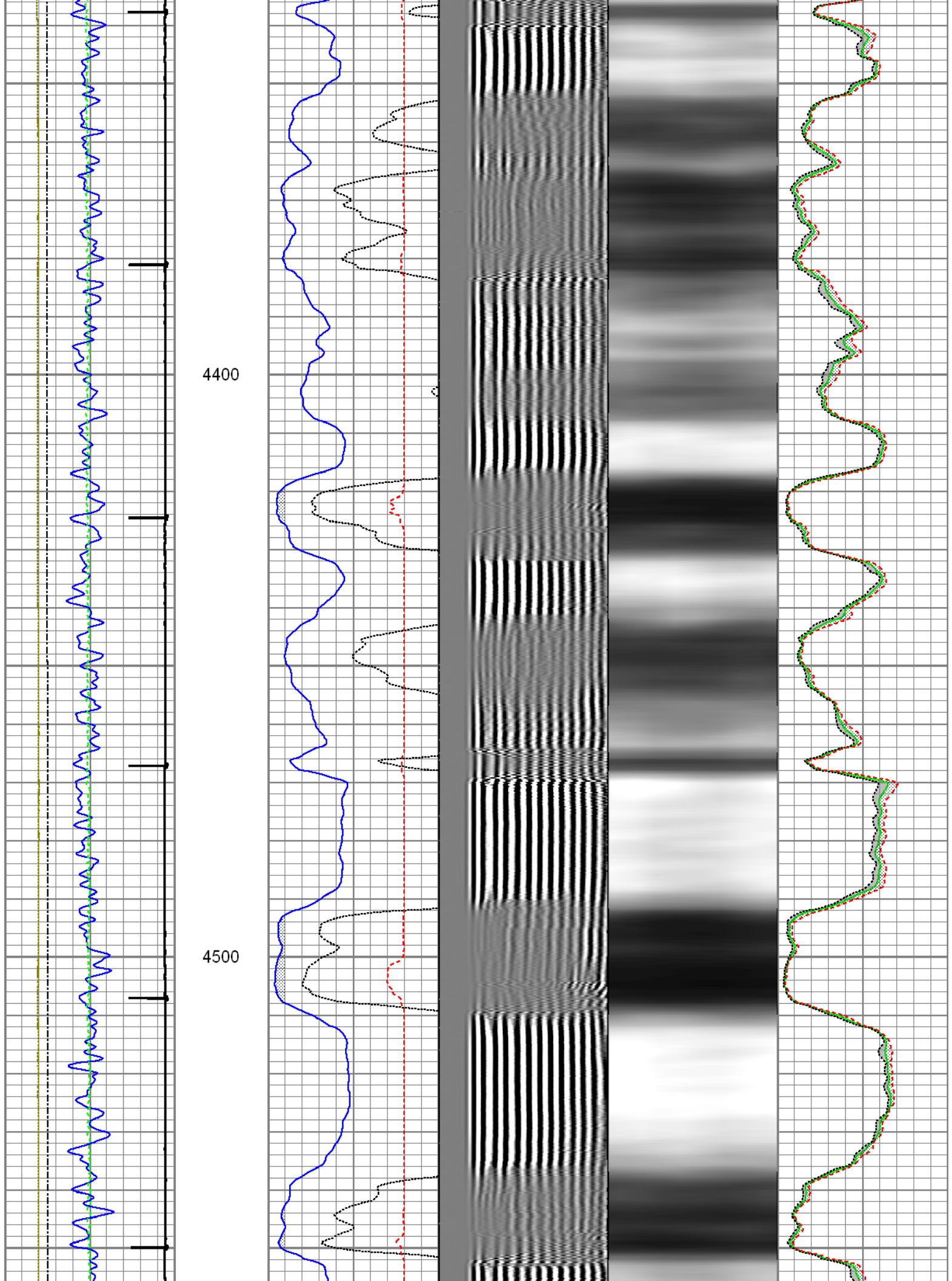
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