



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas OnShore L.P.		
Well	Buffalo 14C-15HZ		
Field	Wattenberg		
County	Weld		
State	Colorado		
Location:	Company	Kerr-McGee Oil & Gas OnShore L.P.	
	Well	Buffalo 14C-15HZ	
	Field	Wattenberg	
Location:	County	Weld	State Colorado
	API # : 05-123-36451		
	Other Services		
SEC 15 TWP 1N RGE 68W		Gauge Ring MIT	
Permanent Datum	Ground Level	Elevation	5133'
Log Measured From	Kelly Bushing	25 FT	K.B. 5158'
Drilling Measured From	Kelly Bushing		D.F. 5157'
			G.L. 5133'

Date	02-JUL-2015
Run Number	Two
Depth Driller	12447 FT
Depth Logger	7850 FT
Bottom Logged Interval	7845 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	240°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	12:03
Equipment Number	HD-0340
Location	Fort Lupton, CO
Recorded By	Rob Cameron
Witnessed By	Darrel Bothwell

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	1301 FT		
Intermediate #1	7	26	HCP-110	Surface	8337 FT		
Intermediate #2							
Liner	4 1/2	11.6	HCP-110	7230 FT	12437 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 casing tally reported liner top at 7230 FT
Adjusted log -10 FT to correlate with liner top
Gauge Ring/Junk Basket run to 7900 FT with no debris found
Log ran from as deep as possible in heel to surface
Recorded with 2800 PSI surface induced pressure
No debris found on logging tools after run

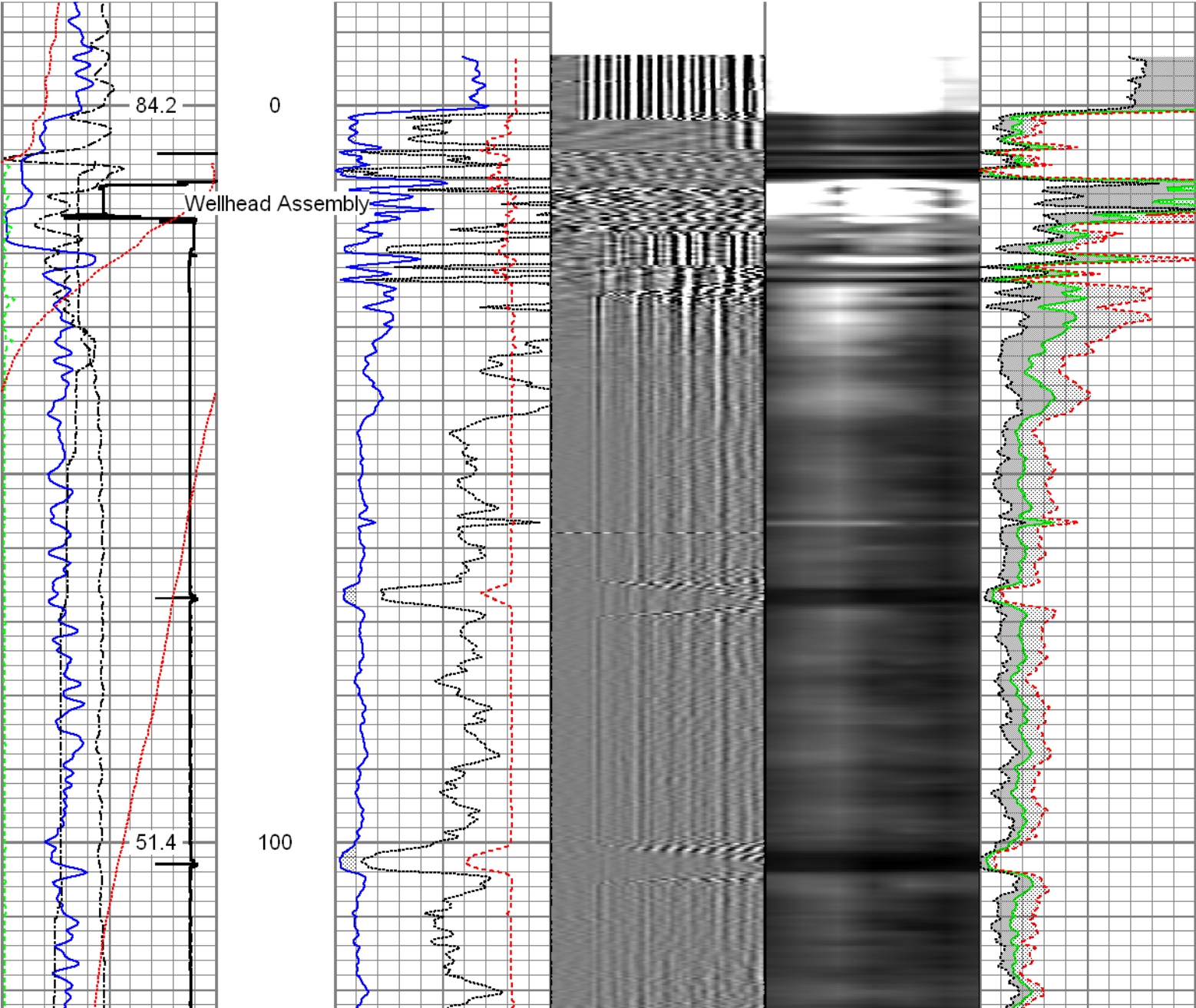
Thank you for choosing FMC Technologies Completion Services, Inc.!!

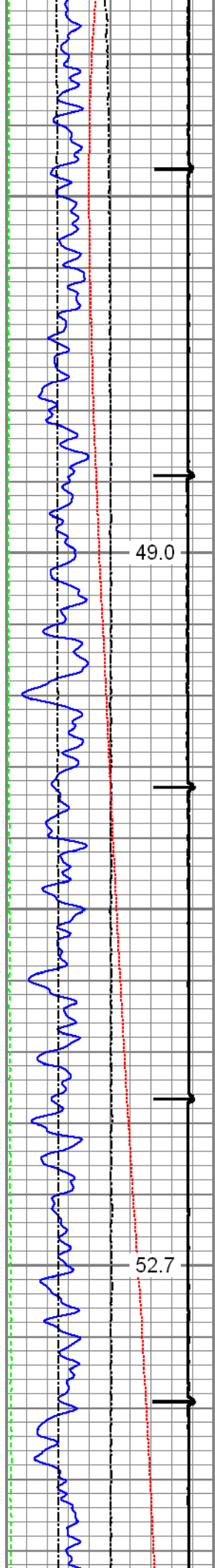


Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100			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				
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				



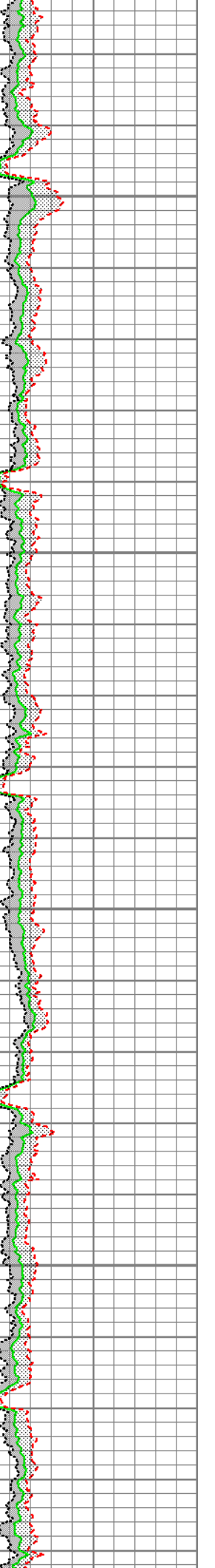
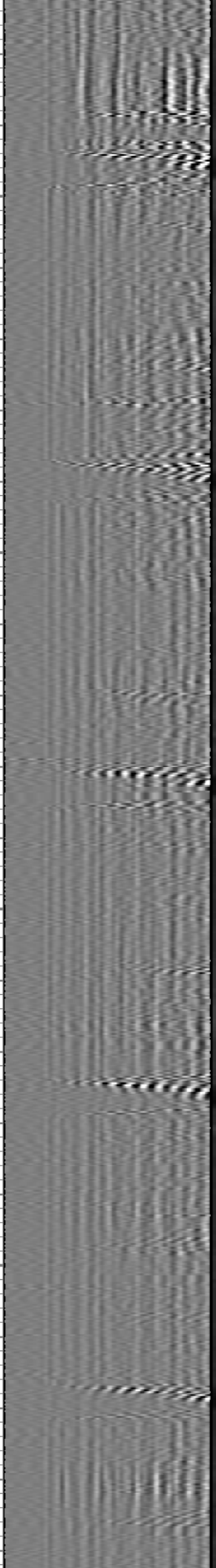
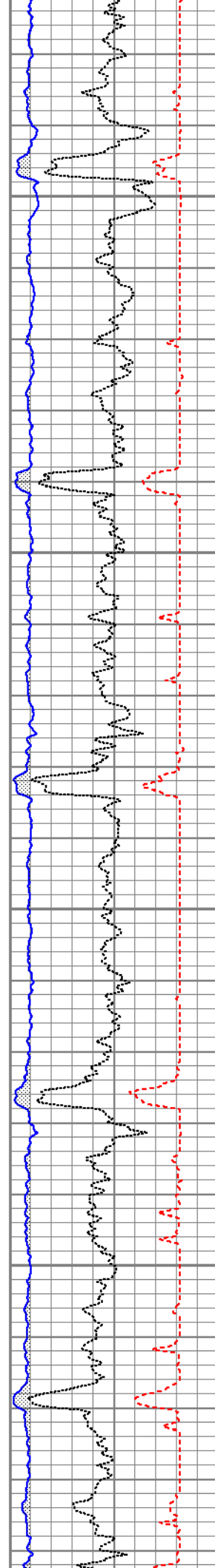


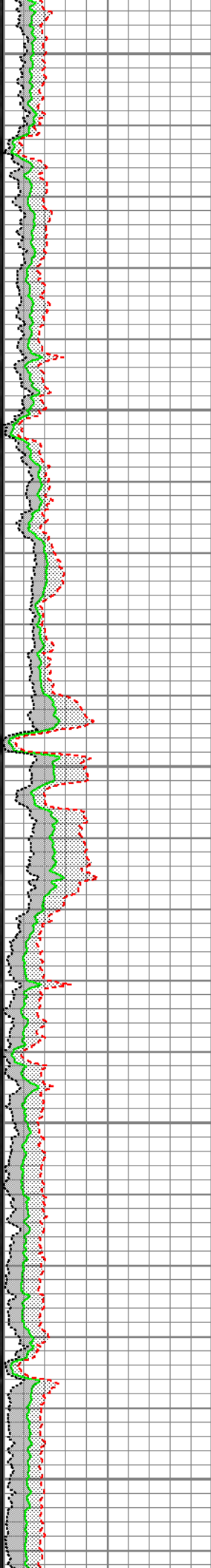
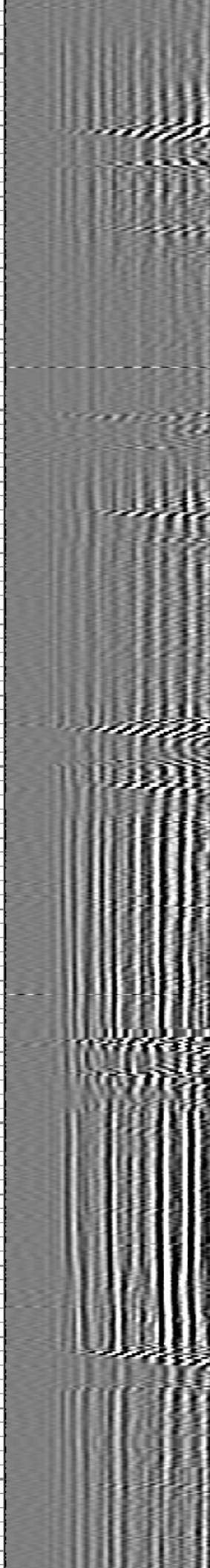
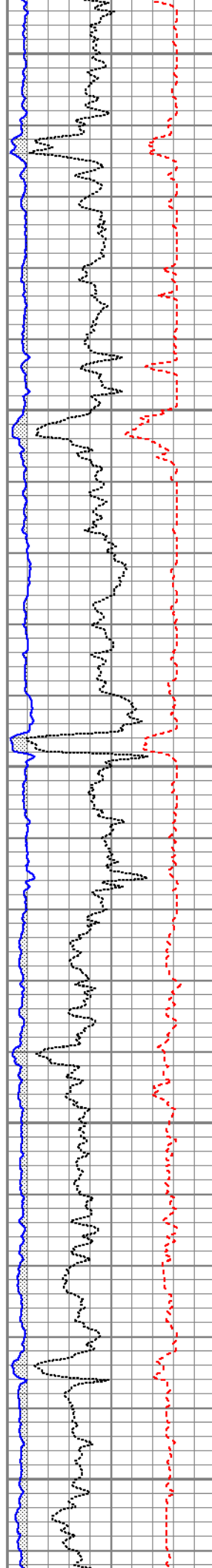
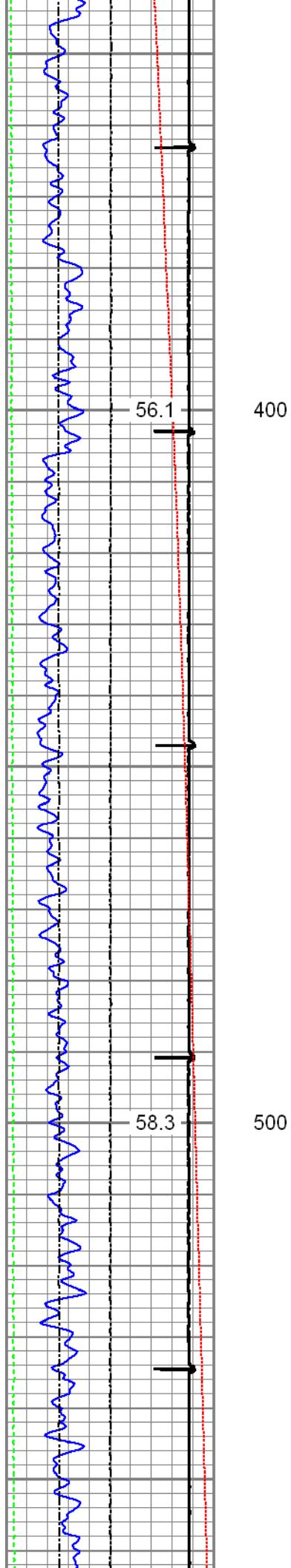
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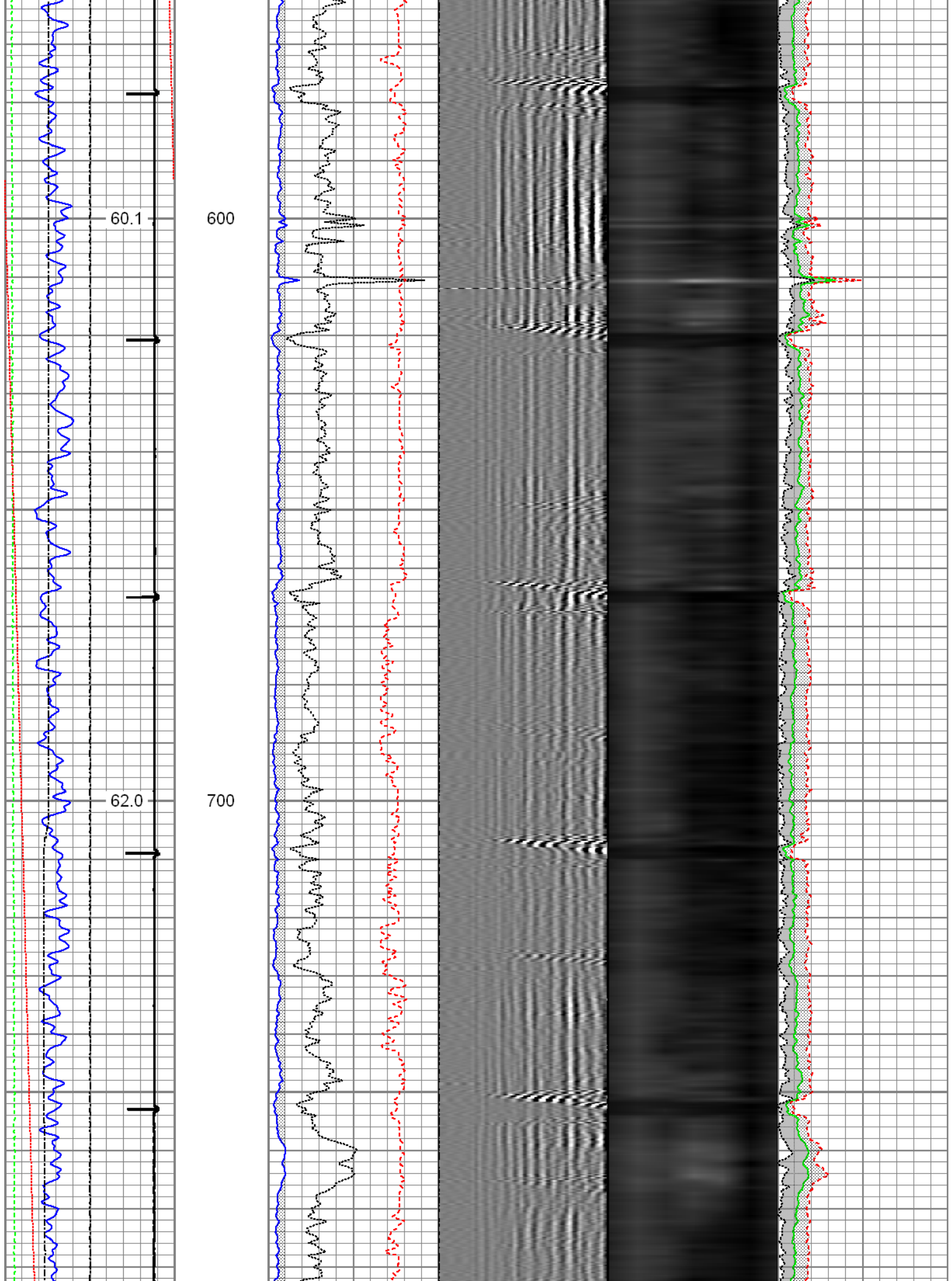
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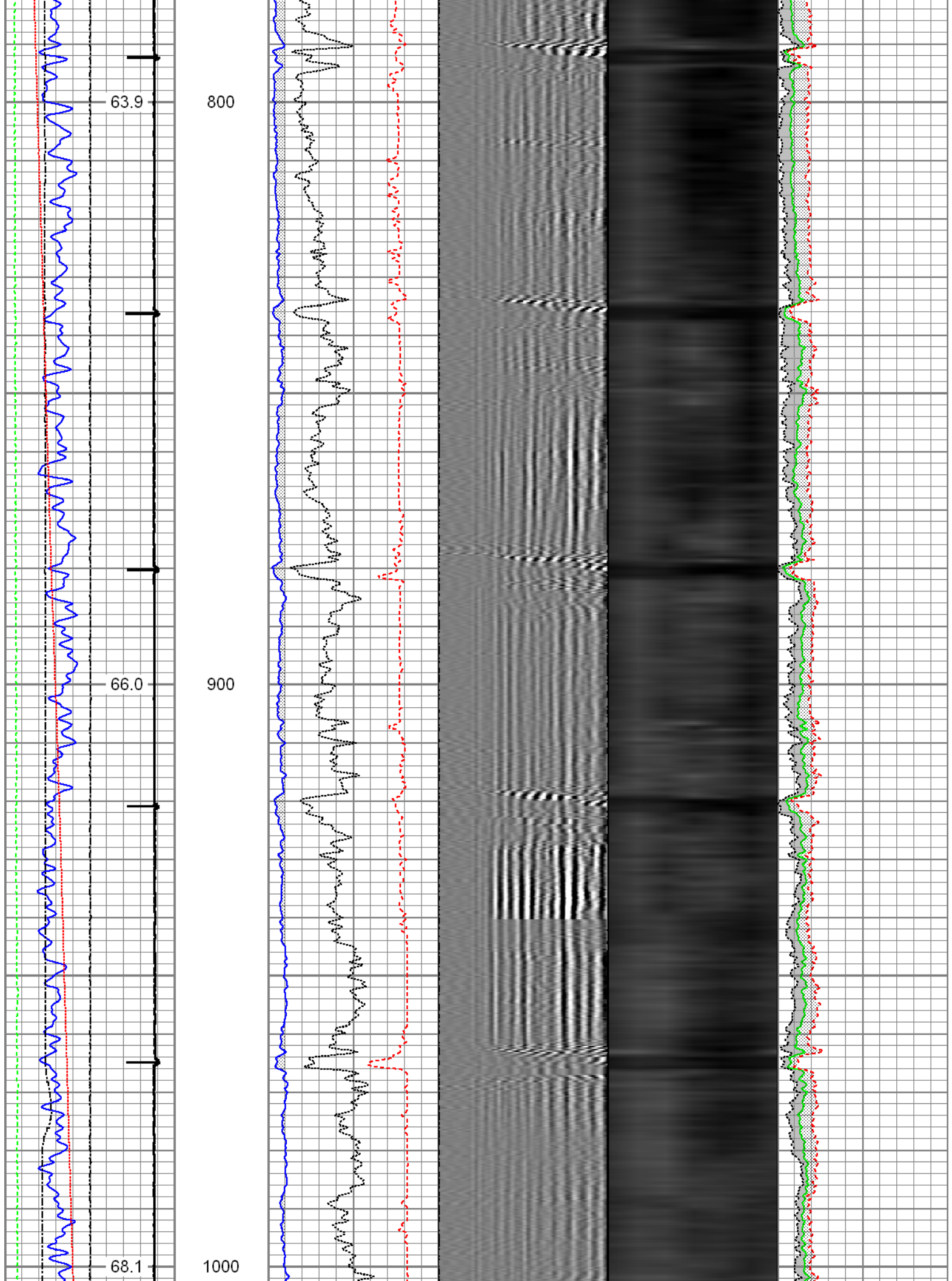
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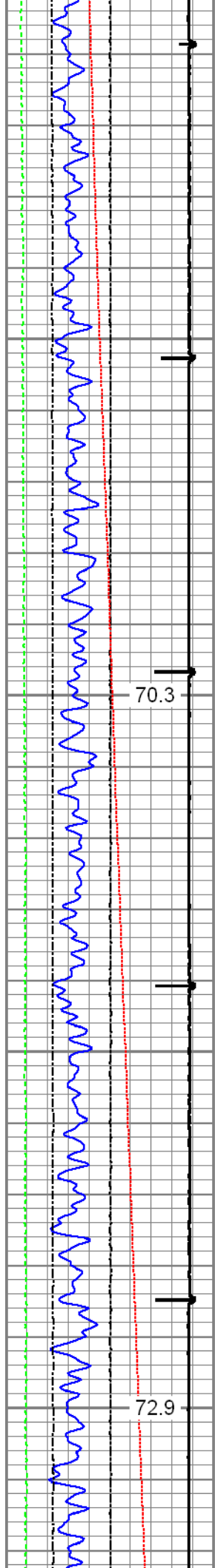
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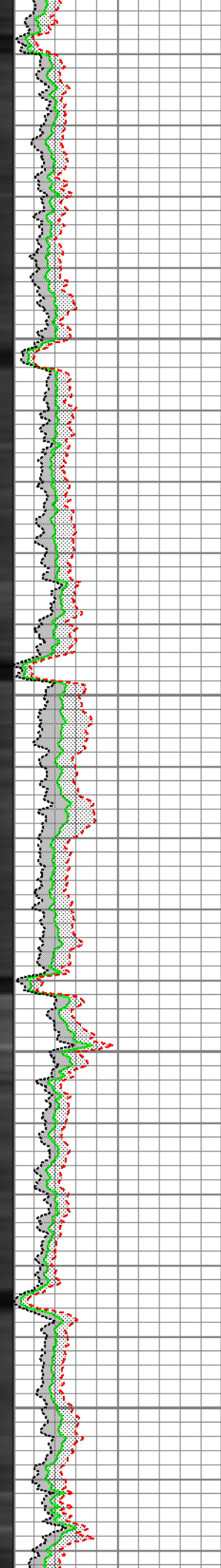
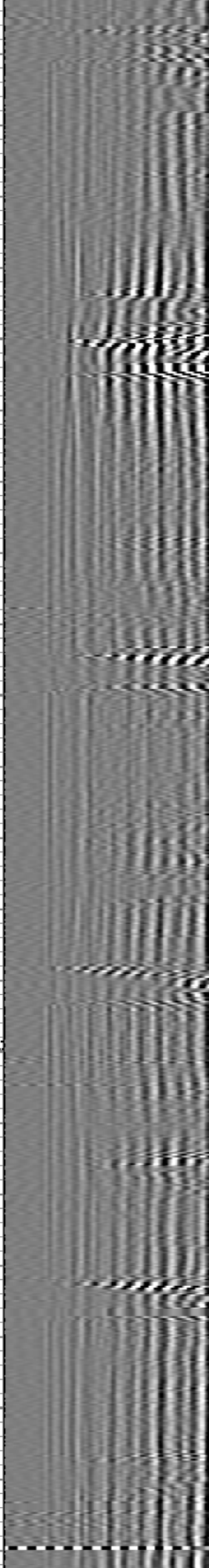
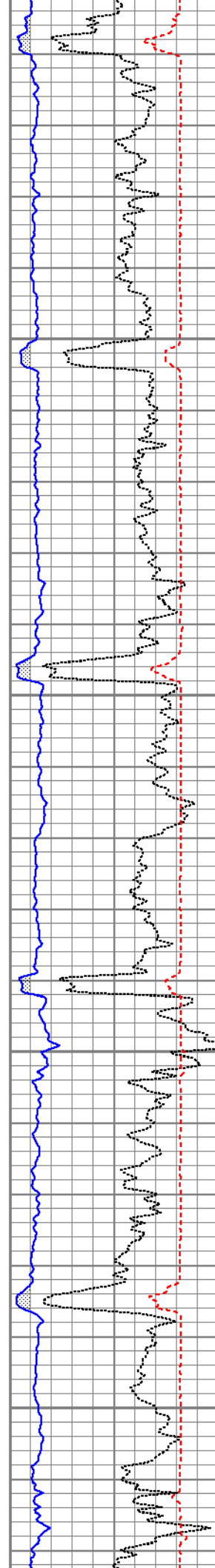


