



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company		Kerr-McGee Oil and Gas Onshore LP	
Well		Buffalo 14N-15HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Company		Kerr-McGee Oil and Gas Onshore LP	
Well		Buffalo 14N-15HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API #: 05-123-36455	
SEC 15		TWP 1N	
RGE 68W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		5129'	
K.B. 5154'		D.F. 5153'	
G.L. 5129'		MIT	
Date		28-FEB-2015	
Run Number		Two	
Depth Driller		12155 FT	
Depth Logger		7698 FT	
Bottom Logged Interval		7684 FT	
Top Log Interval		Surface	
Open Hole Size		8.75	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		221° F	
Estimated Cement Top		84 FT	
Time Well Ready		ROA	
Time Logger on Bottom		15:00	
Equipment Number		HD-0255	
Location		Ft. Lupton, CO	
Recorded By		J. Morrison	
Witnessed By		Rick Dunford	
H. Raby			
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	
J-55 LTC		Surface	
Intermediate #1		7	
HCP-110 LTC		Surface	
Intermediate #2		4-1/2	
HCP-110 LTC		7072 FT	
Liner		11.6	
HCP-110 LTC		7072 FT	
		12111 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 reference to Liner Top.
Log ran from deep as possible to surface.
Log ran with 2800 PSI surface induced pressure.
Adjusted -65 FT to correlate to Liner Top per Tally.
Logging Tools were clean.

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

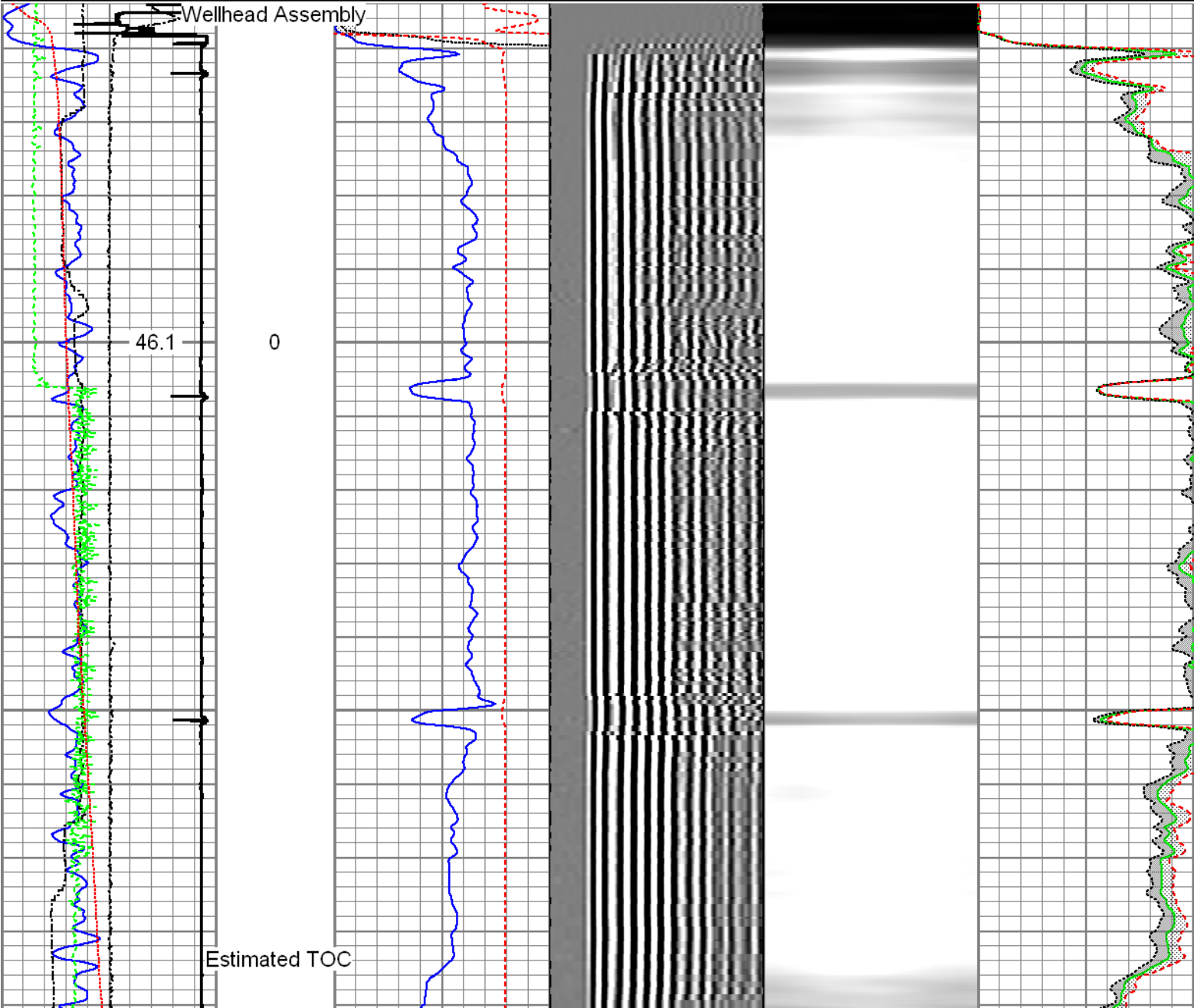


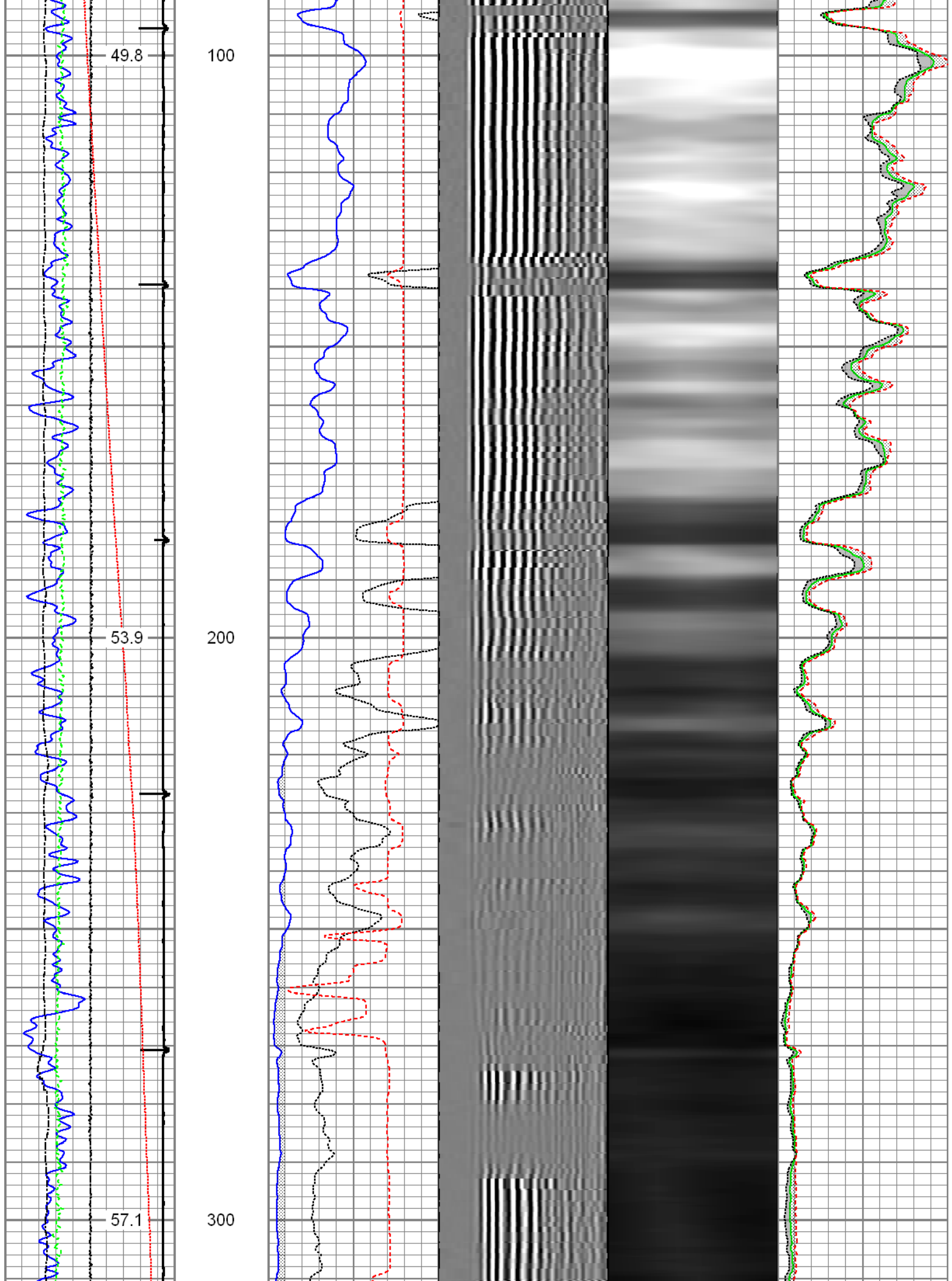
Main 7" Pass

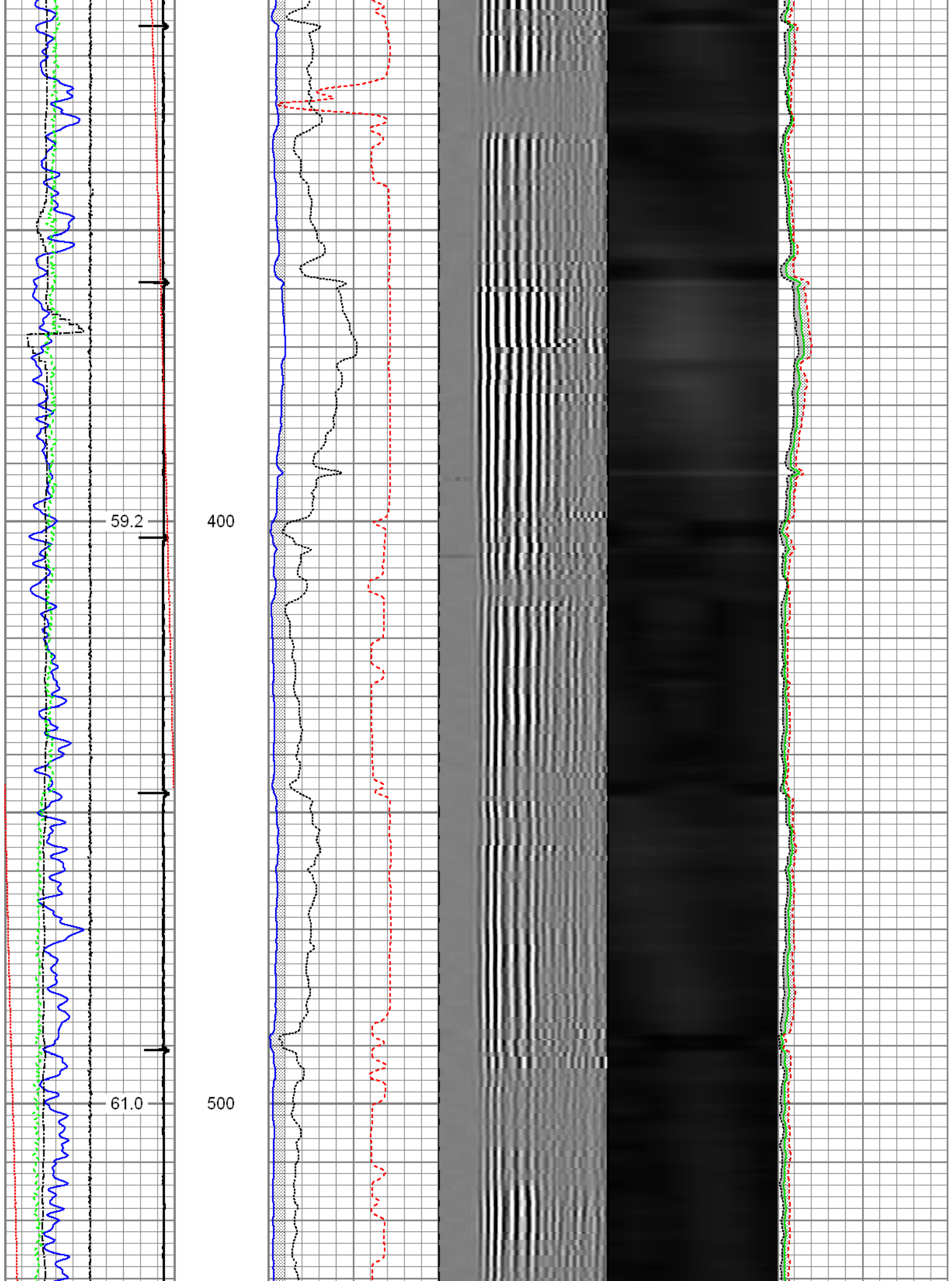
Recorded with 2800 PSI Surface Induced Pressure

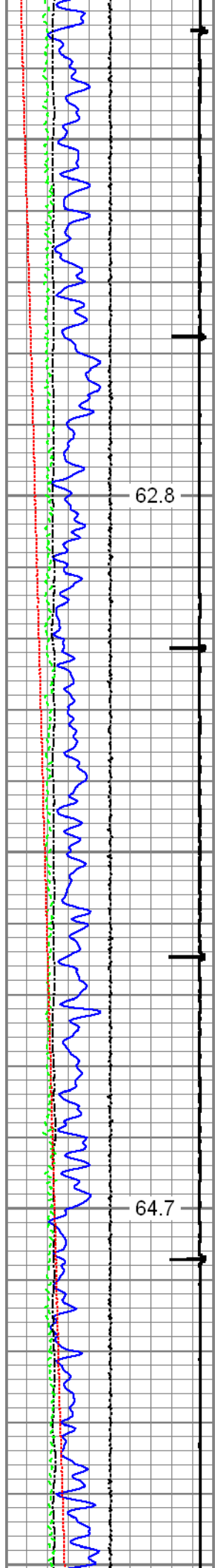
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Dataset Pathname: pass8
Presentation Format: rbt4_mit
Dataset Creation: Sat Feb 28 15:45:18 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

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



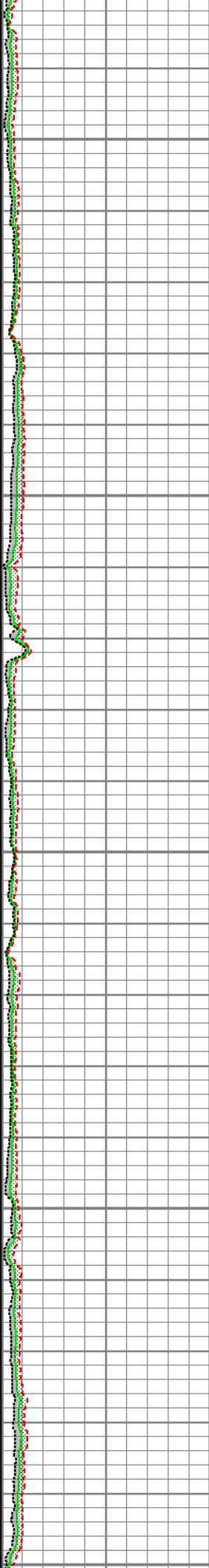
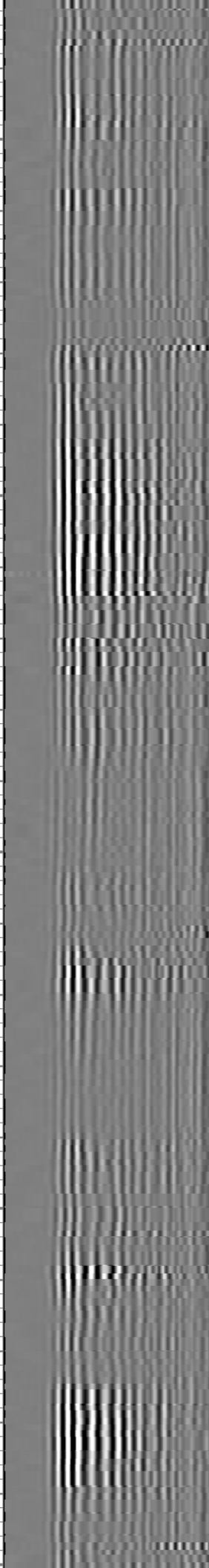
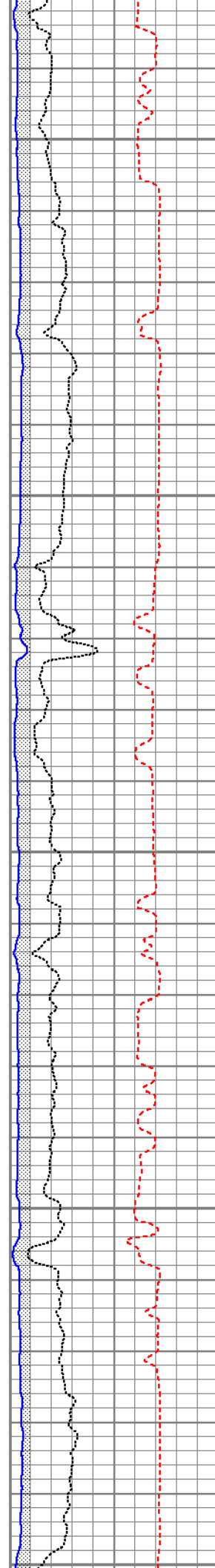