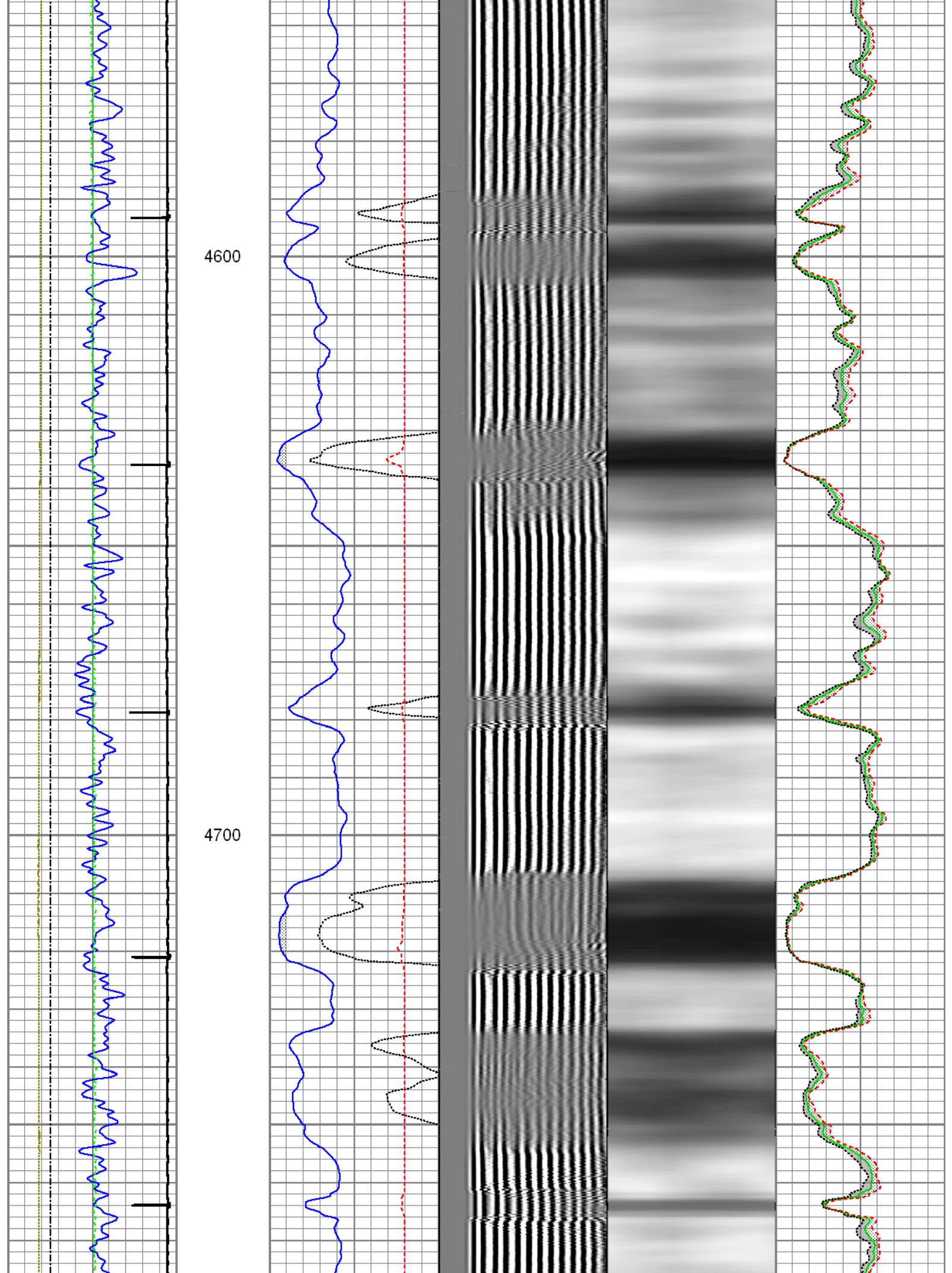
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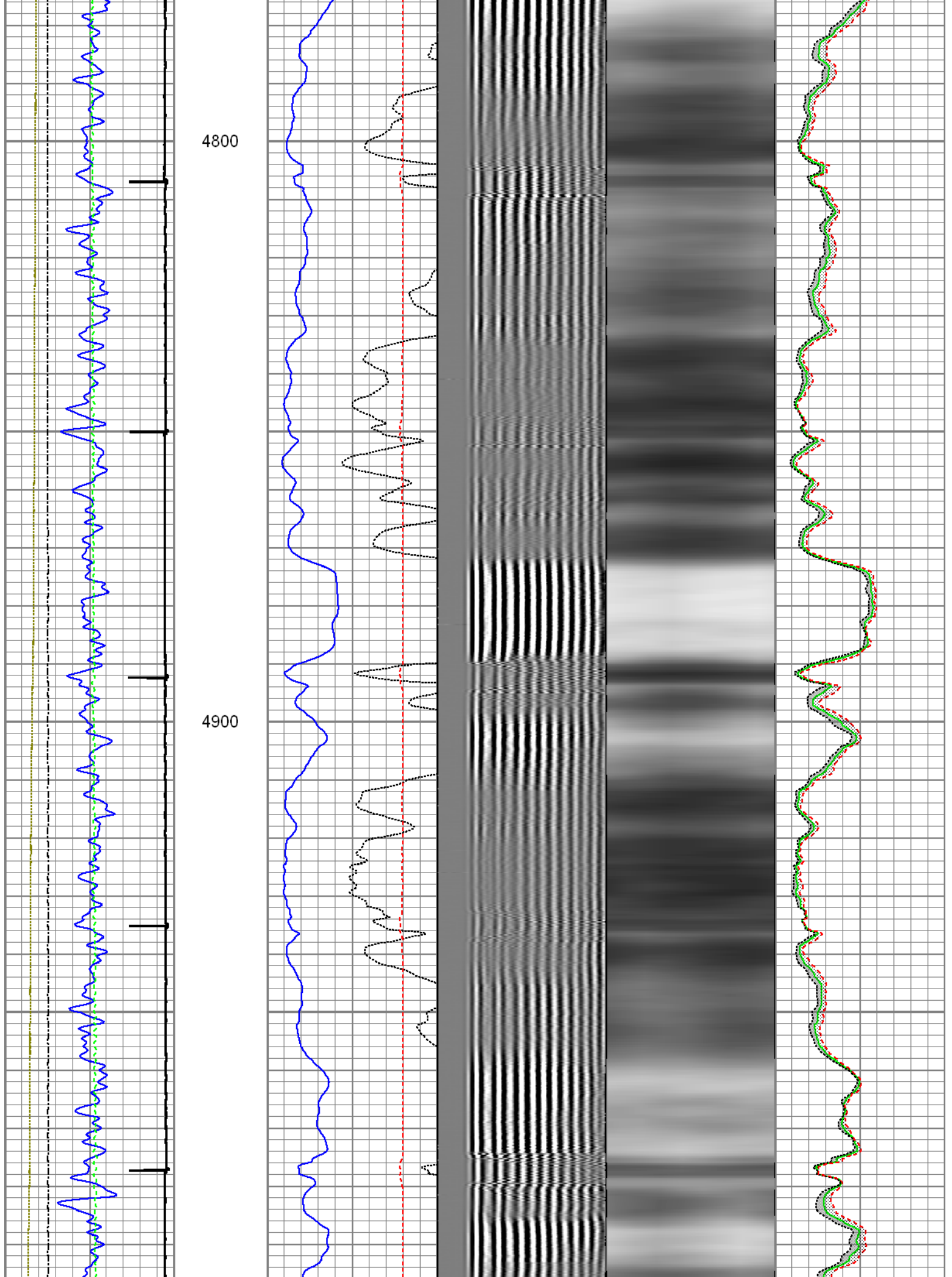