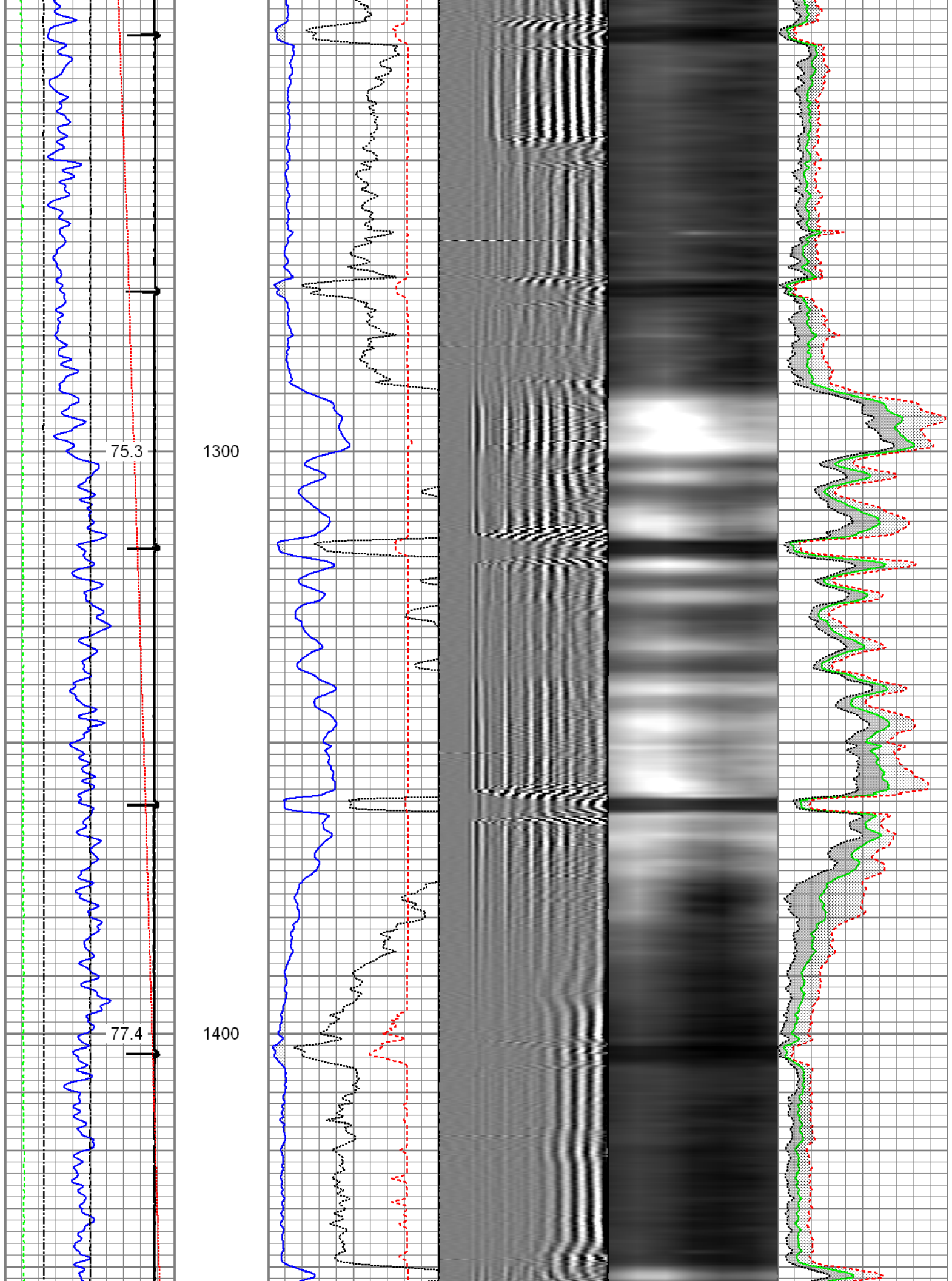


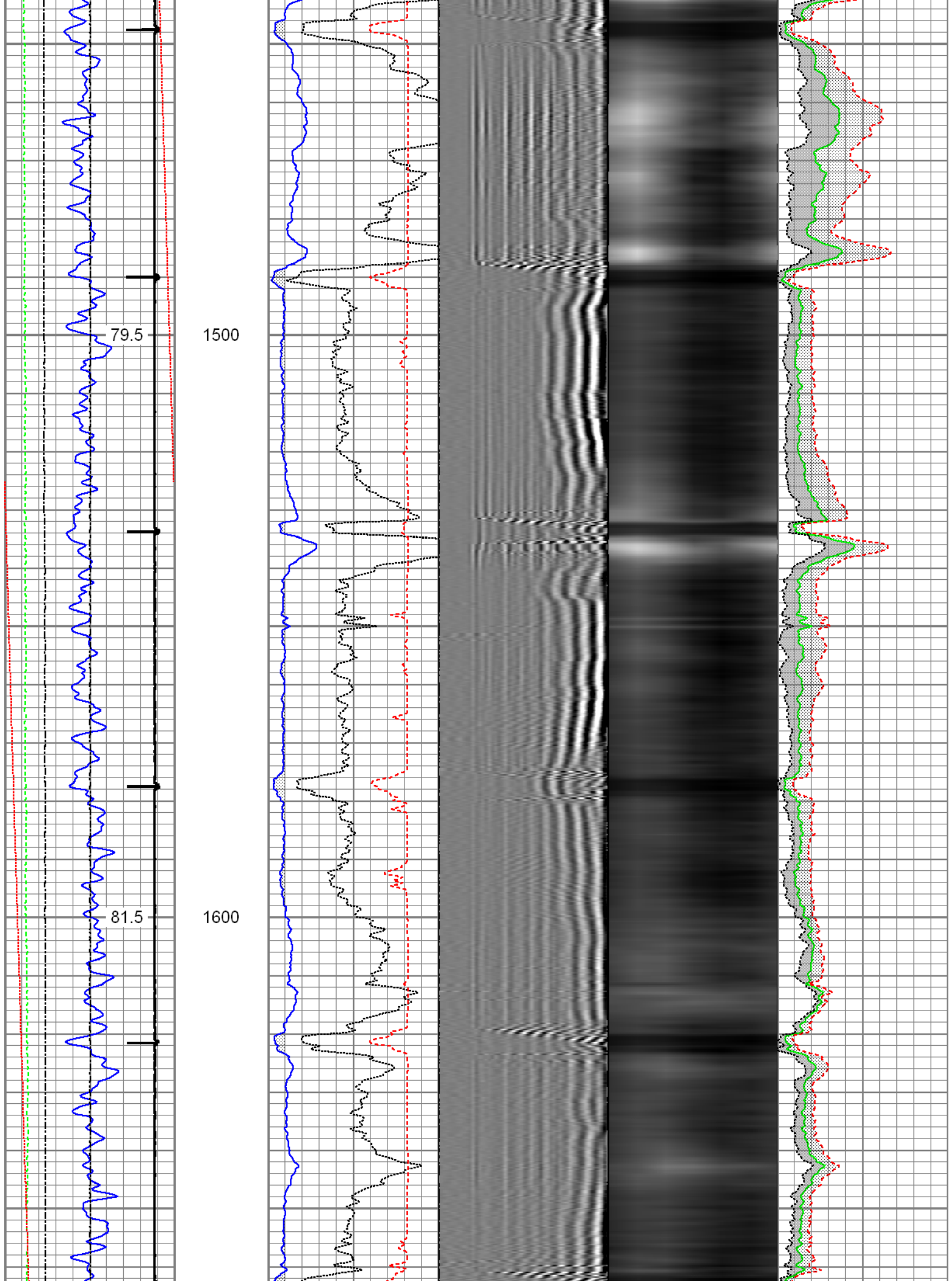


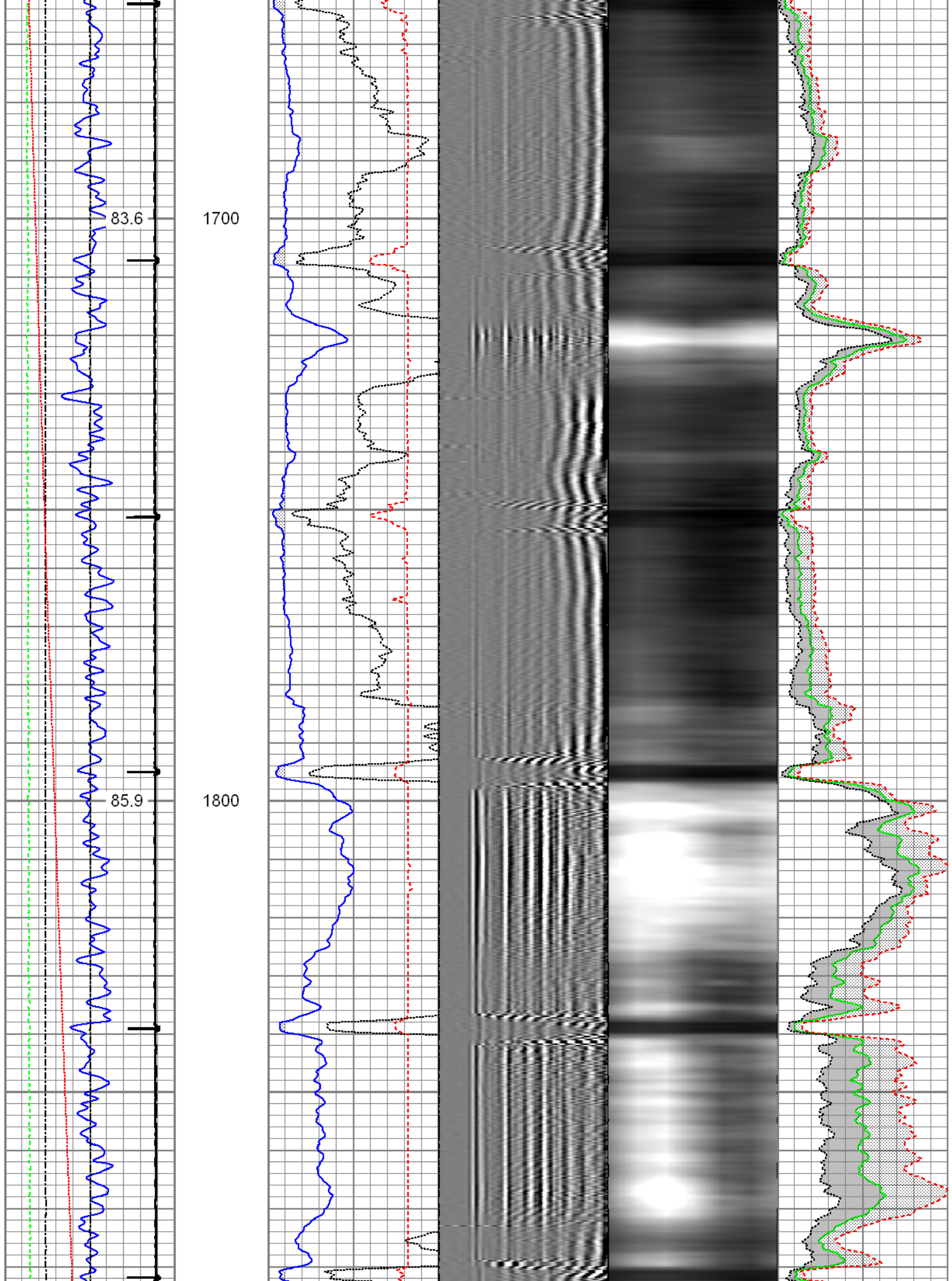
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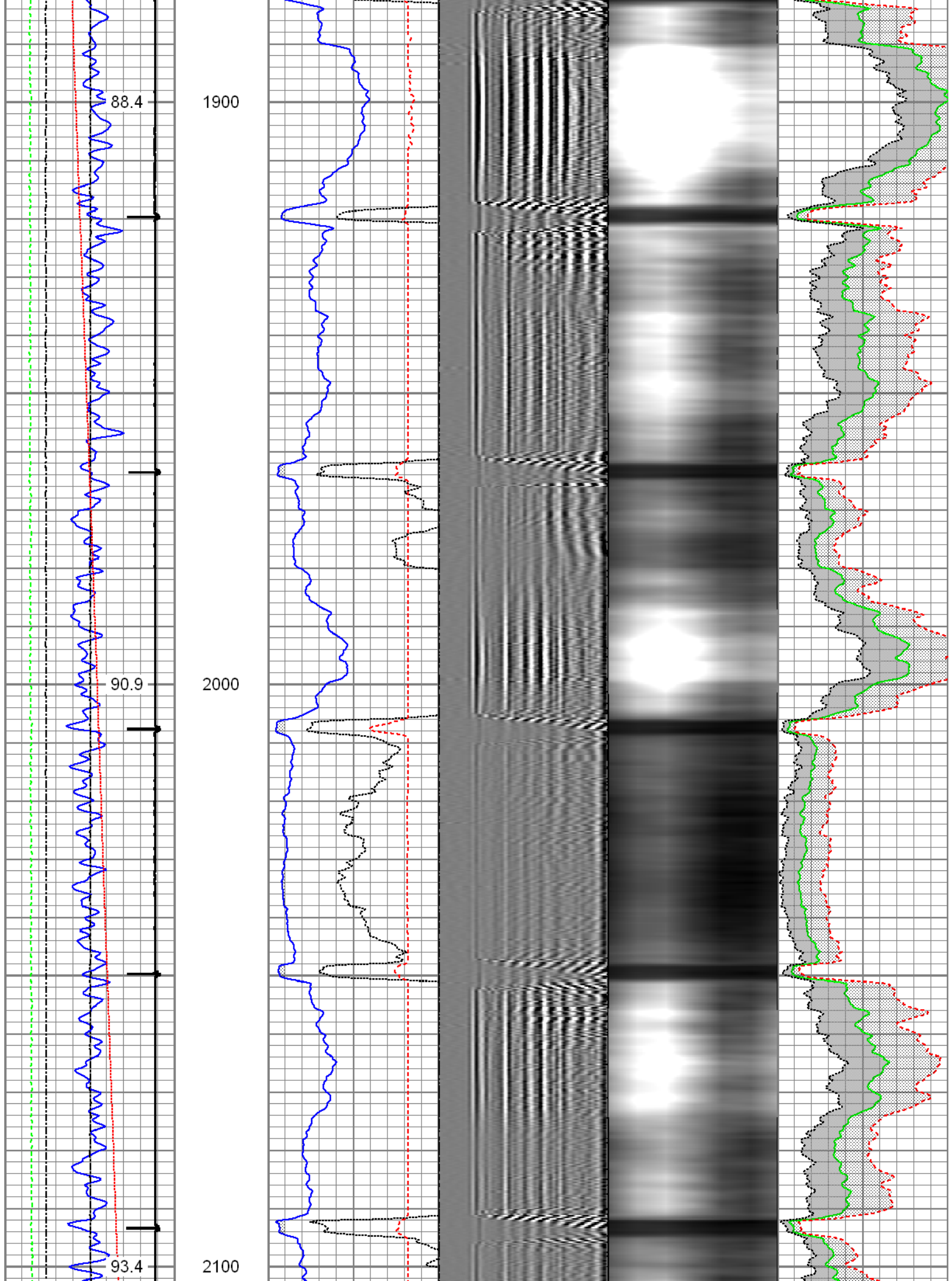
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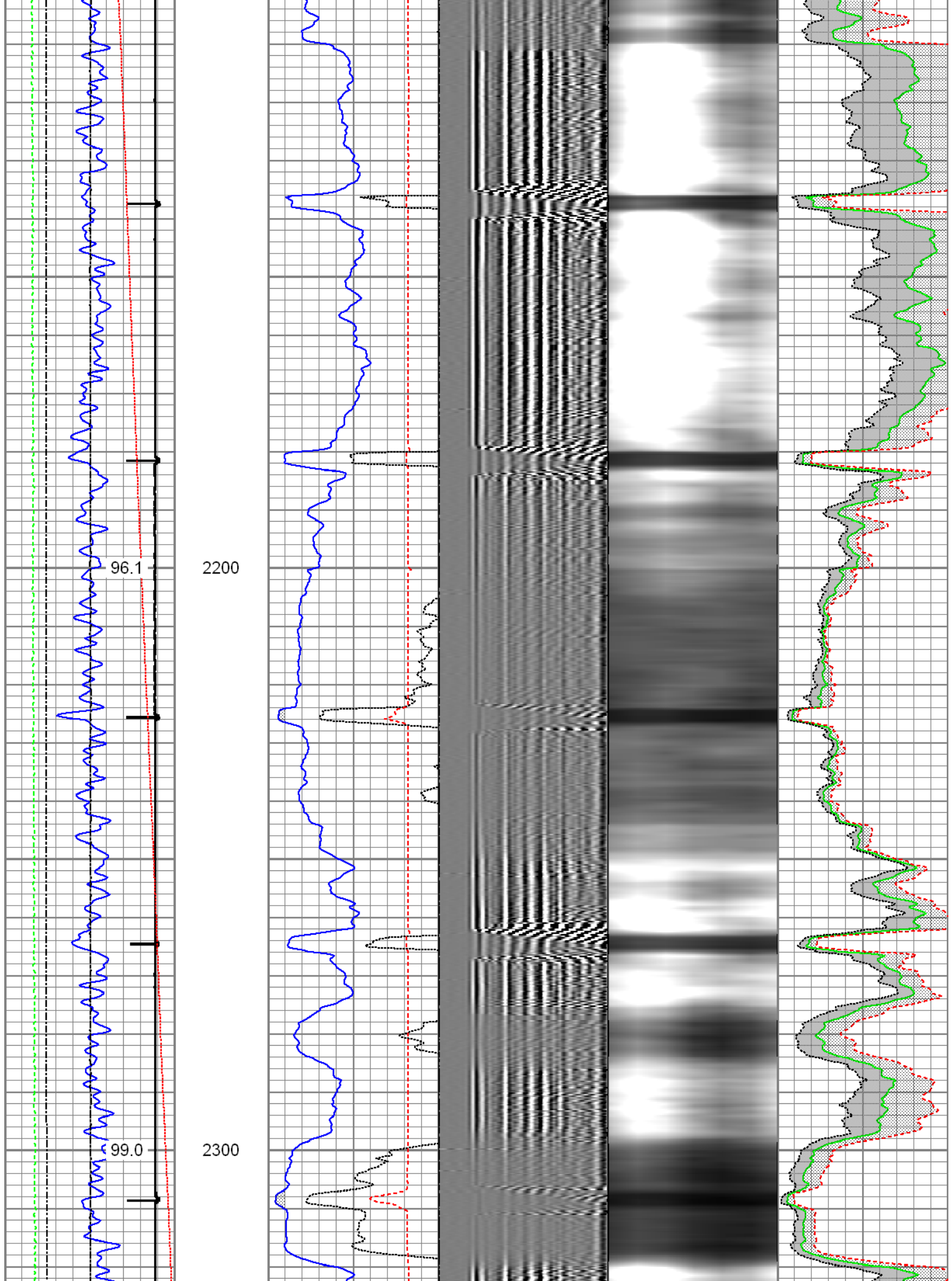