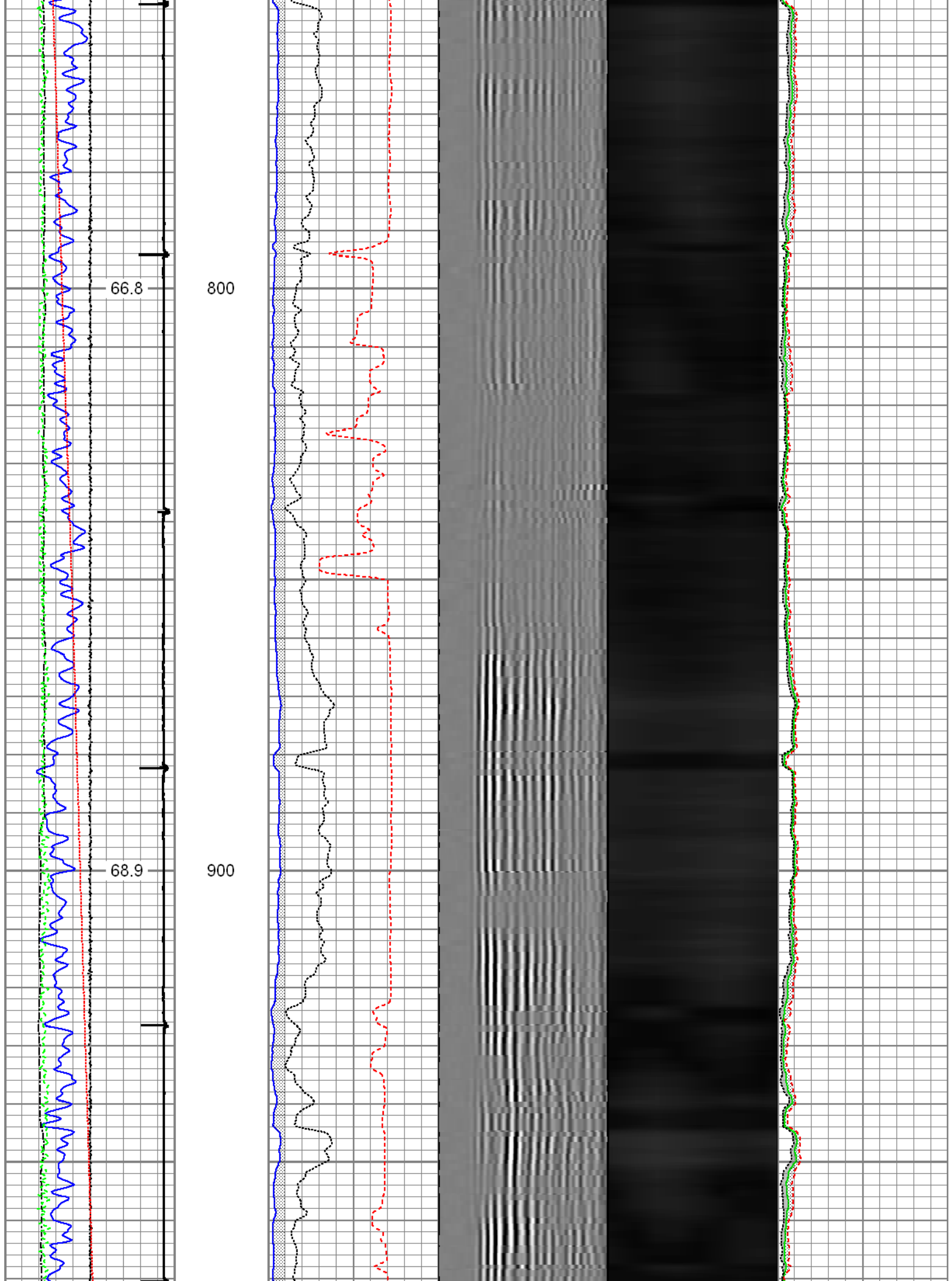


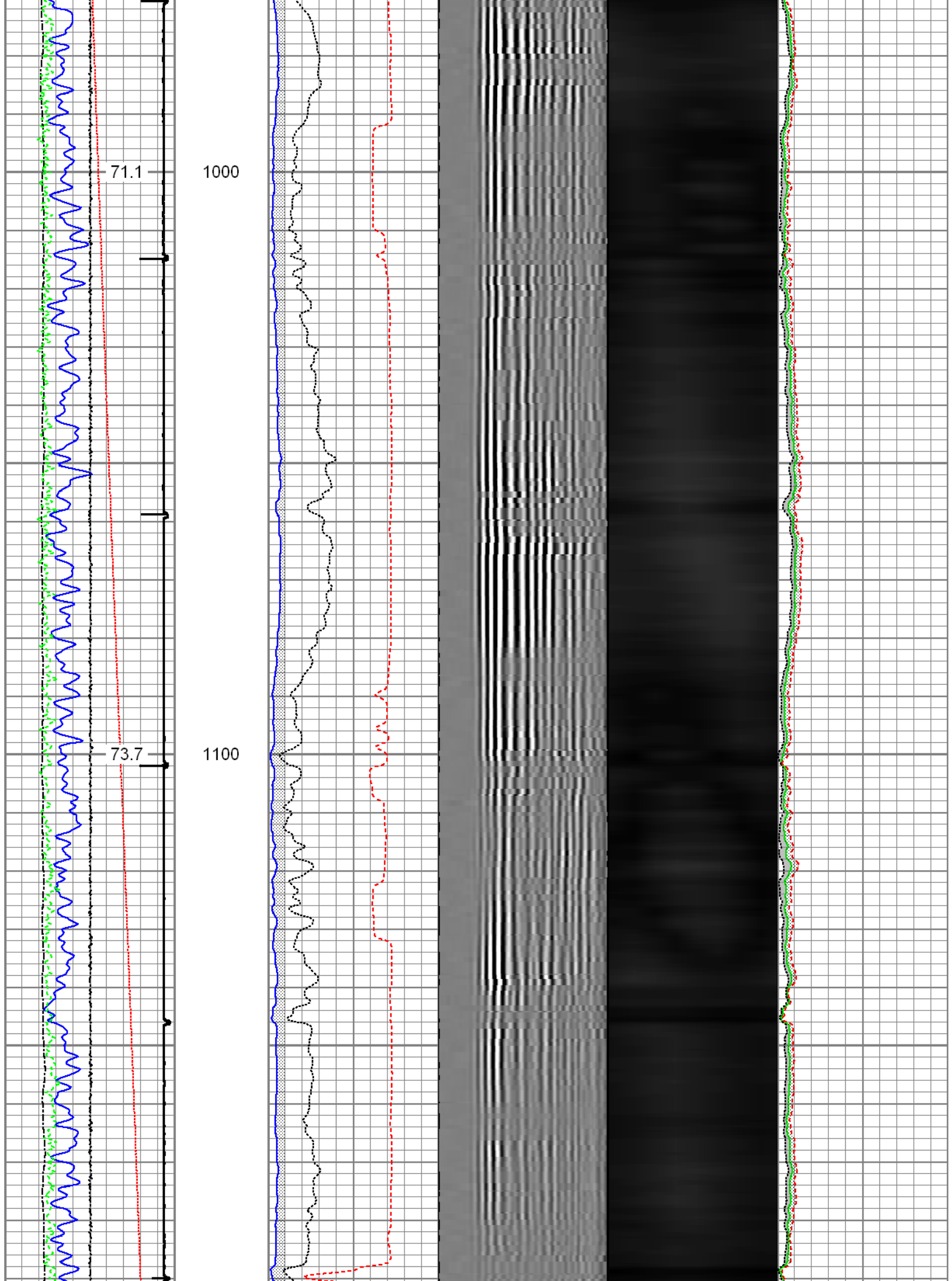


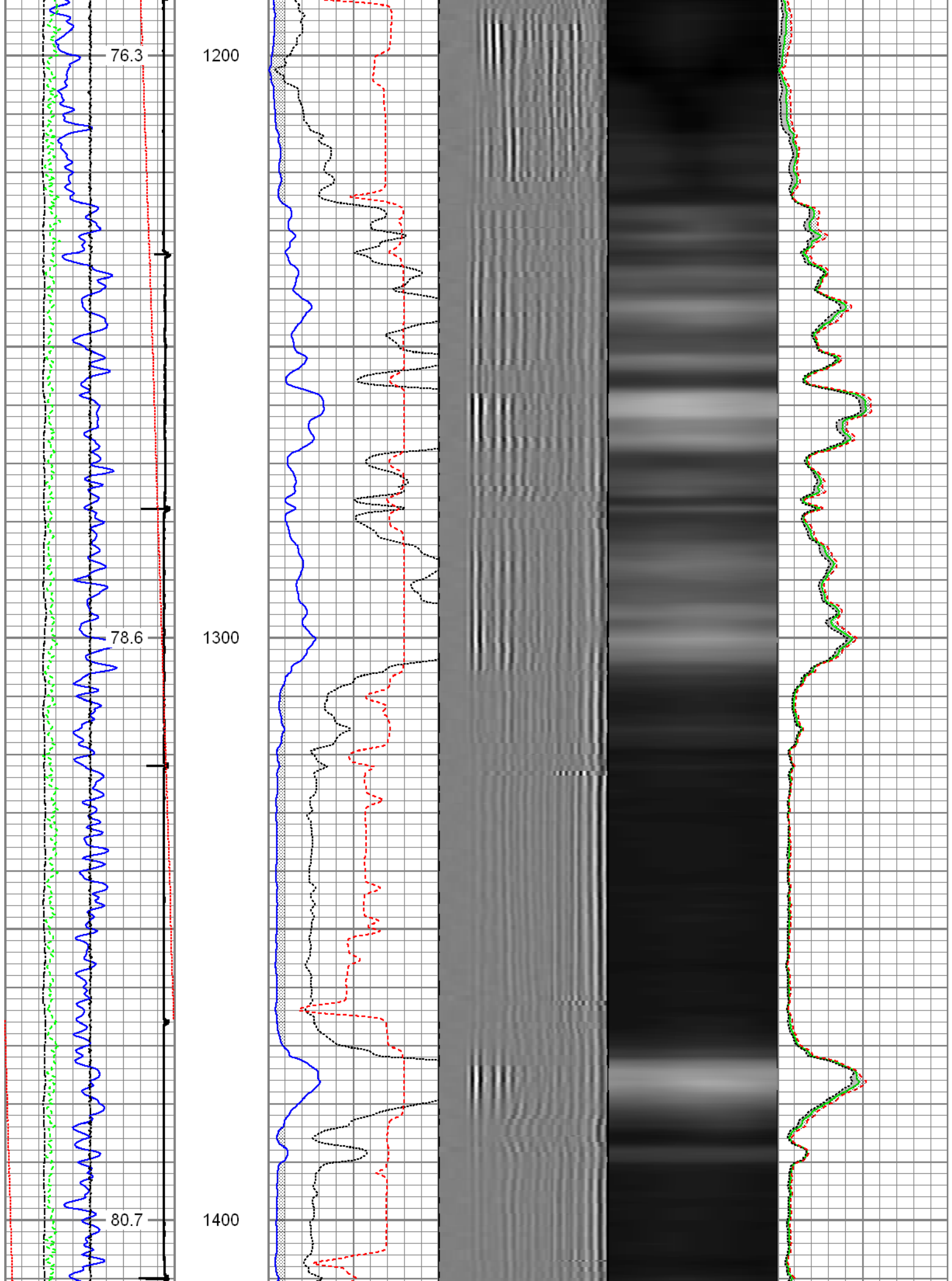
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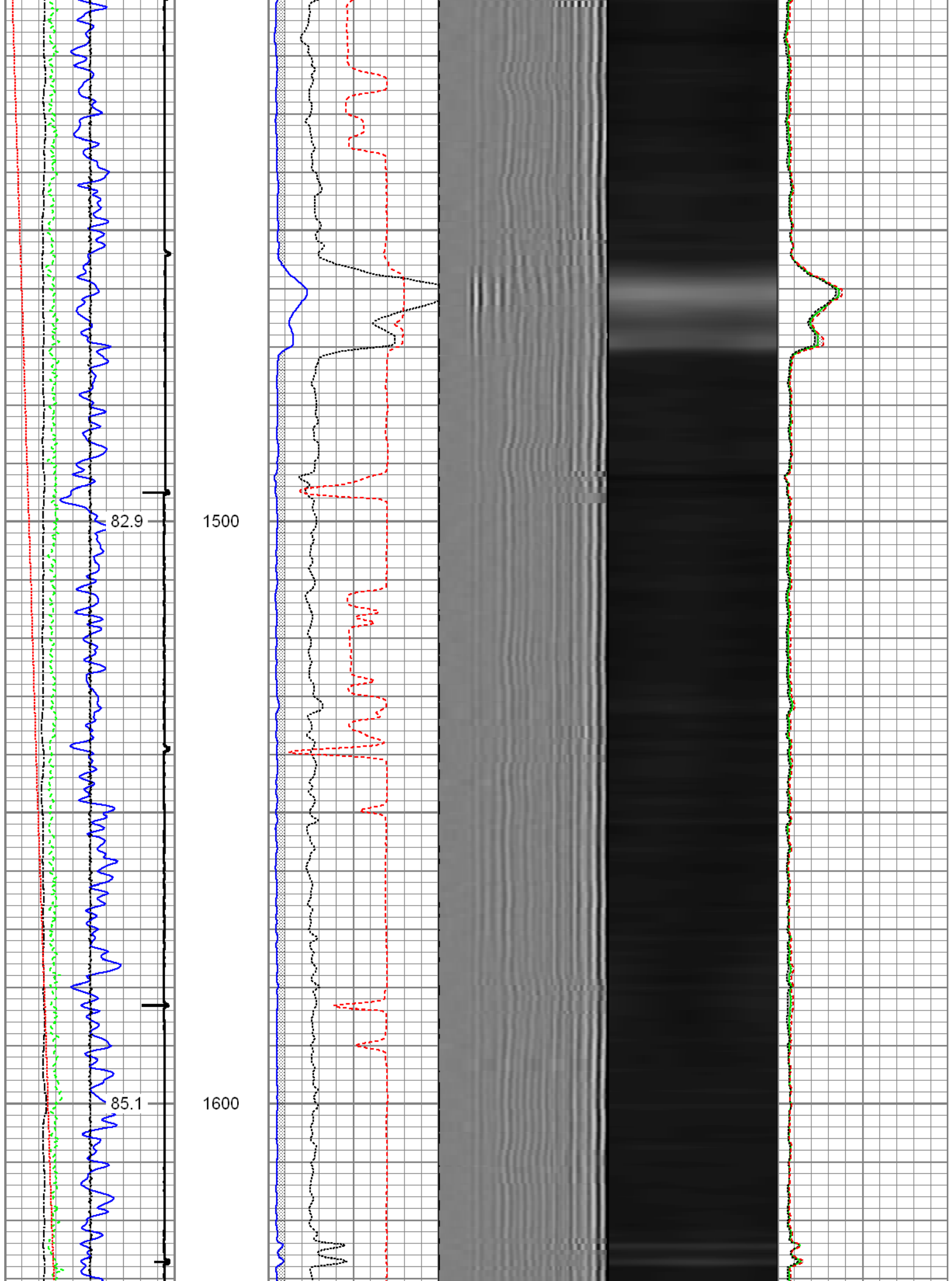
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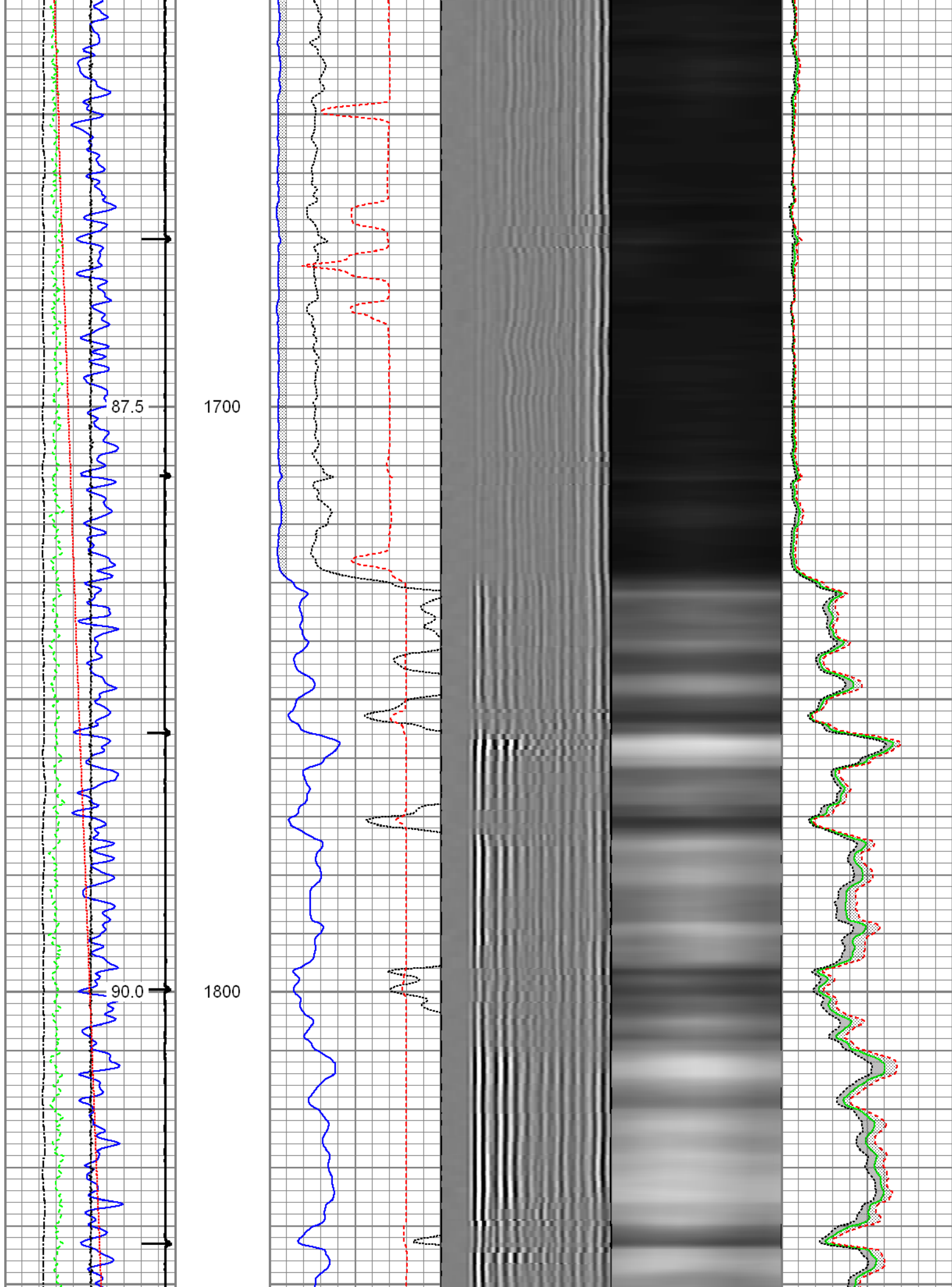


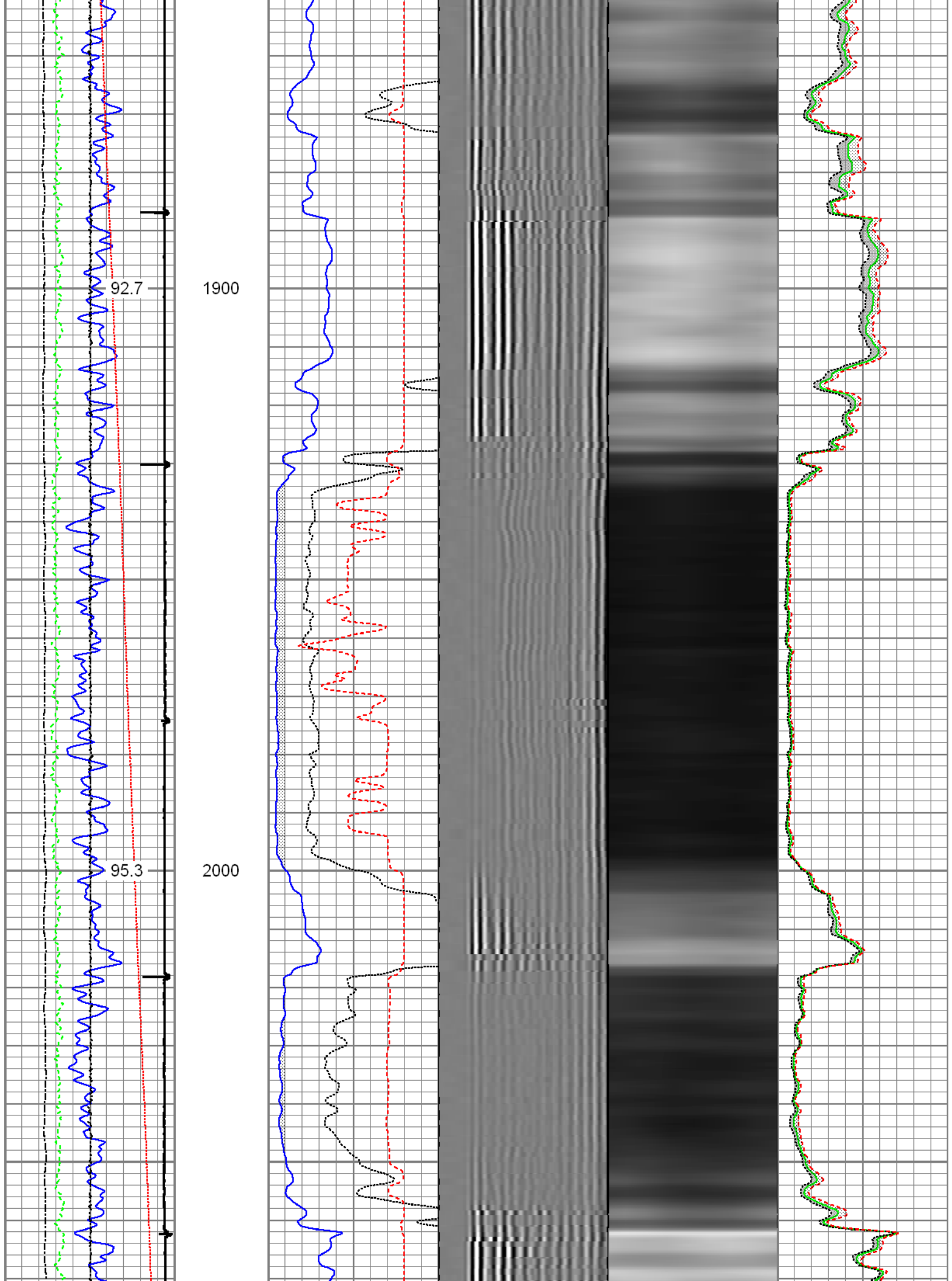


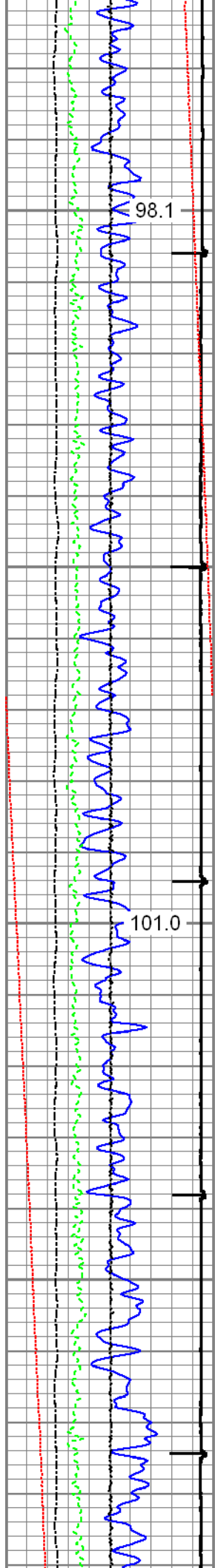






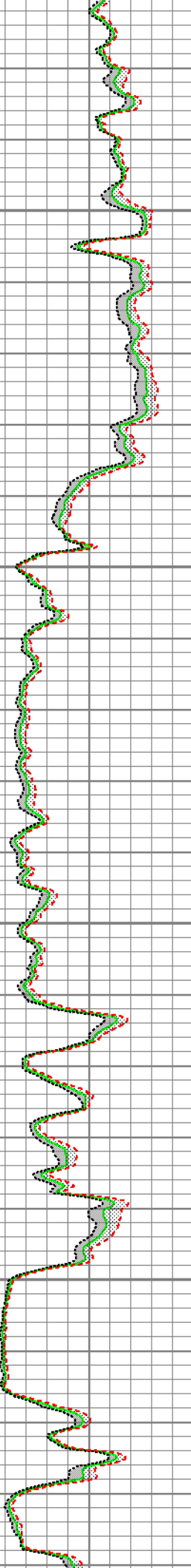
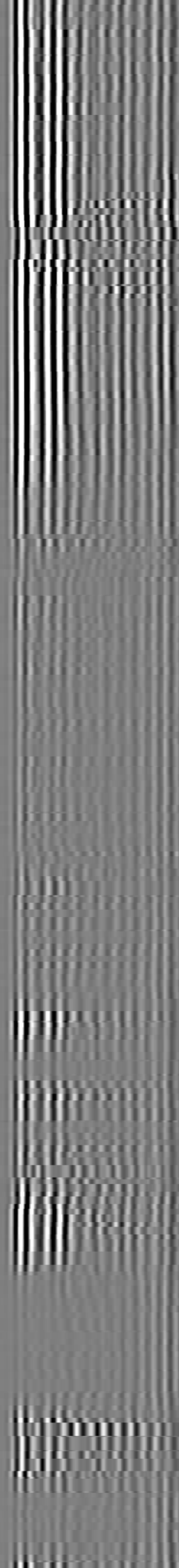
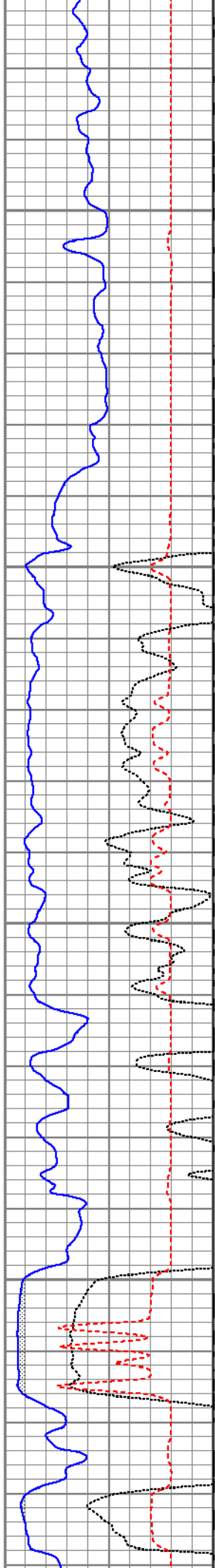