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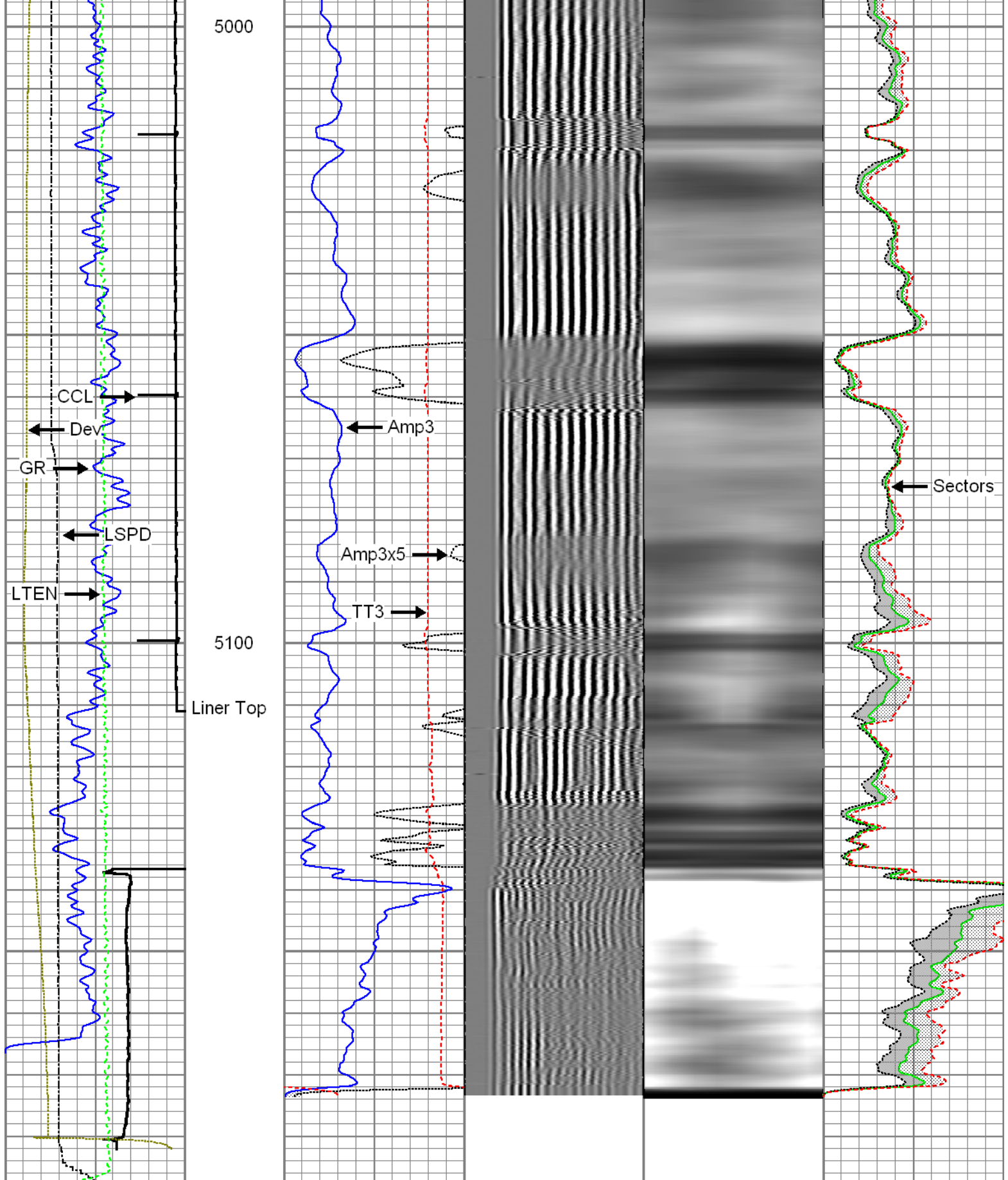