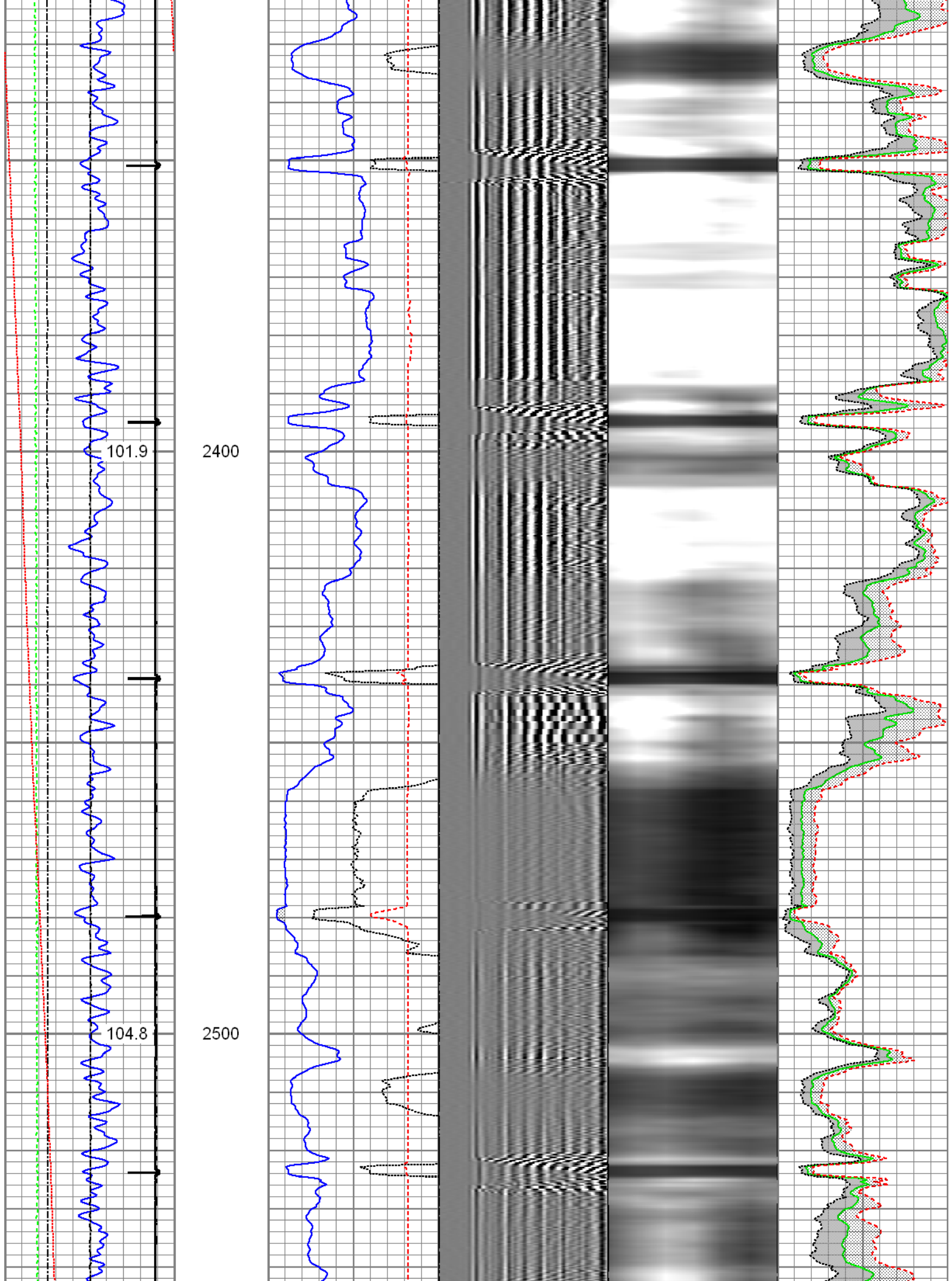


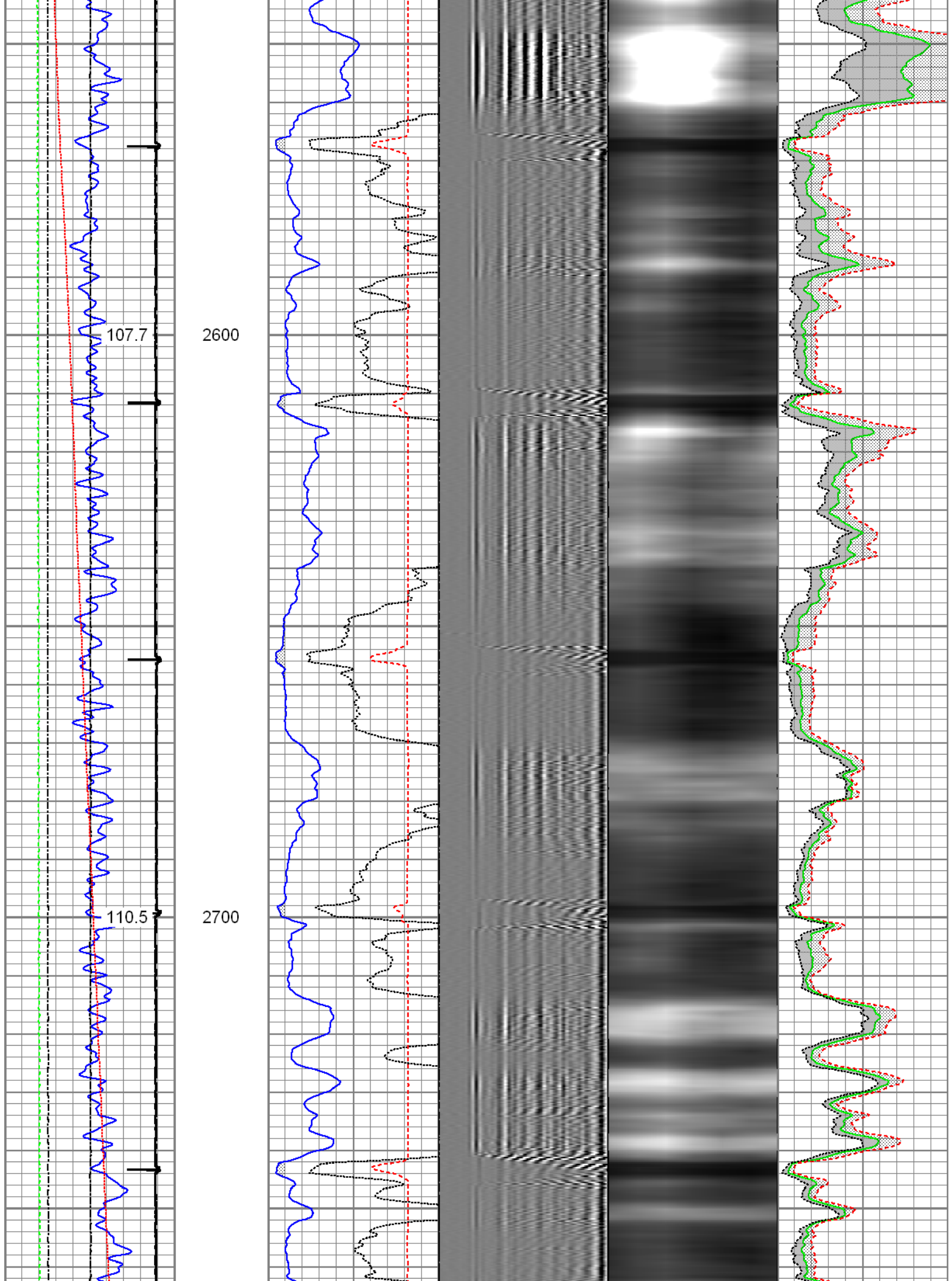


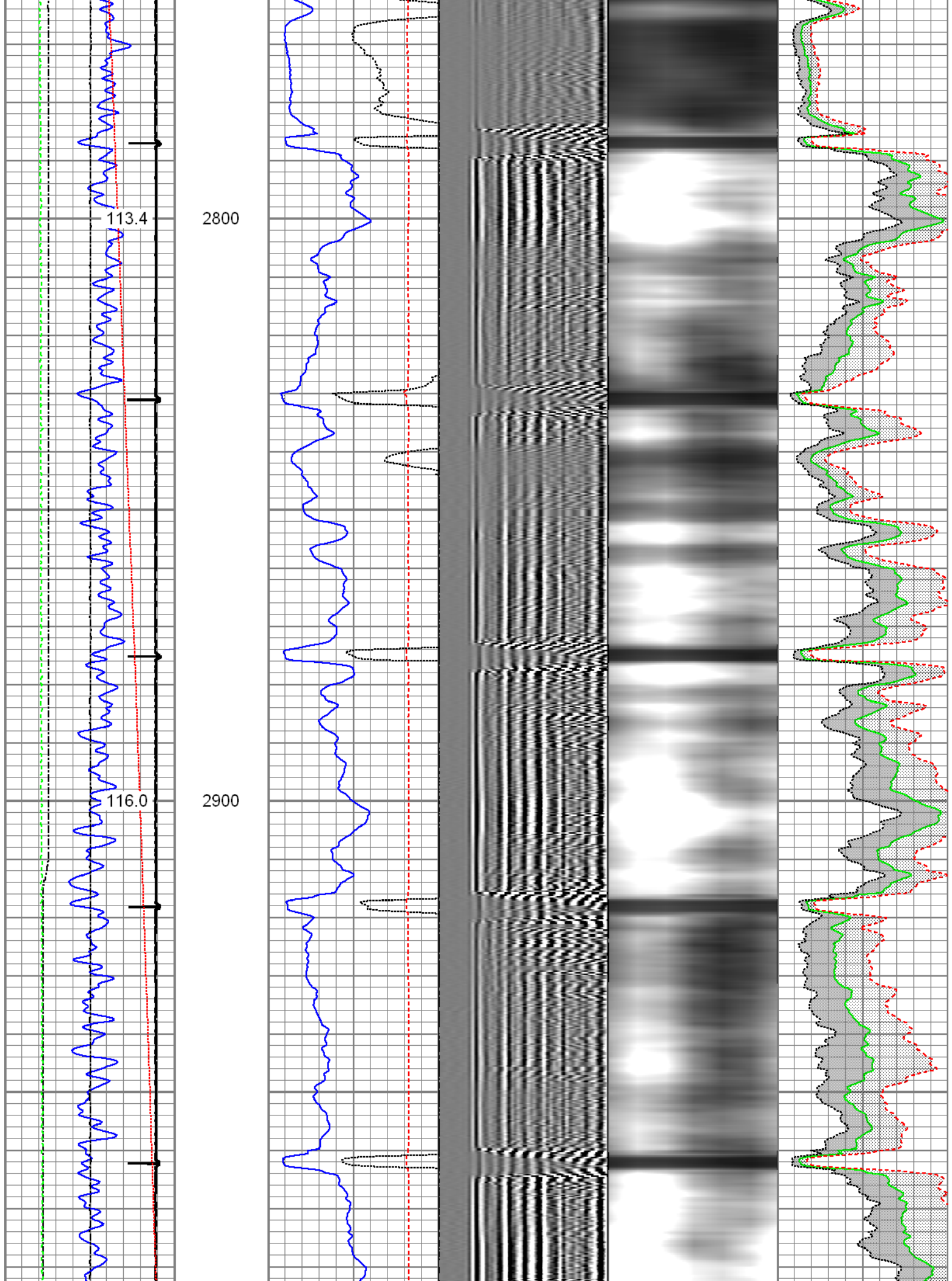


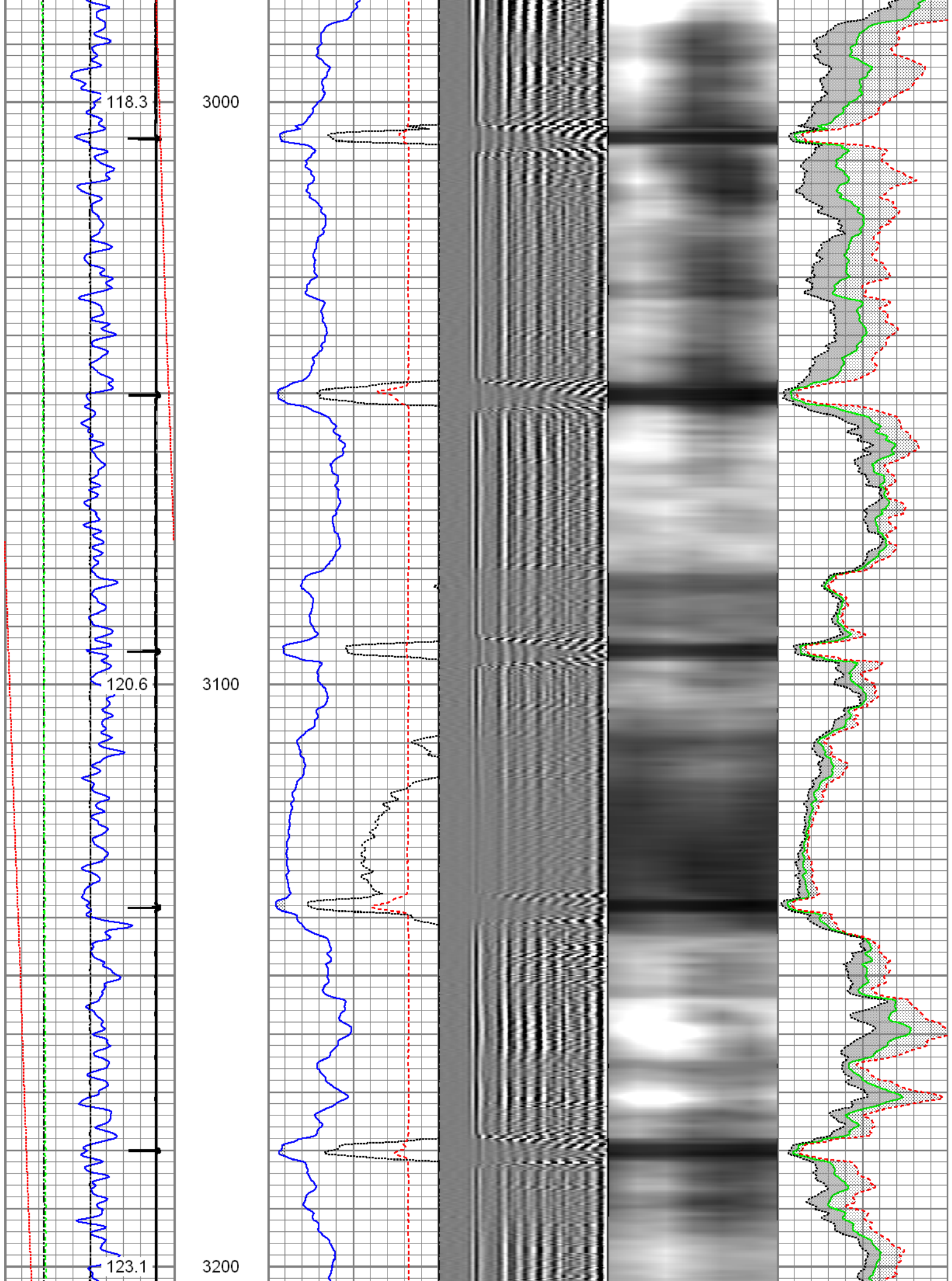


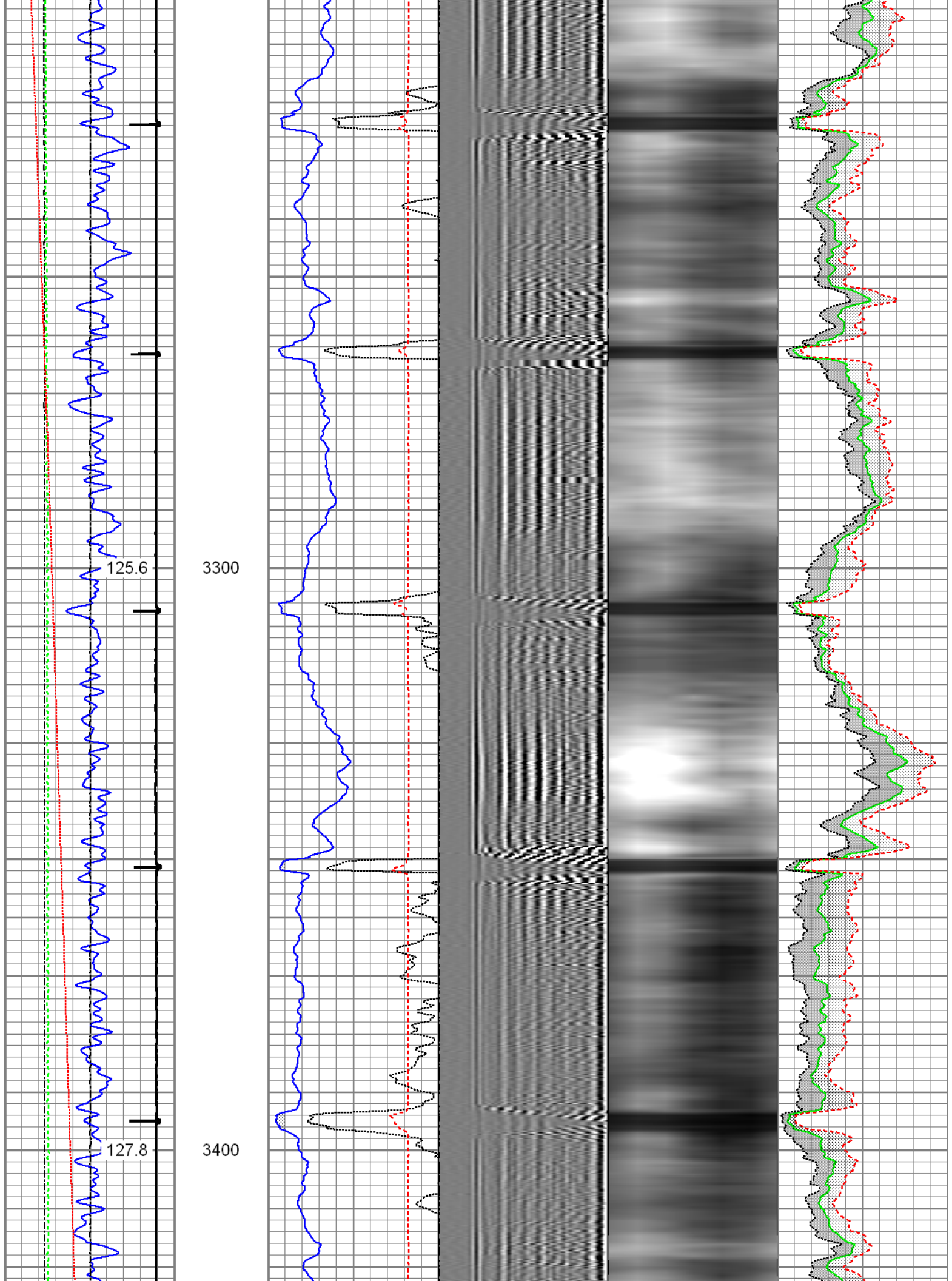


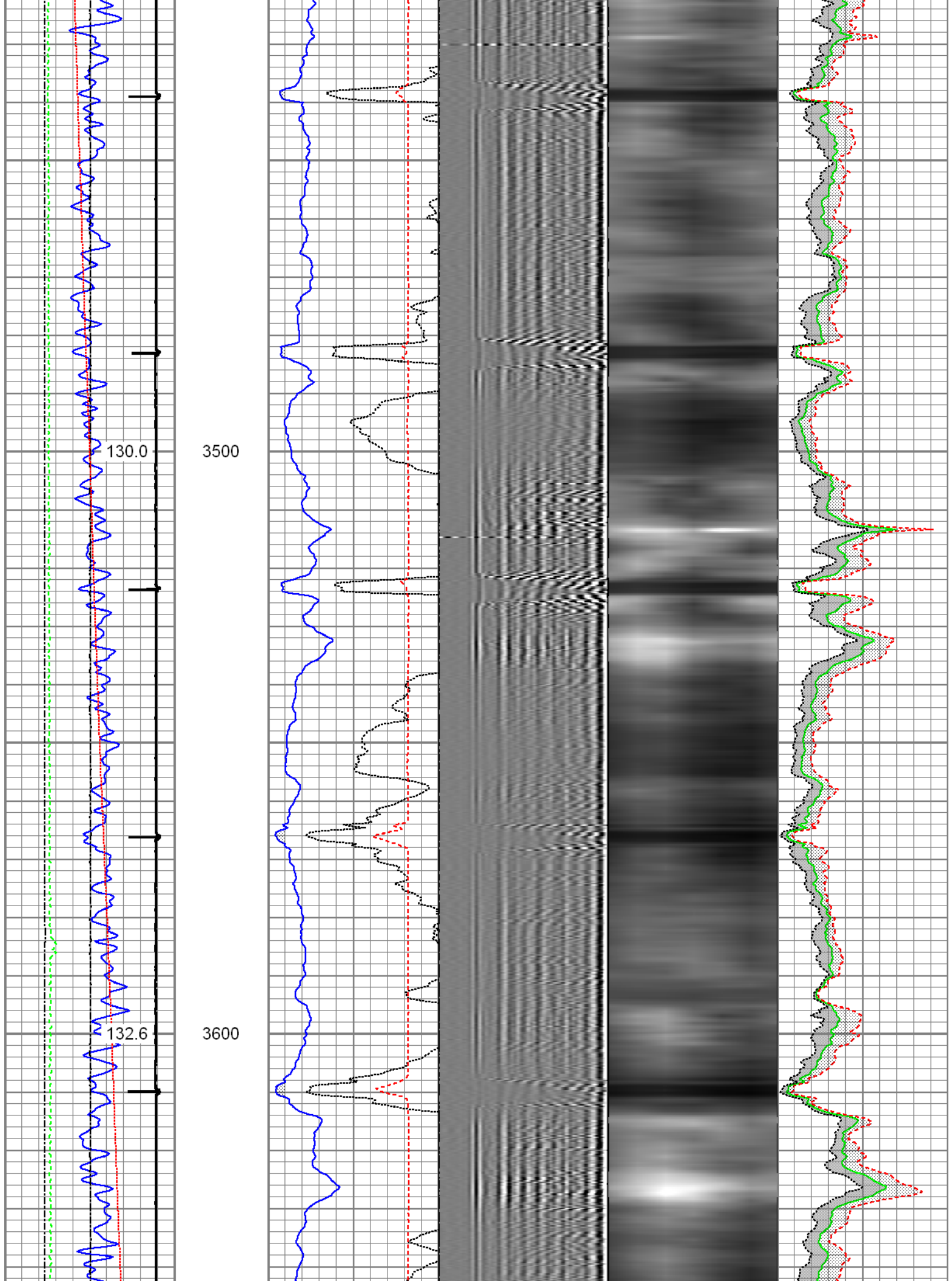


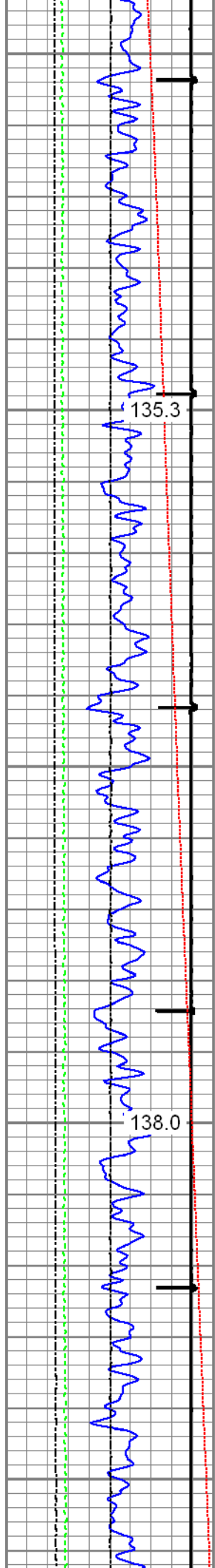










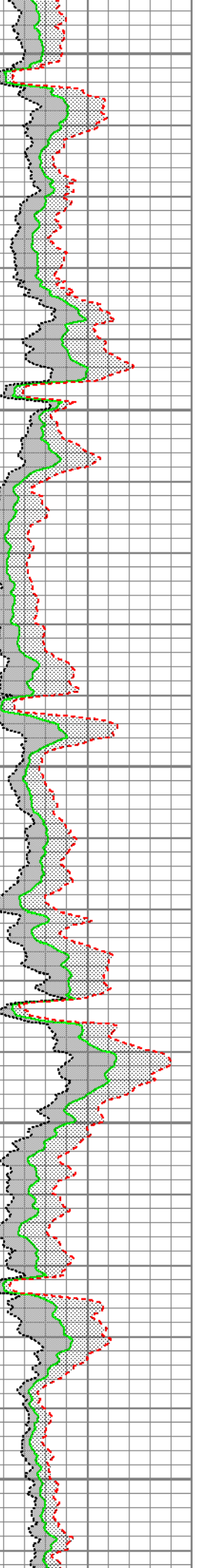
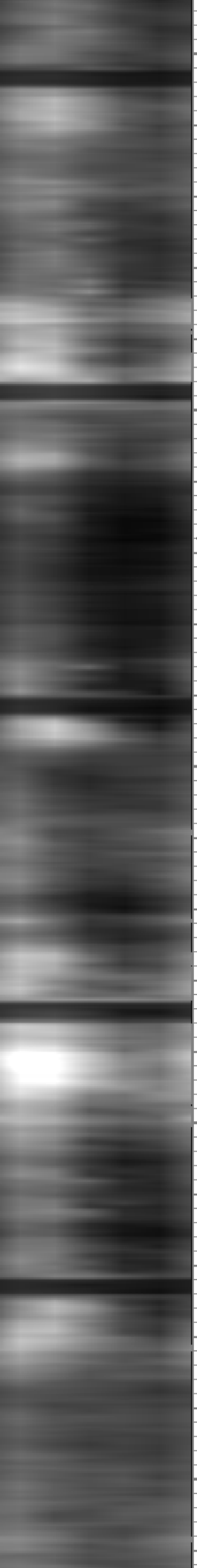
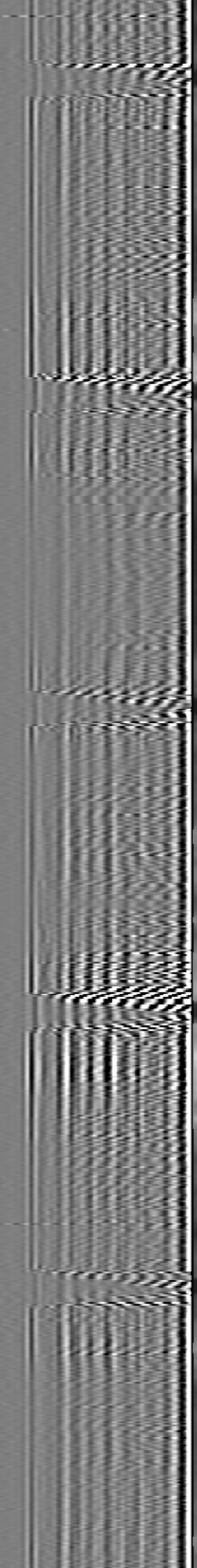