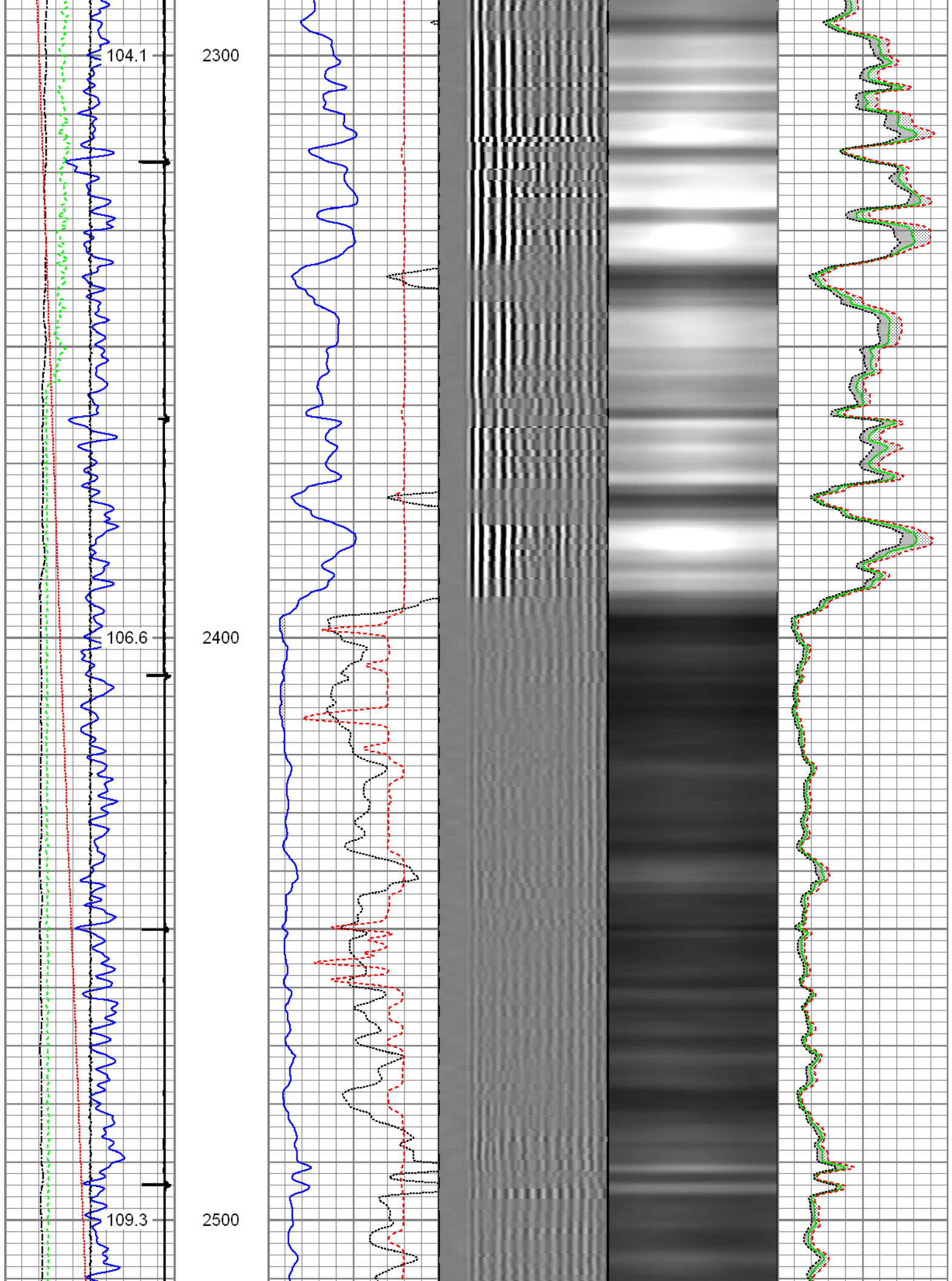


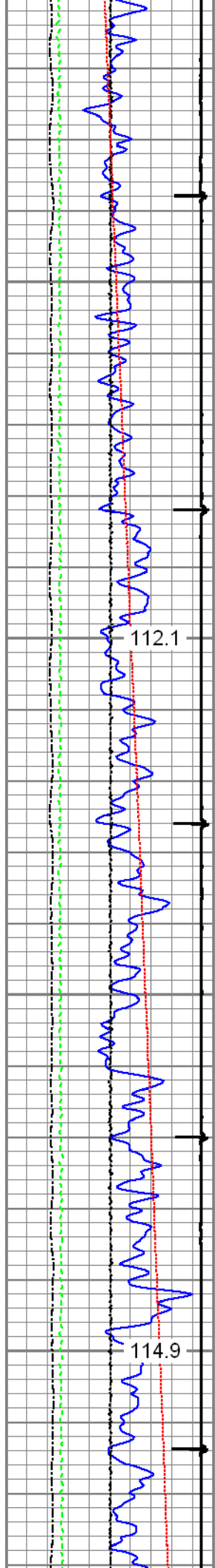


2100

2200





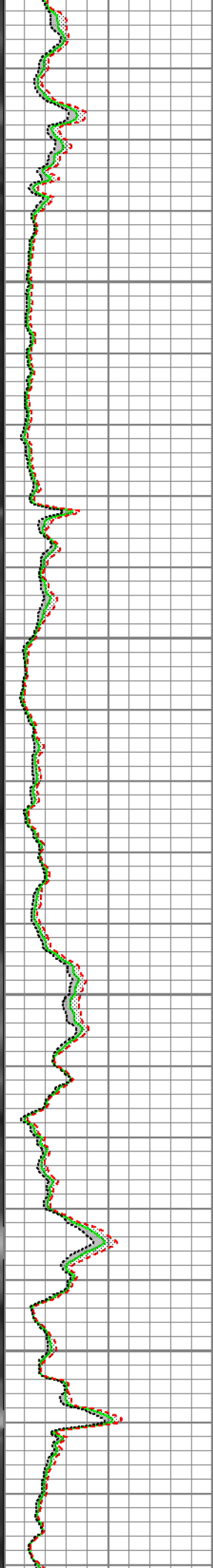
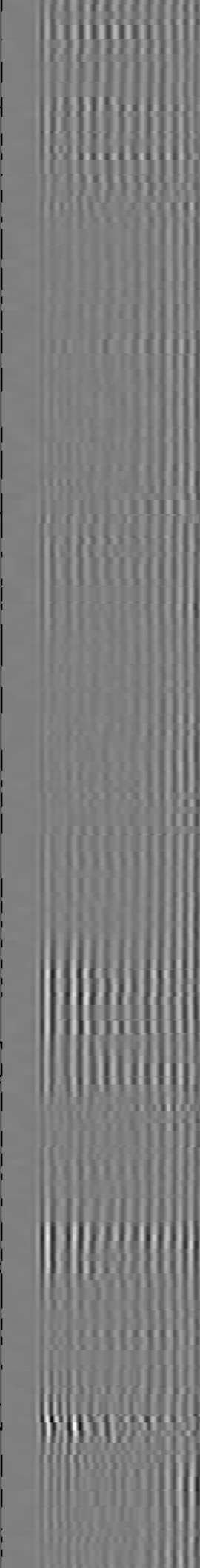
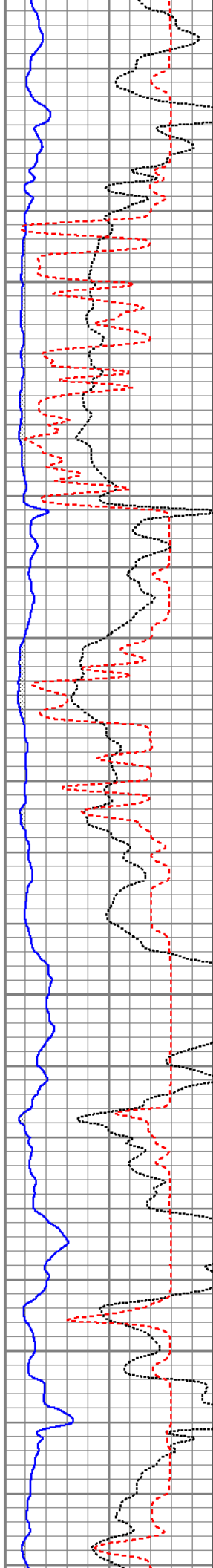


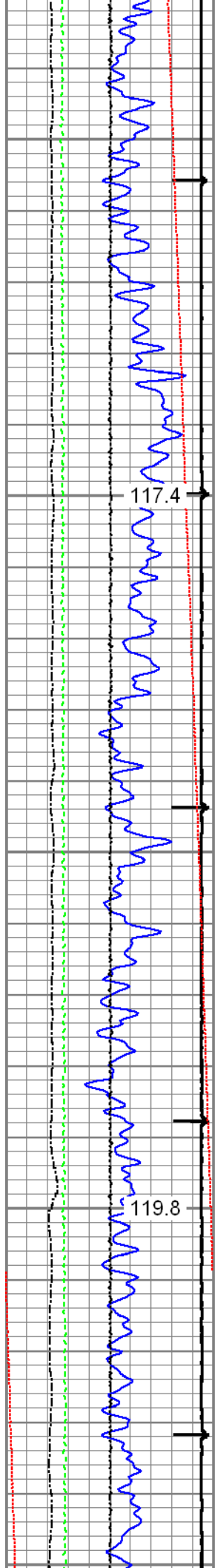
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114.9

2600

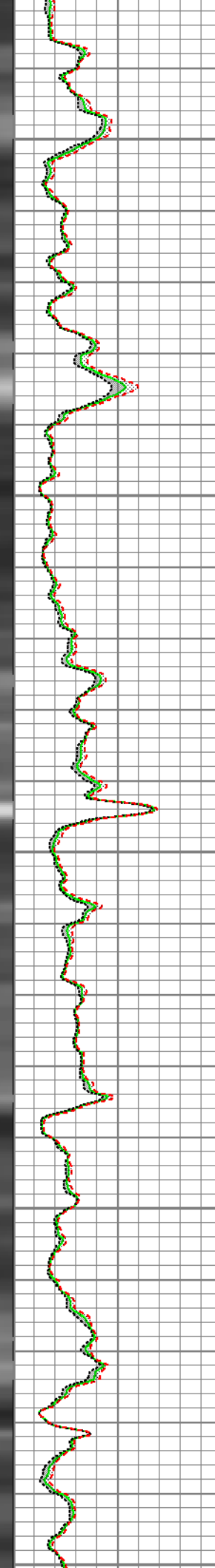
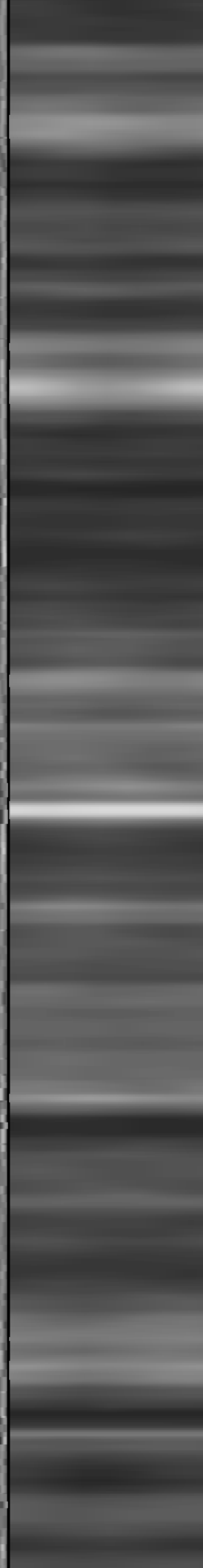
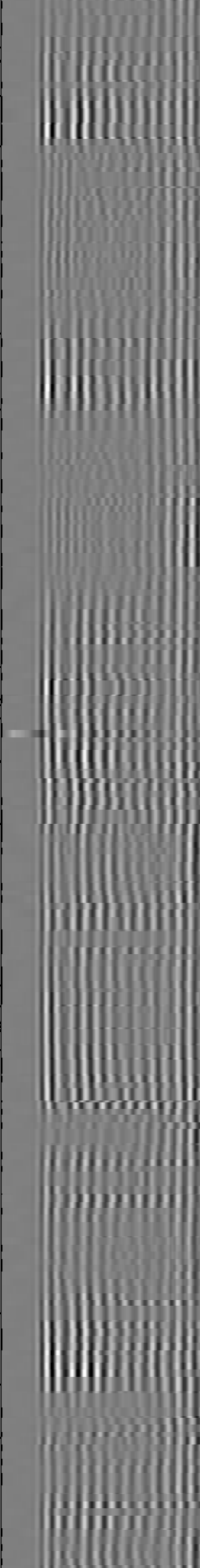
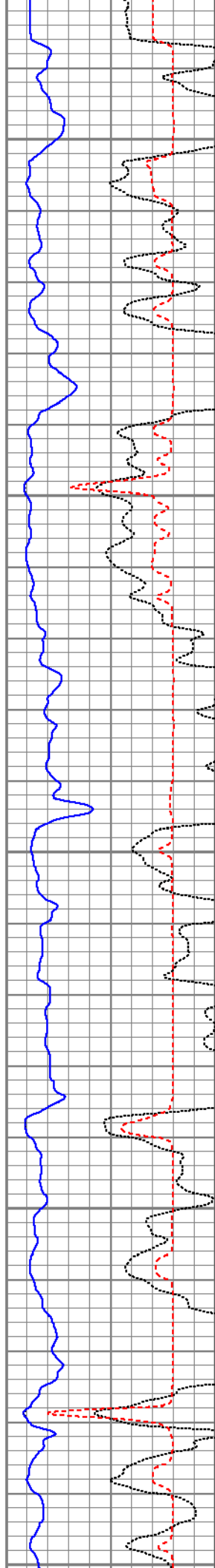
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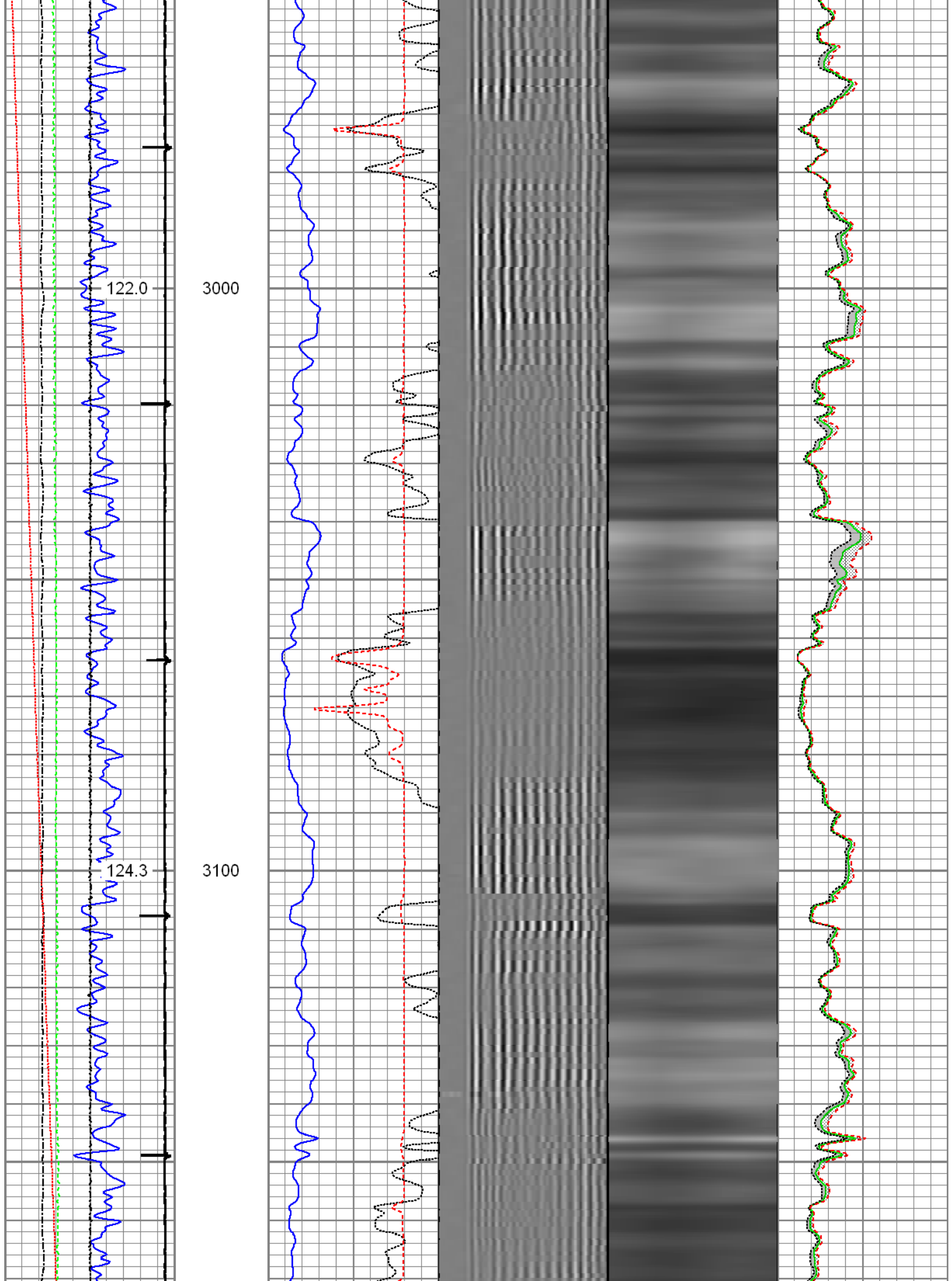


