



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.				
Well	Cream 15C-28HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Location:	API # : 05-123-40959				Other Services Gauge Ring MIT
SEC 28 TWP 3N RGE 65W					
Permanent Datum	Ground Level		Elevation		
Log Measured From	Kelly Bushing		20 FT		
Drilling Measured From	Kelly Bushing				
Company Kerr-McGee Oil & Gas Onshore, L.P.					
Well Cream 15C-28HZ					
Field Wattenberg					
County Weld State Colorado					
K.B. 4845'					
D.F. 4844'					
G.L. 4825'					

Date	21-JUL-2015						
Run Number	Two						
Depth Driller	12.796 FT						
Depth Logger	7.265 FT						
Bottom Logged Interval	7.259 FT						
Top Log Interval	Surface						
Open Hole Size	8.750"						
Type Fluid	Water						
Density / Viscosity	8.34 lbm/gal						
Max. Recorded Temp.	255°F						
Estimated Cement Top	Surface						
Time Well Ready	ROA						
Time Logger on Bottom	8:45 A.M.						
Equipment Number	HD-0119						
Location	Ft. Lupton, CO						
Recorded By	Andrew Olmsted						
Witnessed By	Josh Gustafson						
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	1,202 FT		
Intermediate #1	7	26	HCP 110 LTC	Surface	7,665 FT		
Intermediate #2							
Liner	4 1/2	11.6	P-110 LTC/DOX	6,498 FT	12,796 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 6,498 FT
Adjusted +6 FT to correlate to liner top
Gauge Ring/Junk Basket ran to 7,274 FT
Log ran from as deep as possible in heel to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of debris upon completion of operations

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



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\anadarko_cream 15c-28hz\0512340959_anadarko_cream 15c-28hz_07-21-15_mit_rbl

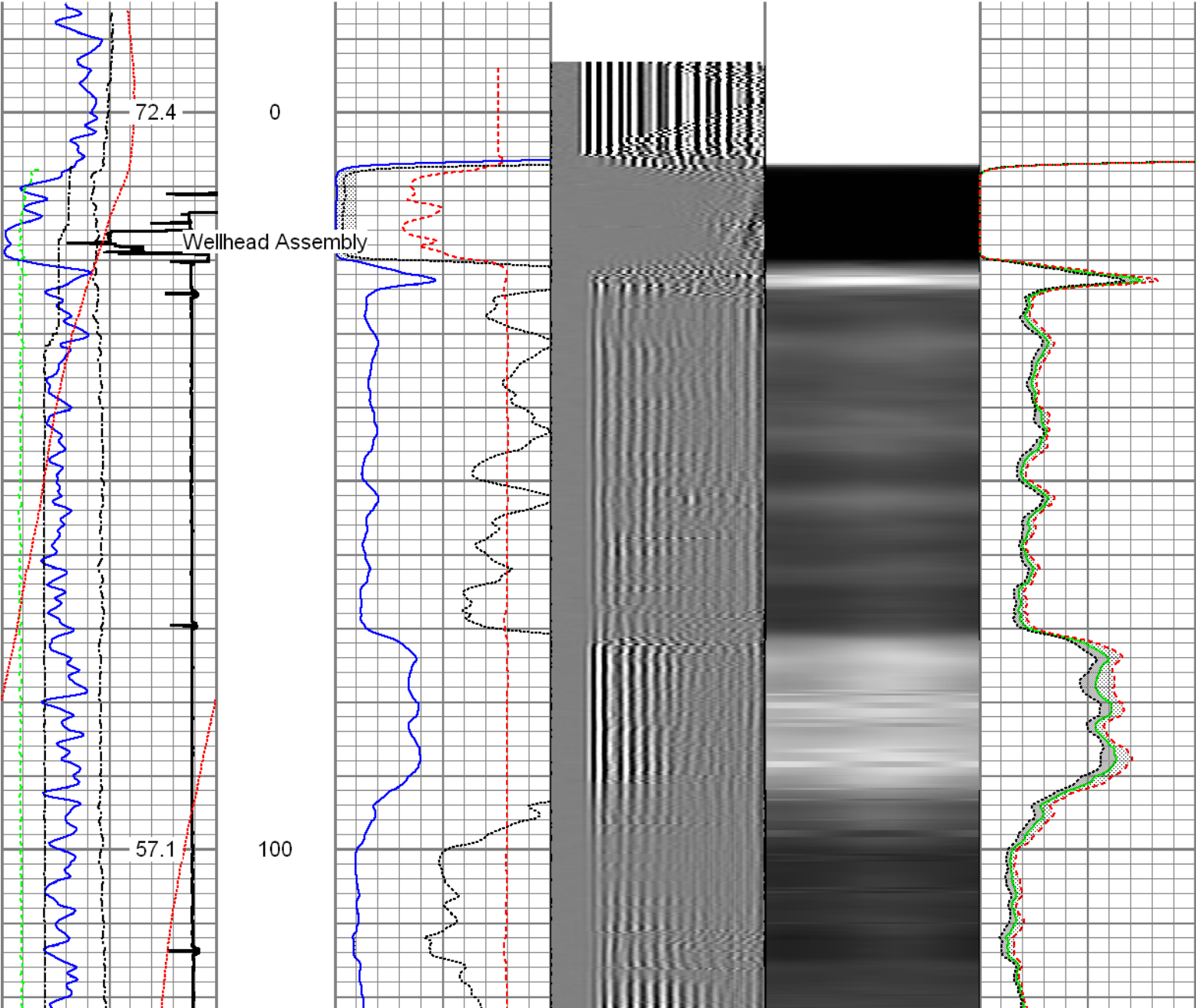
Dataset Pathname: pass4

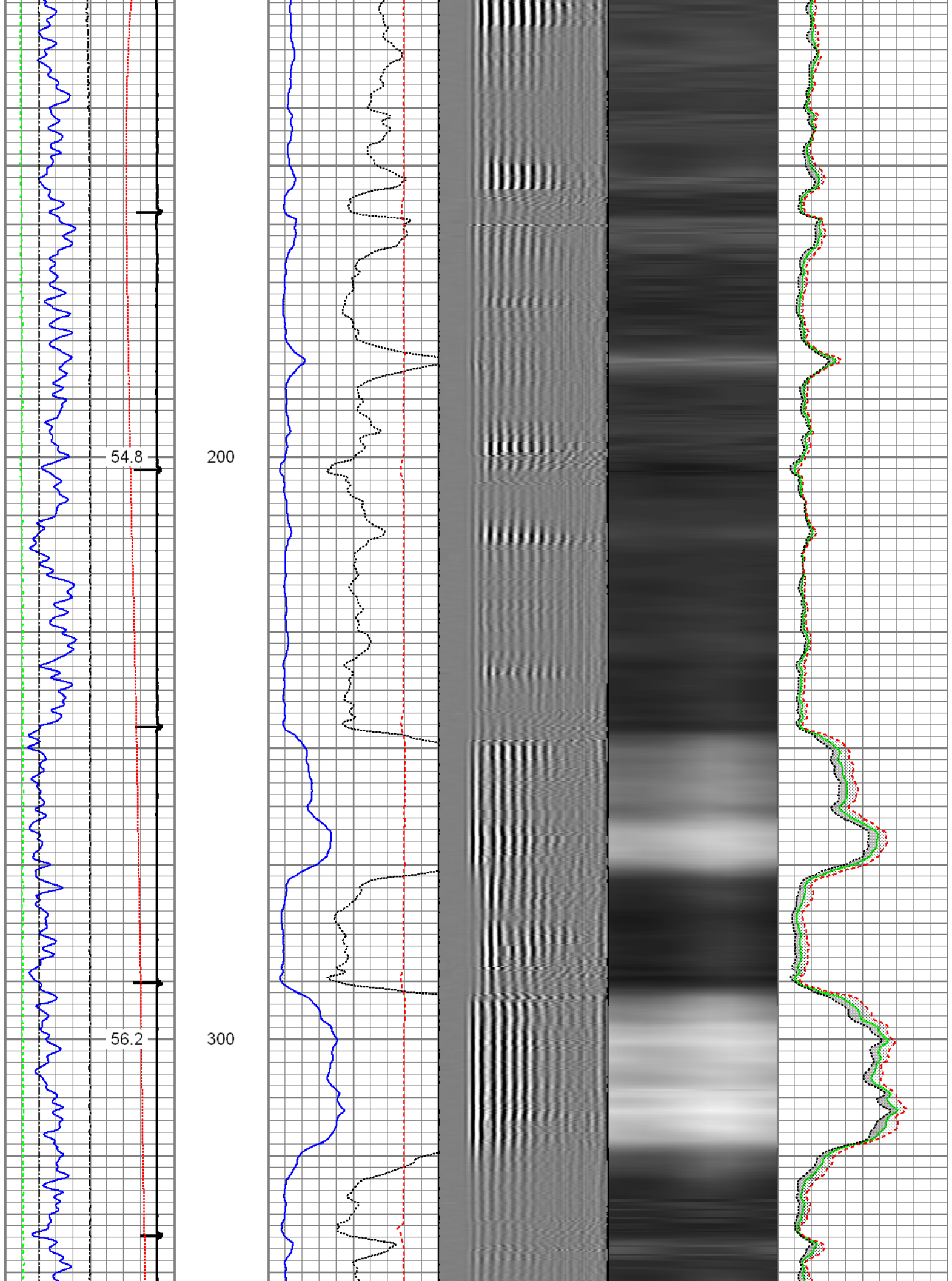
Presentation Format: rbt4_mit

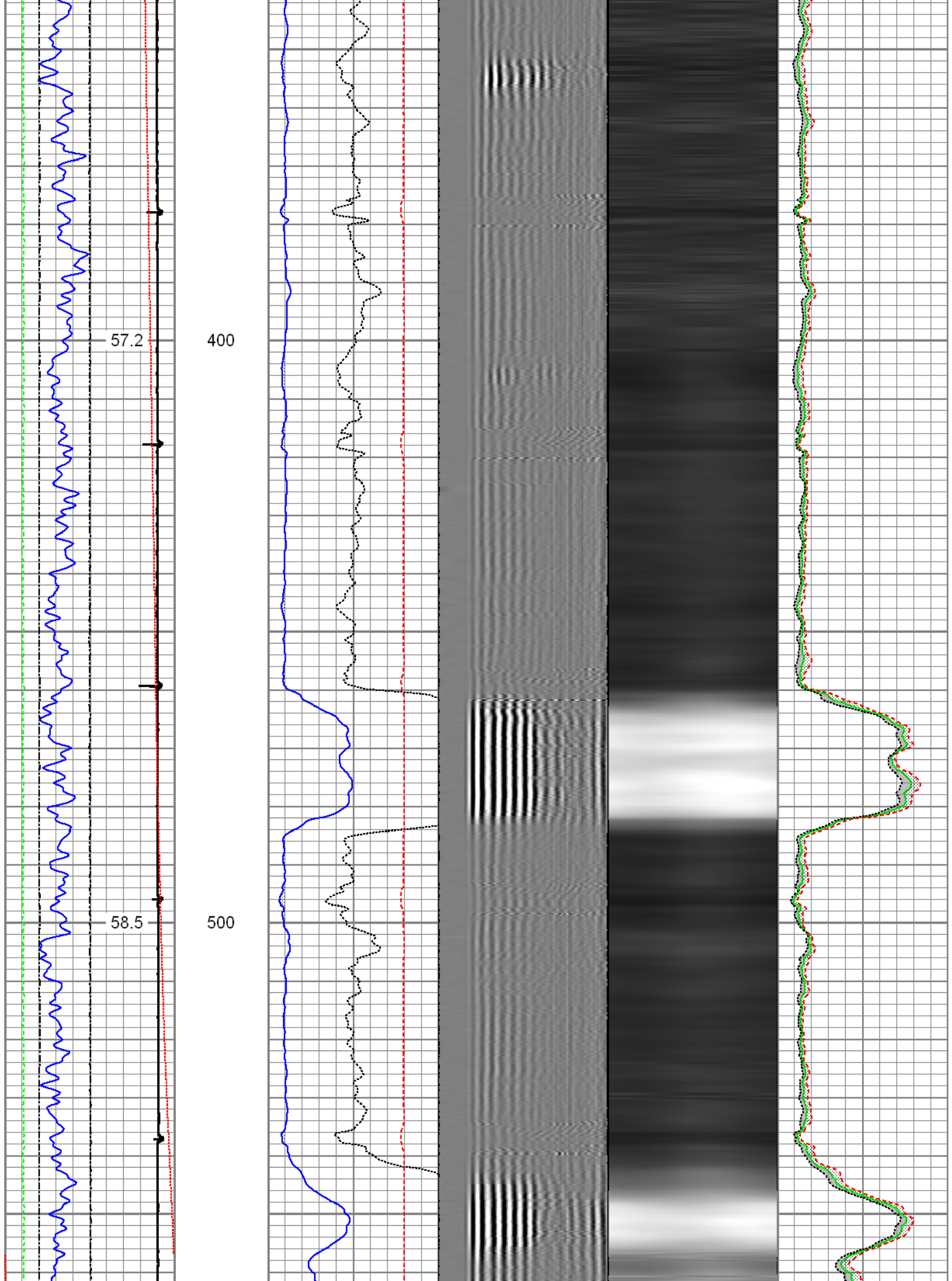
Dataset Creation: Tue Jul 21 08:44:08 2015 by Log 7.0 B1