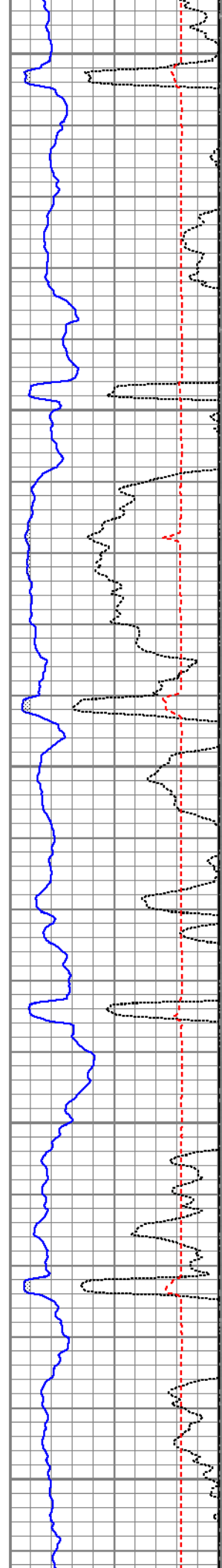


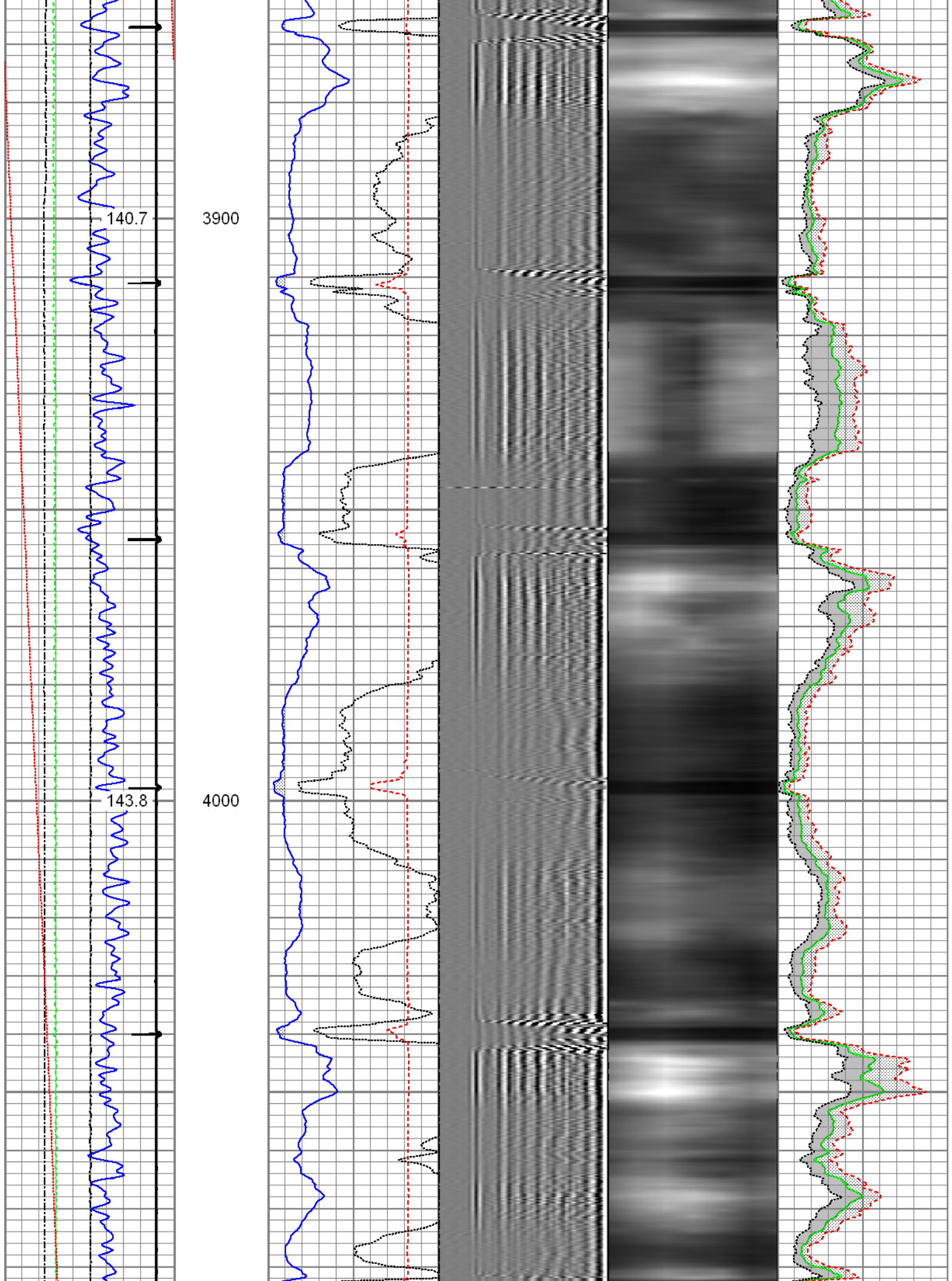
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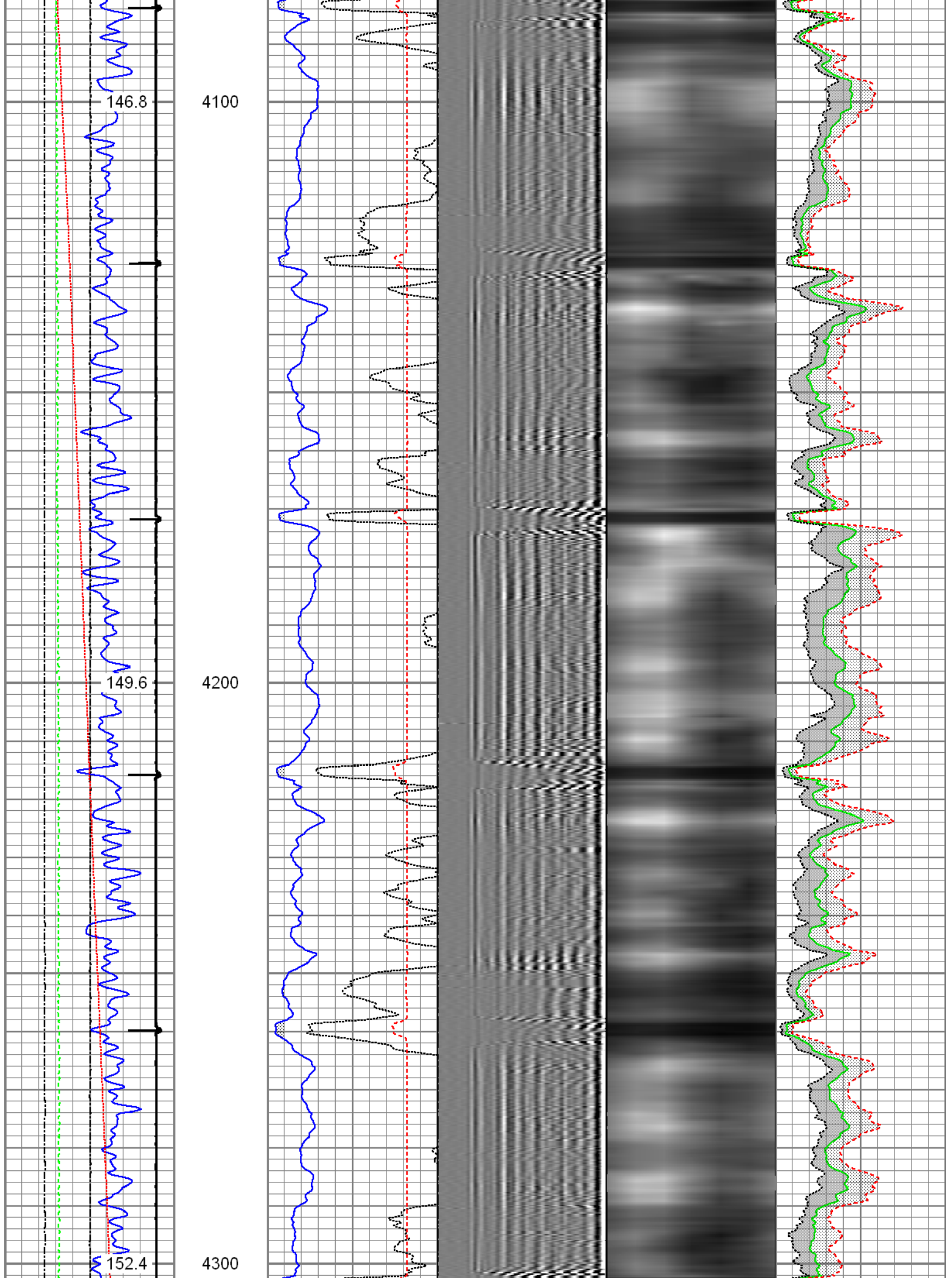
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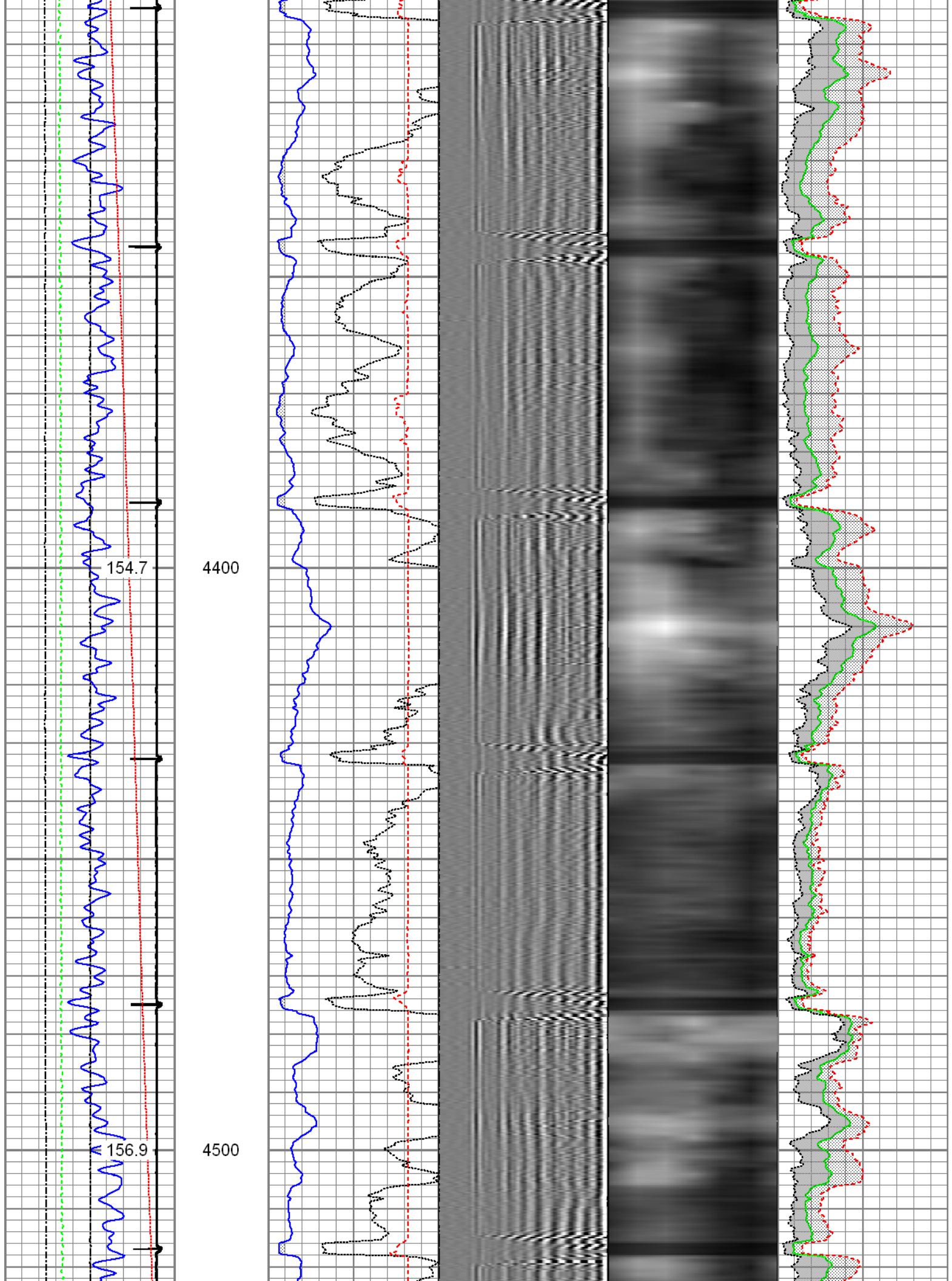
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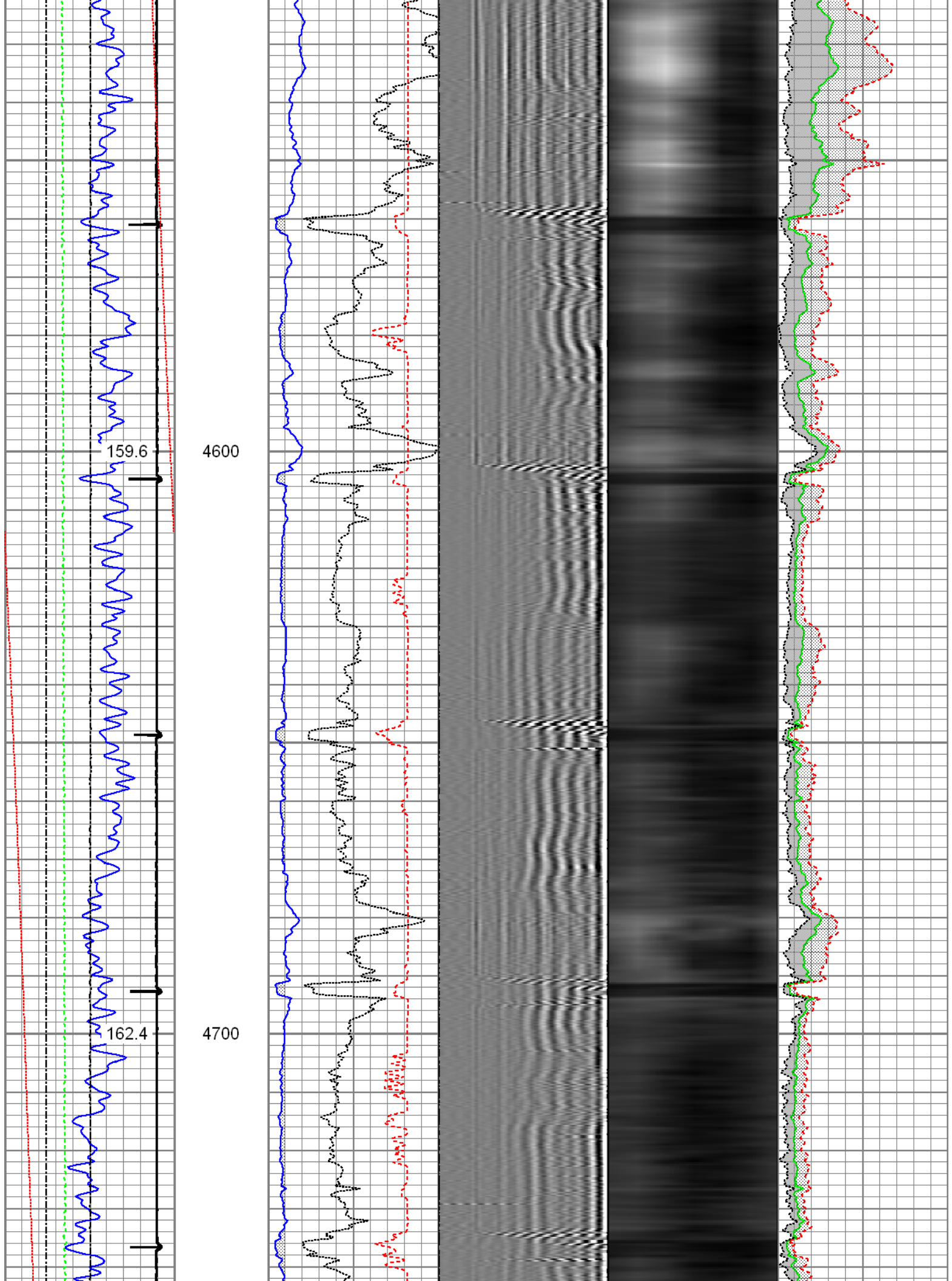
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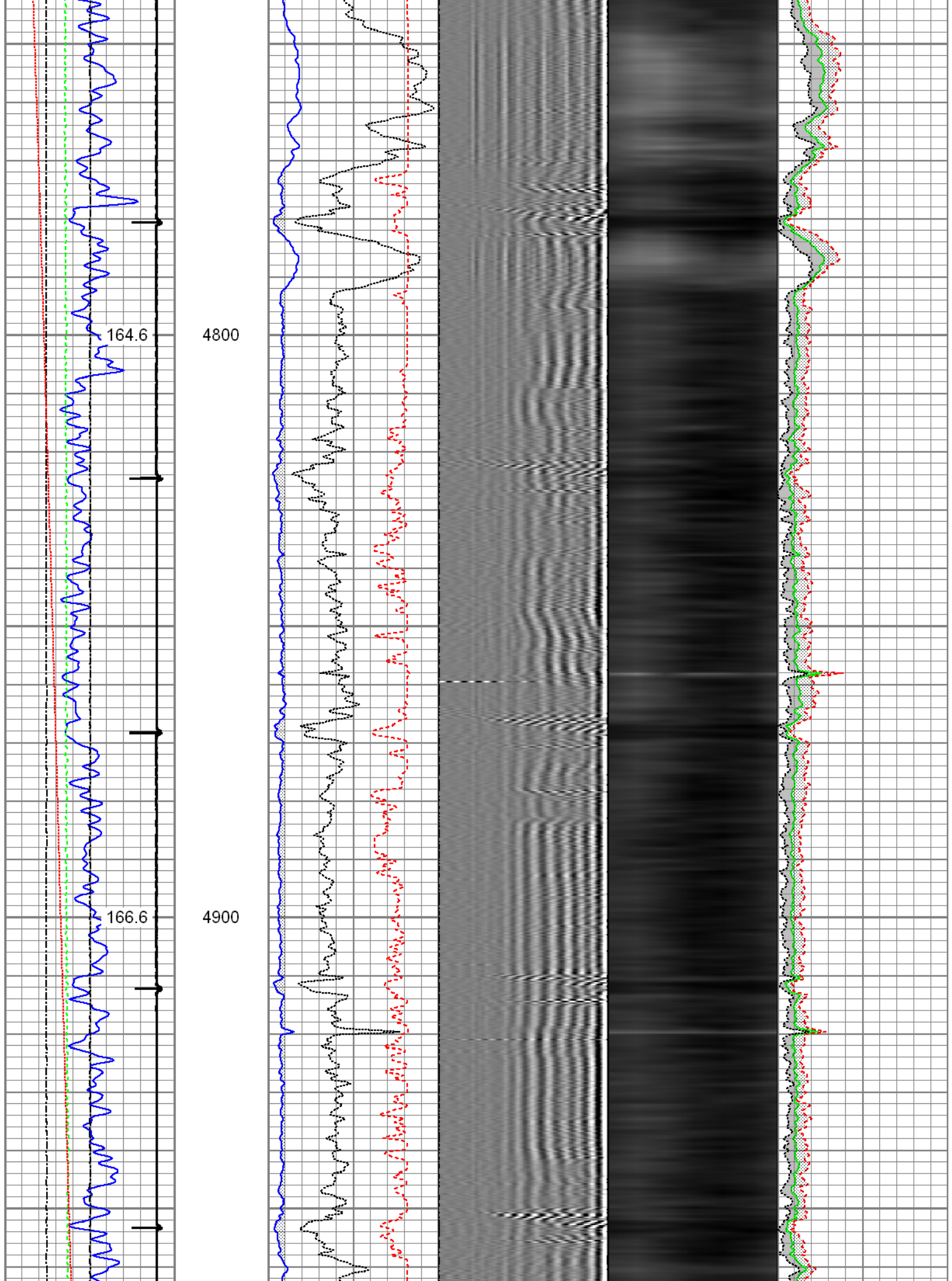