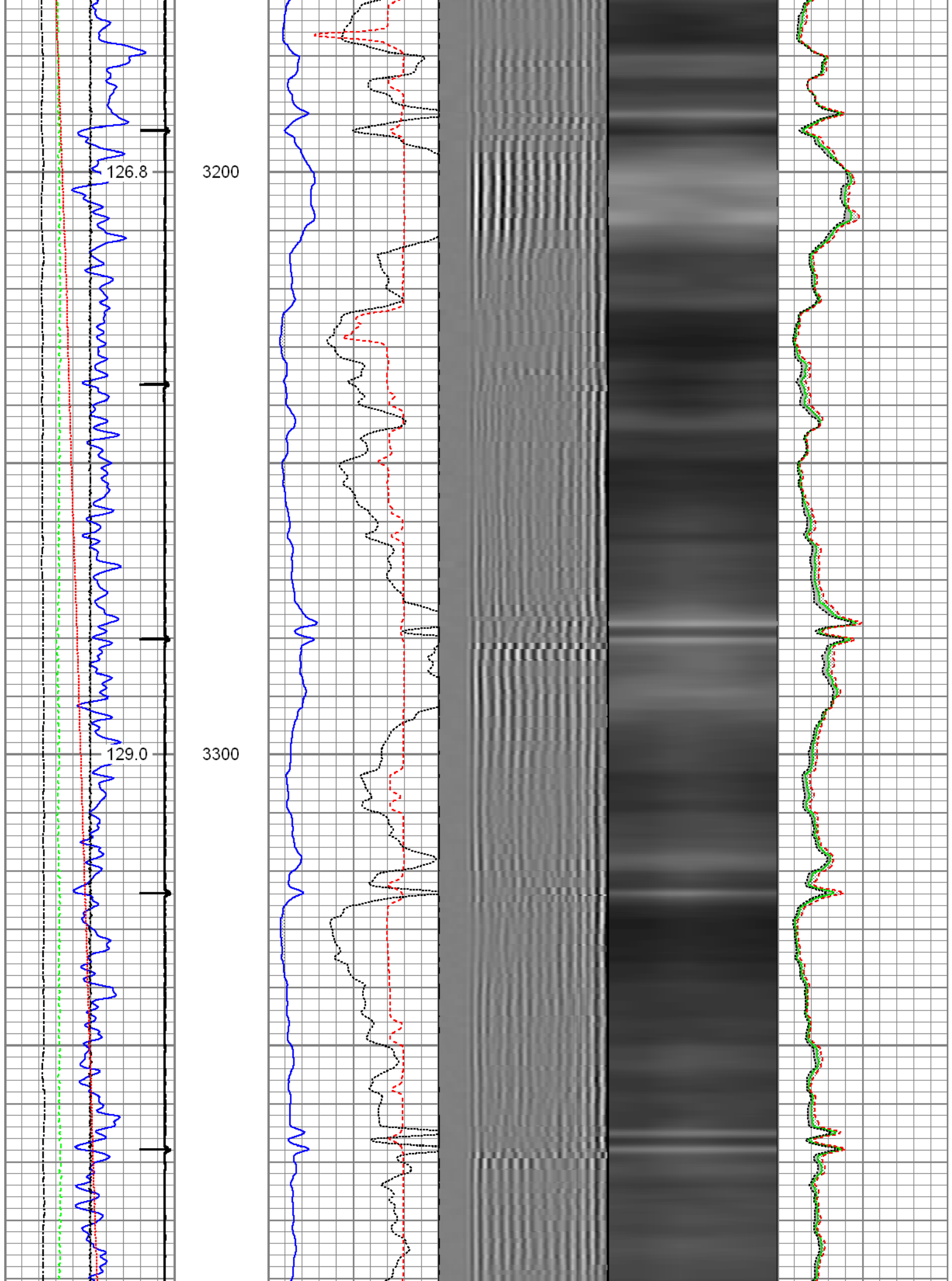


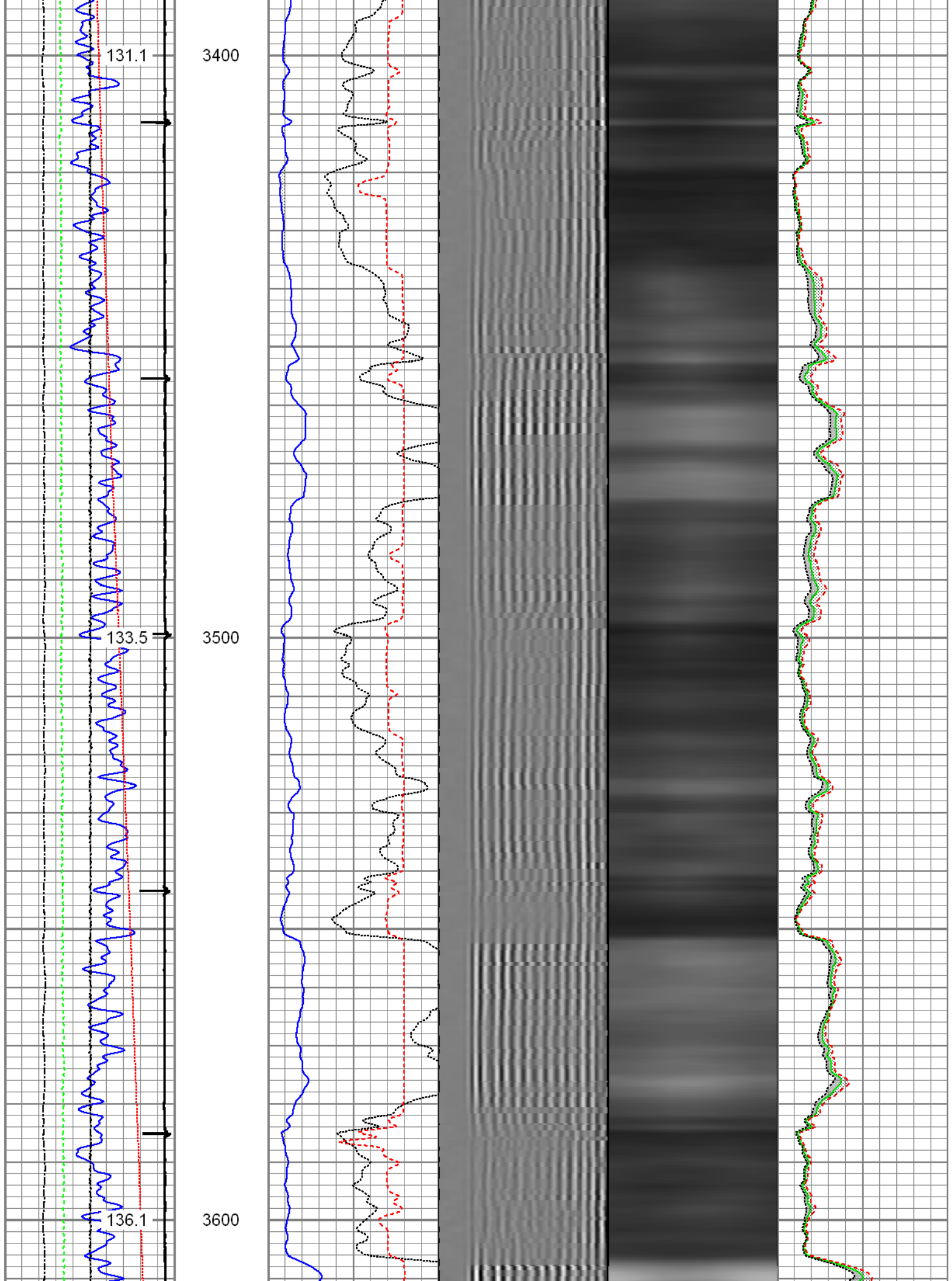
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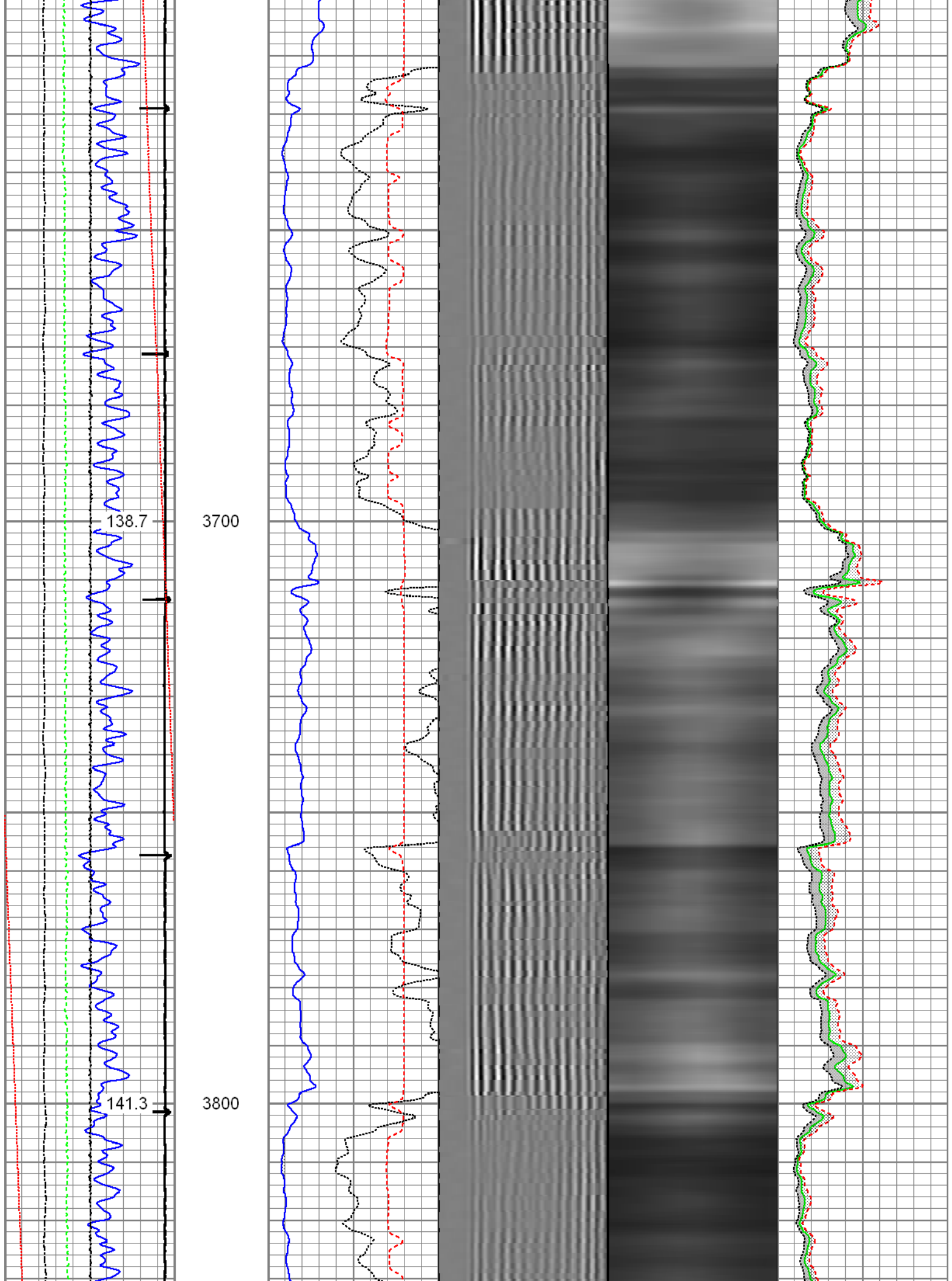
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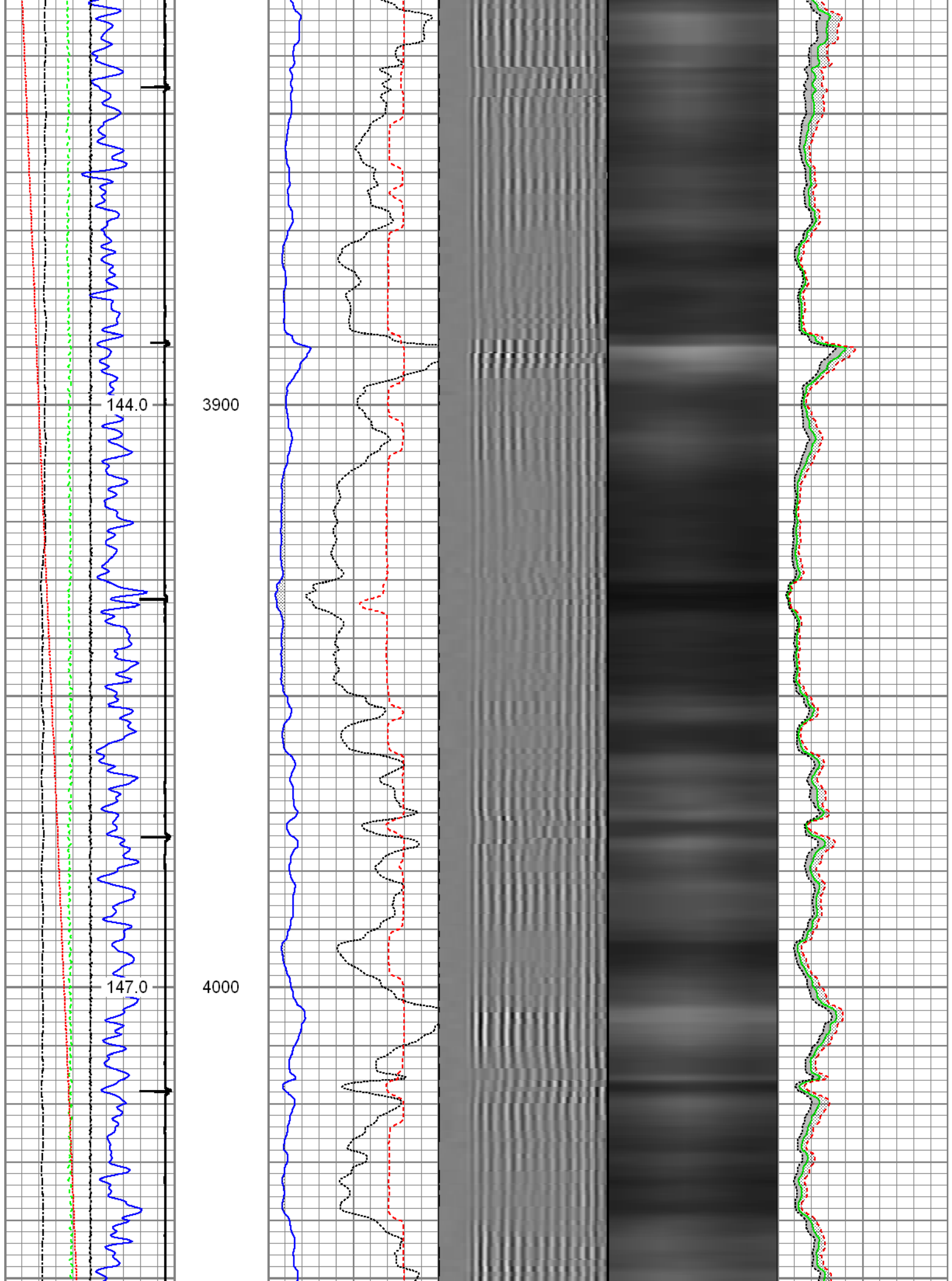