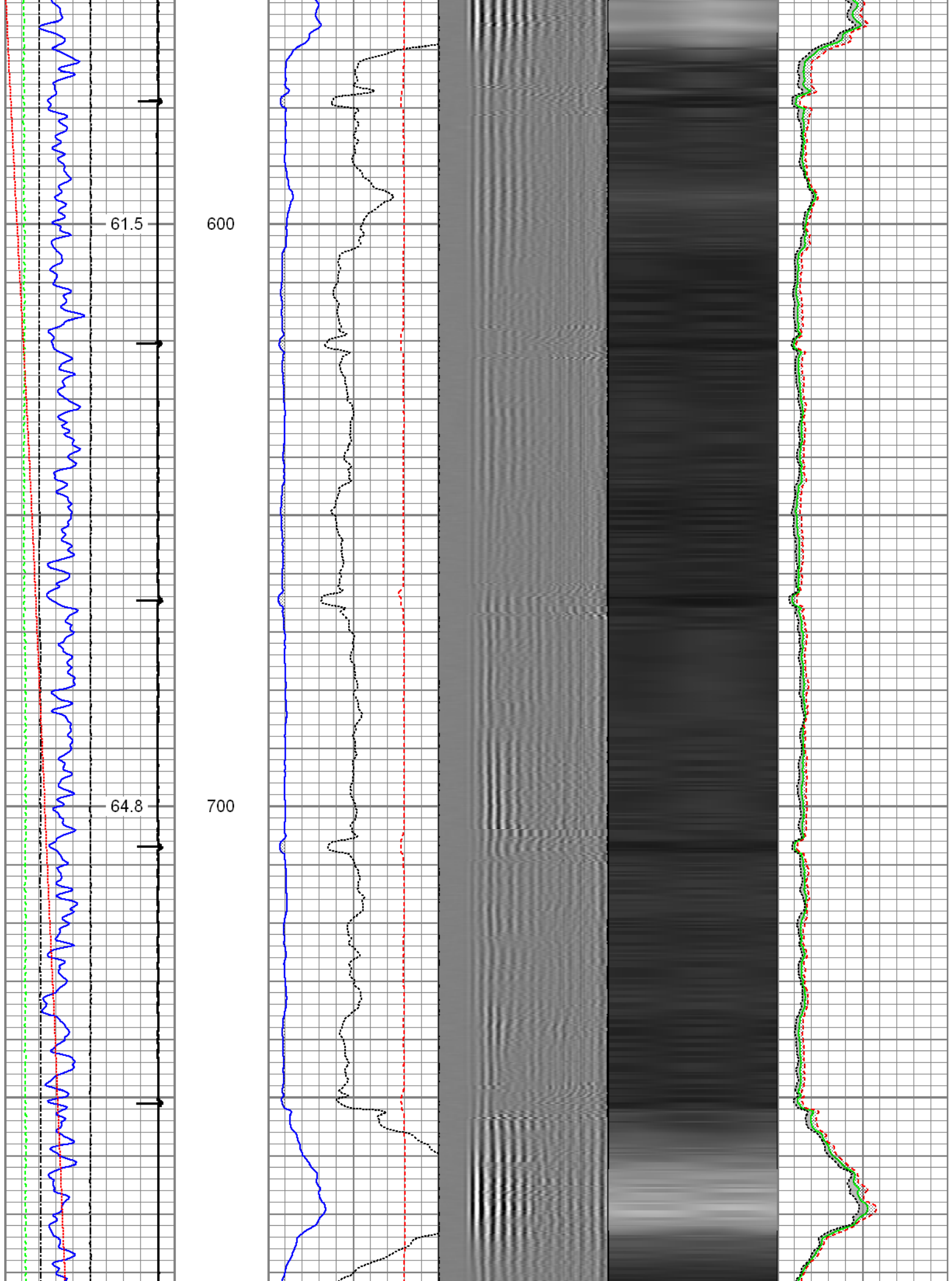
Charted by: Depth in Feet scaled 1:240

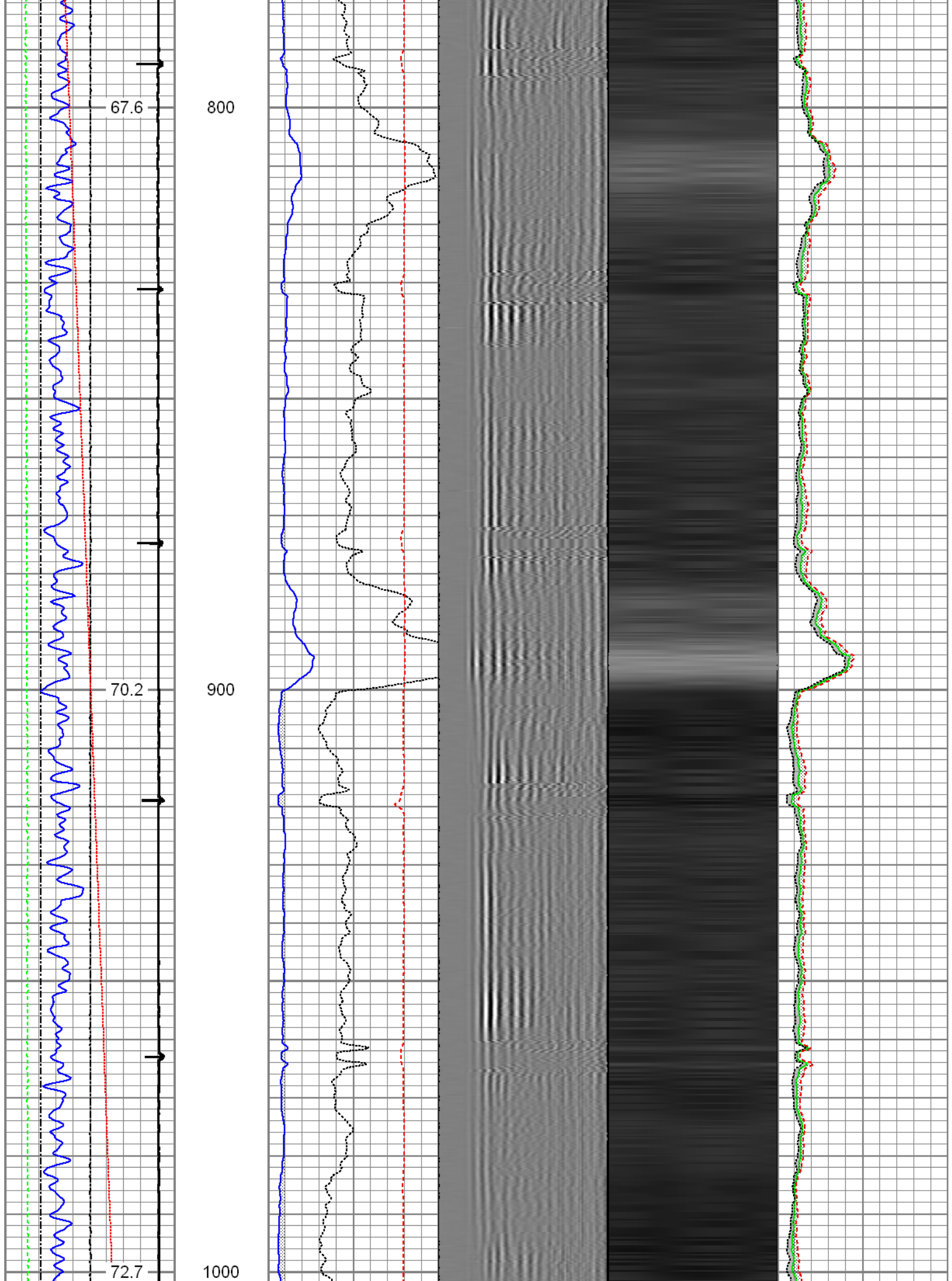
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				