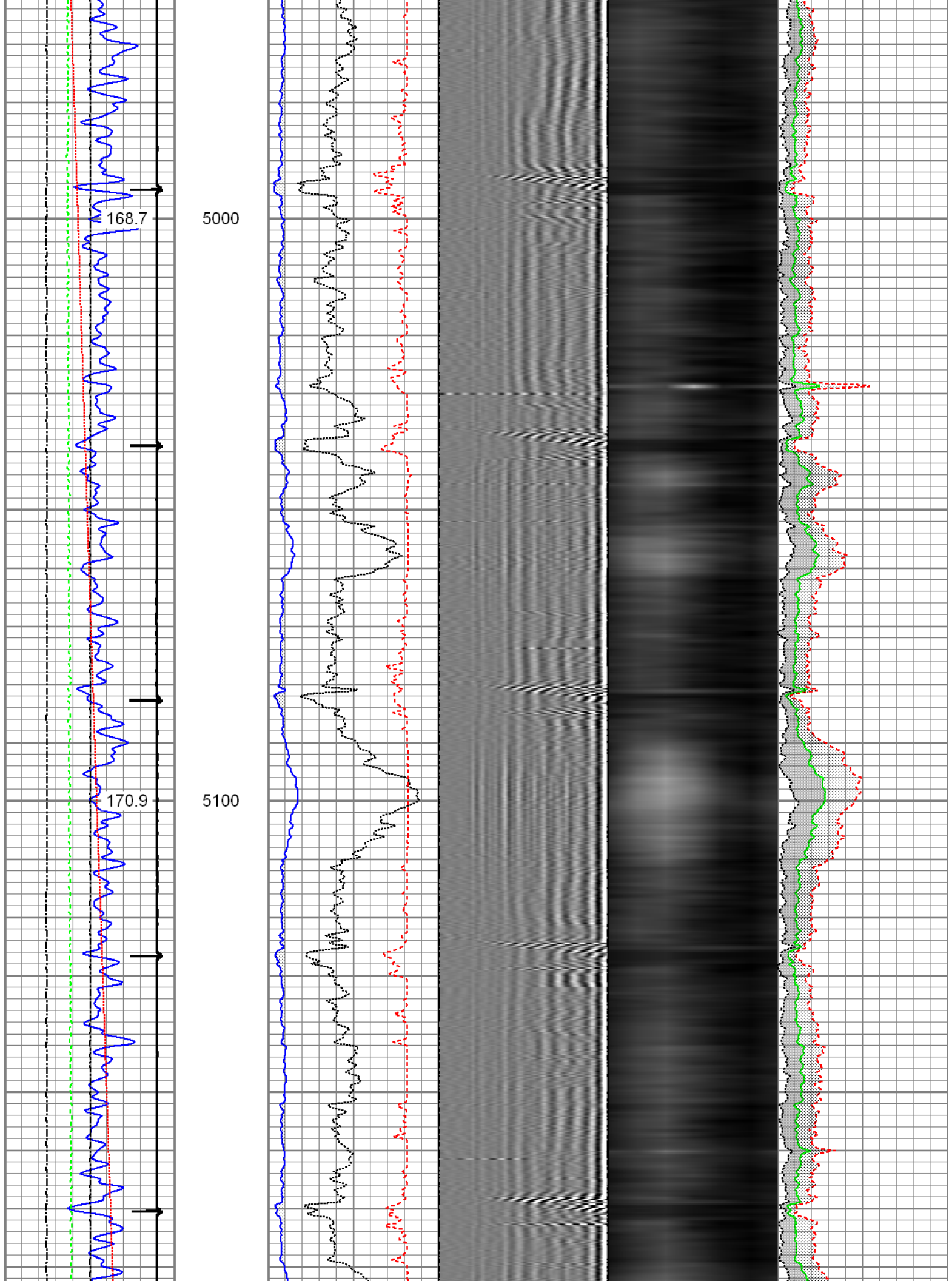


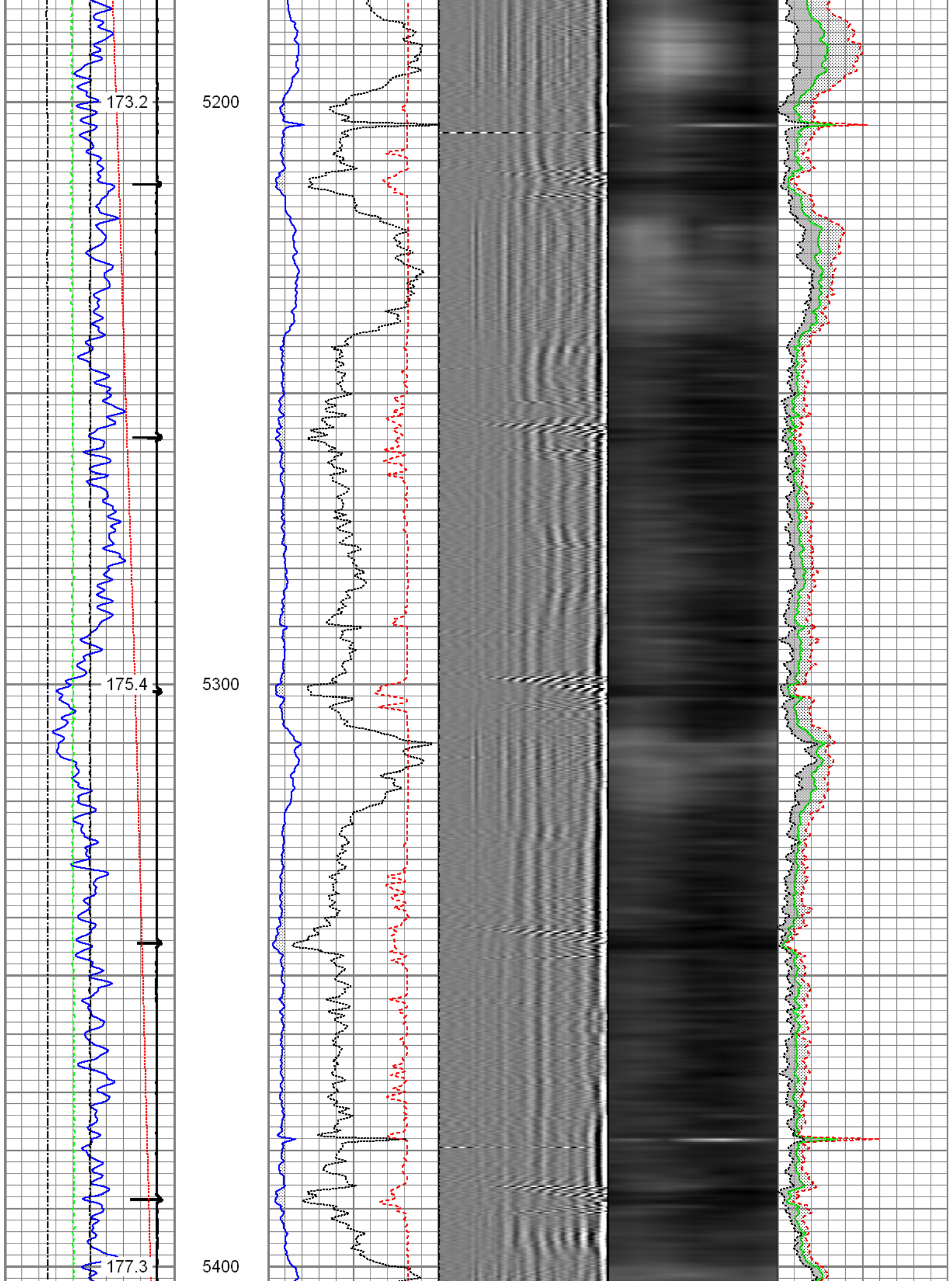


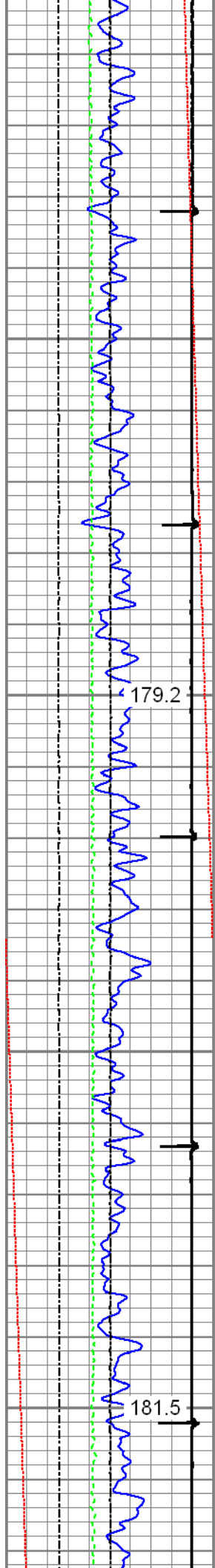






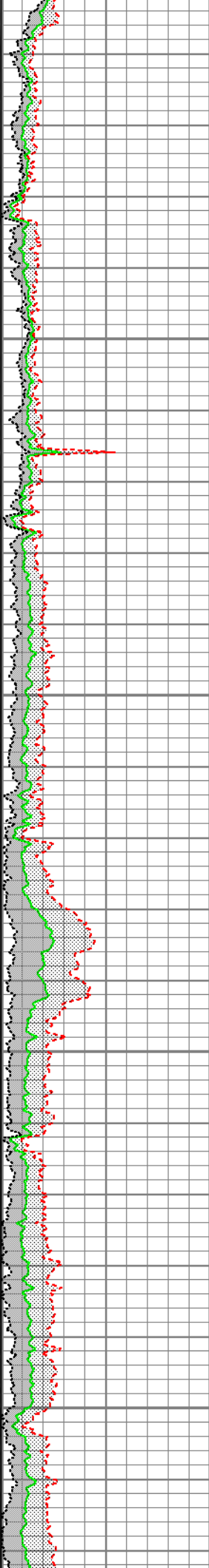
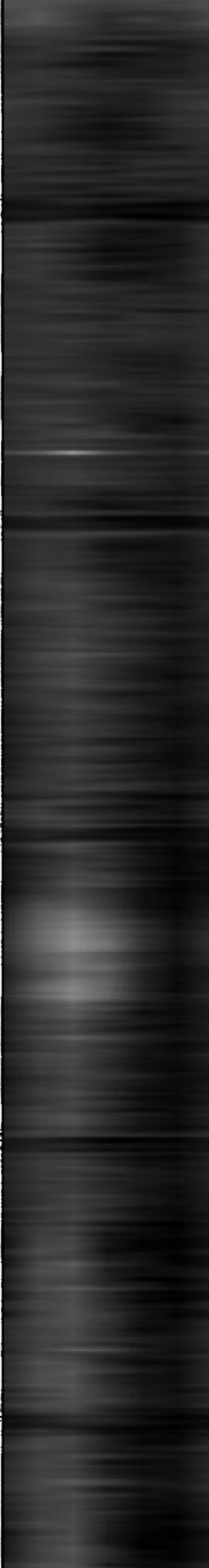
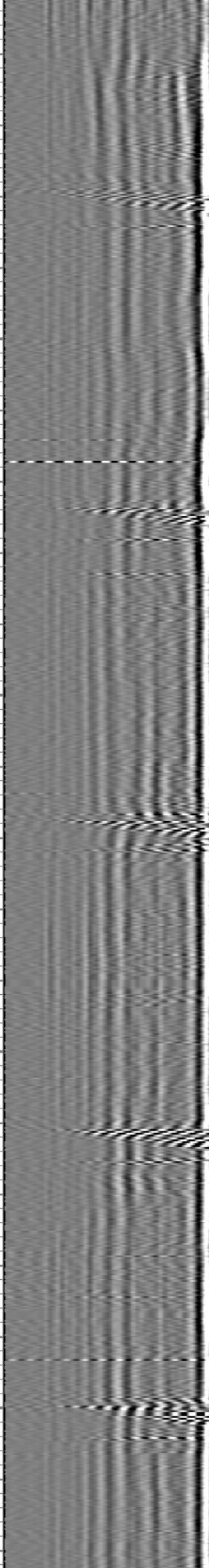
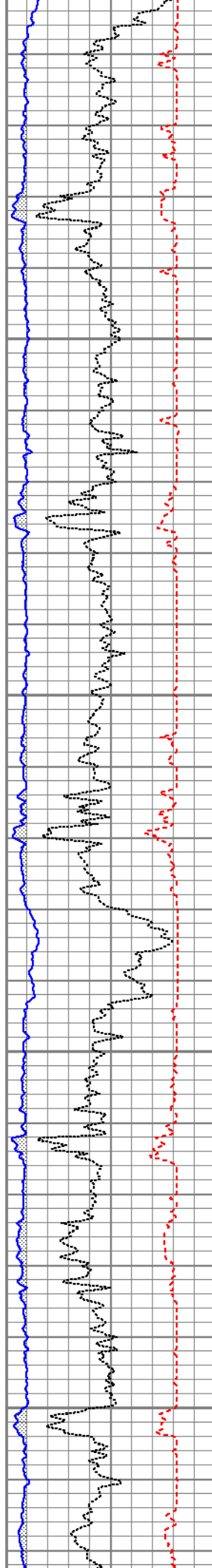