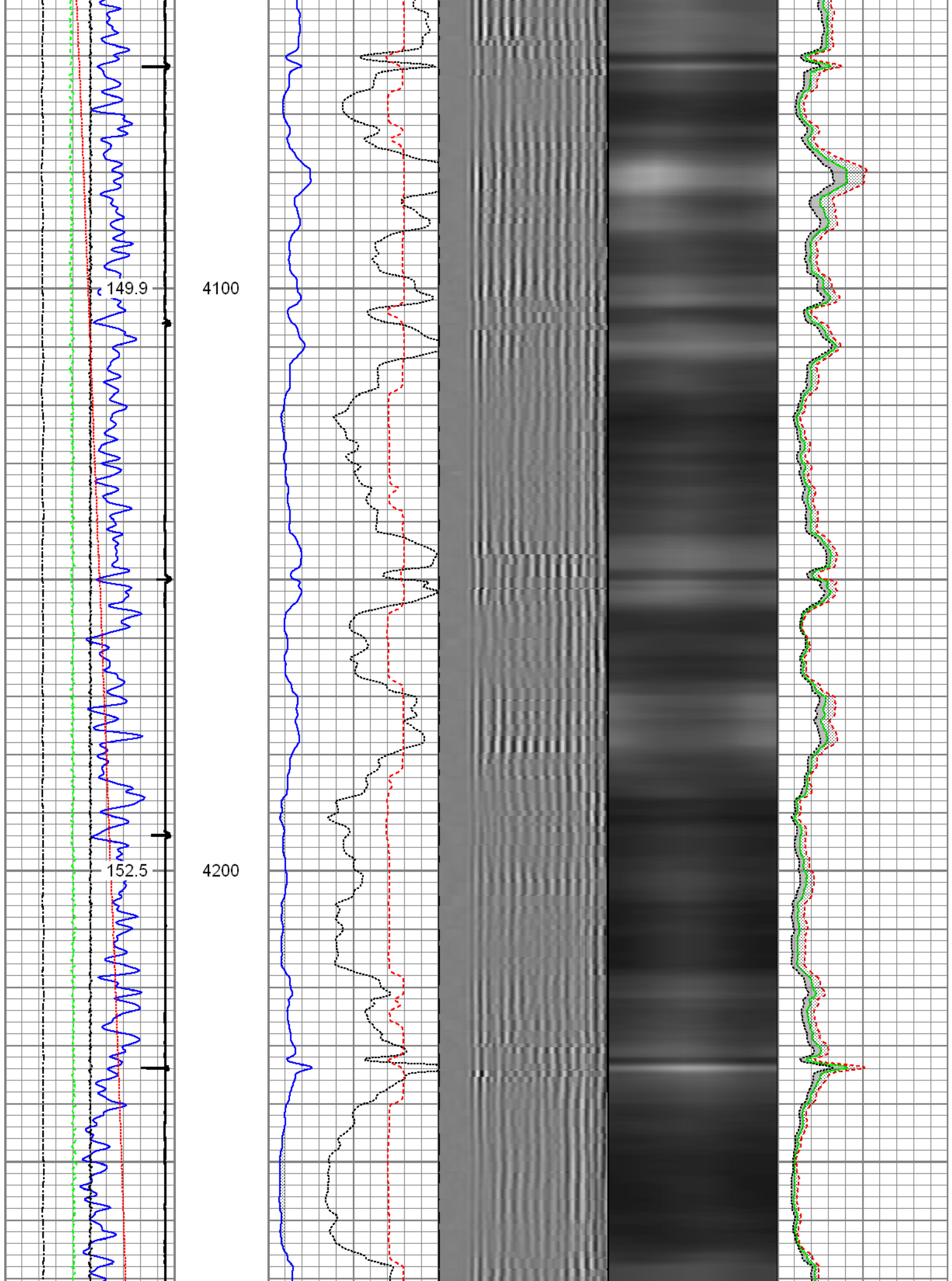


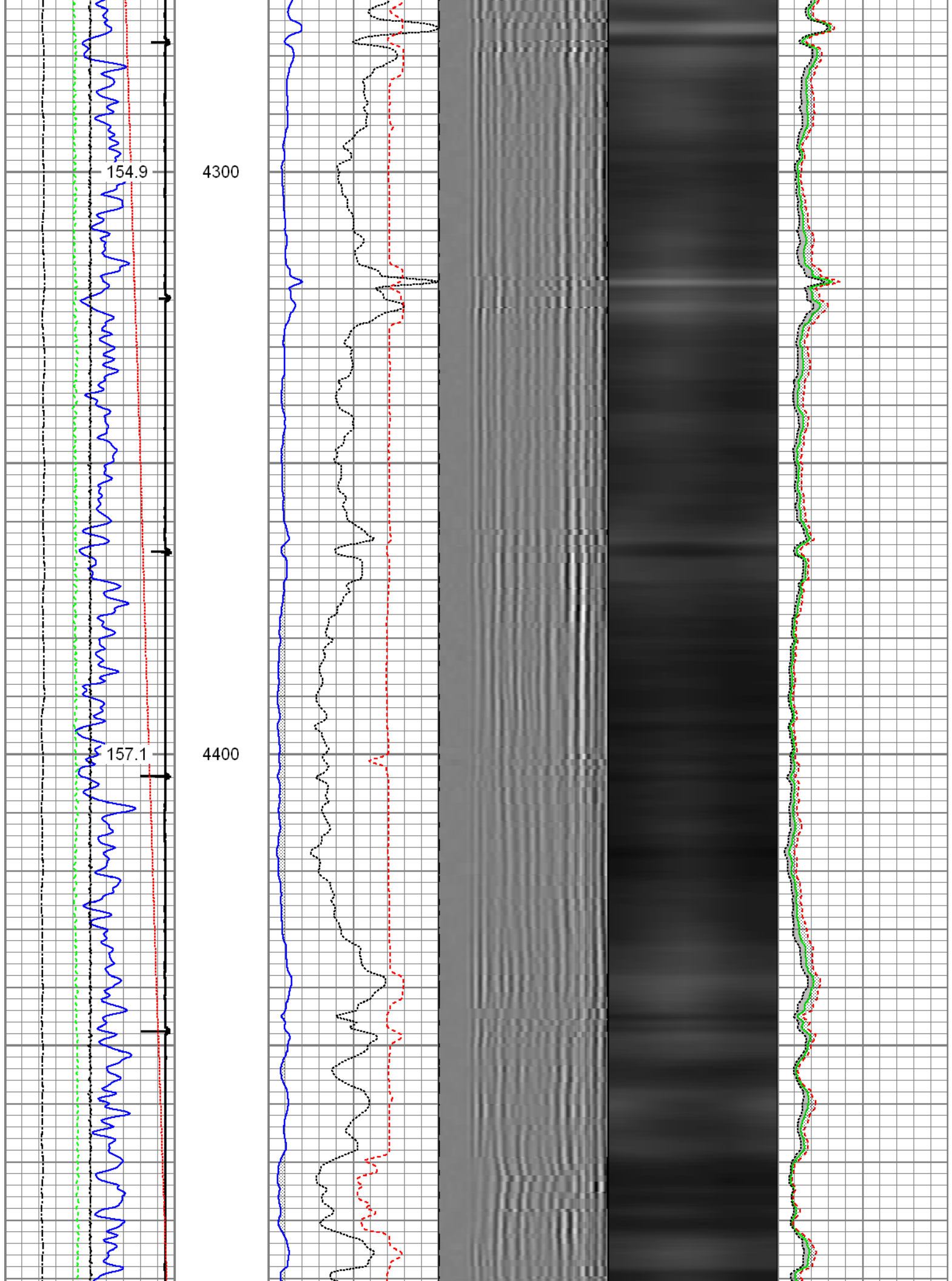


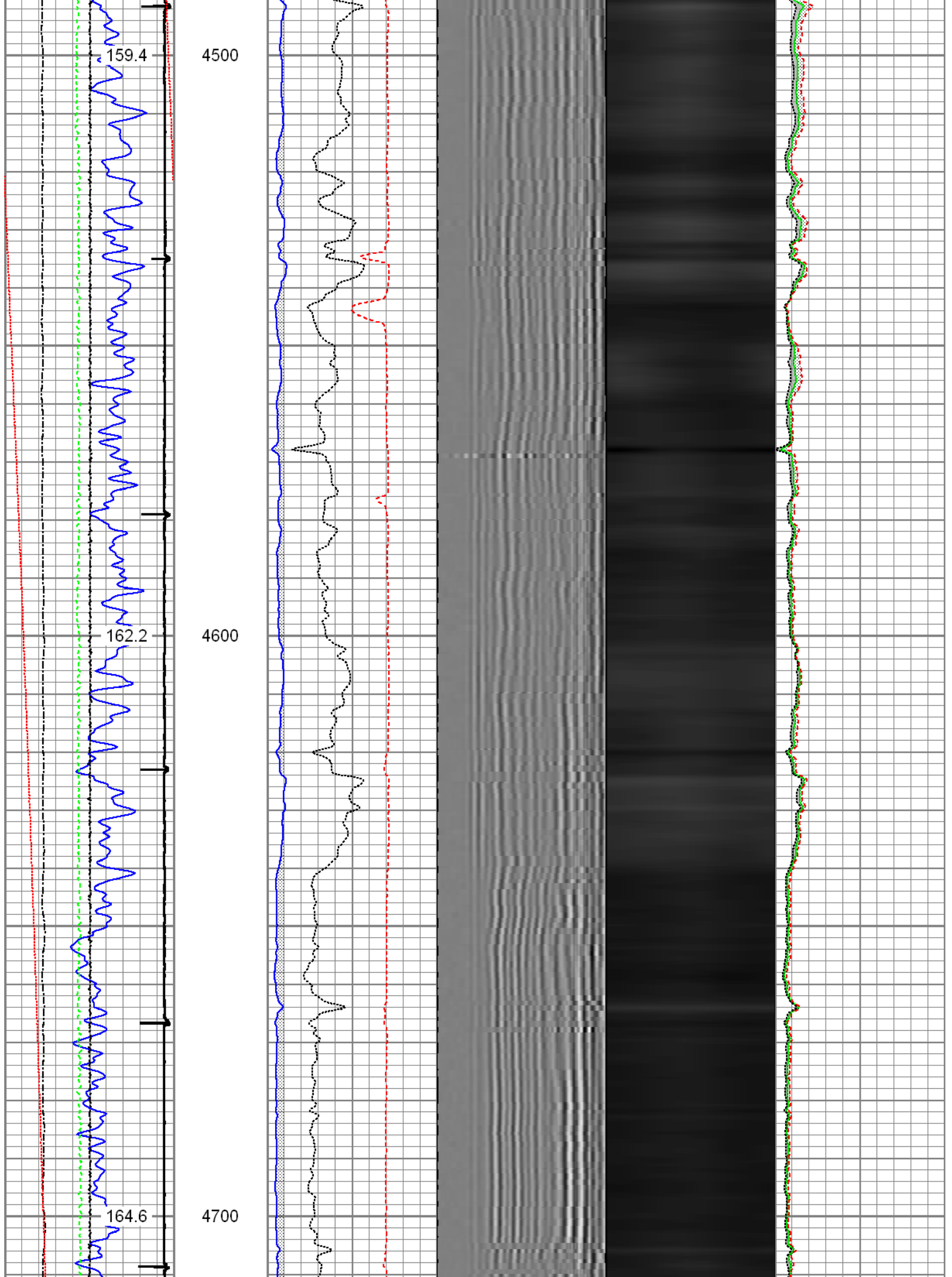


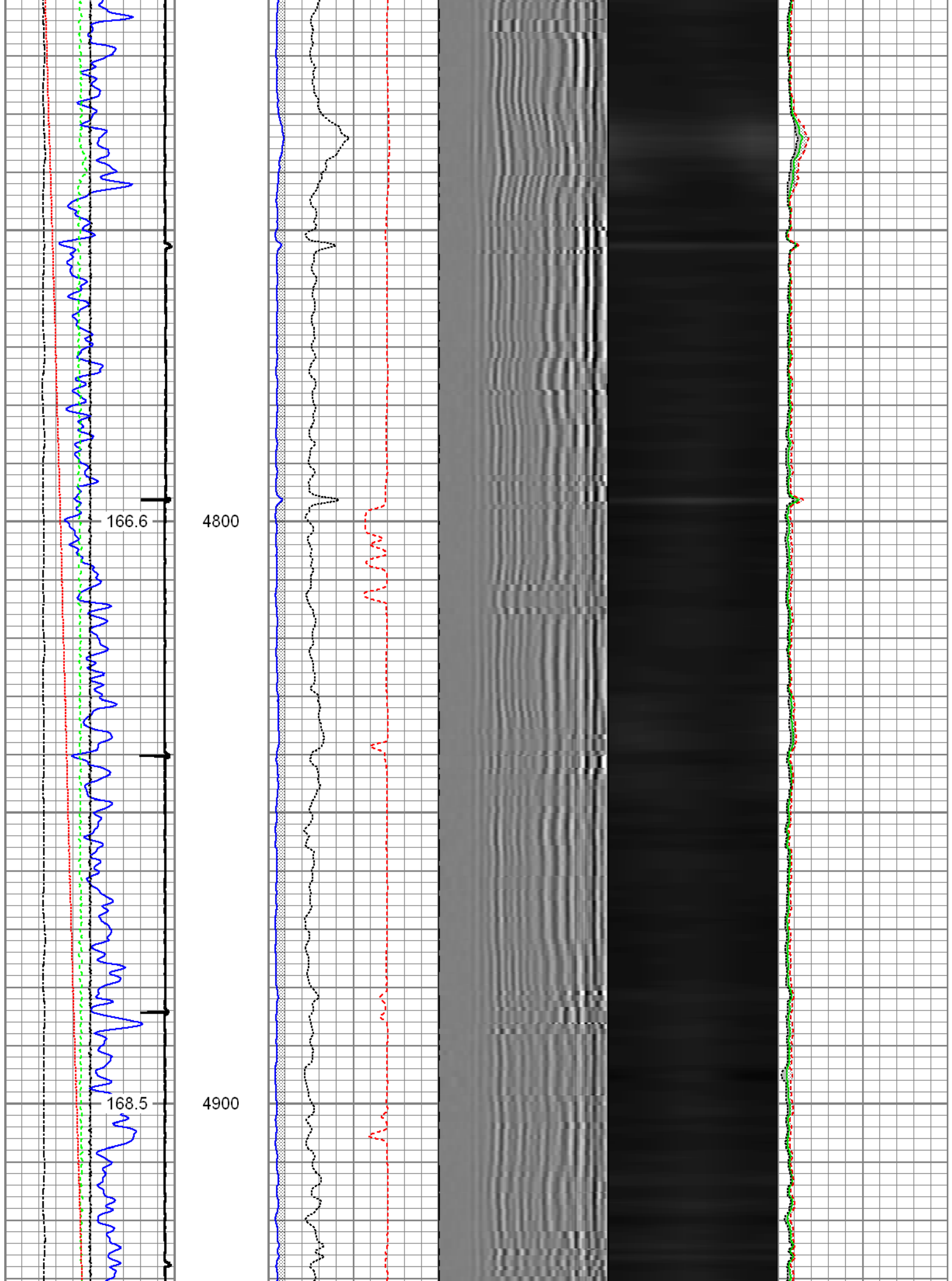


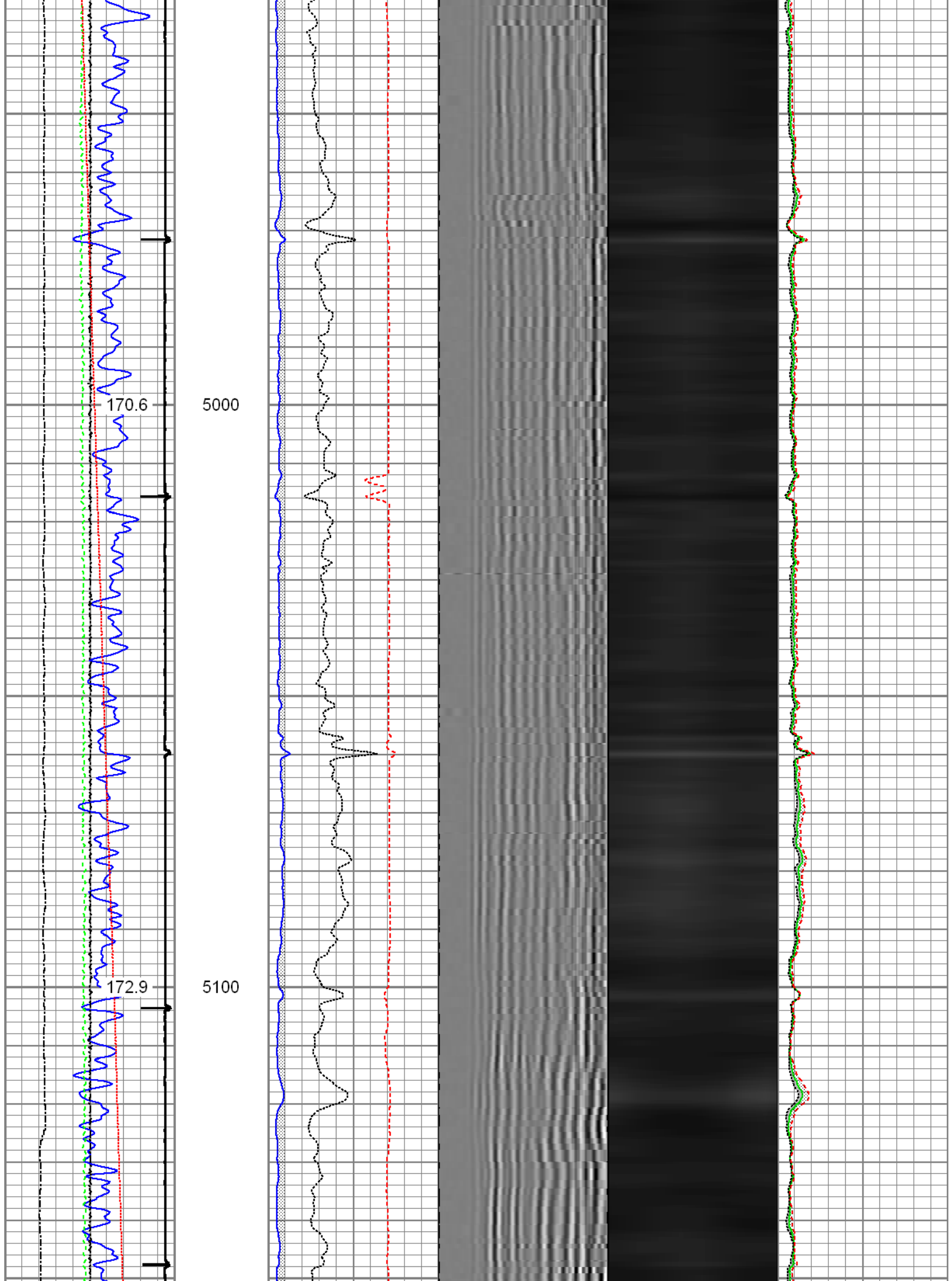


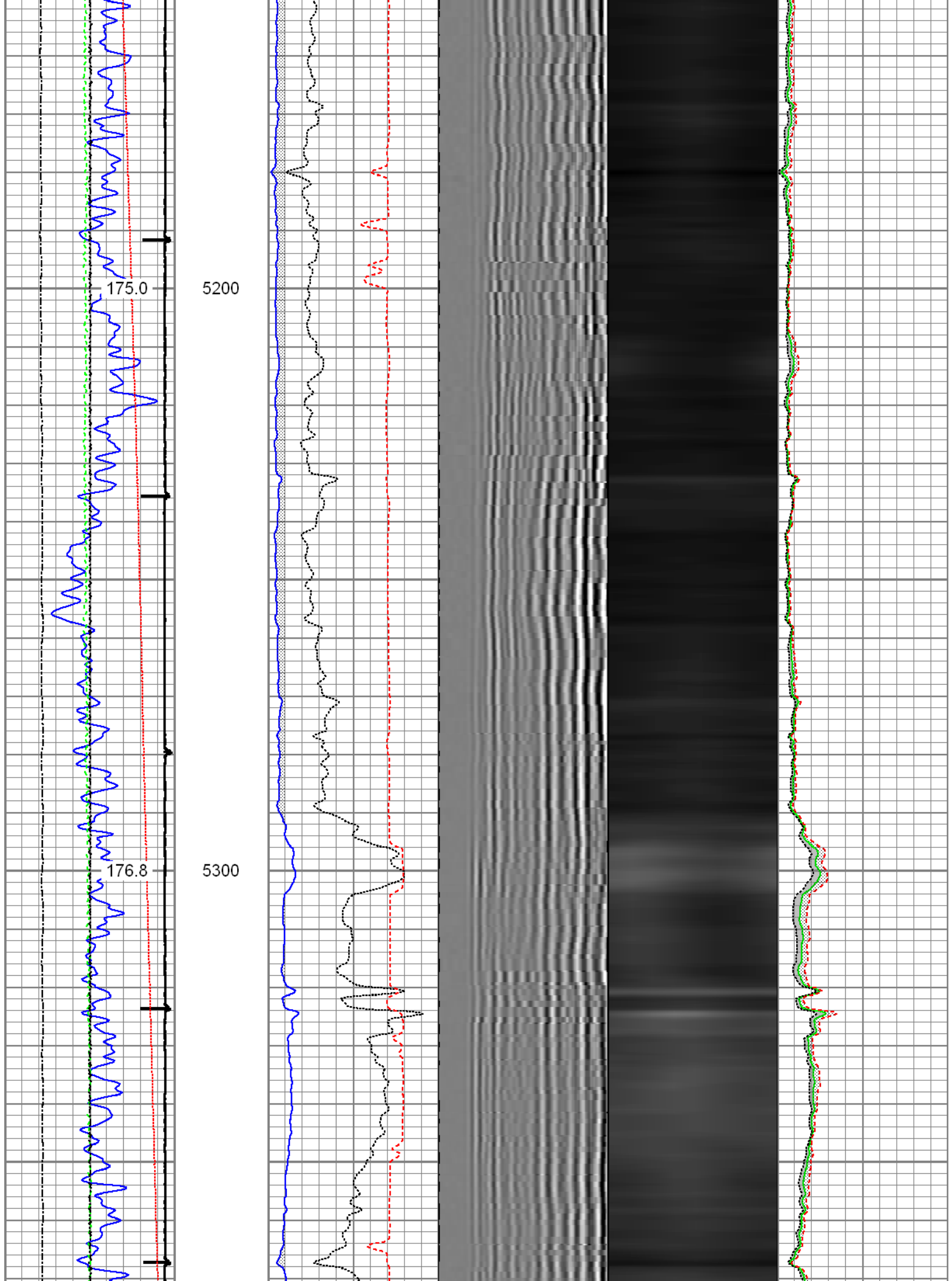


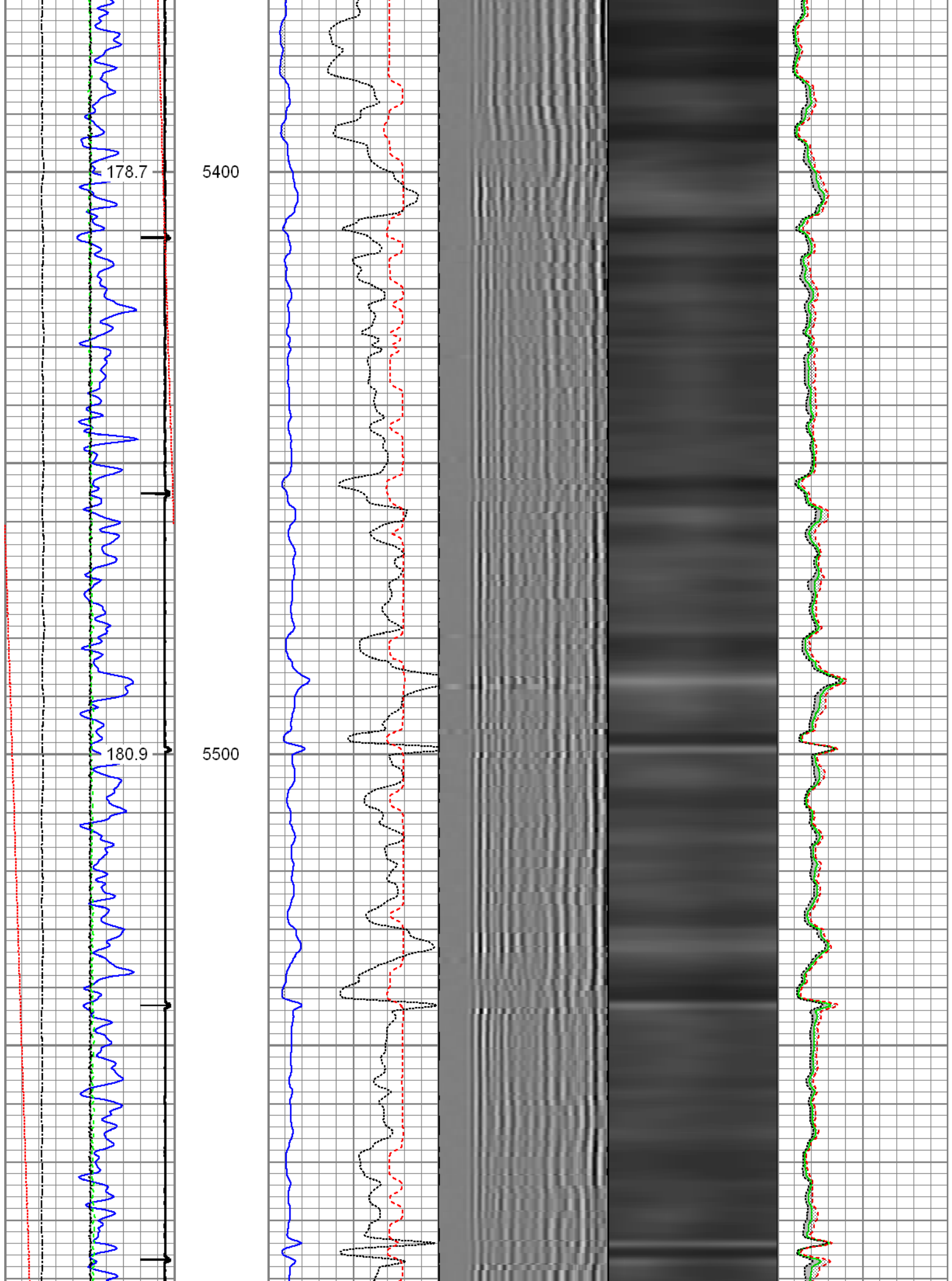


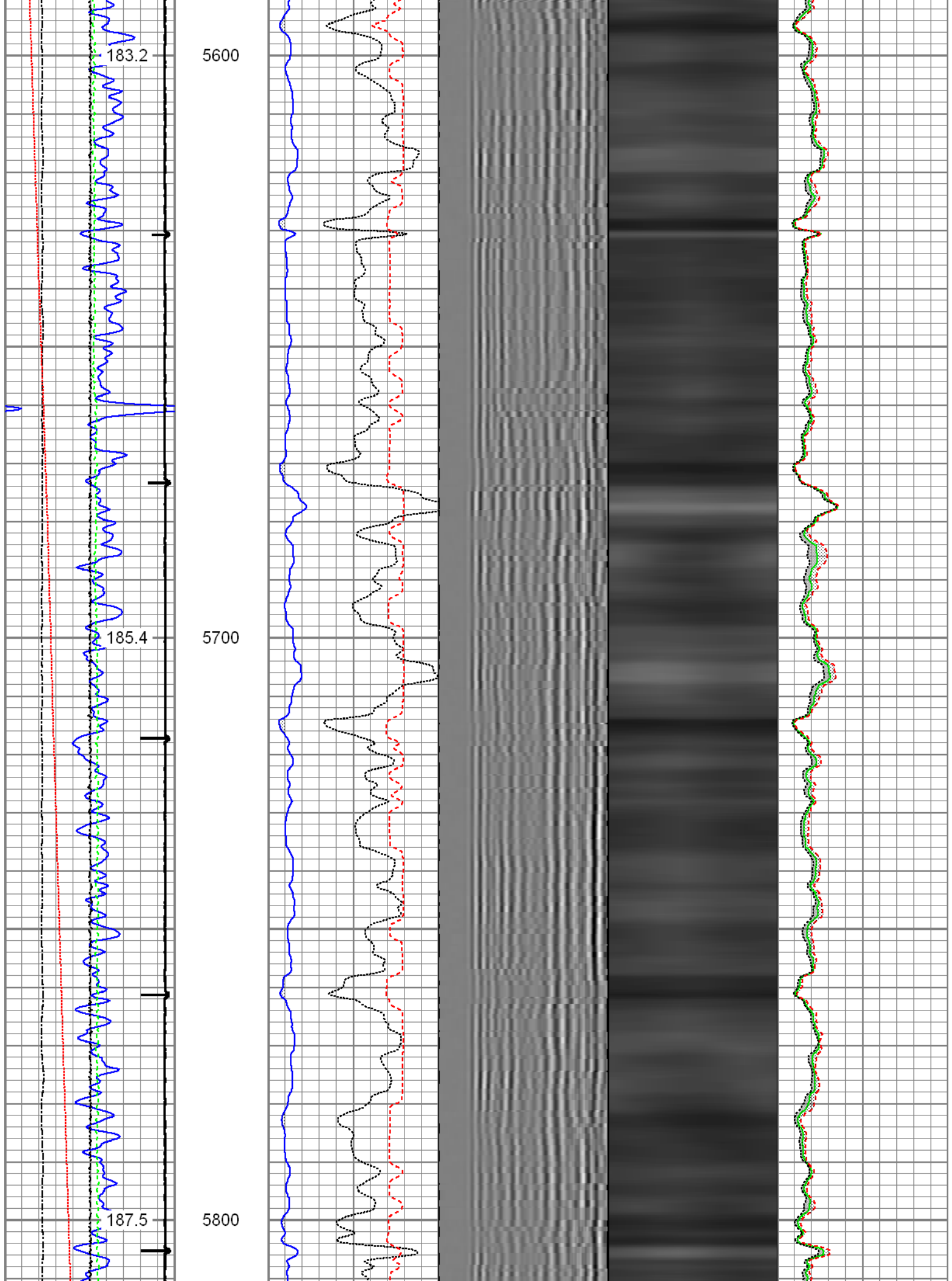