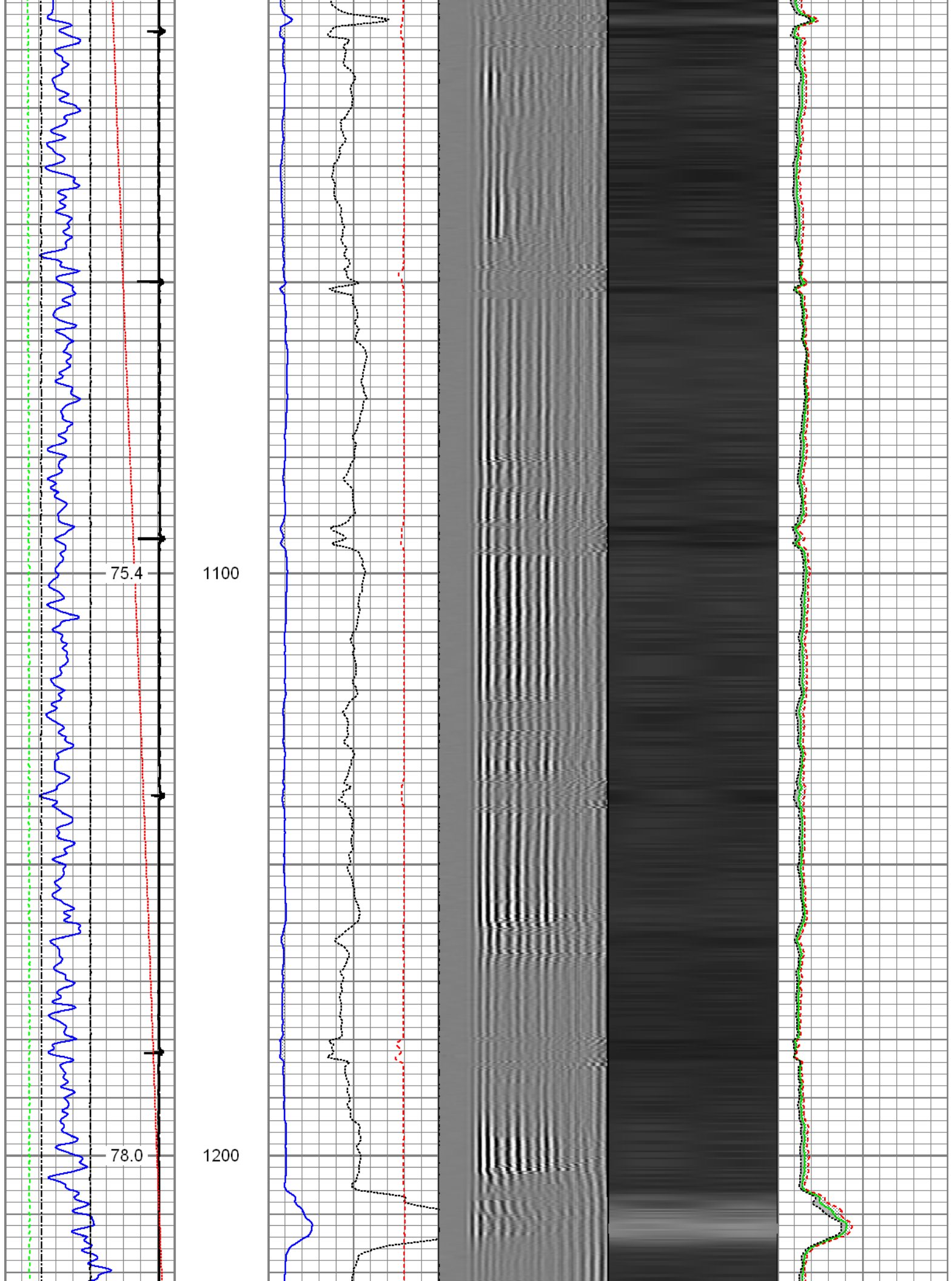


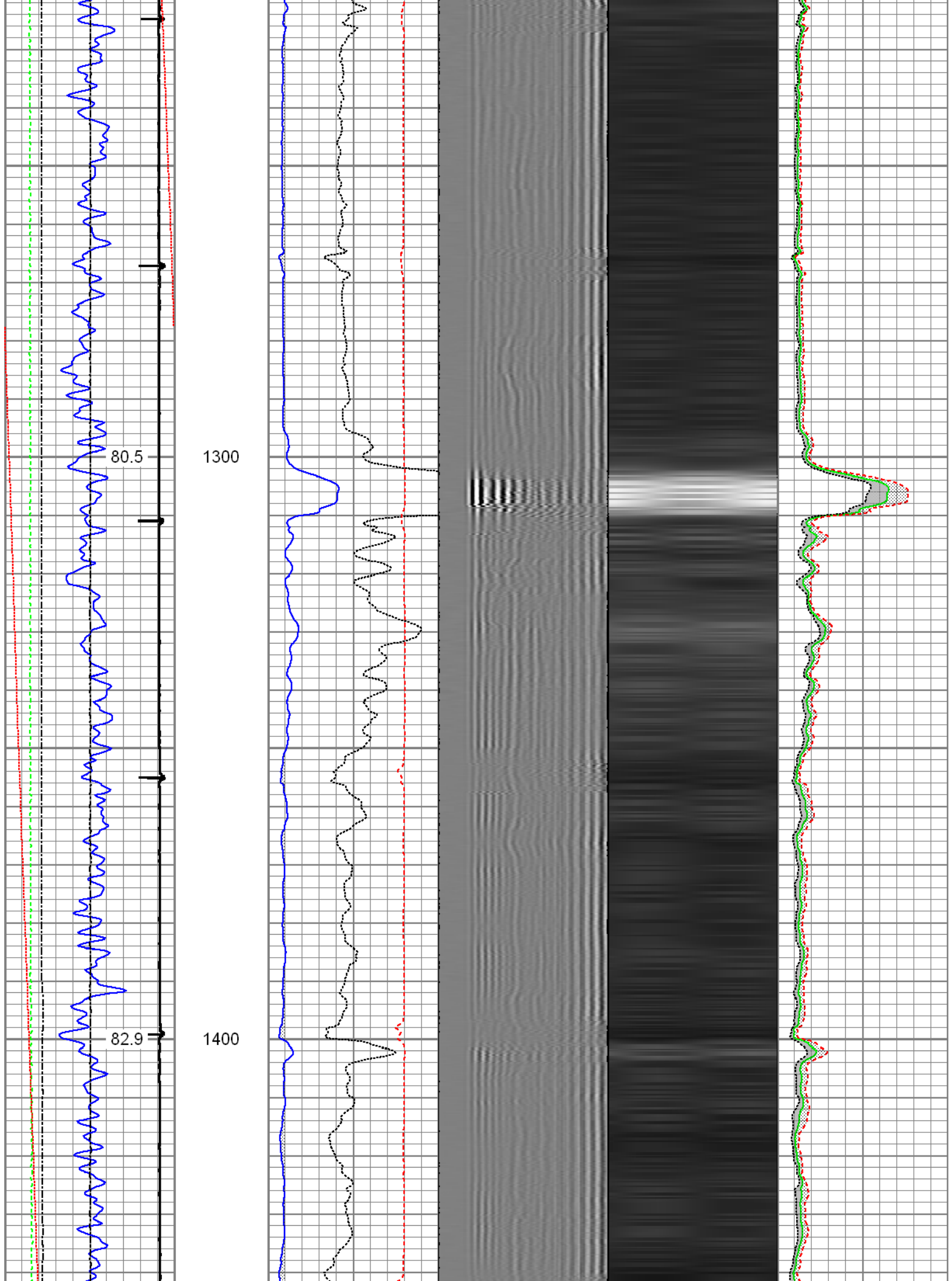


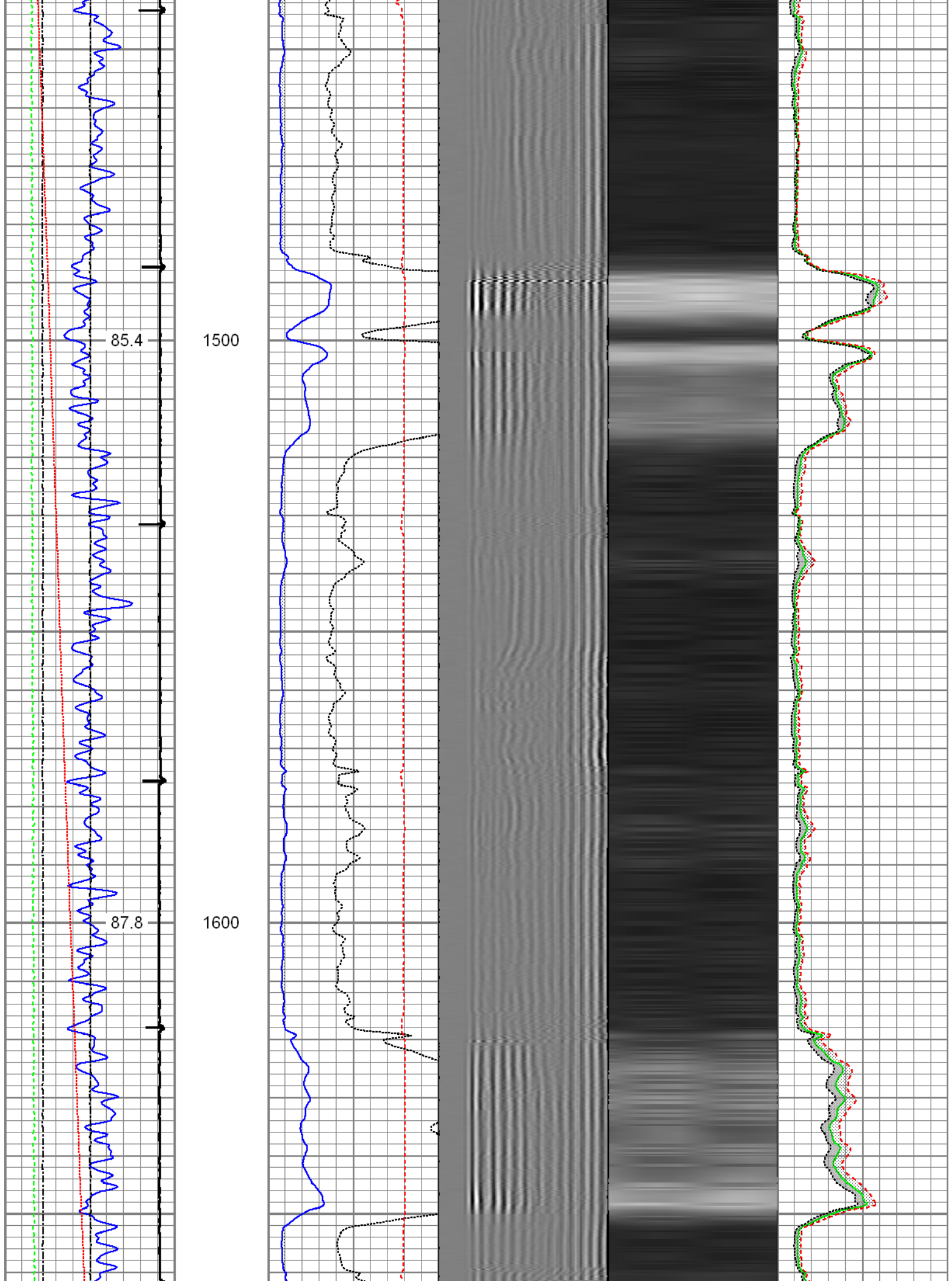


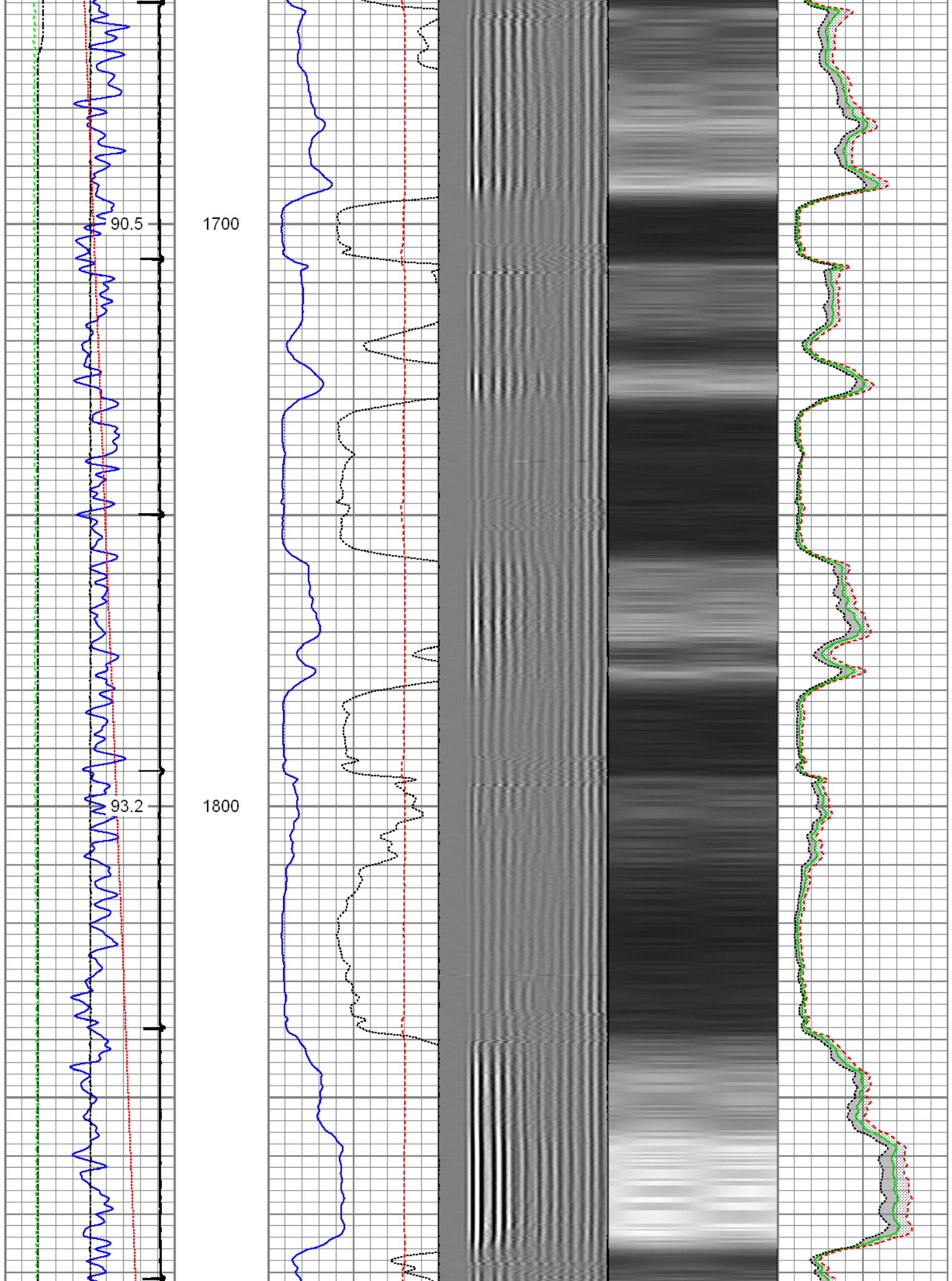