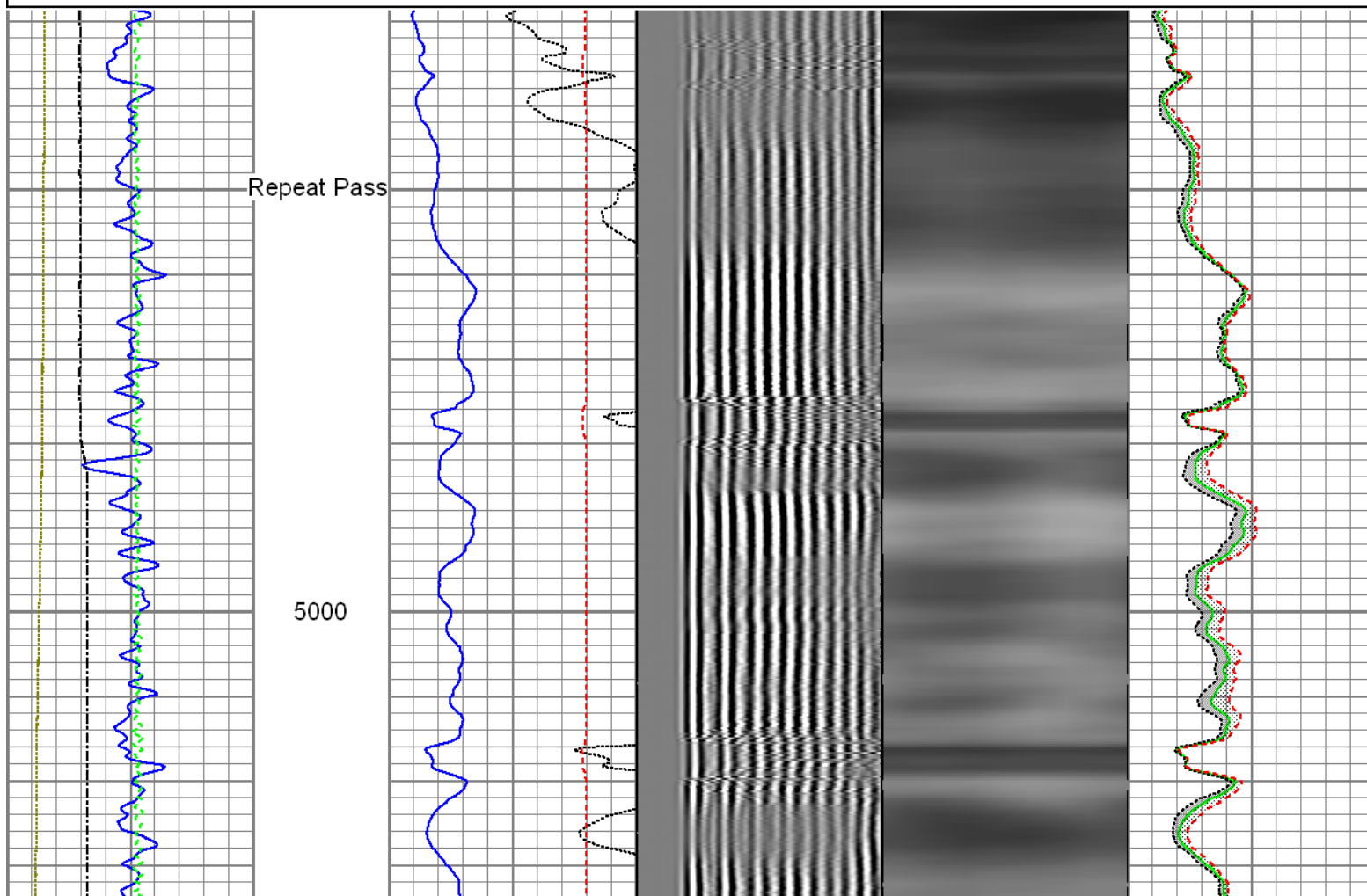
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100