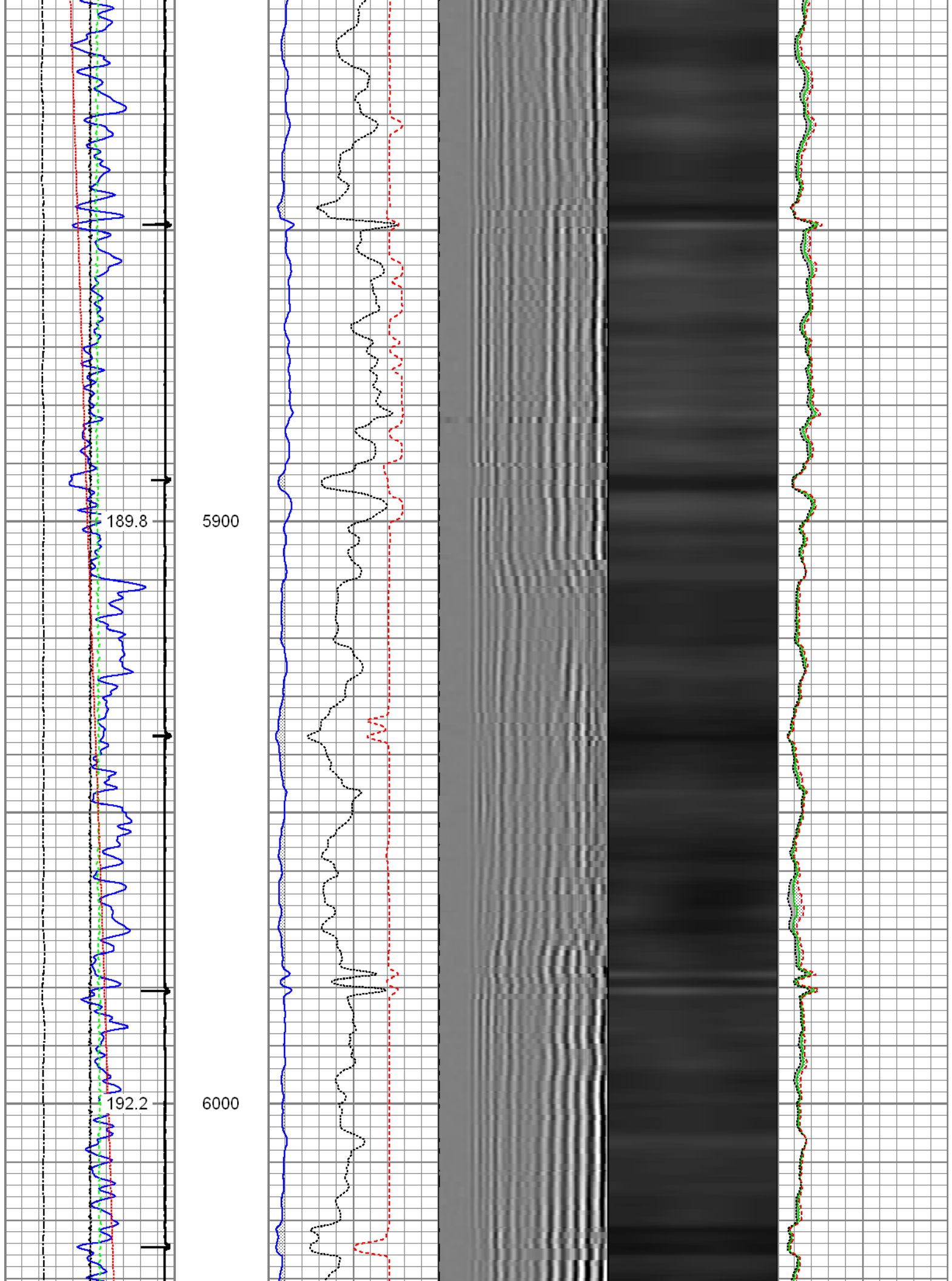


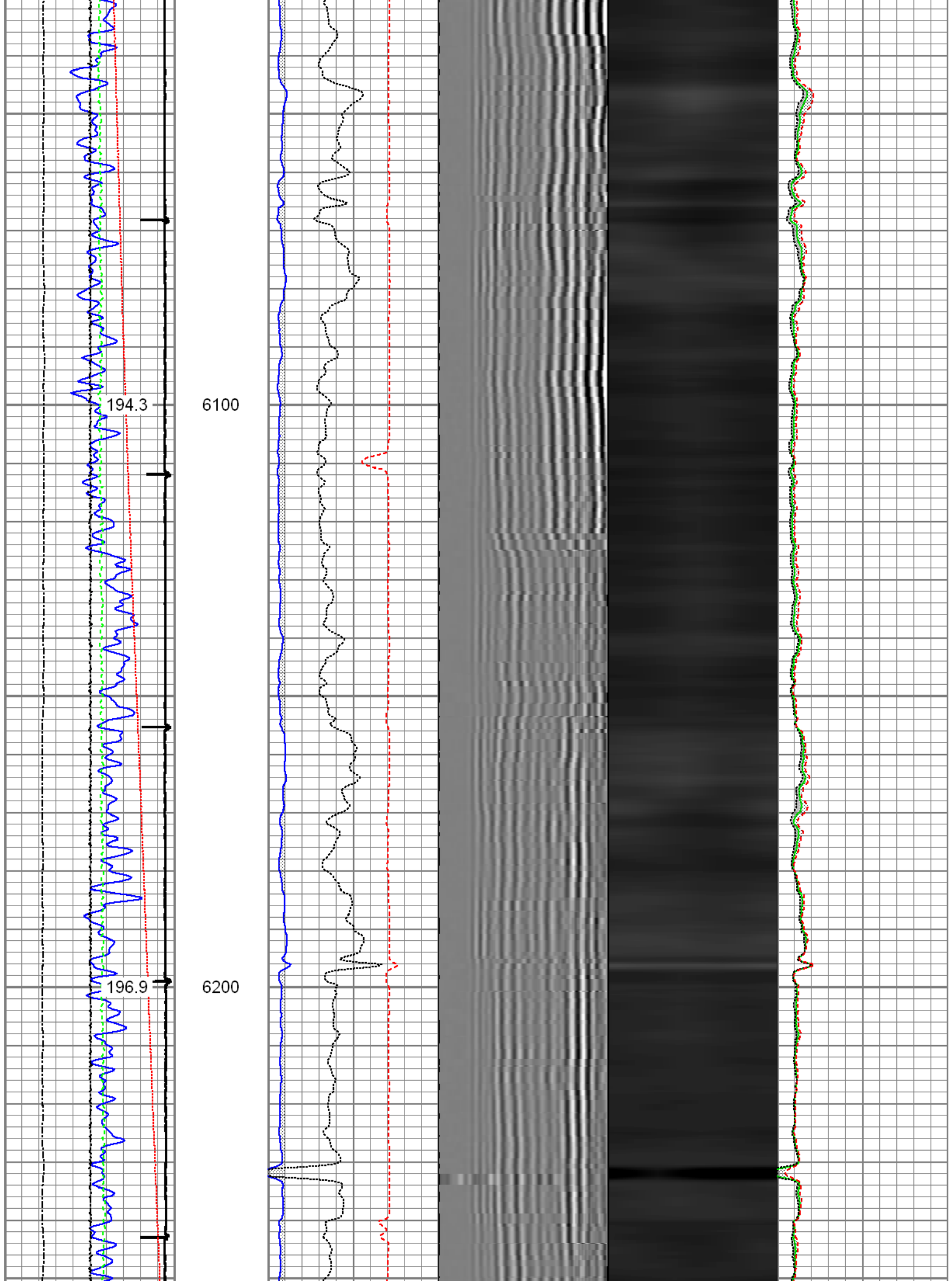


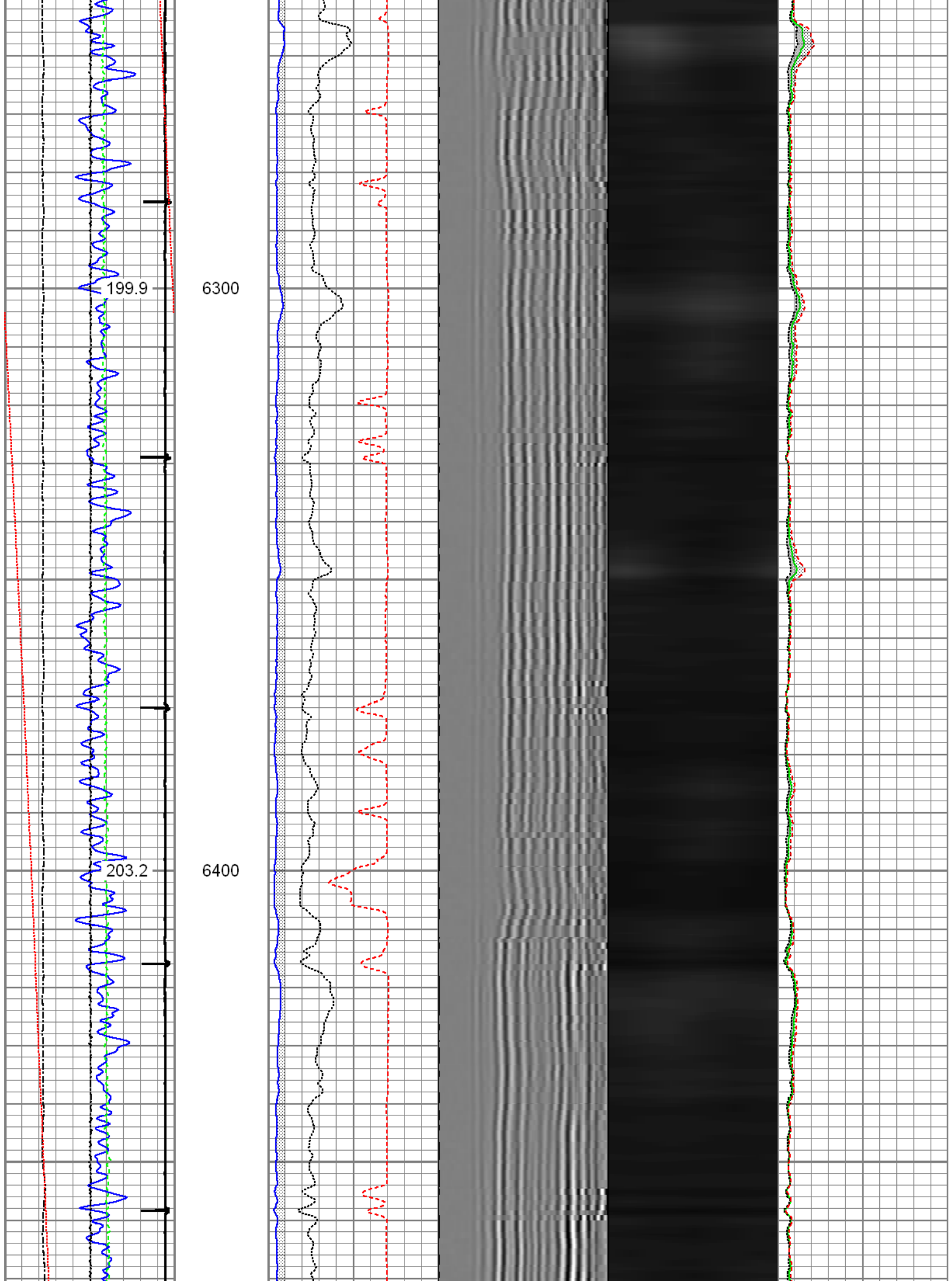


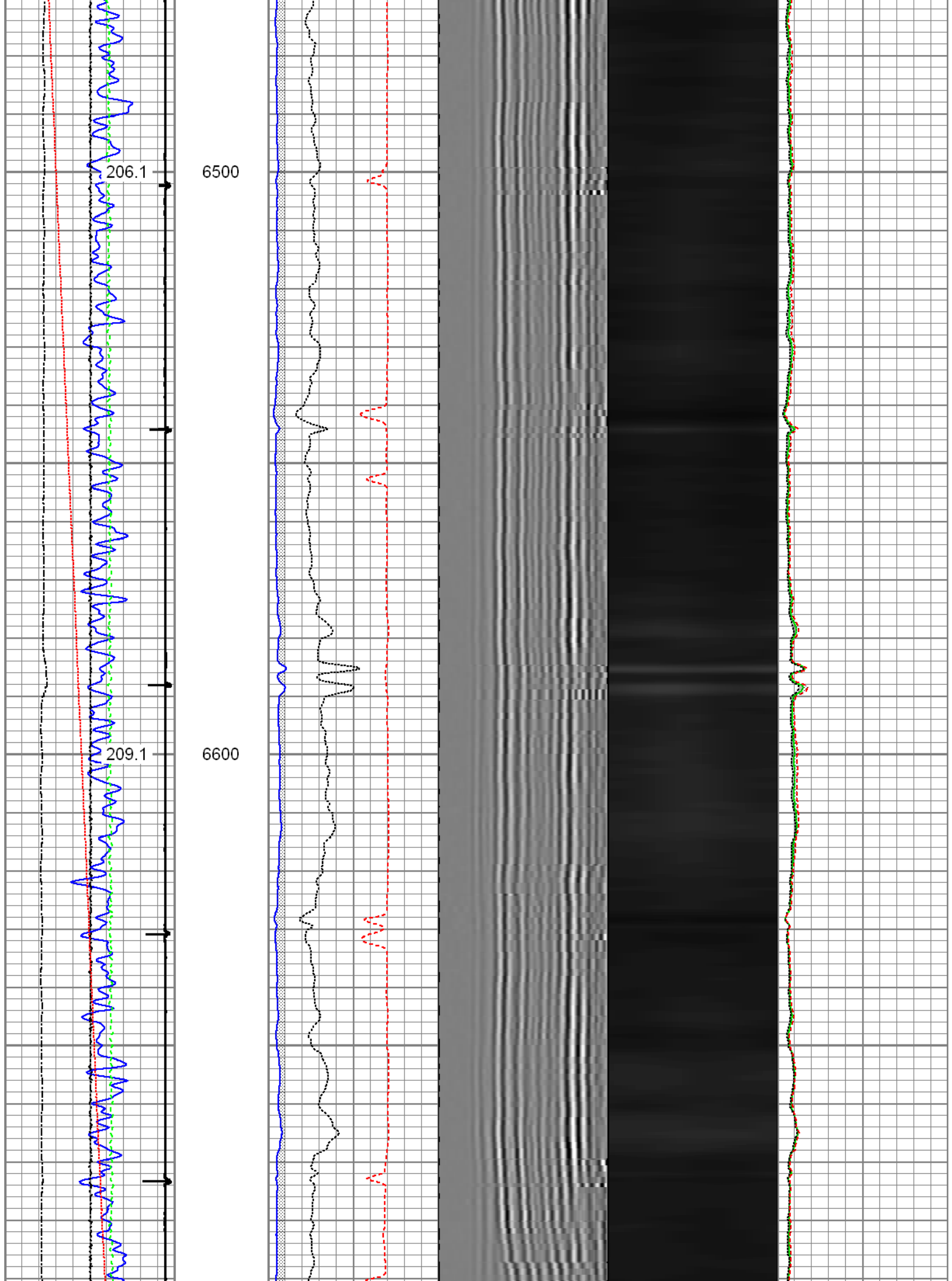


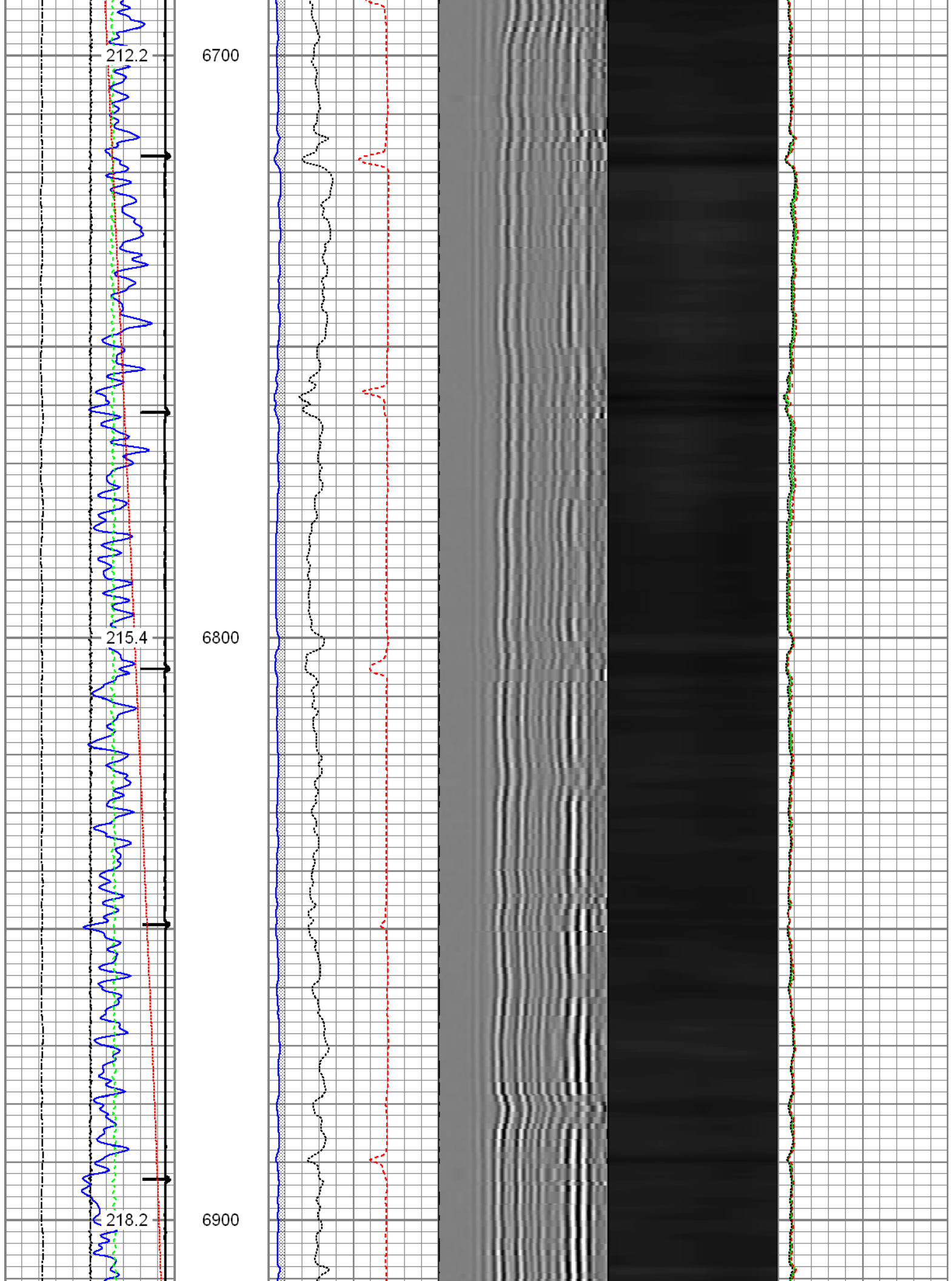


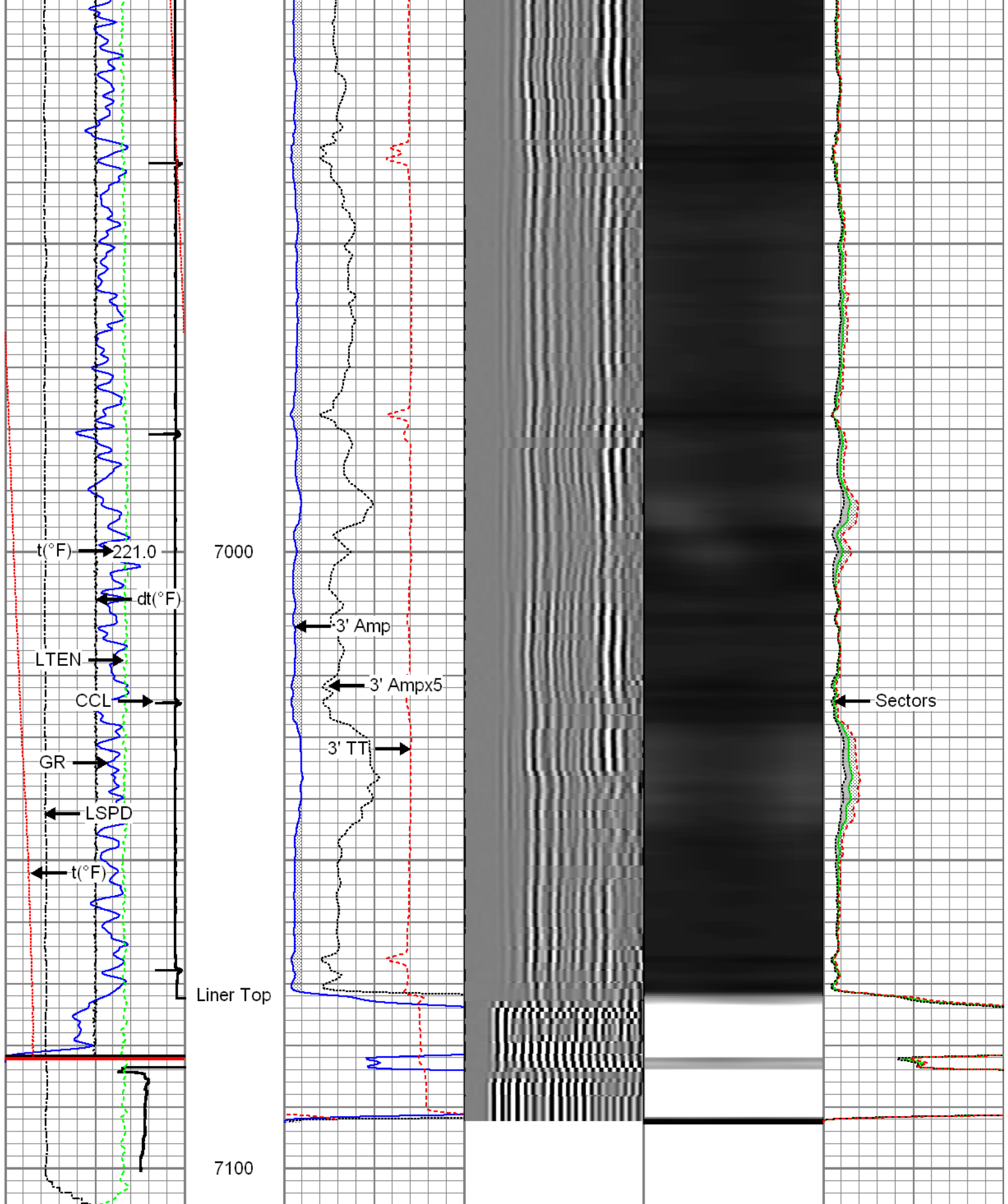








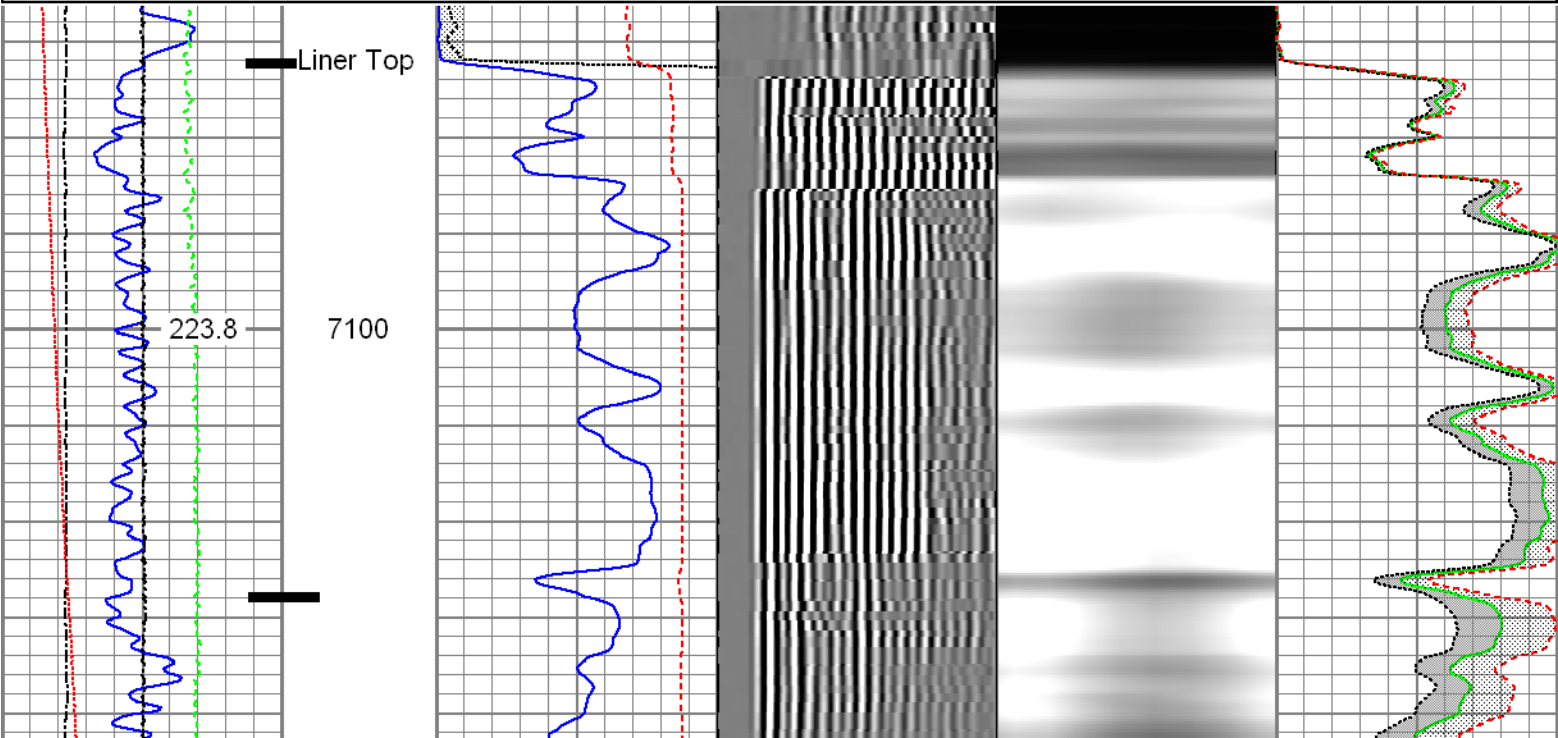


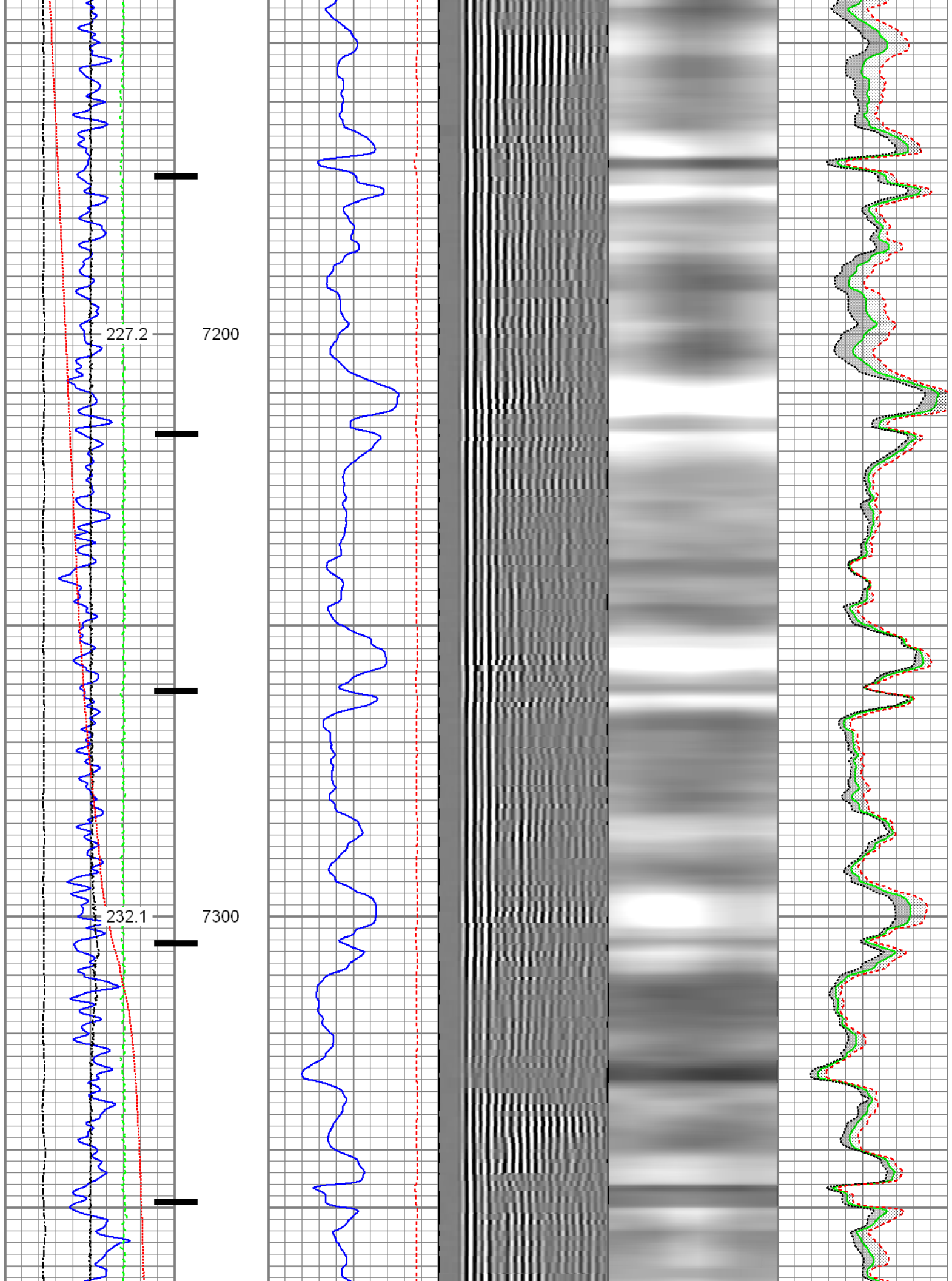