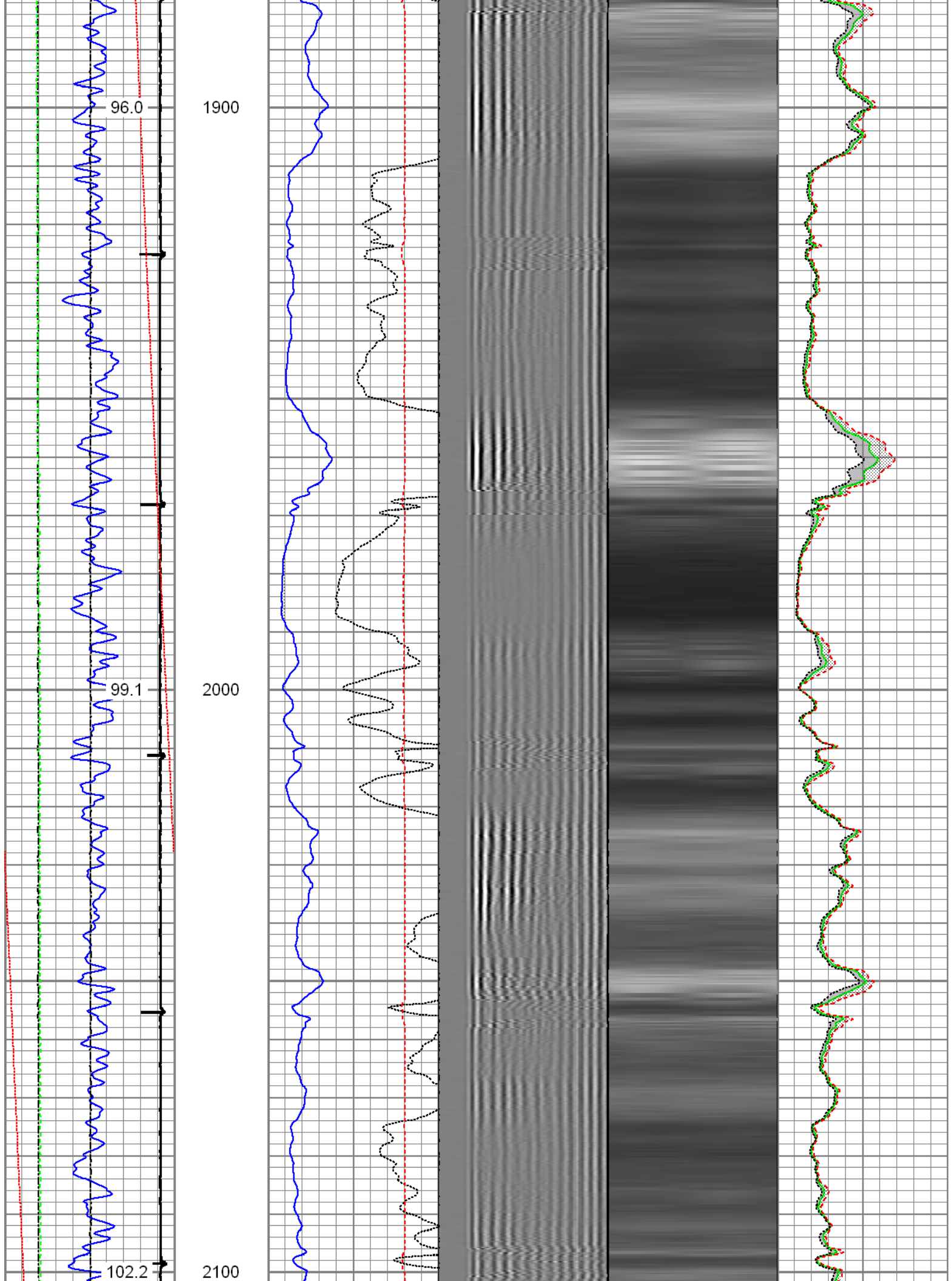


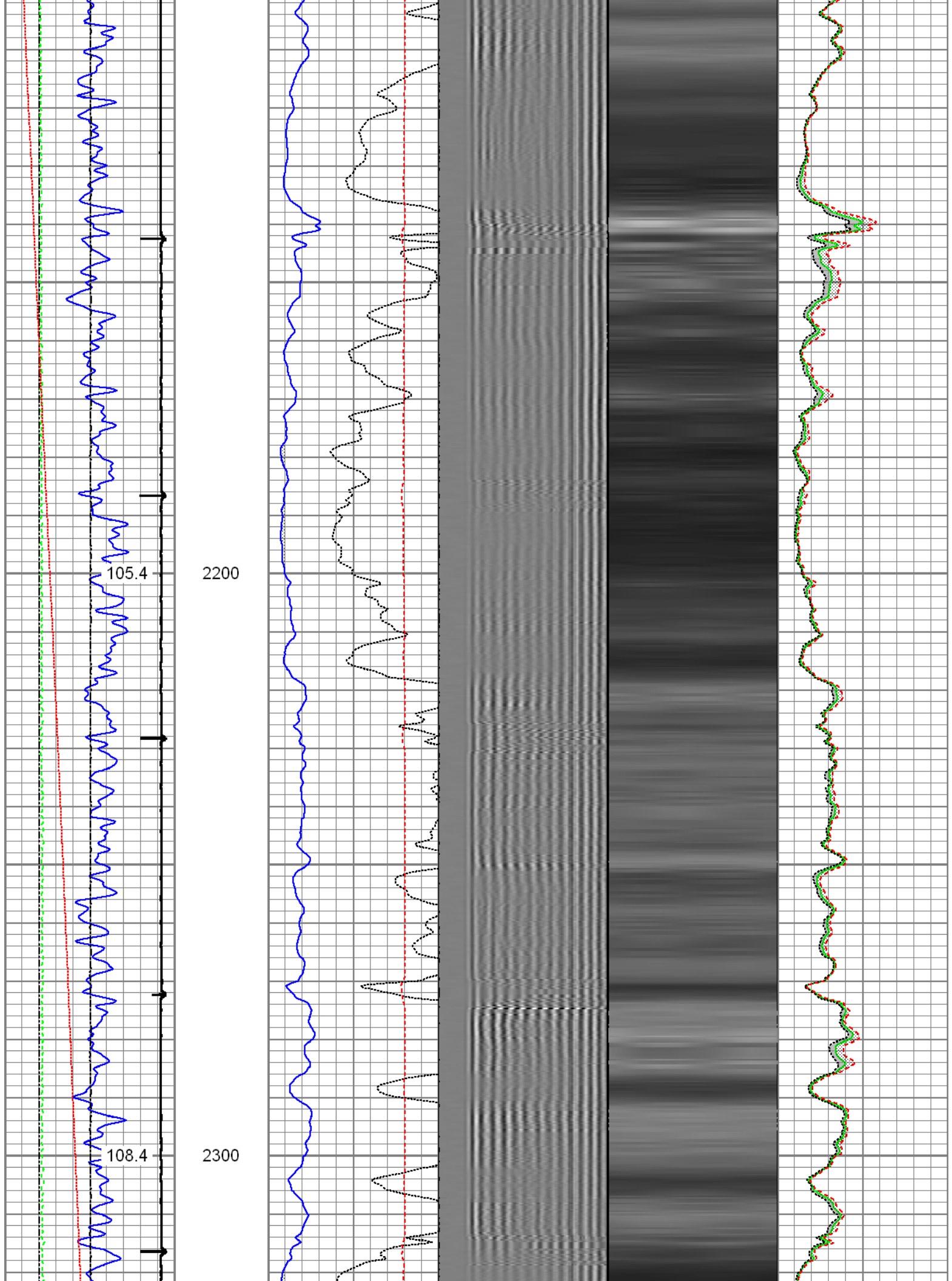


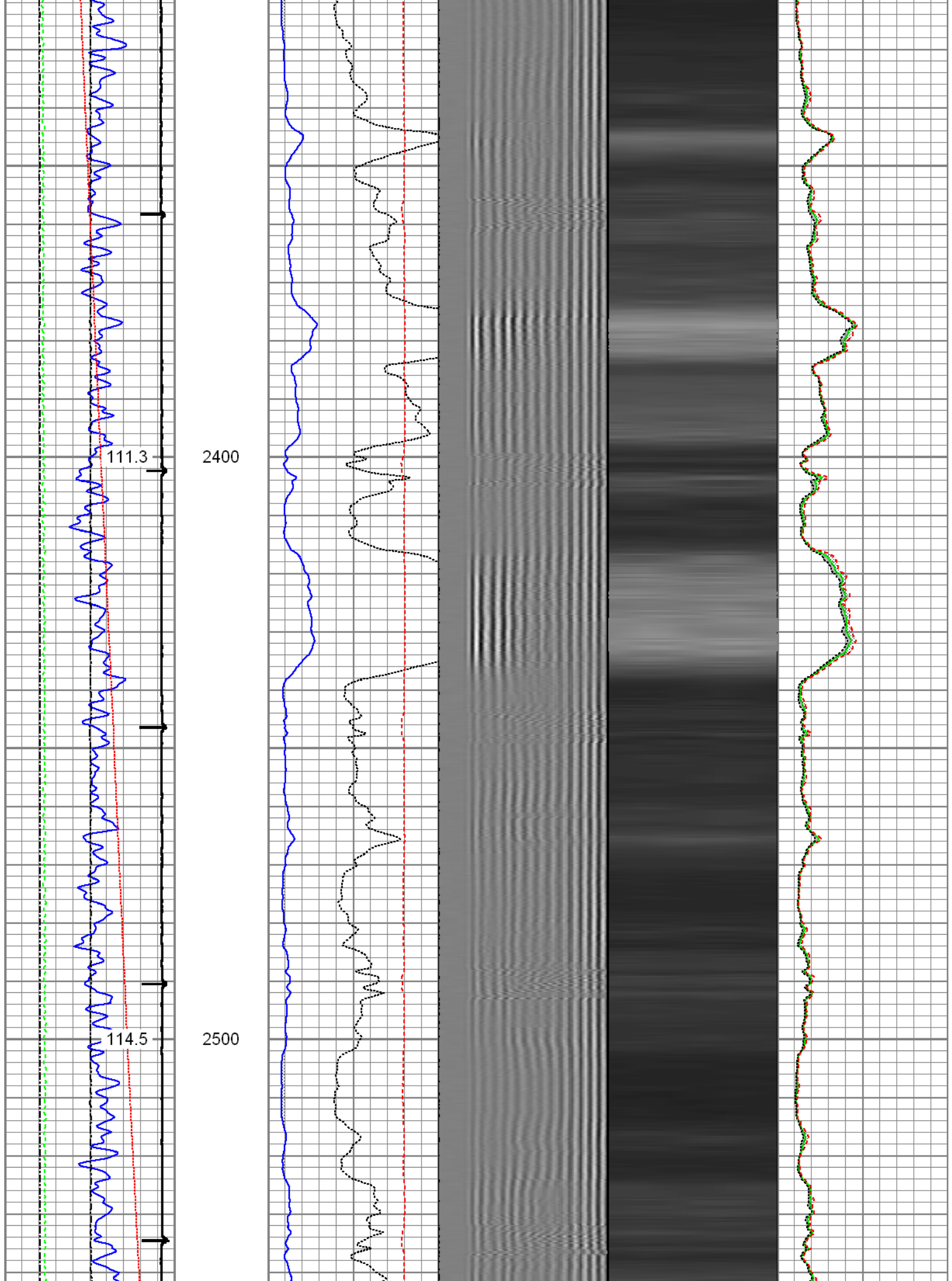


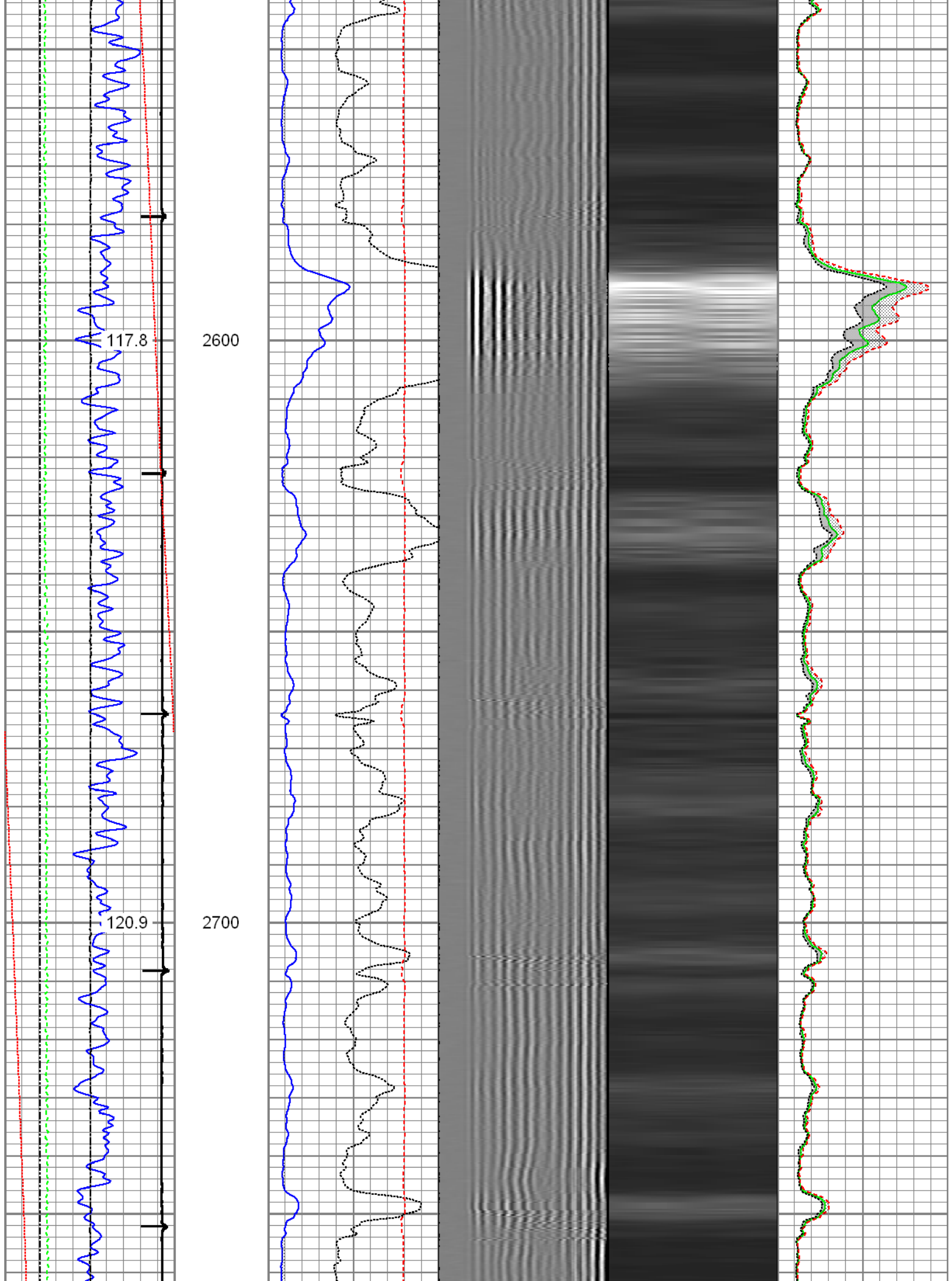