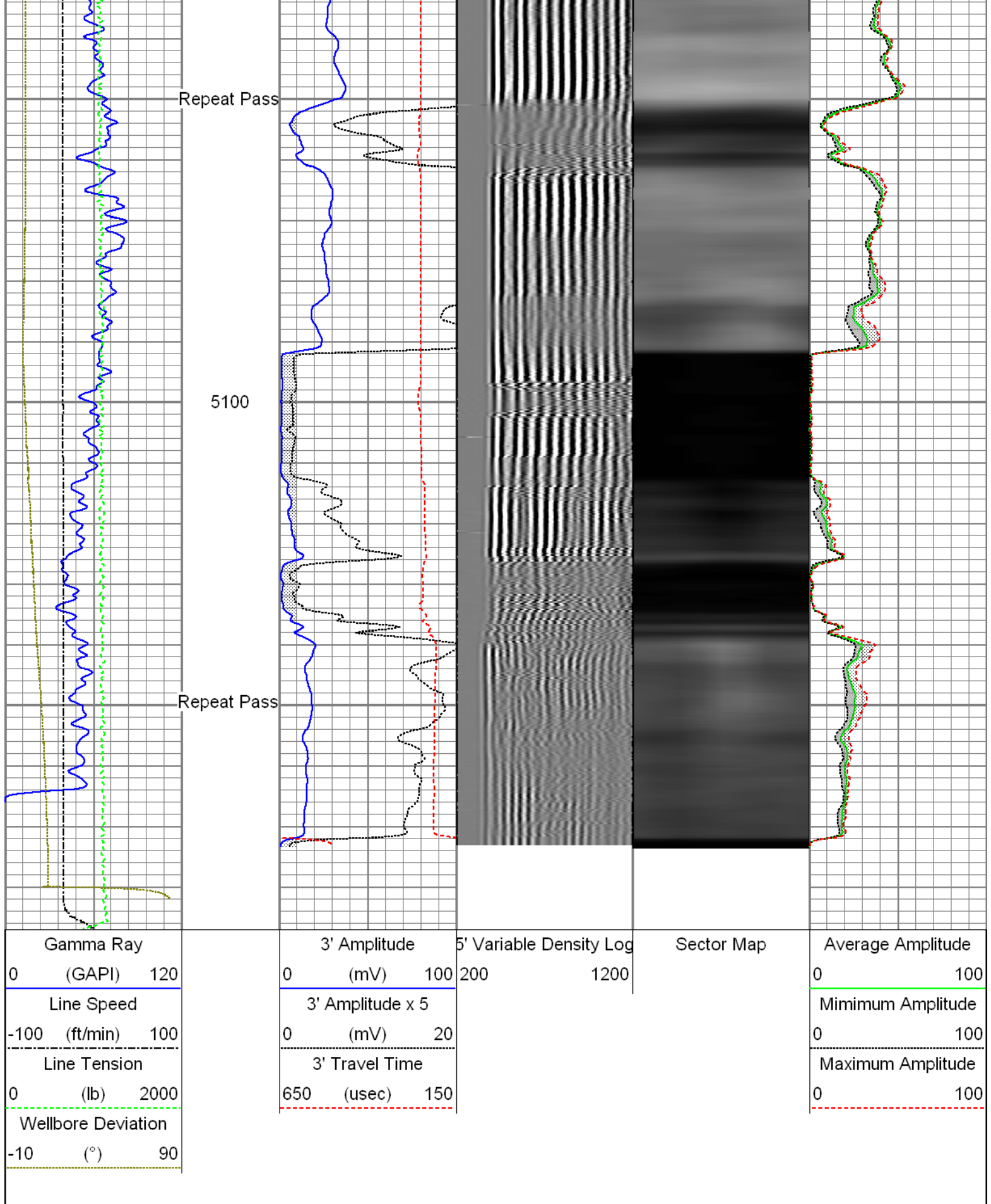
0	(lb)	2000
Wellbore Deviation		
-10	(°)	90