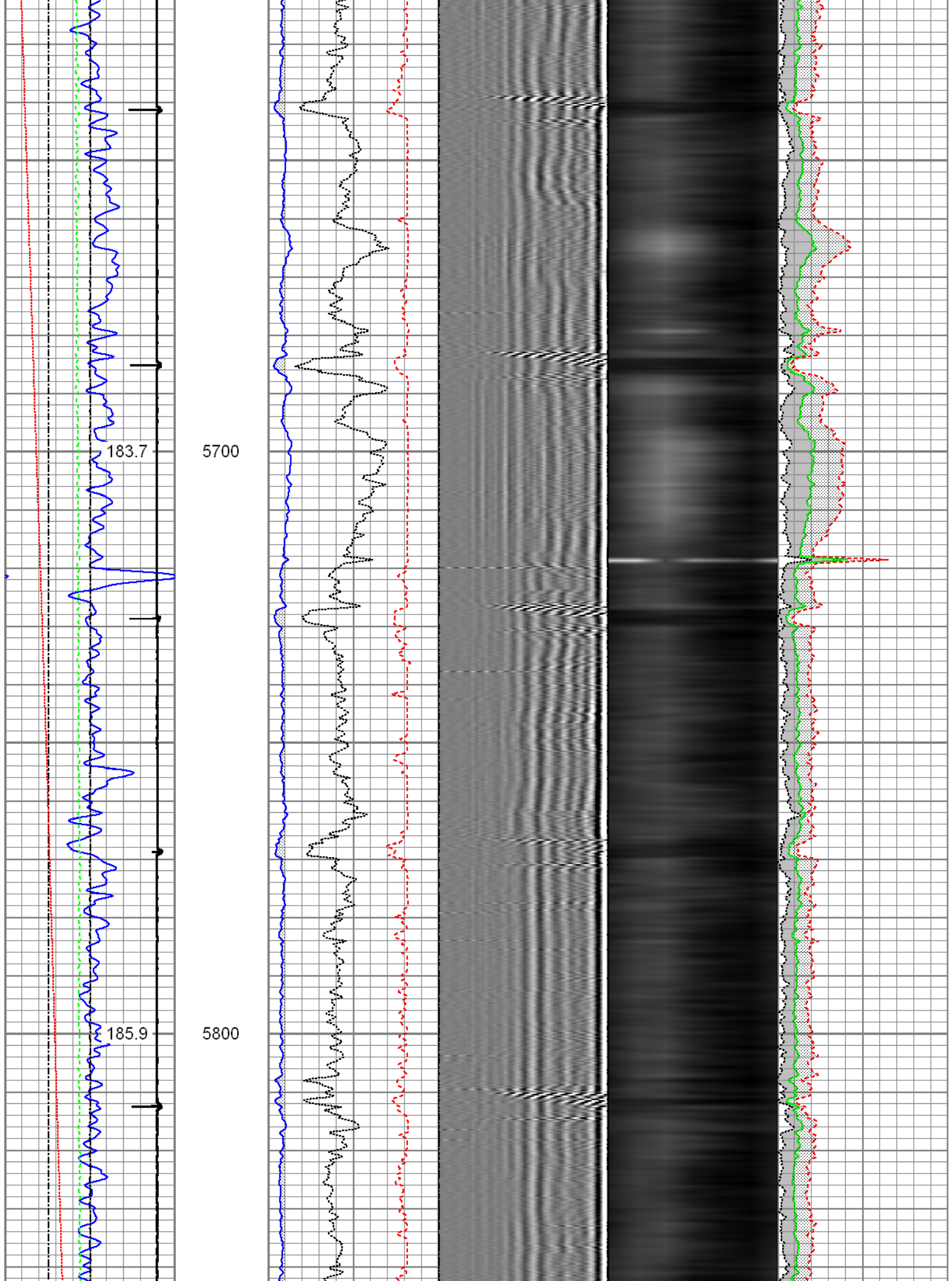


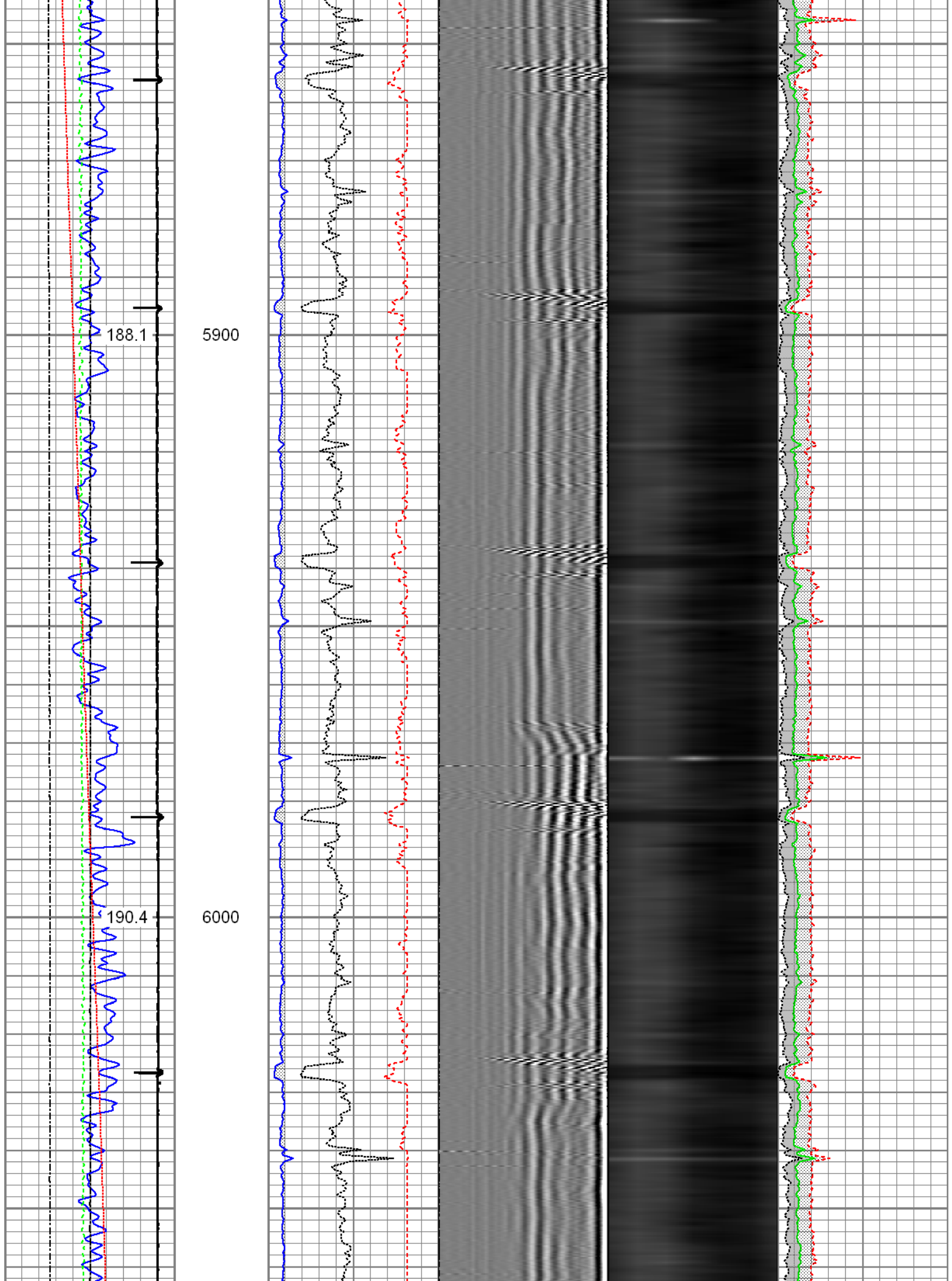


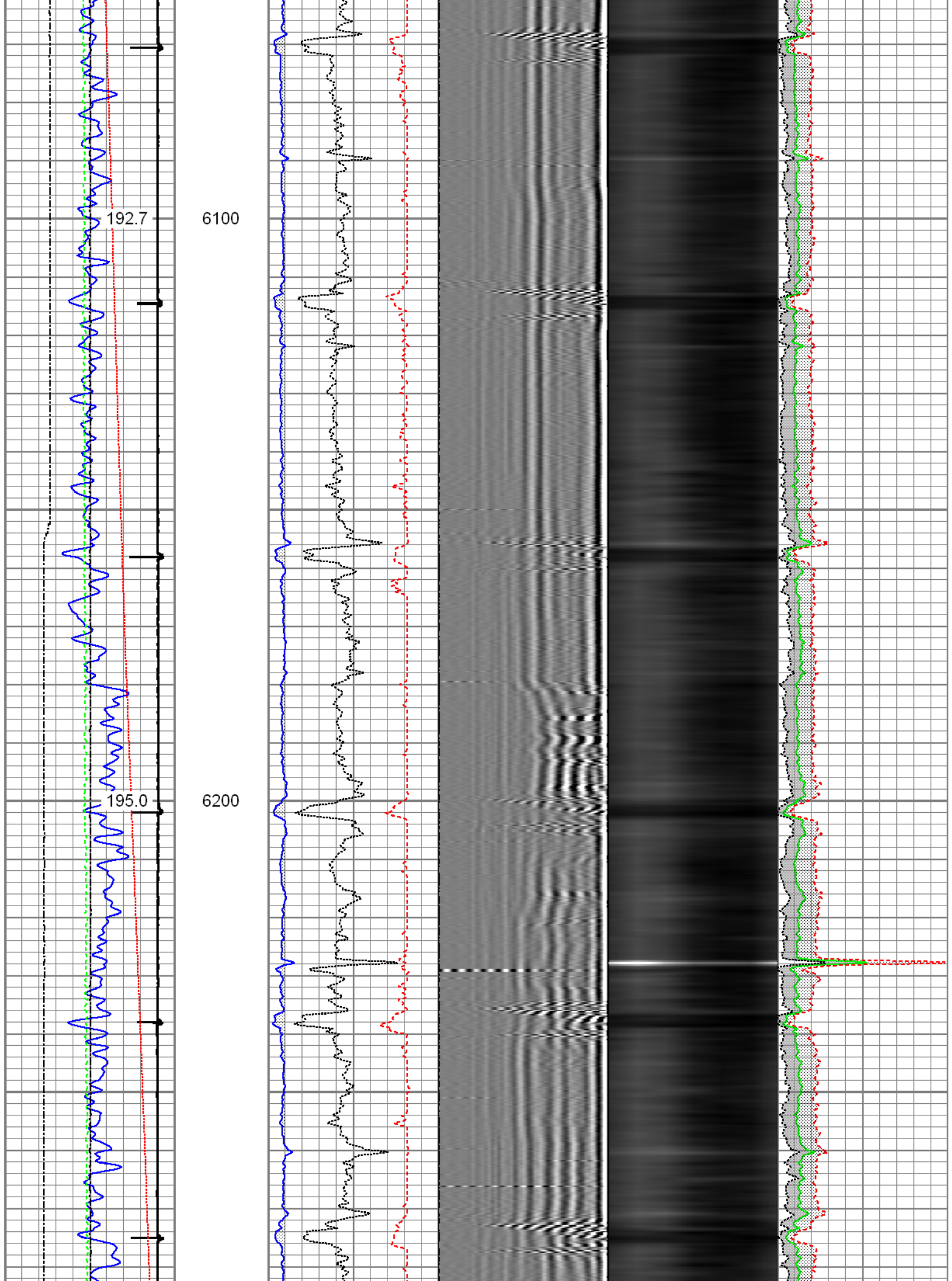
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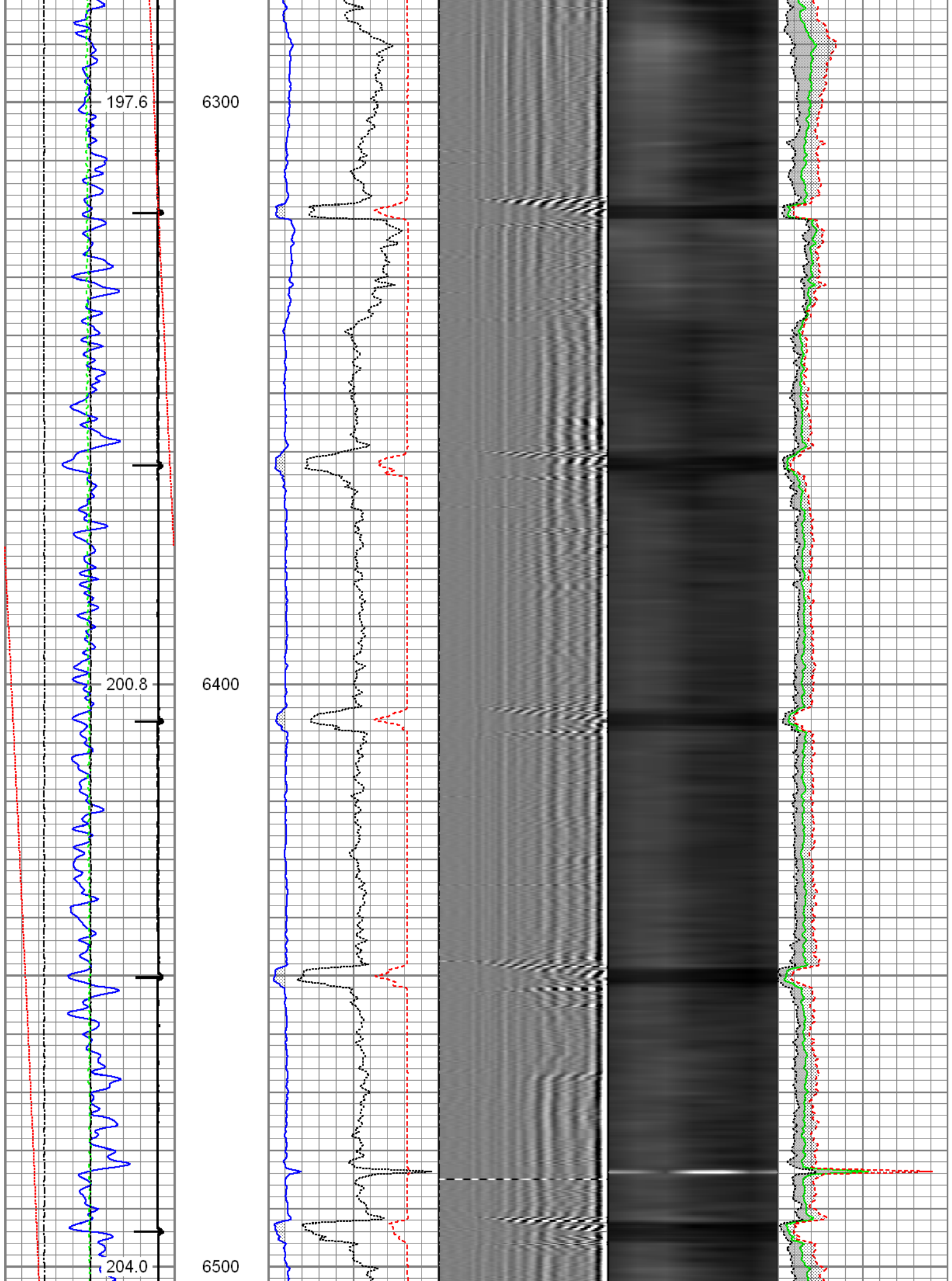
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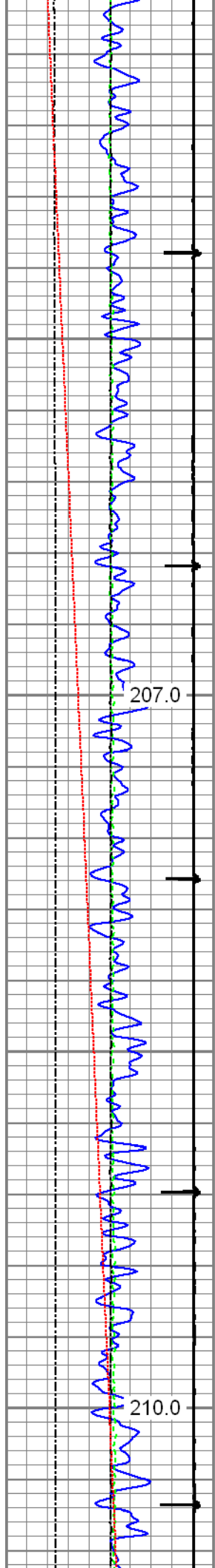










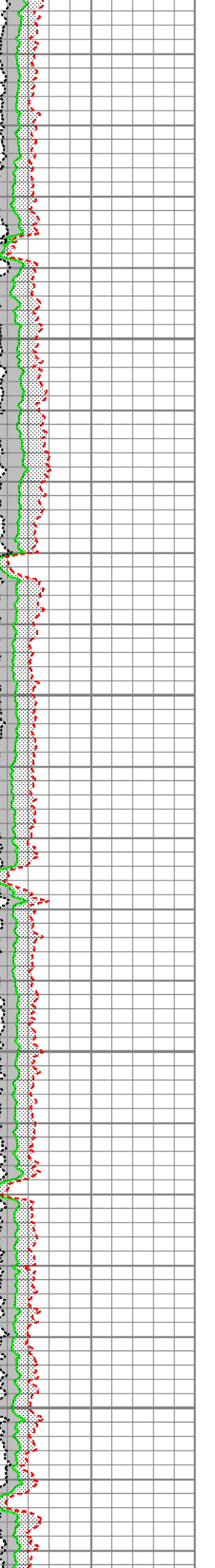
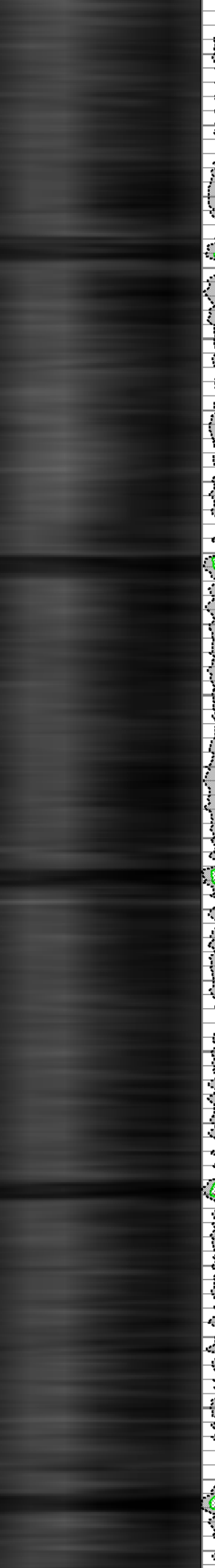
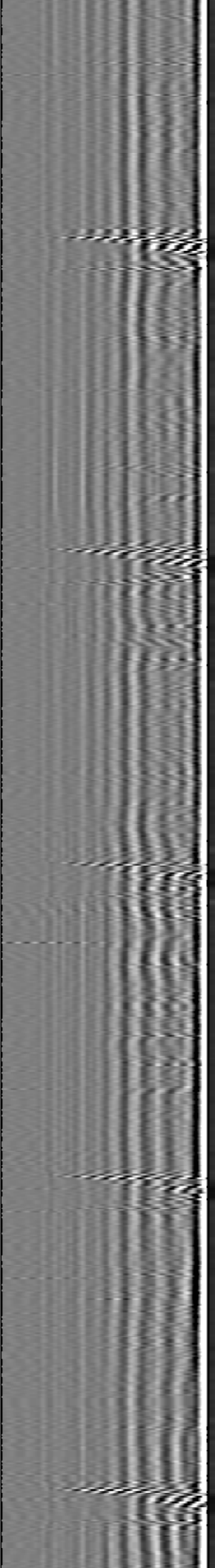
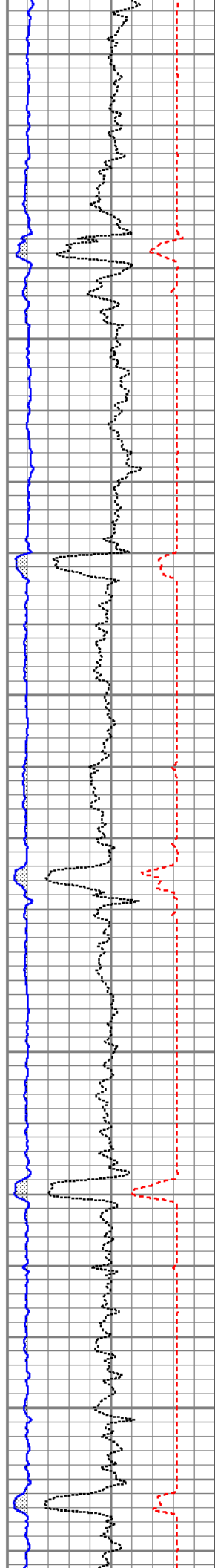