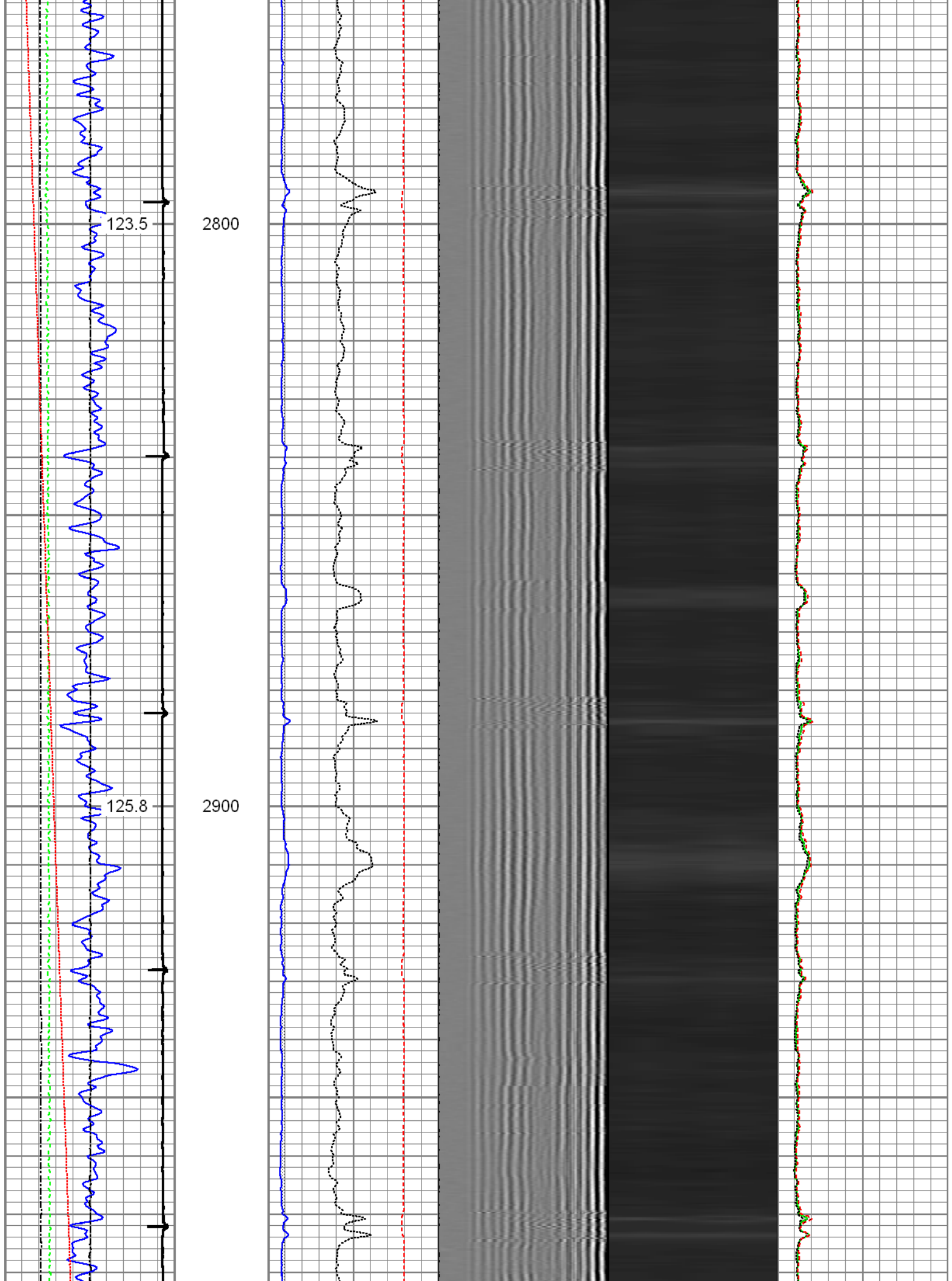


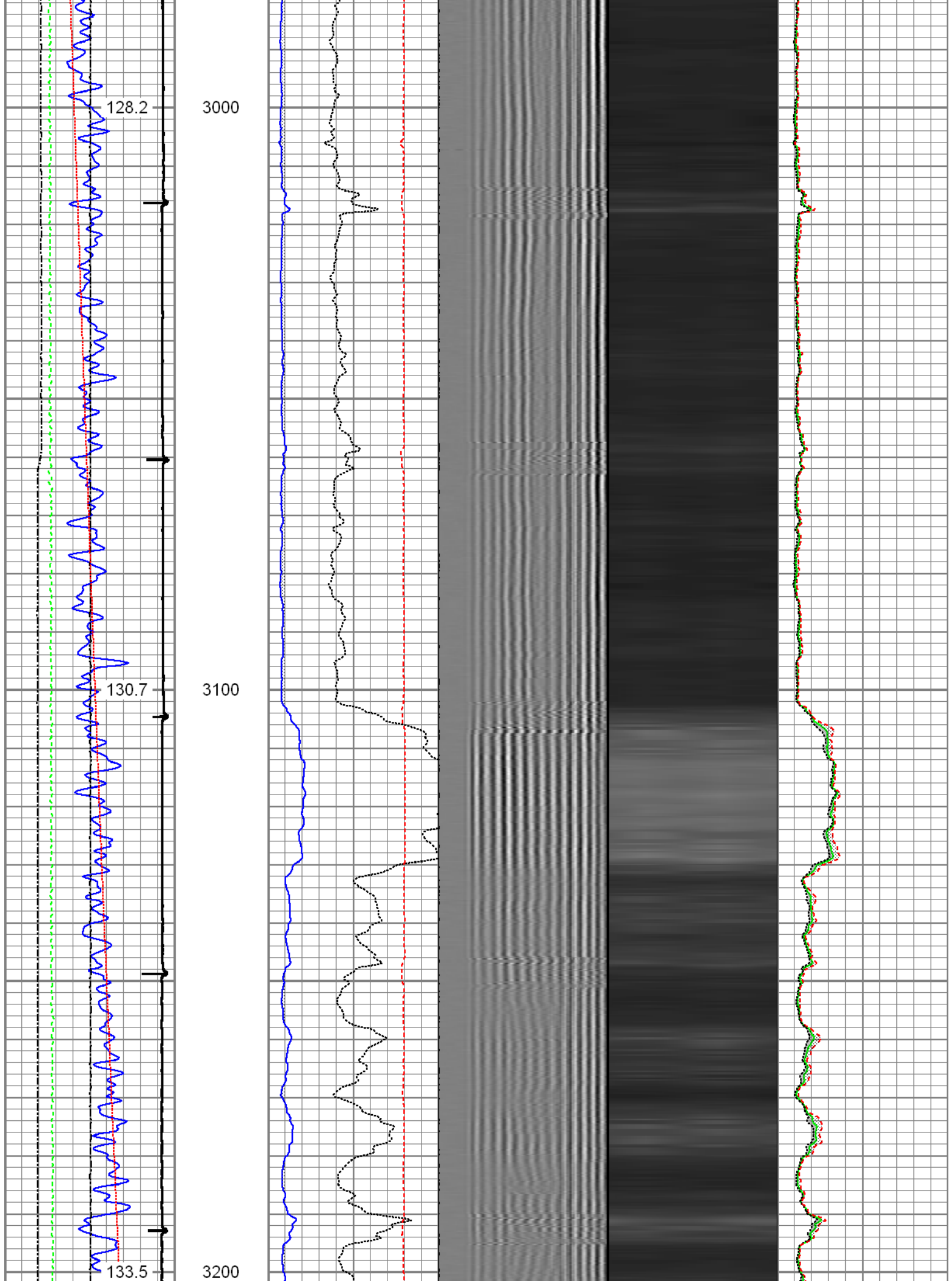


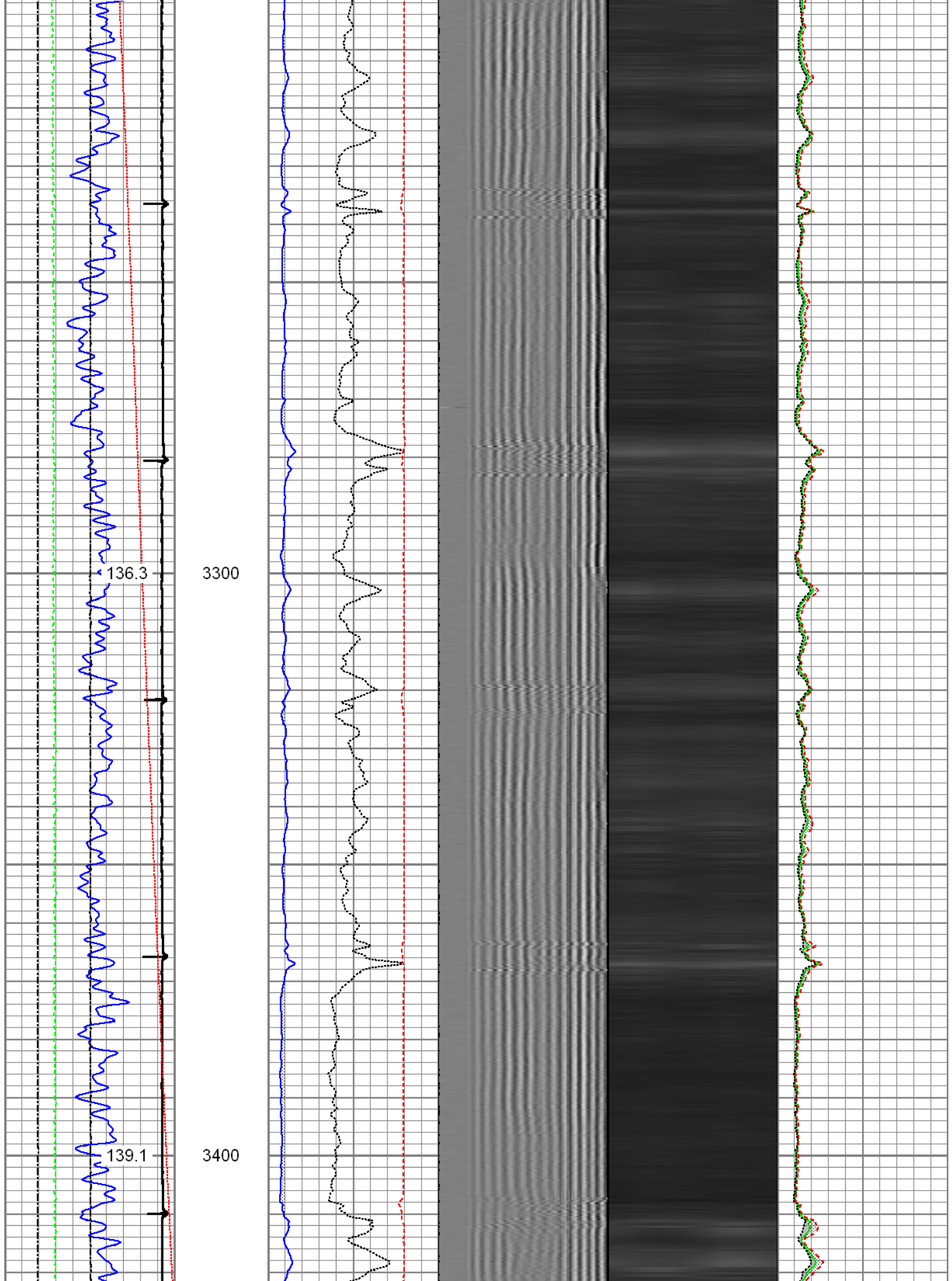


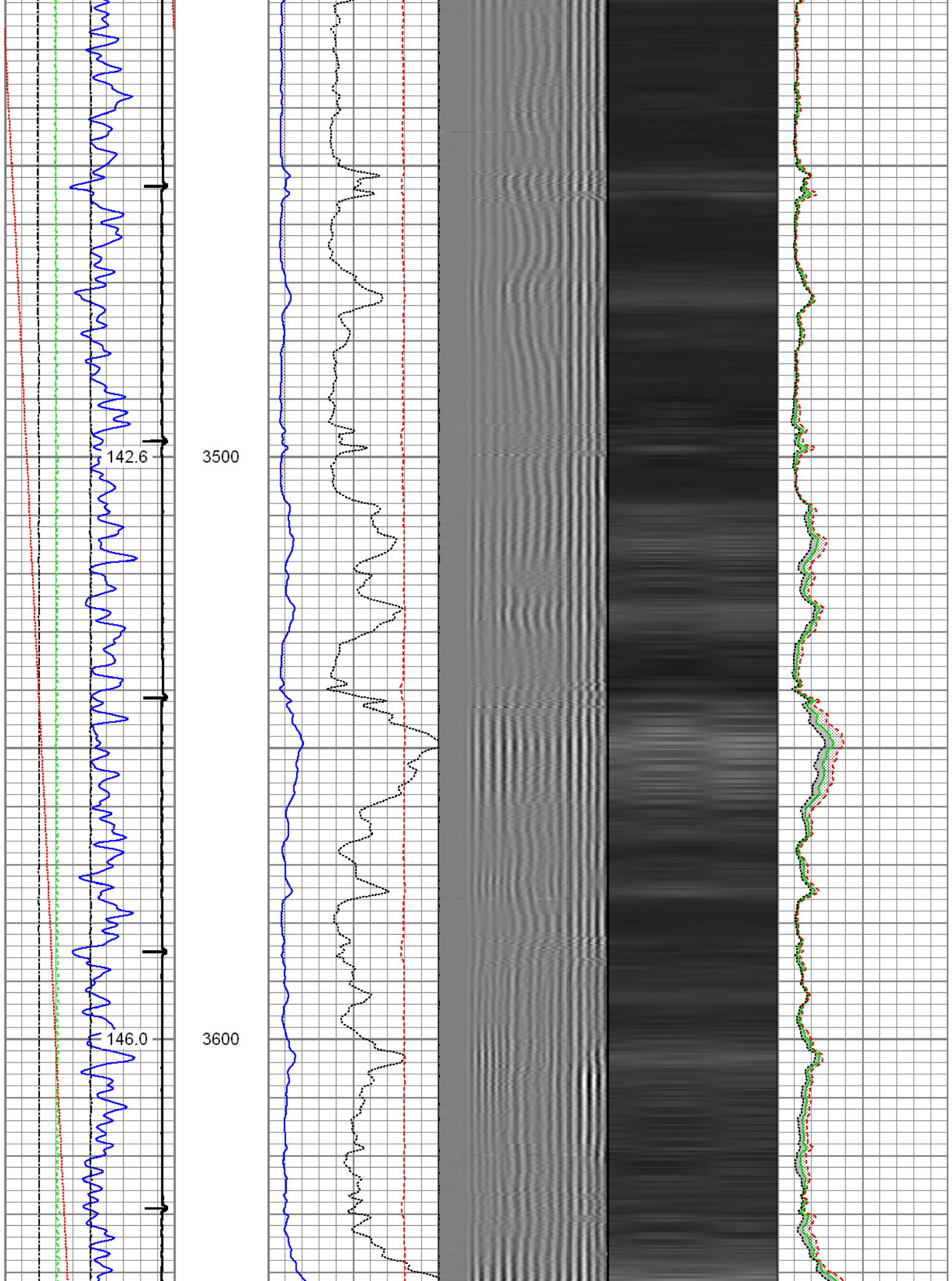