	Repeat Pass
	Recorded At 1500 PSI Surface Induced Pressure

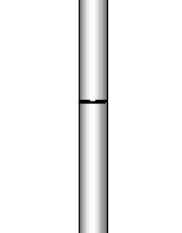
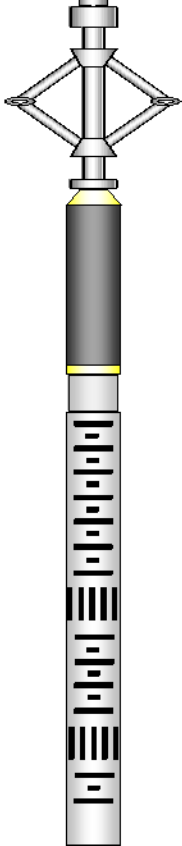
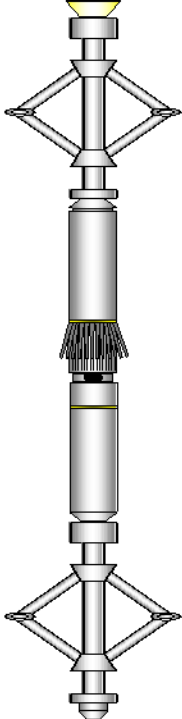
Database File: 11-16-14_whiting_razor 27j-3411a_mit_rbl.db
 Dataset Pathname: pass2
 Presentation Format: rbt4_mit
 Dataset Creation: Sun Nov 16 14:20:35 2014 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 100
Line Speed		3' Amplitude x 5			Minimum Amplitude
-100 (ft/min) 100		0 (mV) 20			0 100
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		650 (usec) 150			0 100
Wellbore Deviation					
-10 (°) 90					





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

GR	22.37		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
			UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	14.99		UW_RBT-UW_RBT_004 (1063) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	14.99					
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					
MIT	4.97		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #4 -DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 11-16-14_Whiting_Razor 27J-3411A_MIT_RBL.db: field/well/run1/pass4 Total Length: 26.62 ft Total Weight: 319.30 lb O.D. 3.13 in						