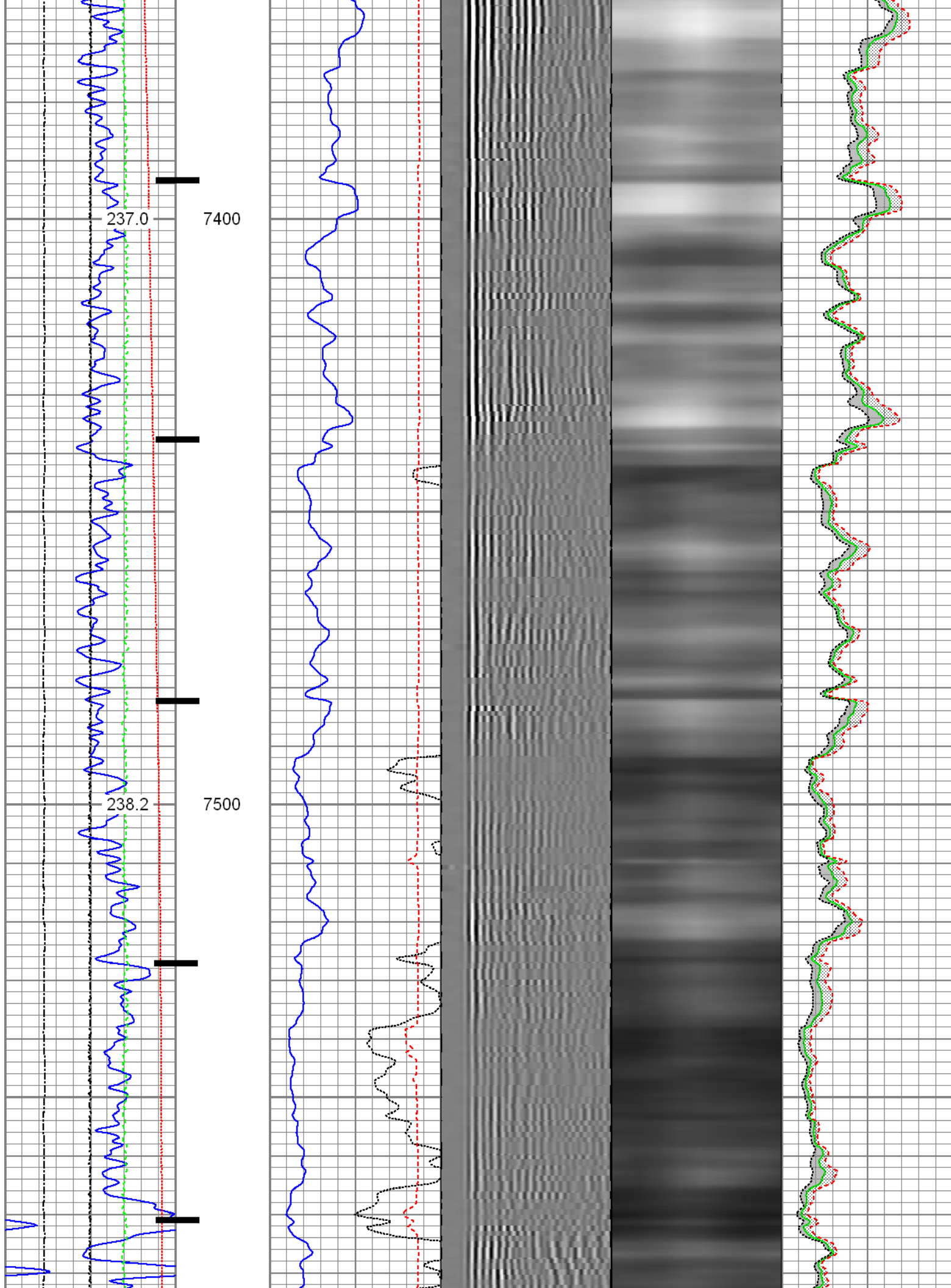
Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5 (mV)			Minimum Amplitude
Line Speed (ft/min)	0 20			0 100
-100 100	3' Travel Time			Maximum Amplitude

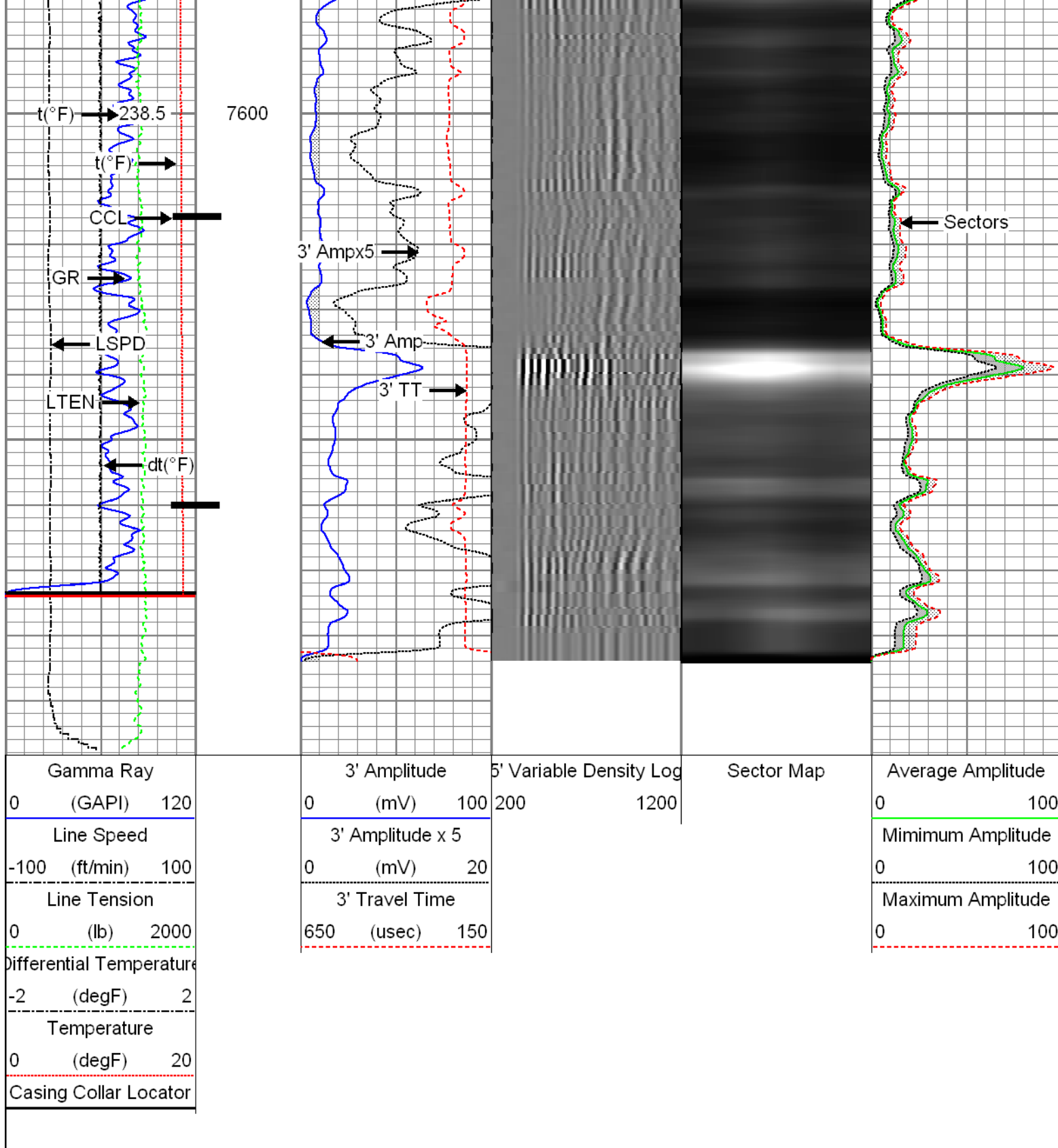
Line Tension	650	(usec)	150	0	100
0	(lb)	2000			
Differential Temperature					
-2	(degF)	2			
Temperature					
0	(degF)	20			