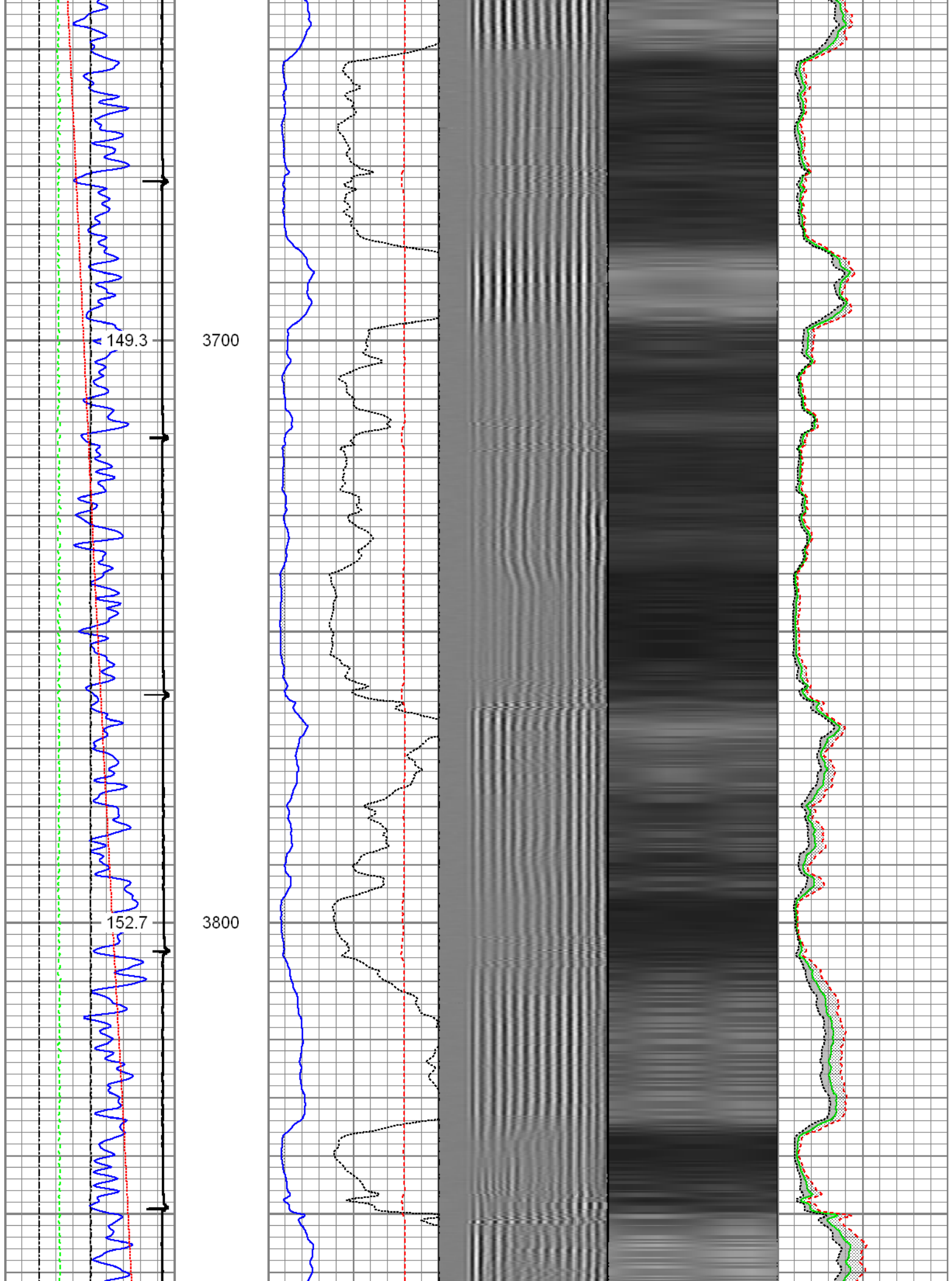


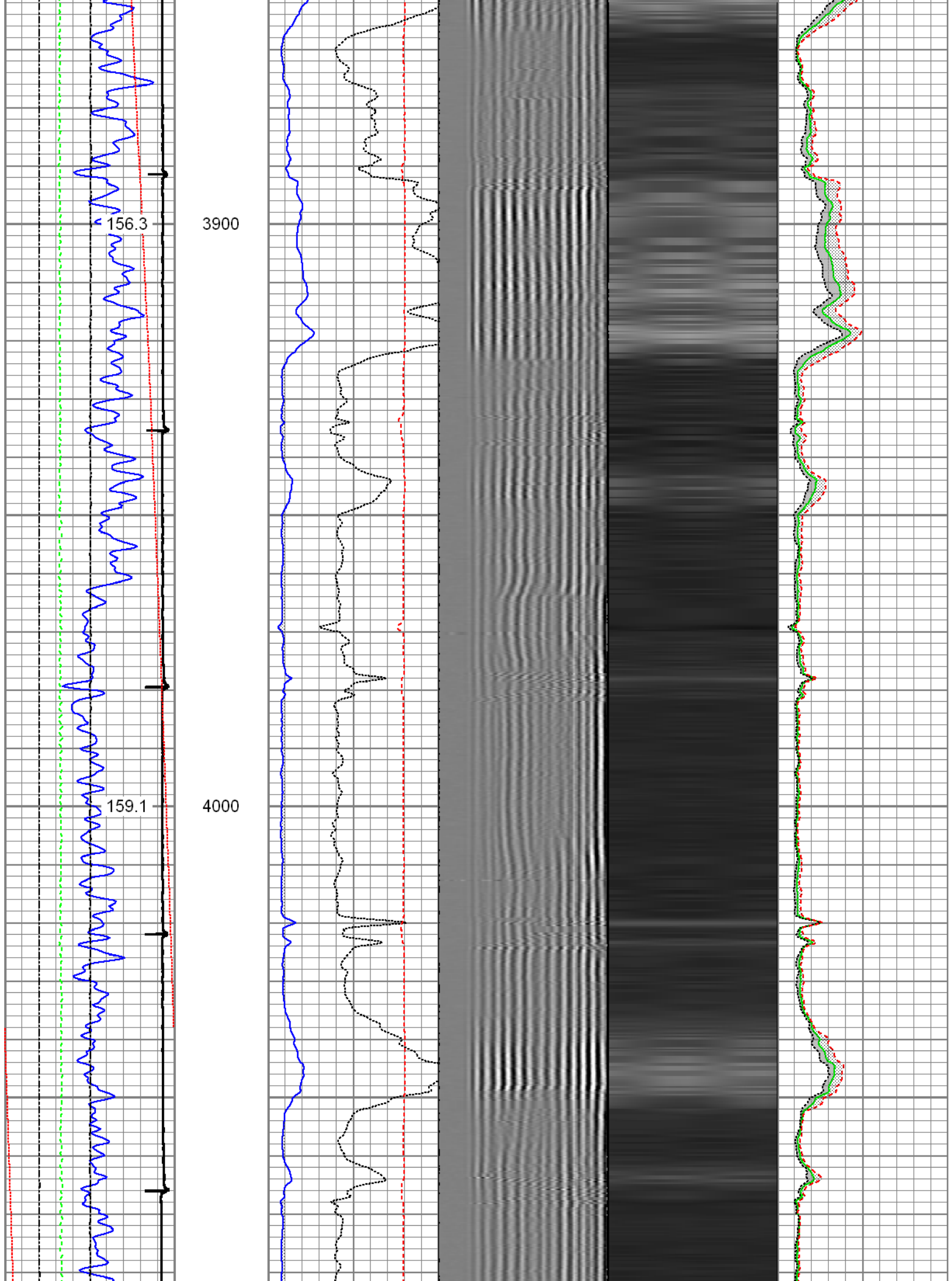


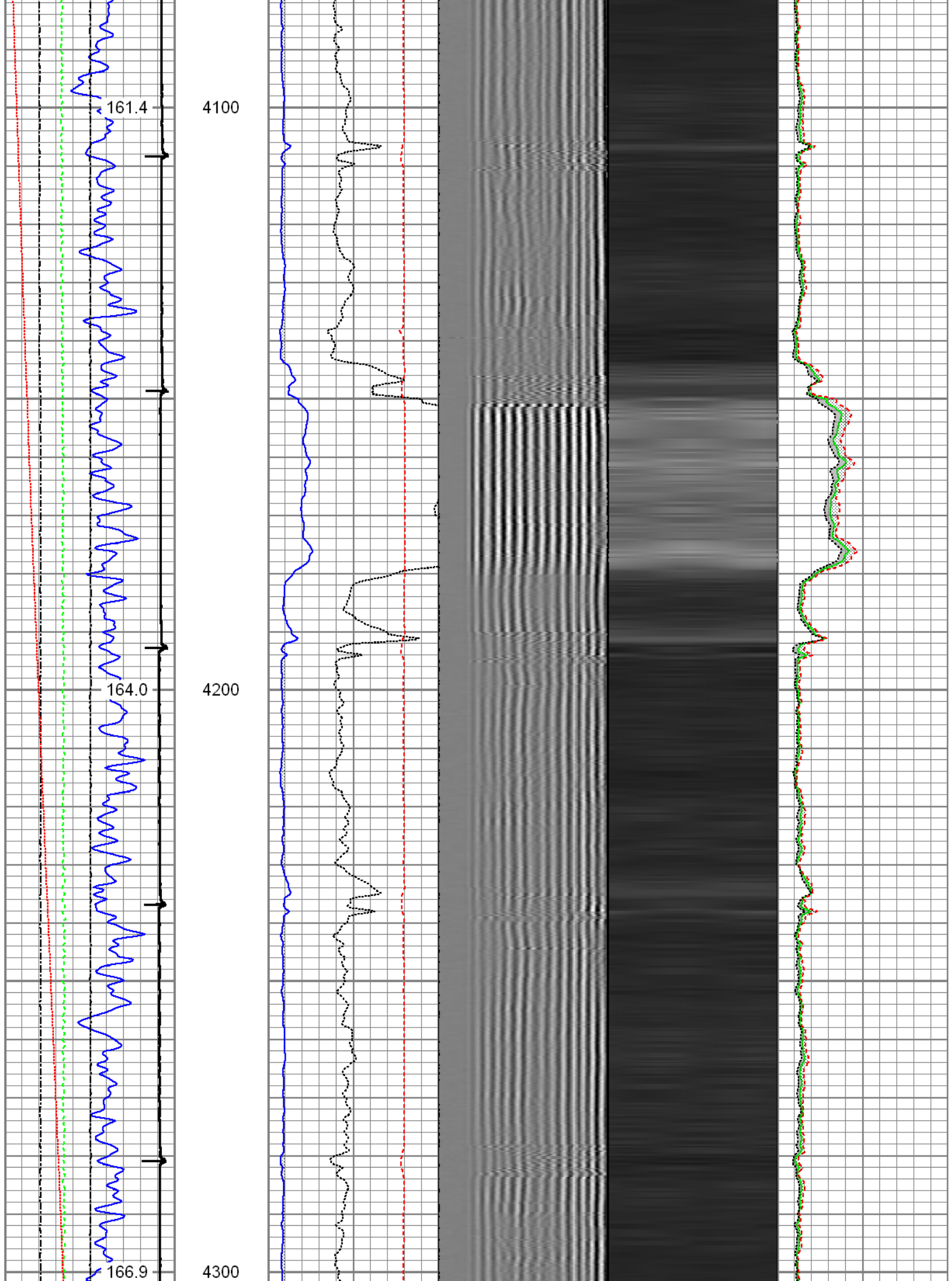


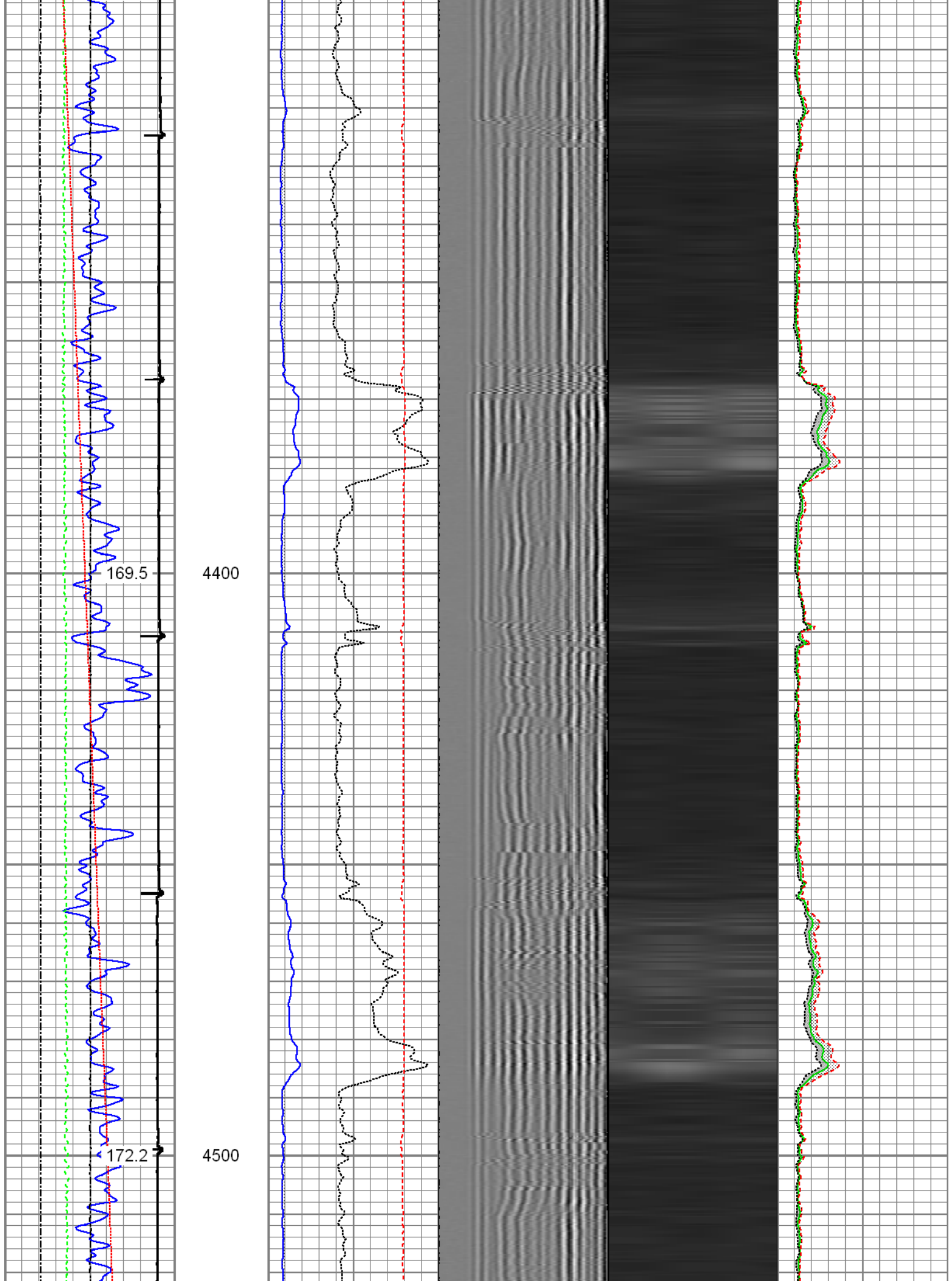