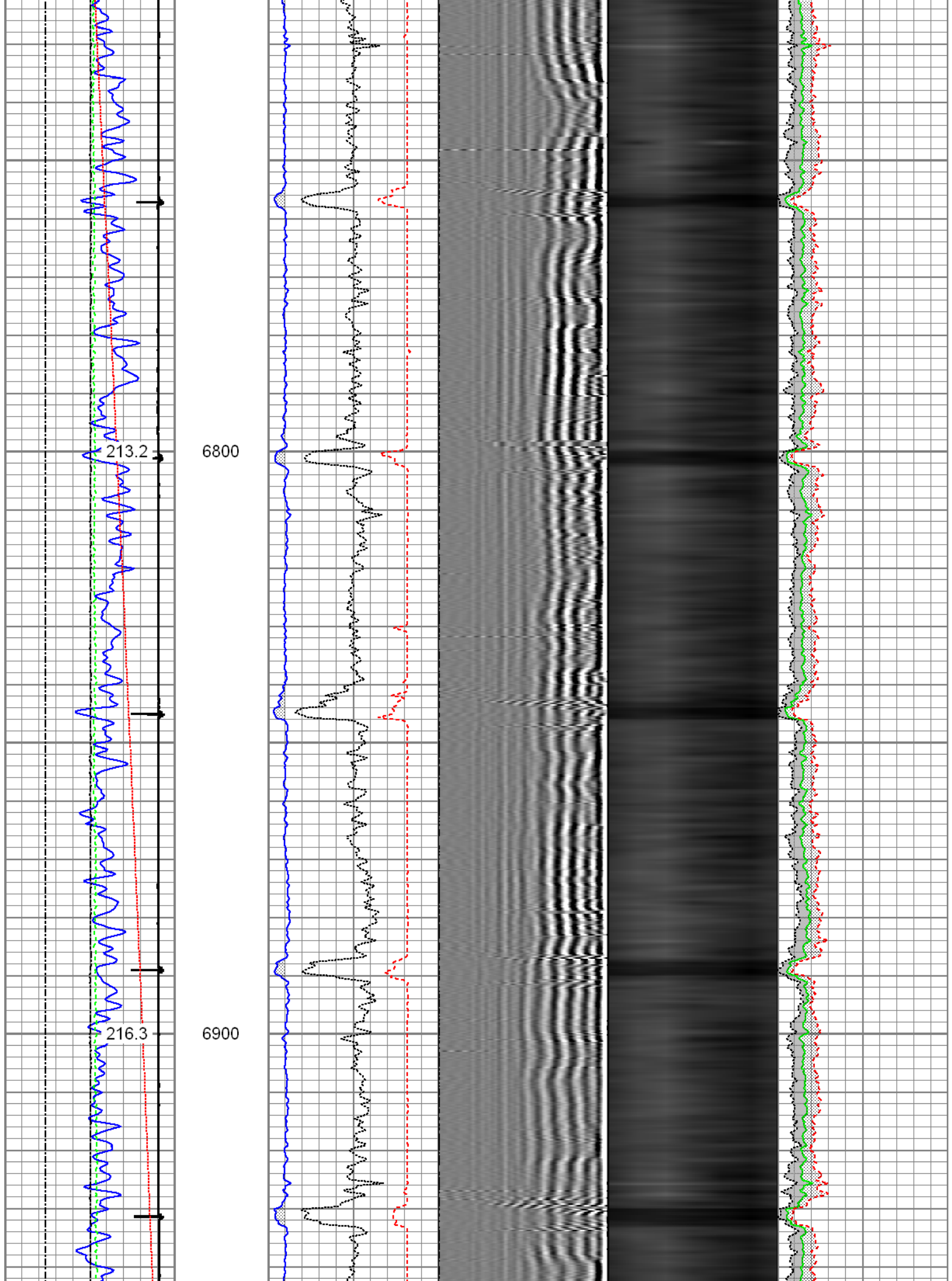
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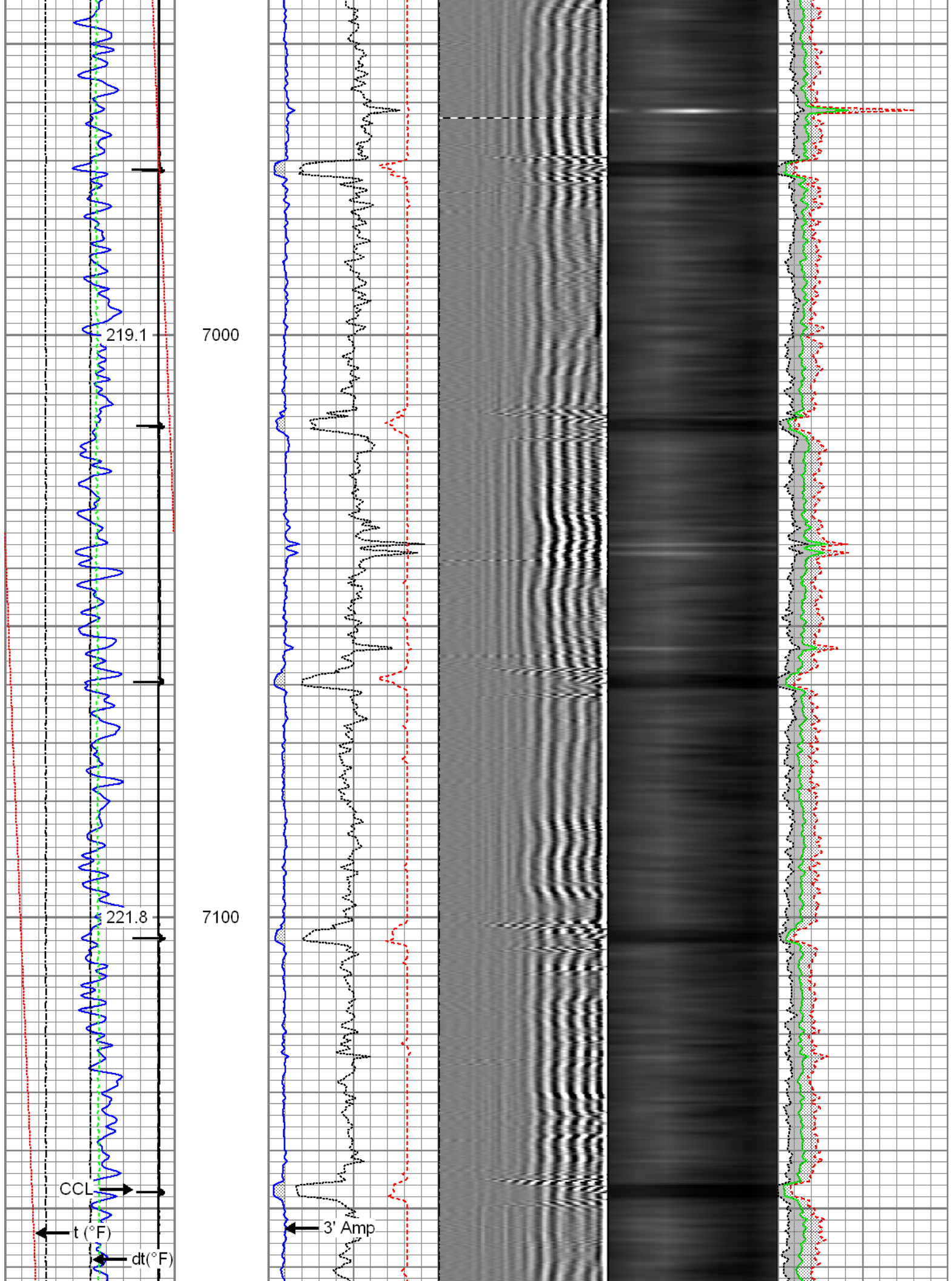
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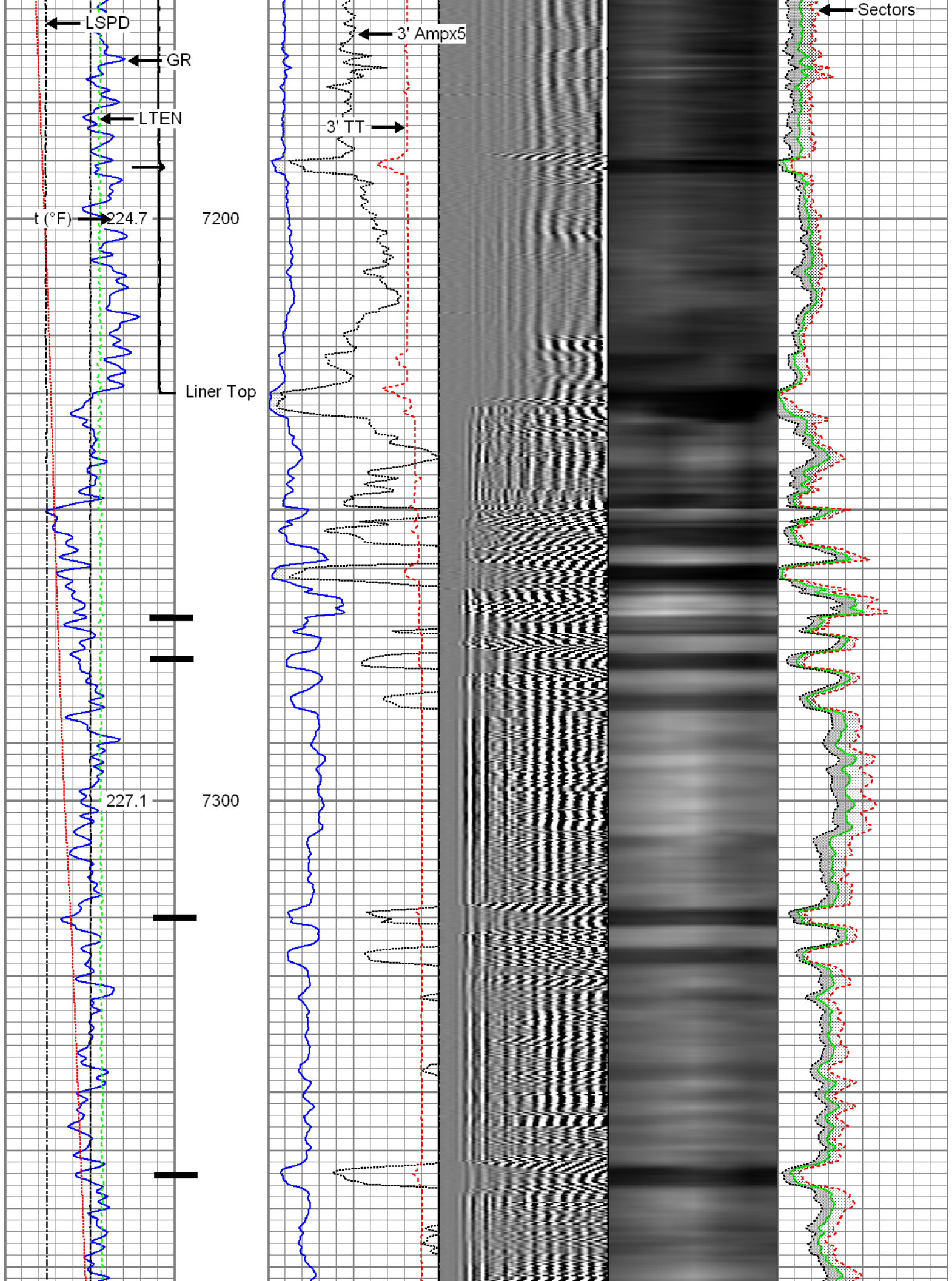
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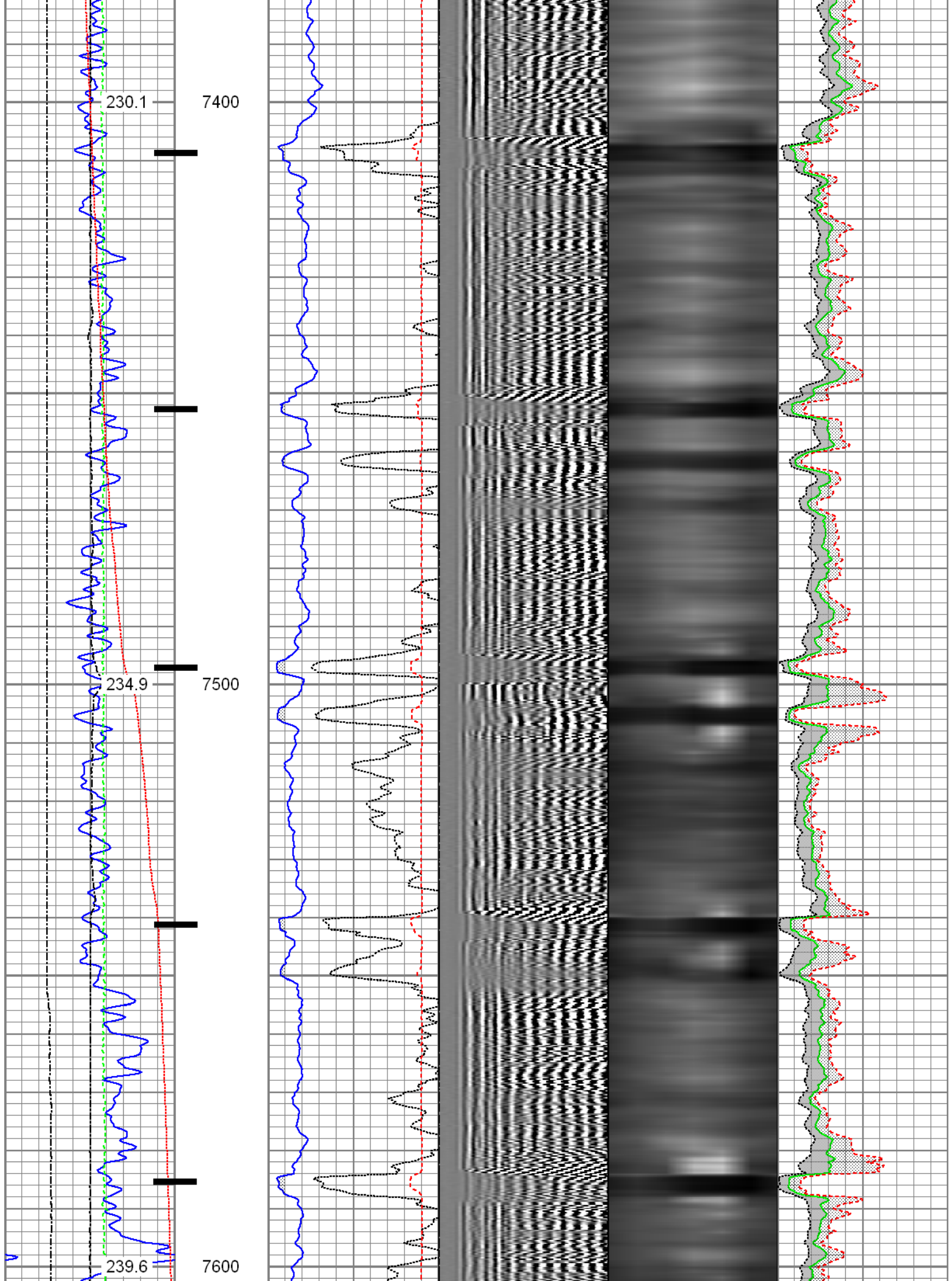
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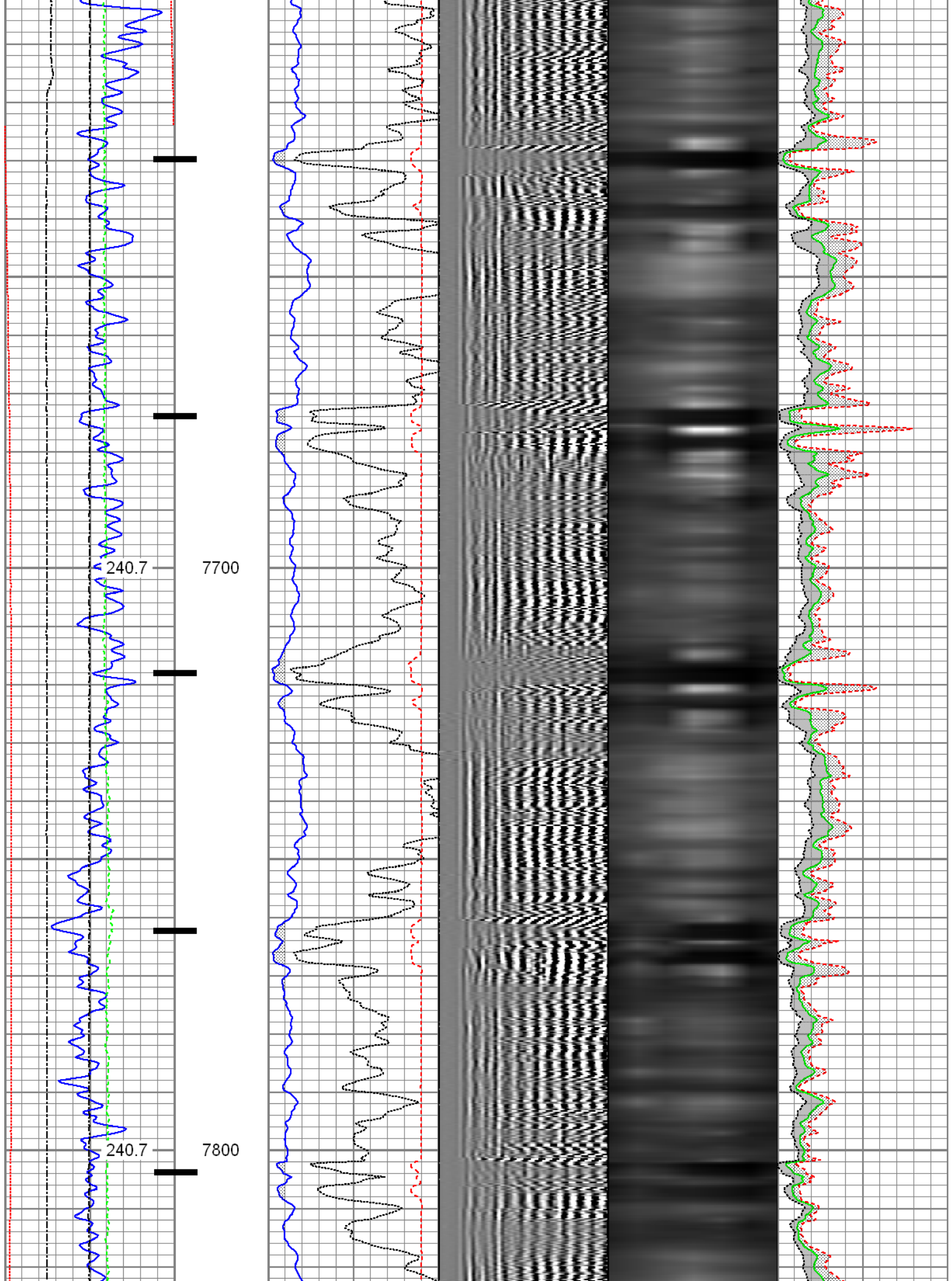