<div>FMC Technologies</div>		<div>Main 4.5" Pass</div> <div>Recorded with 2800 PSI Surface Induced Pressure</div>			
<div>Database File: 0512336455_anadarko_buffalo 14n-15hz_02-28-15_mit_rbl.db</div> <div>Dataset Pathname: pass7</div> <div>Presentation Format: rbt4_mit</div> <div>Dataset Creation: Sat Feb 28 15:29:11 2015 by Log 7.0 B1</div> <div>Charted by: Depth in Feet scaled 1:240</div>					
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0	(GAPI)	0	200		0
		(mV)	1200		100
Line Speed		3' Amplitude x 5			Minimum Amplitude
-100	(ft/min)	0			0
		(mV)			100
Line Tension		3' Travel Time			Maximum Amplitude
0	(lb)	650			0
		(usec)			100
Differential Temperature					
-2	(degF)				
Temperature					
0	(degF)				
Casing Collar Locator					







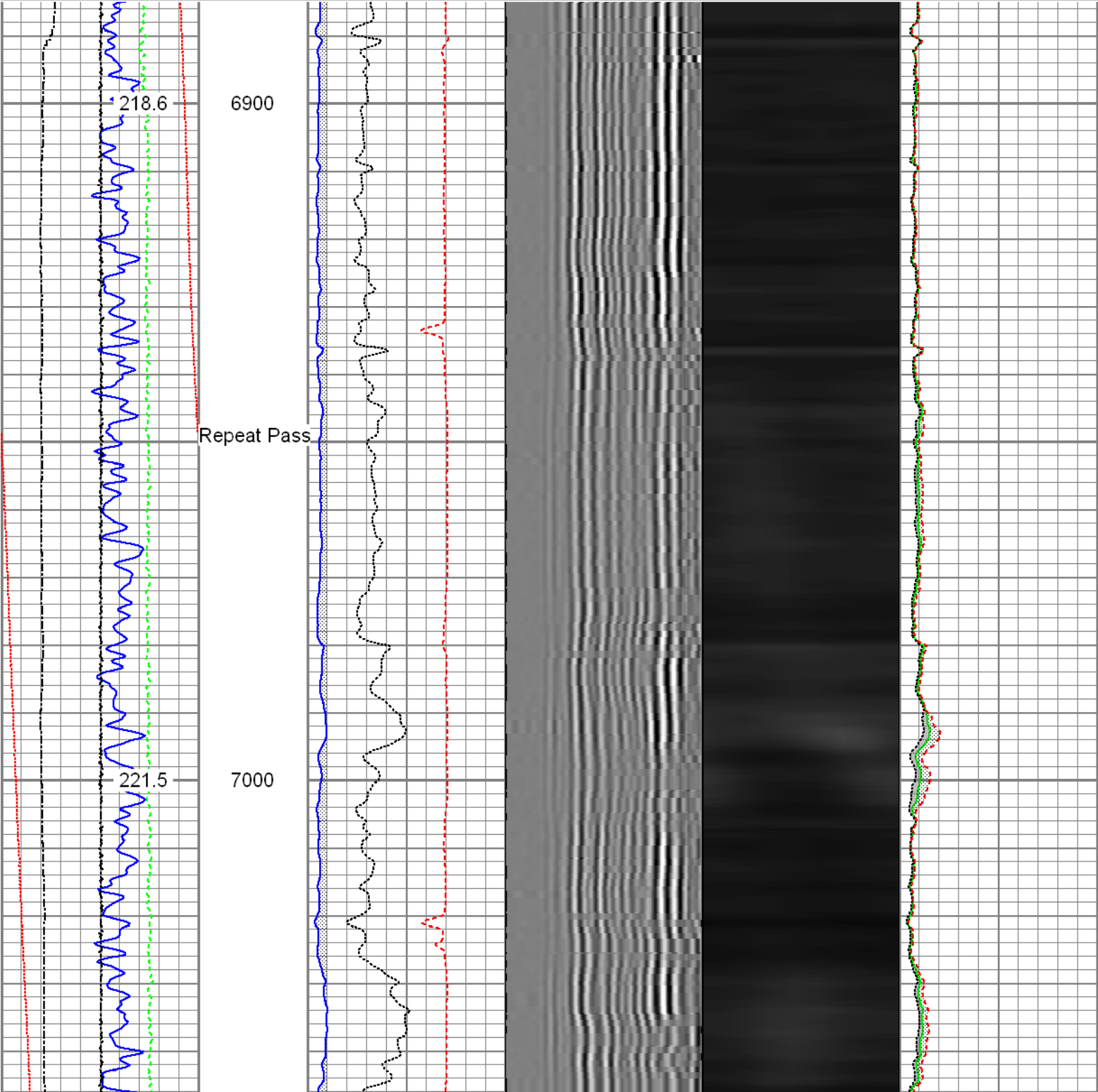


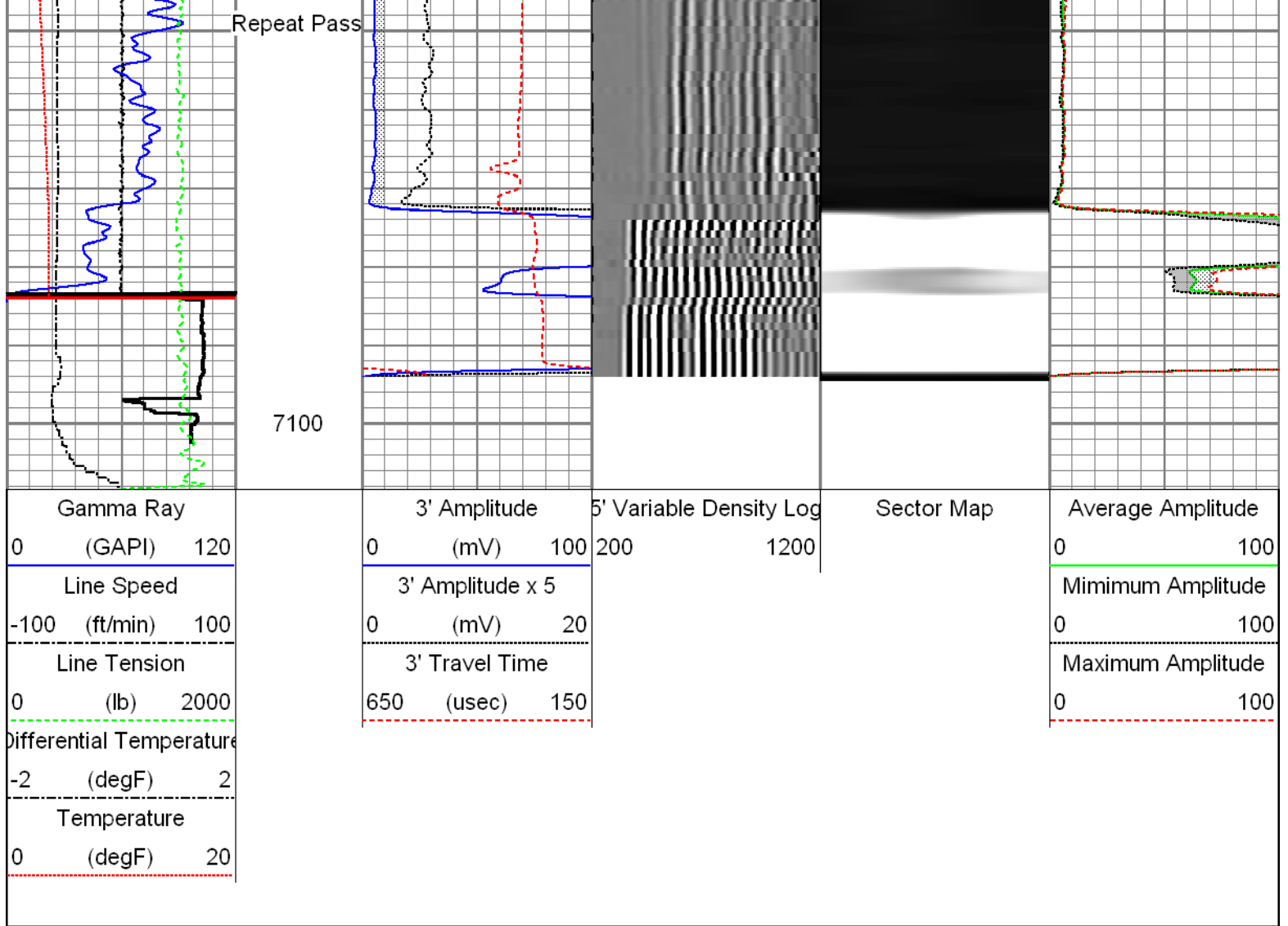
Repeat Pass

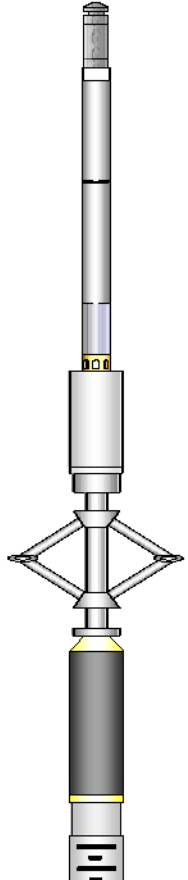
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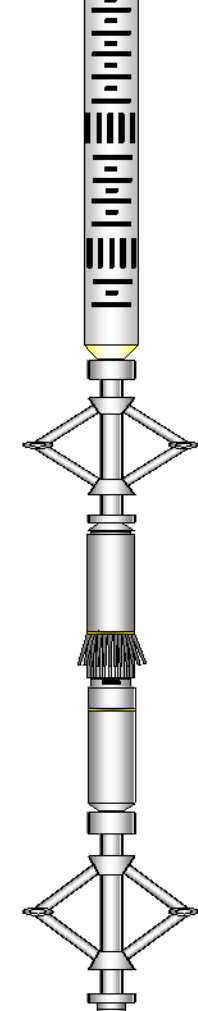
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 Dataset Pathname: pass3
 Presentation Format: rbt4_mit
 Dataset Creation: Sat Feb 28 15:04:19 2015 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

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





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	25.46		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 (10010519) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (211727) Production Gamma Ray	1.93	1.69	9.50
TEMP	24.07		UW_PRT-UW_PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
CCL	22.82		UW_CCL-UW_CCL_028 (10009470) Ultrawire 3-1/8" CCL	1.61	3.13	36.00
			UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

WVF3FT	15.42		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.42					
WVFS2	15.42					
WVFS3	15.42					
WVFS4	15.42					
WVFS5	15.42					
WVFS6	15.42					
WVFS7	15.42					
WVFS8	15.42					
CBLTEMP	15.42		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CBLROT	15.42					
WVF5FT	14.42					
MIT	5.41		UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00		UW_PRC #3 -UW_PRC_057 (1038) 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: 0512336455_anadarko_buffalo 14n-15hz_02-28-15_mit_rbl.db: field/well/run1/pass8 Total Length: 29.71 ft Total Weight: 360.50 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512336455_anadarko_buffalo 14n-15hz_02-28-15_mit_rbl.db		
Dataset Pathname:	pass11		
Dataset Creation:	Sat Feb 28 18:09:56 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:	Sat Feb 28 13:52:44 2015		

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1476	271.0	1747	291.0	2038	299.0	2337
Finger 02:	1533	251.0	1784	257.0	2041	267.0	2308
Finger 03:	1434	278.0	1712	292.0	2004	307.0	2311
Finger 04:	1467	278.0	1745	290.0	2035	297.0	2332
Finger 05:	1513	268.0	1781	278.0	2059	286.0	2345
Finger 06:	1416	284.0	1700	296.0	1996	316.0	2312
Finger 07:	1430	282.0	1712	291.0	2003	312.0	2315
Finger 08:	1451	280.0	1731	284.0	2015	298.0	2313
Finger 09:	1437	281.0	1718	295.0	2013	310.0	2323
Finger 10:	1456	269.0	1725	283.0	2008	296.0	2304
Finger 11:	1437	281.0	1718	288.0	2006	305.0	2311
Finger 12:	1412	283.0	1695	297.0	1992	317.0	2309
Finger 13:	1493	260.0	1753	270.0	2023	284.0	2307
Finger 14:	1455	268.0	1723	283.0	2006	299.0	2305
Finger 15:	1484	283.0	1767	288.0	2055	304.0	2359
Finger 16:	1465	274.0	1739	288.0	2027	303.0	2330
Finger 17:	1510	283.0	1793	292.0	2085	305.0	2390
Finger 18:	1439	271.0	1710	285.0	1995	301.0	2296
Finger 19:	1486	282.0	1768	285.0	2053	302.0	2355
Finger 20:	1475	276.0	1751	288.0	2039	303.0	2342
Finger 21:	1419	286.0	1705	304.0	2009	317.0	2326
Finger 22:	1478	266.0	1744	281.0	2025	288.0	2313
Finger 23:	1469	275.0	1744	288.0	2032	296.0	2328
Finger 24:	1506	273.0	1779	283.0	2062	282.0	2344
Finger 25:	1502	276.0	1778	290.0	2068	291.0	2359
Finger 26:	1451	280.0	1731	294.0	2025	297.0	2322
Finger 27:	1512	268.0	1780	283.0	2063	281.0	2344
Finger 28:	1502	276.0	1778	293.0	2071	294.0	2365
Finger 29:	1555	259.0	1814	272.0	2086	272.0	2358
Finger 30:	1466	276.0	1742	294.0	2036	296.0	2332
Finger 31:	1498	279.0	1777	297.0	2074	295.0	2369
Finger 32:	1527	262.0	1789	277.0	2066	275.0	2341
Finger 33:	1507	278.0	1785	299.0	2084	296.0	2380
Finger 34:	1501	275.0	1776	293.0	2069	303.0	2372
Finger 35:	1558	256.0	1814	268.0	2082	267.0	2349
Finger 36:	1524	265.0	1789	280.0	2069	288.0	2357
Finger 37:	1490	280.0	1770	293.0	2063	298.0	2361
Finger 38:	1581	249.0	1830	260.0	2090	267.0	2357
Finger 39:	1496	269.0	1765	283.0	2048	283.0	2331
Finger 40:	1436	281.0	1717	301.0	2018	310.0	2328

Post Survey Calibration Check
Performed: Sat Feb 28 18:07:44 2015

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.012	0.006	5.011	0.006	6.008	0.004	7.009	0.004
Finger 02:	4.010	0.005	5.004	0.002	6.007	0.003	7.003	0.001
Finger 03:	4.009	0.005	5.016	0.008	6.014	0.007	7.007	0.004
Finger 04:	4.006	0.003	5.015	0.007	6.009	0.005	7.008	0.004
Finger 05:	4.008	0.004	5.009	0.004	6.009	0.004	7.006	0.003
Finger 06:	4.021	0.011	5.010	0.005	6.008	0.004	7.006	0.003
Finger 07:	4.017	0.008	5.005	0.002	6.005	0.002	7.001	0.001
Finger 08:	4.010	0.005	5.000	-0.000	6.009	0.005	7.017	0.008
Finger 09:	4.013	0.007	5.008	0.004	6.008	0.004	7.011	0.005
Finger 10:	4.013	0.007	5.008	0.004	6.005	0.002	7.014	0.007
Finger 11:	4.010	0.005	4.994	-0.003	6.003	0.001	7.009	0.004
Finger 12:	4.013	0.006	5.007	0.004	6.001	0.001	6.998	-0.001
Finger 13:	4.005	0.003	5.005	0.003	6.002	0.001	6.999	-0.000
Finger 14:	4.012	0.006	5.006	0.003	6.005	0.002	7.005	0.003
Finger 15:	4.012	0.006	5.032	0.016	6.053	0.026	7.028	0.014
Finger 16:	4.011	0.006	5.005	0.002	6.003	0.001	7.003	0.001
Finger 17:	4.013	0.006	5.001	0.001	6.003	0.001	6.994	-0.003

Finger 18:	4.004	0.002	4.999	-0.000	6.004	0.002	6.996	-0.002
Finger 19:	4.007	0.003	5.137	0.068	6.158	0.079	7.127	0.063
Finger 20:	4.012	0.006	5.005	0.002	6.010	0.005	7.006	0.003
Finger 21:	4.000	-0.000	4.996	-0.002	5.999	-0.001	6.995	-0.003
Finger 22:	4.004	0.002	5.000	0.000	6.004	0.002	6.997	-0.001
Finger 23:	4.008	0.004	5.005	0.002	6.006	0.003	6.999	-0.000
Finger 24:	4.005	0.002	4.999	-0.001	5.997	-0.002	6.998	-0.001
Finger 25:	4.004	0.002	5.003	0.001	5.995	-0.002	7.001	0.000
Finger 26:	4.025	0.012	5.013	0.007	6.020	0.010	7.026	0.013
Finger 27:	4.059	0.029	5.062	0.031	6.071	0.035	7.062	0.031
Finger 28:	4.004	0.002	5.001	0.001	5.997	-0.001	6.993	-0.003
Finger 29:	4.005	0.003	5.000	0.000	6.001	0.000	6.993	-0.003
Finger 30:	4.010	0.005	4.996	-0.002	5.995	-0.002	7.006	0.003
Finger 31:	4.004	0.002	5.004	0.002	5.996	-0.002	7.000	0.000
Finger 32:	4.007	0.003	5.004	0.002	6.005	0.002	7.000	0.000
Finger 33:	4.001	0.000	5.001	0.001	5.996	-0.002	6.991	-0.004
Finger 34:	4.014	0.007	5.002	0.001	6.009	0.004	7.005	0.002
Finger 35:	4.005	0.002	5.001	0.000	6.007	0.004	7.007	0.003
Finger 36:	4.011	0.005	5.009	0.005	6.013	0.007	7.000	-0.000
Finger 37:	4.016	0.008	4.995	-0.002	6.017	0.008	7.009	0.005
Finger 38:	4.012	0.006	5.008	0.004	6.008	0.004	7.003	0.002
Finger 39:	4.009	0.004	5.007	0.004	6.004	0.002	7.002	0.001
Finger 40:	4.006	0.003	5.006	0.003	6.013	0.007	7.001	0.000
Average:	4.011	0.005	5.010	0.005	6.012	0.006	7.008	0.004

Segmented Cement Bond Log Calibration Report								
Serial Number:			1066					
Tool Model:			UW_RBT_004					
Calibration Casing Diameter:			4.500	in				
Calibration Depth:			7111.688	ft				

Master Calibration, performed Sat Feb 28 15:23:33 2015:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3FT	0.003	0.873	0.800	81.196	92.405	0.489	
5FT	-0.002	0.470	0.800	81.196	170.125	1.215	
S1	0.002	0.877	0.000	100.000	114.364	-0.279	
S2	0.002	0.874	0.000	100.000	114.718	-0.280	
S3	0.002	0.854	0.000	100.000	117.492	-0.287	
S4	0.002	0.855	0.000	100.000	117.307	-0.286	
S5	0.002	0.861	0.000	100.000	116.503	-0.284	
S6	0.002	0.883	0.000	100.000	113.605	-0.277	
S7	0.003	0.910	0.000	100.000	110.235	-0.288	
S8	0.004	0.902	0.000	100.000	111.285	-0.405	

Temperature Calibration Report					
Serial Number:			10025097		
Tool Model:			UW_PRT_016		
Performed:			Wed Feb 11 13:44:44 2015		
Point #		Reading	Reference		
1		13053.00	cps	68.00	degF
2		18014.00	cps	104.00	degF
3		29668.00	cps	176.00	degF
4		41181.00	cps	248.00	degF
5		52983.00	cps	320.00	degF
6		58931.00	cps	356.00	degF

6	55551.00	cps	555.00	degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

Gamma Ray Calibration Report

Serial Number:	211727	
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 and Gas Onshore LP
Well	Buffalo 14N-15HZ
Field	Wattenberg
County	Weld
State	Colorado