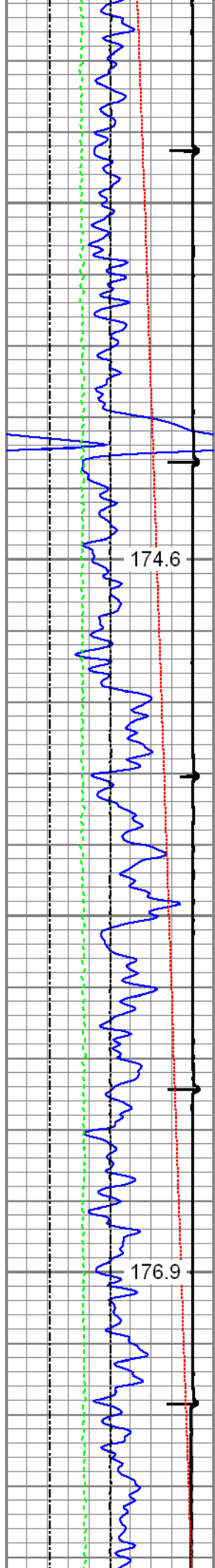






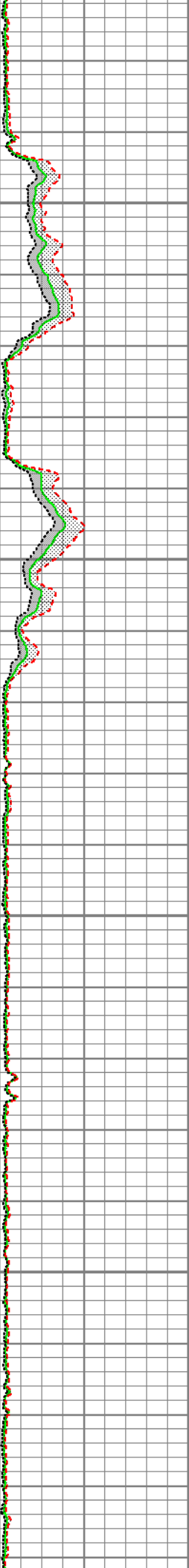
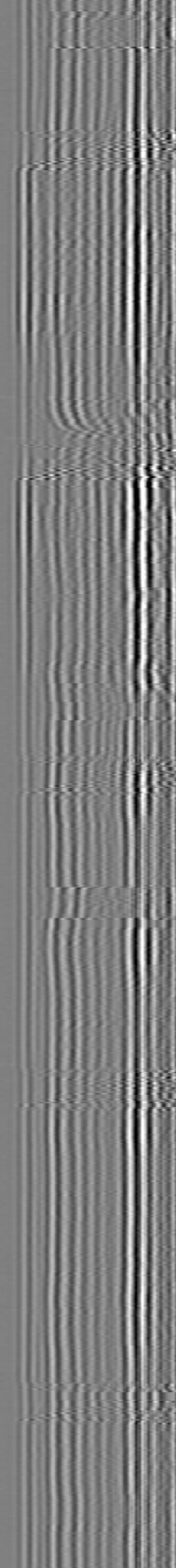
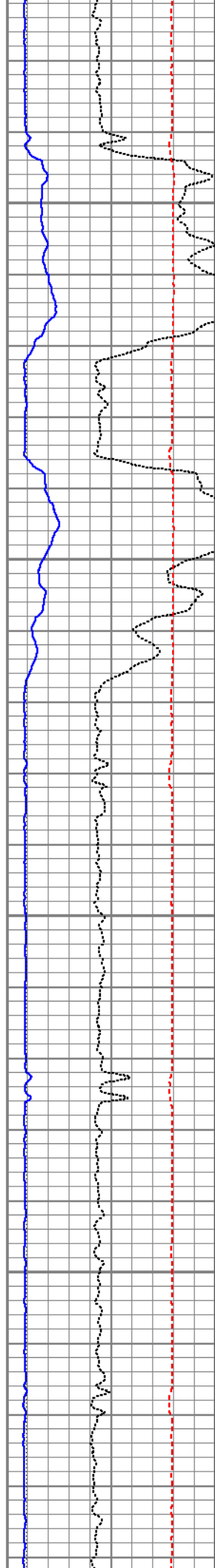