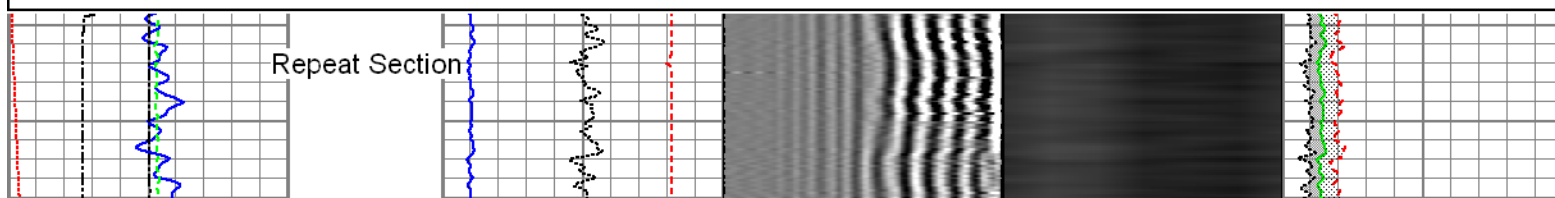
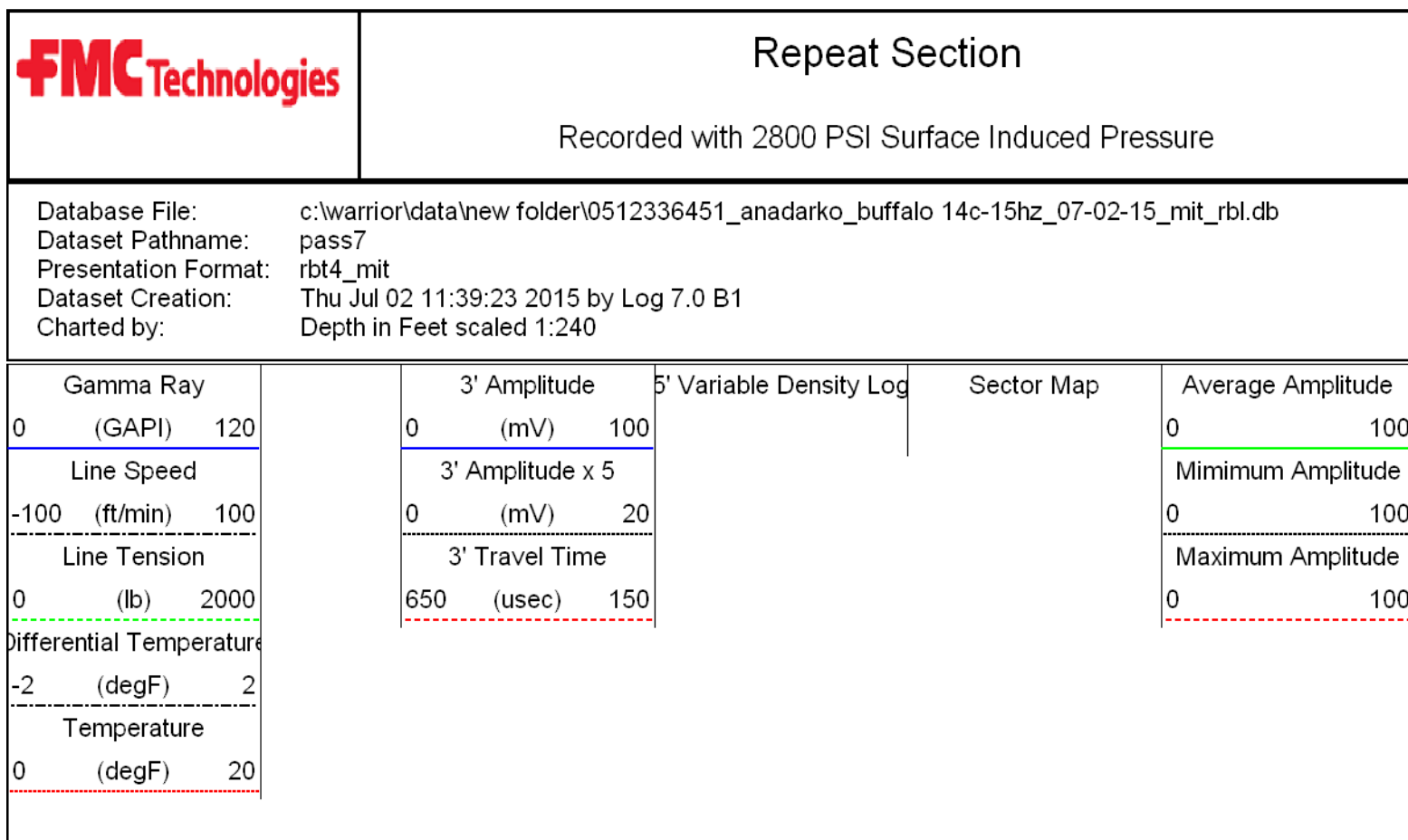
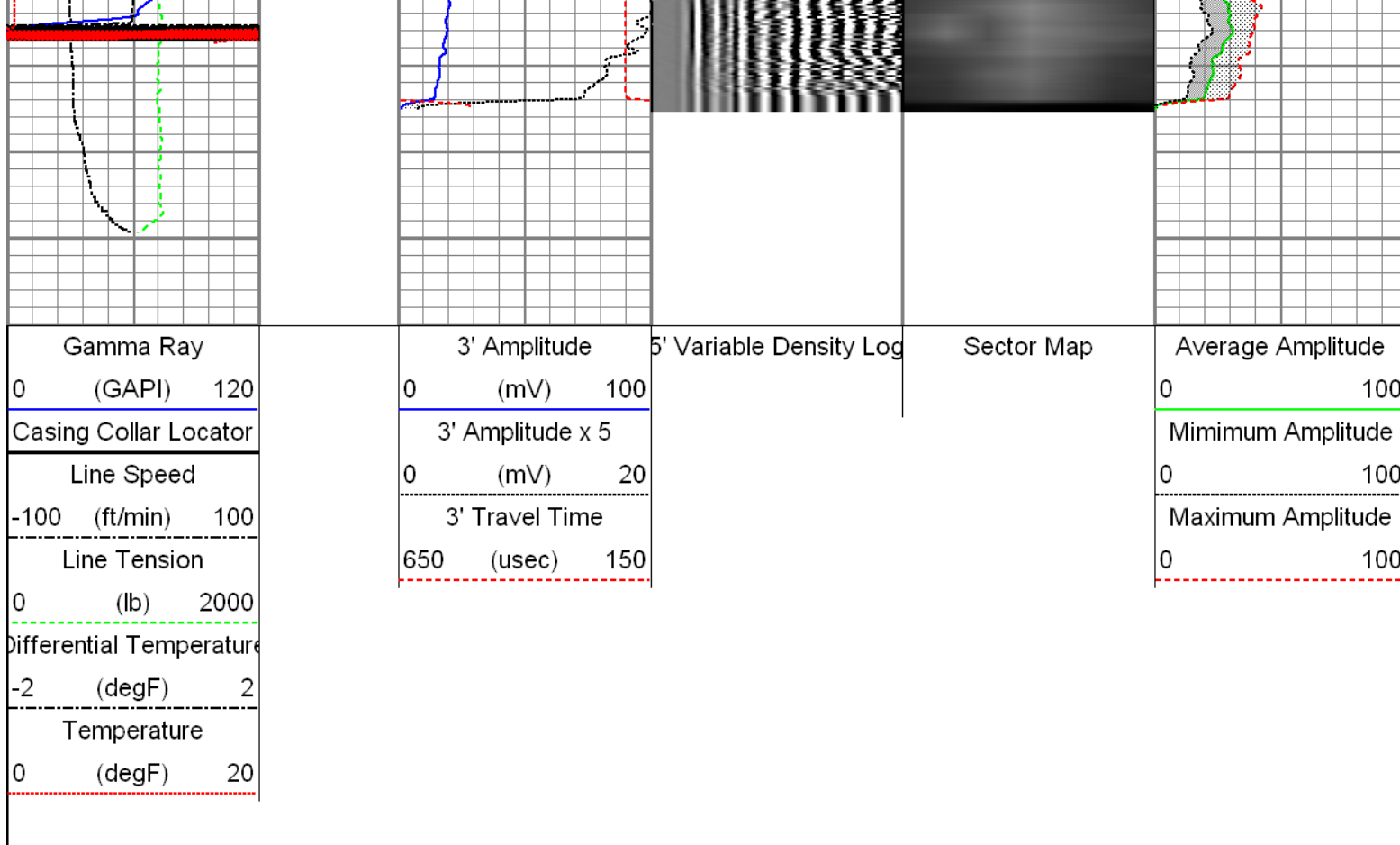


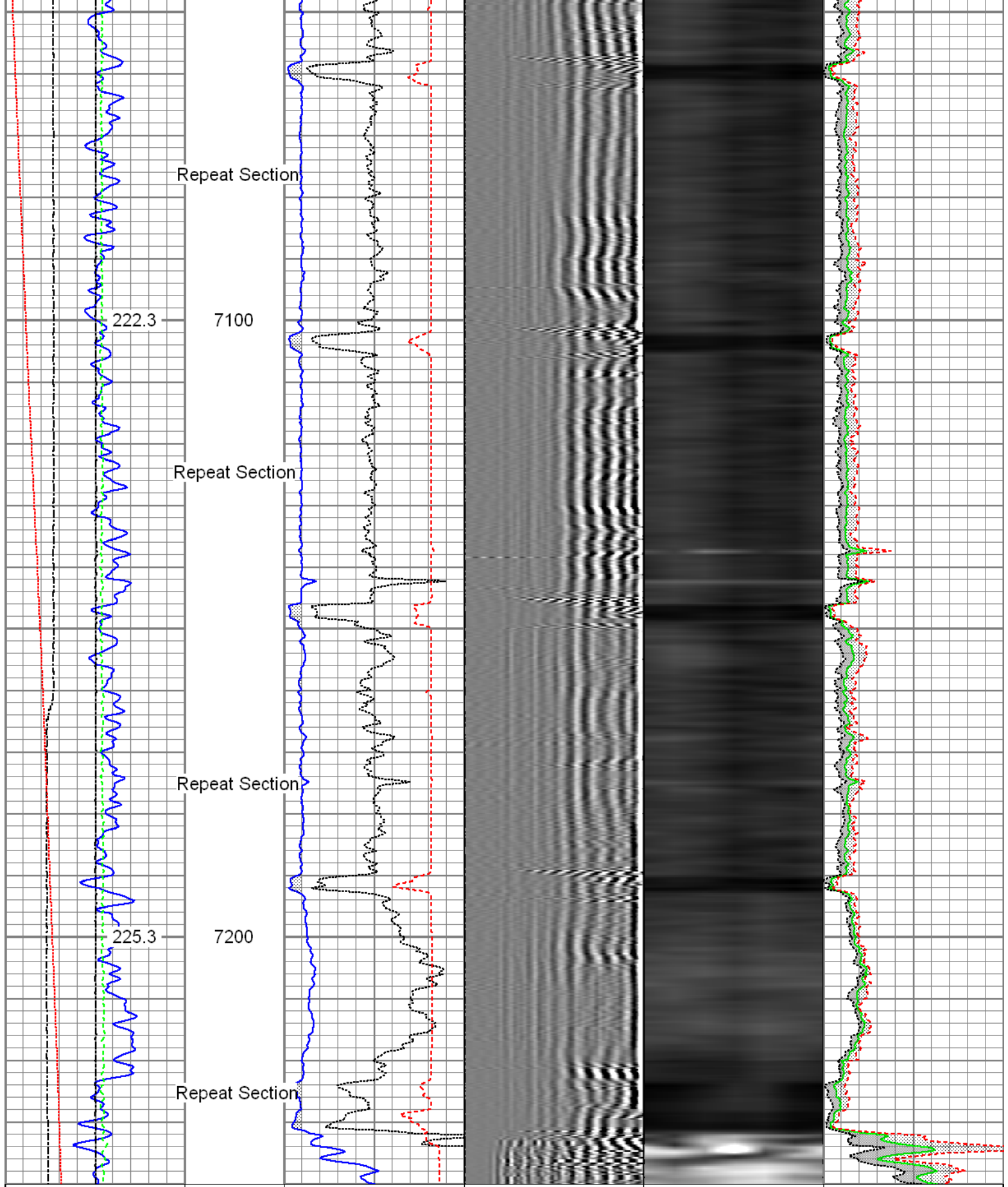






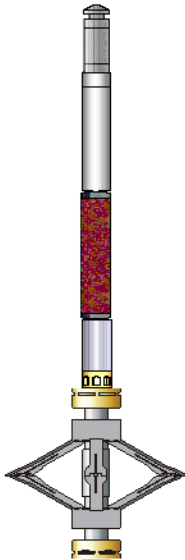
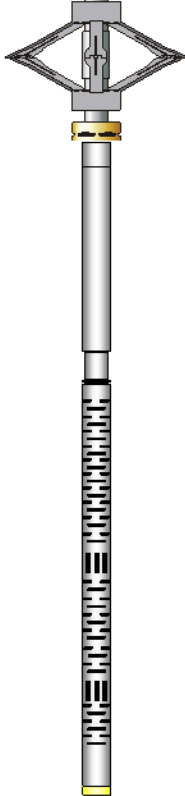
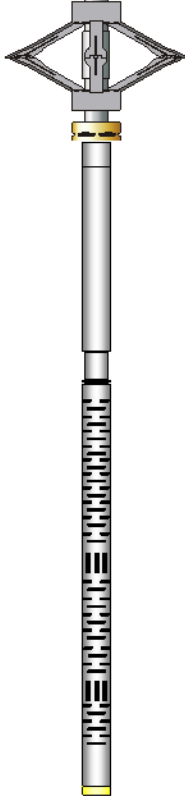
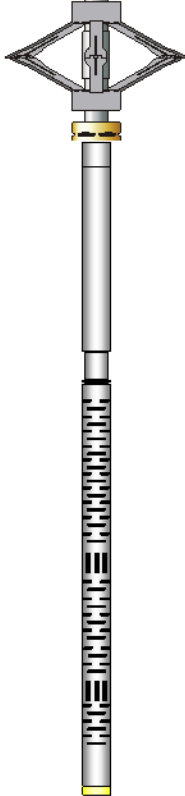
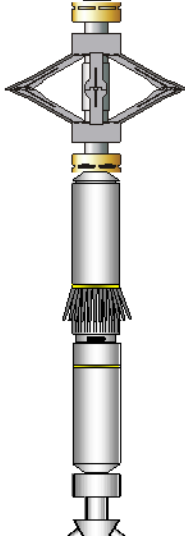


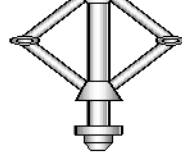




Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100			0 100
Line Speed (ft/min)	3' Amplitude x 5 (mV)			Minimum Amplitude
-100 100	0 20			0 100
Line Tension (lb)	3' Travel Time (usec)			Maximum Amplitude
0 2000	650 150			0 100

Differential Temperature		
-2	(degF)	2
Temperature		
0	(degF)	20

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	24.30		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 (218874) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.93	1.69	9.50
			TEMP	22.91	UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04
			UW_PRC #3 -DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	15.34		UW_RBT-UW_RBT_003 (1048) Sondex Ultrawire 1-11/16" Radial Bond Tool	9.93	1.69	42.00
WVFS1	15.34					
WVFS2	15.34					
WVFS3	15.34					
WVFS4	15.34					
WVFS5	15.34					
WVFS6	15.34					
CBLTEMP	15.34					
CBLROT	15.34					
WVF5FT	14.34					
			UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	5.41		UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10

TSTAMP	0.00		UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512336451_Anadarko_Buffalo 14C-15HZ_07-02-15_MIT_RBL.db: field/well/run1/pass9.1 Total Length: 28.55 ft Total Weight: 226.50 lb O.D. 2.75 in						

Calibration Report			
Database File:	C:\Warrior\Data\New Folder\0512336451_Anadarko_Buffalo 14C-15HZ_07-02-15_MIT_RBL.db		
Dataset Pathname:	calrpt		
Dataset Creation:	Thu Jul 02 19:51:55 2015 by Log 7.0 B1		
Multi-finger Imaging Tool Calibration Report			
Serial Number:	218950		
Number of Fingers:	40		
Tool Model:	UW_MIT40_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:				Thu Jul 02 15:19:39 2015			
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens				
Finger 01:	1427	276.0	1703	291.0	1994	307.0	2301
Finger 02:	1495	255.0	1750	260.0	2010	276.0	2286
Finger 03:	1412	279.0	1691	291.0	1982	305.0	2287
Finger 04:	1429	281.0	1710	290.0	2000	299.0	2299
Finger 05:	1468	273.0	1741	278.0	2019	286.0	2305
Finger 06:	1396	286.0	1682	293.0	1975	307.0	2282
Finger 07:	1417	283.0	1700	289.0	1989	306.0	2295
Finger 08:	1414	280.0	1694	286.0	1980	295.0	2275
Finger 09:	1405	287.0	1692	291.0	1983	303.0	2286
Finger 10:	1420	276.0	1696	284.0	1980	294.0	2274
Finger 11:	1406	287.0	1693	292.0	1985	300.0	2285
Finger 12:	1361	290.0	1651	294.0	1945	307.0	2252
Finger 13:	1462	273.0	1735	272.0	2007	278.0	2285
Finger 14:	1399	278.0	1677	283.0	1960	295.0	2255
Finger 15:	1397	292.0	1689	293.0	1982	302.0	2284
Finger 16:	1398	286.0	1684	288.0	1972	300.0	2272
Finger 17:	1414	296.0	1710	297.0	2007	304.0	2311
Finger 18:	1357	282.0	1639	284.0	1923	292.0	2215
Finger 19:	1415	289.0	1704	287.0	1991	296.0	2287
Finger 20:	1426	290.0	1716	289.0	2005	297.0	2302
Finger 21:	1376	299.0	1675	304.0	1979	310.0	2289
Finger 22:	1397	282.0	1679	282.0	1961	287.0	2248
Finger 23:	1402	286.0	1688	288.0	1976	295.0	2271
Finger 24:	1438	289.0	1727	290.0	2017	290.0	2307

Finger 25:	1417	289.0	1706	290.0	1996	295.0	2291
Finger 26:	1386	291.0	1677	295.0	1972	302.0	2274
Finger 27:	1439	283.0	1722	287.0	2009	289.0	2298
Finger 28:	1429	289.0	1718	293.0	2011	299.0	2310
Finger 29:	1479	272.0	1751	278.0	2029	282.0	2311
Finger 30:	1389	287.0	1676	294.0	1970	303.0	2273
Finger 31:	1422	287.0	1709	301.0	2010	303.0	2313
Finger 32:	1478	272.0	1750	280.0	2030	284.0	2314
Finger 33:	1431	287.0	1718	302.0	2020	311.0	2331
Finger 34:	1440	279.0	1719	295.0	2014	306.0	2320
Finger 35:	1488	258.0	1746	271.0	2017	277.0	2294
Finger 36:	1469	268.0	1737	284.0	2021	295.0	2316
Finger 37:	1440	284.0	1724	294.0	2018	304.0	2322
Finger 38:	1512	252.0	1764	261.0	2025	273.0	2298
Finger 39:	1437	274.0	1711	285.0	1996	292.0	2288
Finger 40:	1404	285.0	1689	298.0	1987	311.0	2298

Post Survey Calibration Check								
Performed:					Thu Jul 02 19:37:19 2015			
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.011	0.005	5.008	0.004	6.008	0.004	7.005	0.003
Finger 02:	4.008	0.004	5.003	0.002	6.003	0.001	6.980	-0.010
Finger 03:	4.000	-0.000	5.008	0.004	6.002	0.001	7.005	0.002
Finger 04:	4.009	0.005	5.012	0.006	6.007	0.003	7.005	0.003
Finger 05:	4.009	0.004	5.010	0.005	6.008	0.004	7.005	0.002
Finger 06:	4.007	0.003	5.004	0.002	6.010	0.005	7.012	0.006
Finger 07:	4.005	0.002	5.012	0.006	6.010	0.005	6.998	-0.001
Finger 08:	4.005	0.003	5.012	0.006	6.009	0.005	7.010	0.005
Finger 09:	4.006	0.003	5.012	0.006	6.008	0.004	7.009	0.004
Finger 10:	3.997	-0.001	5.015	0.007	6.007	0.004	7.001	0.001
Finger 11:	4.014	0.007	5.017	0.008	6.009	0.005	7.010	0.005
Finger 12:	4.012	0.006	5.018	0.009	6.011	0.005	7.005	0.003
Finger 13:	4.008	0.004	5.006	0.003	5.999	-0.000	6.996	-0.002
Finger 14:	4.009	0.004	5.015	0.007	6.011	0.006	7.005	0.003
Finger 15:	4.009	0.004	5.012	0.006	6.003	0.001	7.001	0.001
Finger 16:	4.019	0.010	5.017	0.009	6.019	0.009	7.009	0.004
Finger 17:	4.008	0.004	5.004	0.002	6.001	0.001	7.000	-0.000
Finger 18:	4.006	0.003	5.004	0.002	6.002	0.001	7.003	0.001
Finger 19:	4.006	0.003	5.003	0.001	6.009	0.005	7.008	0.004
Finger 20:	4.007	0.004	5.002	0.001	6.007	0.004	7.005	0.002
Finger 21:	4.001	0.001	5.001	0.001	6.001	0.001	7.004	0.002
Finger 22:	4.013	0.007	5.005	0.002	6.003	0.002	7.005	0.002
Finger 23:	4.006	0.003	5.006	0.003	6.009	0.005	7.003	0.001
Finger 24:	4.007	0.004	5.005	0.003	5.997	-0.001	6.995	-0.002
Finger 25:	4.003	0.002	5.006	0.003	6.005	0.003	7.005	0.003
Finger 26:	4.003	0.002	5.010	0.005	6.010	0.005	7.005	0.002
Finger 27:	4.009	0.005	5.013	0.007	6.005	0.002	7.003	0.001
Finger 28:	4.007	0.004	5.012	0.006	6.014	0.007	7.010	0.005
Finger 29:	4.010	0.005	5.021	0.011	6.006	0.003	6.998	-0.001
Finger 30:	4.009	0.004	5.016	0.008	6.013	0.006	7.009	0.004
Finger 31:	4.004	0.002	5.017	0.008	6.008	0.004	7.007	0.003
Finger 32:	4.008	0.004	5.014	0.007	6.010	0.005	7.004	0.002
Finger 33:	4.009	0.005	5.011	0.005	6.011	0.005	7.002	0.001
Finger 34:	4.006	0.003	5.013	0.007	6.009	0.005	7.009	0.004
Finger 35:	4.010	0.005	5.013	0.006	6.003	0.001	7.004	0.002
Finger 36:	4.013	0.007	5.014	0.007	6.008	0.004	7.004	0.002
Finger 37:	4.009	0.005	4.992	-0.004	6.002	0.001	7.004	0.002
Finger 38:	4.008	0.004	5.006	0.003	6.007	0.003	7.002	0.001
Finger 39:	4.011	0.006	5.004	0.002	6.000	0.000	7.008	0.004
Finger 40:	4.003	0.002	5.002	0.001	6.007	0.004	7.009	0.005
Average:	4.008	0.004	5.009	0.005	6.007	0.003	7.004	0.002

Signature: _____ Date: _____ Log Calibration Report

Serial Number:	1048
Tool Model:	UW_RBT_003
Calibration Casing Diameter:	7.000 in
Calibration Depth:	781.072 ft

Master Calibration, performed Thu Jul 02 15:38:47 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.002	0.415	0.800	62.165	148.549	0.568
5FT	-0.003	0.572	0.800	62.165	106.745	1.100
S1	0.002	0.278	0.000	100.000	362.126	-0.756
S2	-0.000	0.458	0.000	100.000	218.105	0.088
S3	0.003	0.421	0.000	100.000	239.638	-0.778
S4	0.004	0.358	0.000	100.000	282.805	-1.257
S5	0.002	0.397	0.000	100.000	253.529	-0.613
S6	0.006	0.387	0.000	100.000	262.590	-1.548

Temperature Calibration Report

Serial Number:	10025100
Tool Model:	UW_PRT_016
Performed:	Wed Feb 11 13:47:59 2015

Point #	Reading	Reference
1	13249.00 cps	68.00 degF
2	18454.00 cps	104.00 degF
3	29735.00 cps	176.00 degF
4	41457.00 cps	248.00 degF
5	52851.00 cps	320.00 degF
6	59128.00 cps	356.00 degF
7	cps	degF
8	cps	degF
9	cps	degF
10	cps	degF

Gamma Ray Calibration Report

Serial Number:	10013899
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	Kerr-McGee Oil & Gas OnShore L.P.
Well	Buffalo 14C-15HZ
Field	Wattenberg
County	Weld
State	Colorado