Calibration Report

Database File: 11-16-14_Whiting_Razor 27J-3411A_MIT_RBL.db

Dataset Pathname: pass4

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 Nov 16 13:13:02 2014

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1089	364.0	1453	383.0	1836	402.0	2238
Finger 02:	1064	371.0	1435	398.0	1833	425.0	2258
Finger 03:	1058	364.0	1422	385.0	1807	417.0	2224
Finger 04:	1020	374.0	1394	412.0	1806	441.0	2247
Finger 05:	1035	365.0	1400	378.0	1778	407.0	2185
Finger 06:	995	365.0	1360	394.0	1754	424.0	2178
Finger 07:	1042	372.0	1414	392.0	1806	419.0	2225
Finger 08:	1011	372.0	1383	406.0	1789	436.0	2225
Finger 09:	1076	377.0	1453	394.0	1847	406.0	2253
Finger 10:	1031	368.0	1399	398.0	1797	410.0	2207
Finger 11:	1020	372.0	1392	397.0	1789	422.0	2211
Finger 12:	1109	369.0	1478	376.0	1854	387.0	2241
Finger 13:	1076	369.0	1445	394.0	1839	415.0	2254
Finger 14:	1032	379.0	1411	408.0	1819	430.0	2249
Finger 15:	998	378.0	1376	407.0	1783	432.0	2215
Finger 16:	1042	370.0	1412	396.0	1808	418.0	2226
Finger 17:	1091	365.0	1456	384.0	1840	398.0	2238
Finger 18:	1089	357.0	1446	378.0	1824	394.0	2218
Finger 19:	1086	371.0	1457	391.0	1848	406.0	2254
Finger 20:	991	368.0	1359	397.0	1756	422.0	2178
Finger 21:	1092	364.0	1456	384.0	1840	404.0	2244
Finger 22:	1087	367.0	1454	387.0	1841	404.0	2245
Finger 23:	1129	368.0	1497	385.0	1882	403.0	2285
Finger 24:	1120	340.0	1460	356.0	1816	376.0	2192
Finger 25:	1121	371.0	1492	390.0	1882	402.0	2284
Finger 26:	1066	353.0	1419	377.0	1796	400.0	2196
Finger 27:	1249	376.0	1625	384.0	2009	395.0	2404
Finger 28:	1091	343.0	1434	366.0	1800	393.0	2193
Finger 29:	1075	357.0	1432	383.0	1815	414.0	2229
Finger 30:	1060	361.0	1421	388.0	1809	416.0	2225
Finger 31:	1254	380.0	1634	396.0	2030	414.0	2444
Finger 32:	1103	355.0	1458	371.0	1829	393.0	2222
Finger 33:	1103	372.0	1475	396.0	1871	434.0	2305
Finger 34:	1082	358.0	1440	376.0	1816	410.0	2226
Finger 35:	1173	372.0	1545	400.0	1945	420.0	2365
Finger 36:	1060	341.0	1401	366.0	1767	392.0	2159
Finger 37:	1131	376.0	1507	397.0	1904	424.0	2328
Finger 38:	1096	354.0	1450	376.0	1826	403.0	2229
Finger 39:	1100	347.0	1447	366.0	1813	391.0	2204

Finger 39:	1100	347.0	1447	388.0	1813	391.0	2204
Finger 40:	1015	375.0	1390	409.0	1799	444.0	2243

Segmented Cement Bond Log Calibration Report

Serial Number:	1063	
Tool Model:	UW_RBT_004	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-38.245	ft

Master Calibration, performed Fri Nov 14 10:24:12 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	1.000	1.000	71.921	70.688	1.233
5FT	-0.006	1.000	1.000	71.921	70.491	1.430
S1	-0.004	1.000	0.000	100.000	99.635	0.365
S2	-0.004	1.000	0.000	100.000	99.605	0.395
S3	-0.004	1.000	0.000	100.000	99.639	0.361
S4	-0.004	1.000	0.000	100.000	99.558	0.442
S5	-0.004	1.000	0.000	100.000	99.646	0.354
S6	-0.004	1.000	0.000	100.000	99.648	0.352
S7	-0.003	1.000	0.000	100.000	99.690	0.310
S8	-0.003	1.000	0.000	100.000	99.685	0.315

Gamma Ray Calibration Report

Serial Number:	10013902	
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



Company	Whiting Oil & Gas Corporation
Well	Razor 27J-3411A
Field	Wildcat
County	Weld
State	Colorado