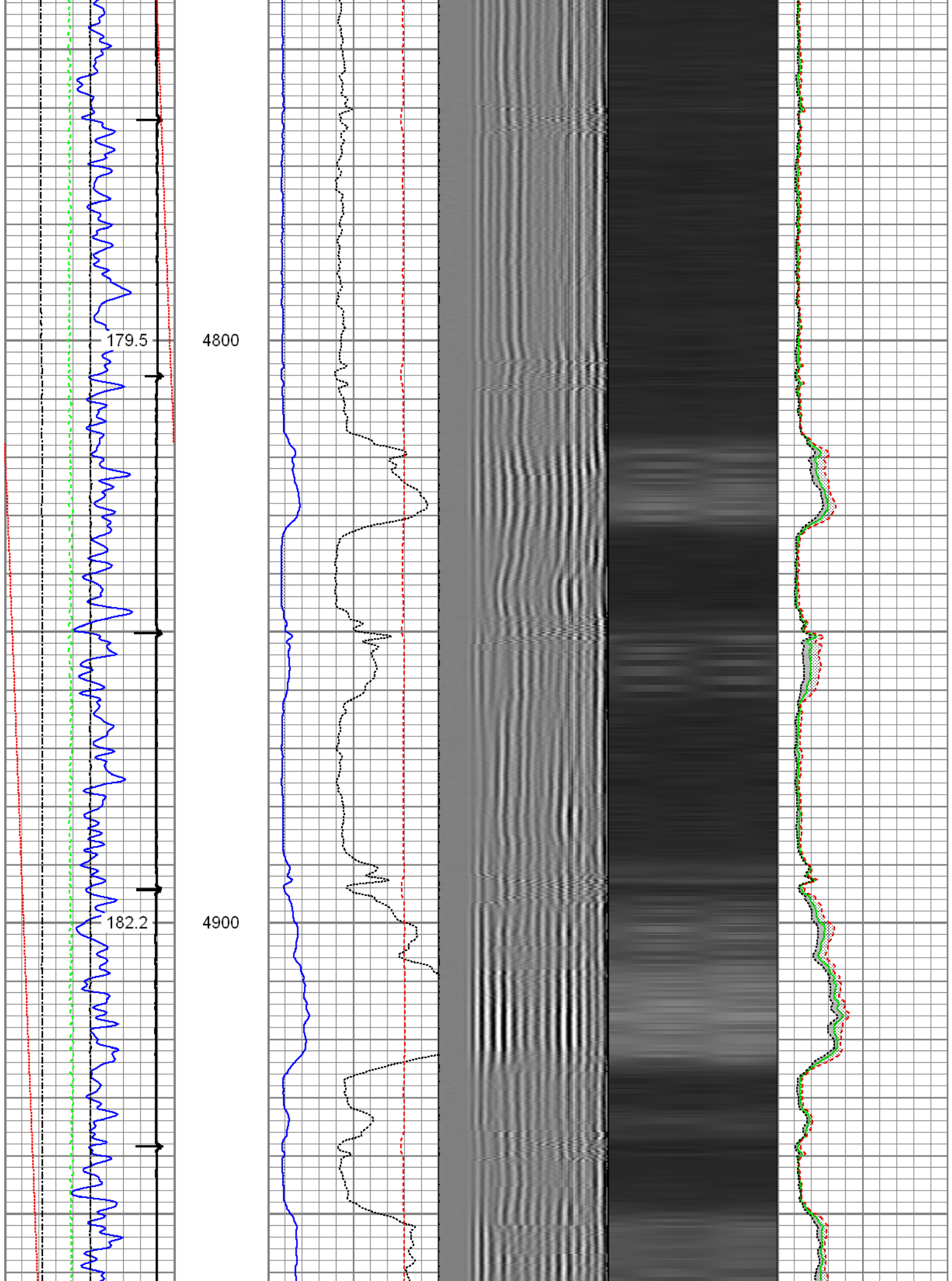


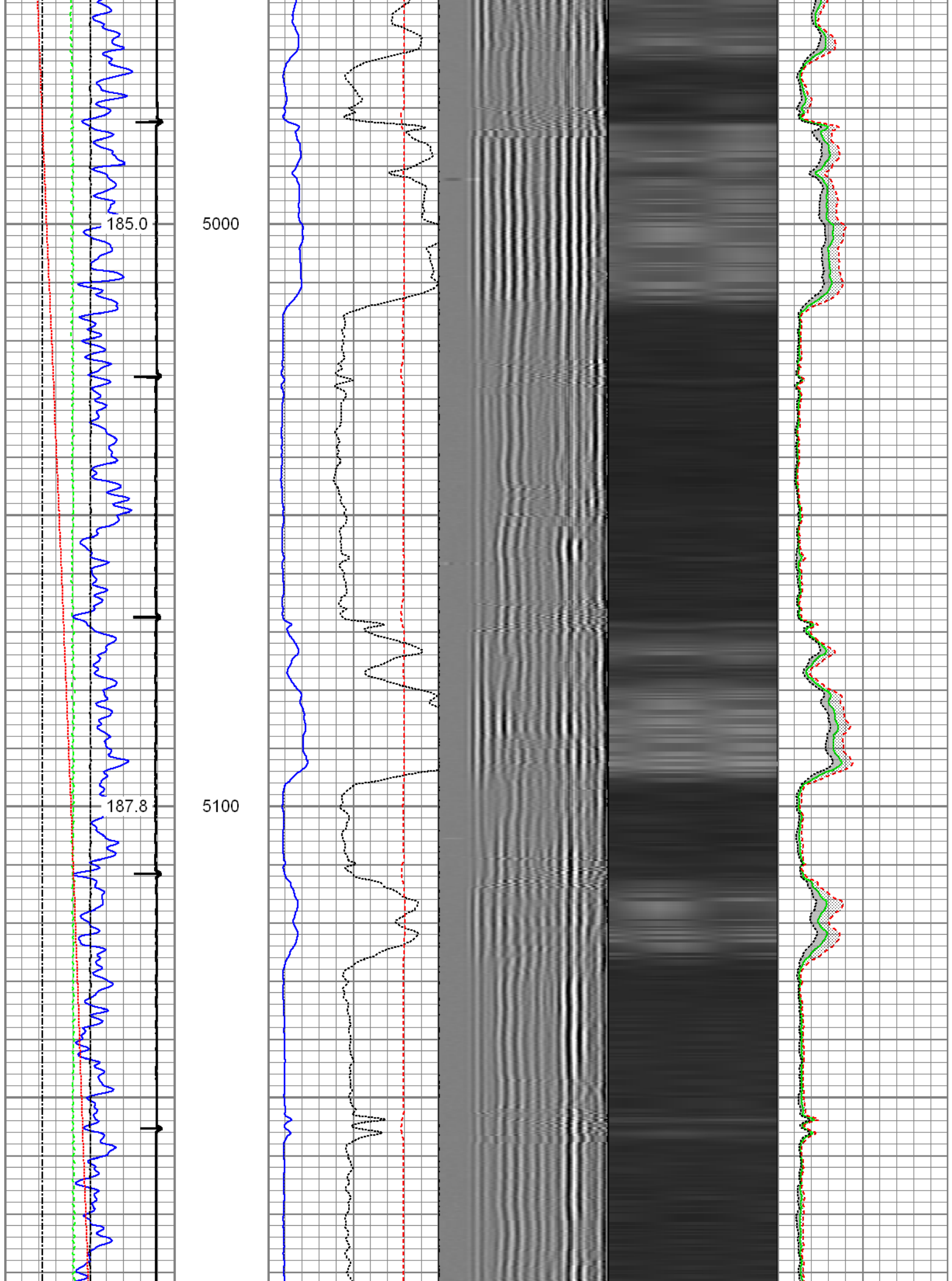


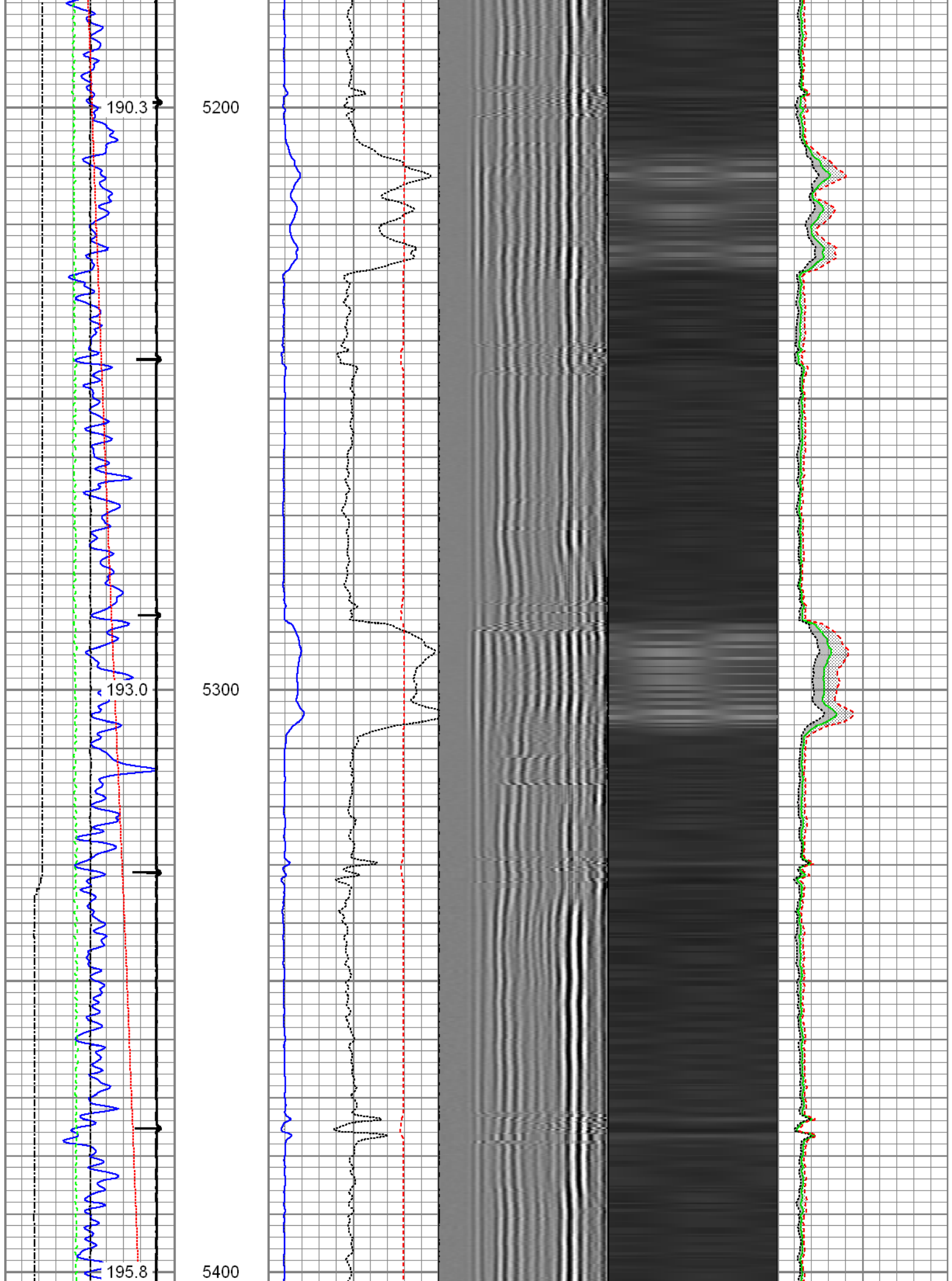
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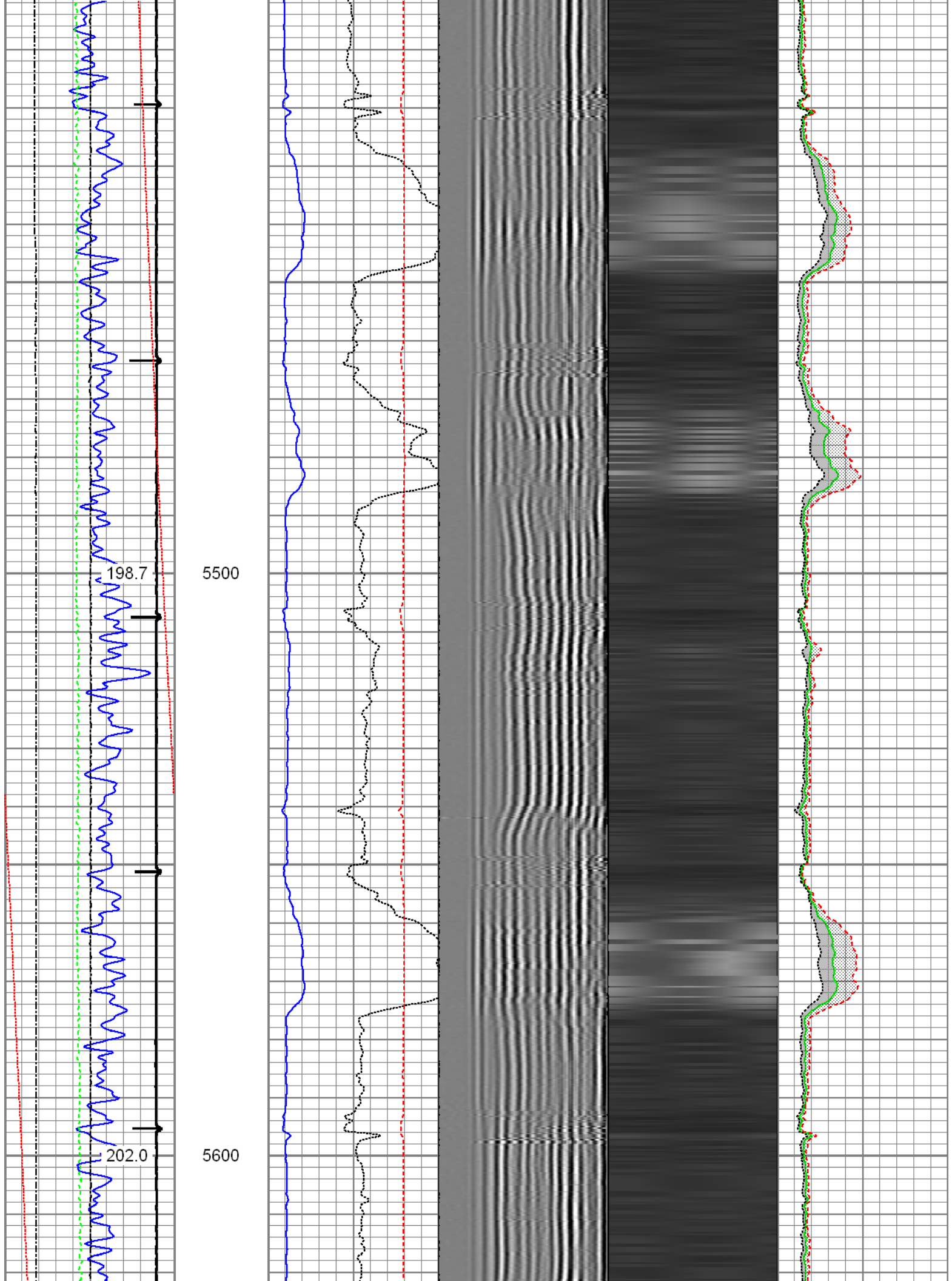
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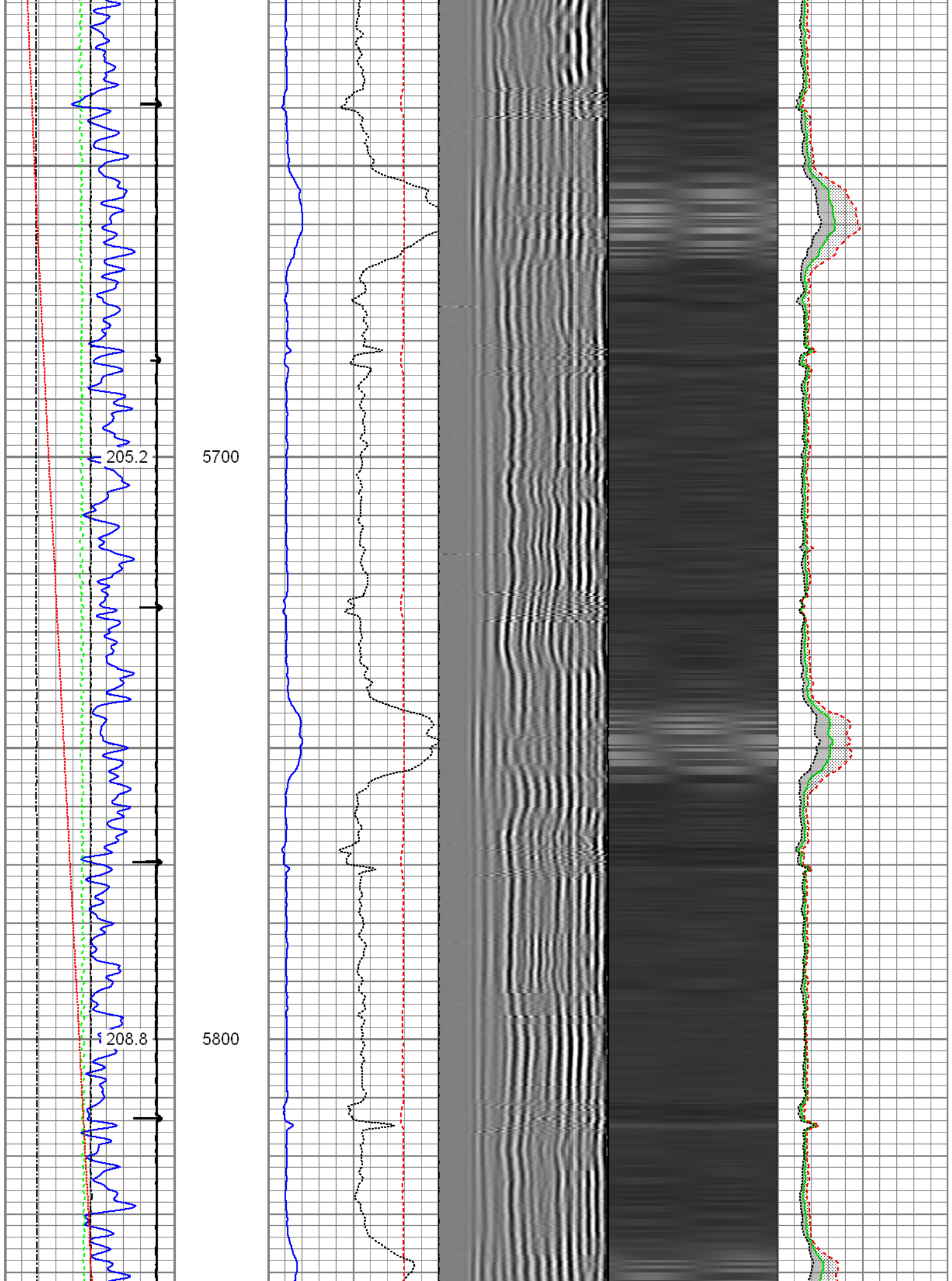


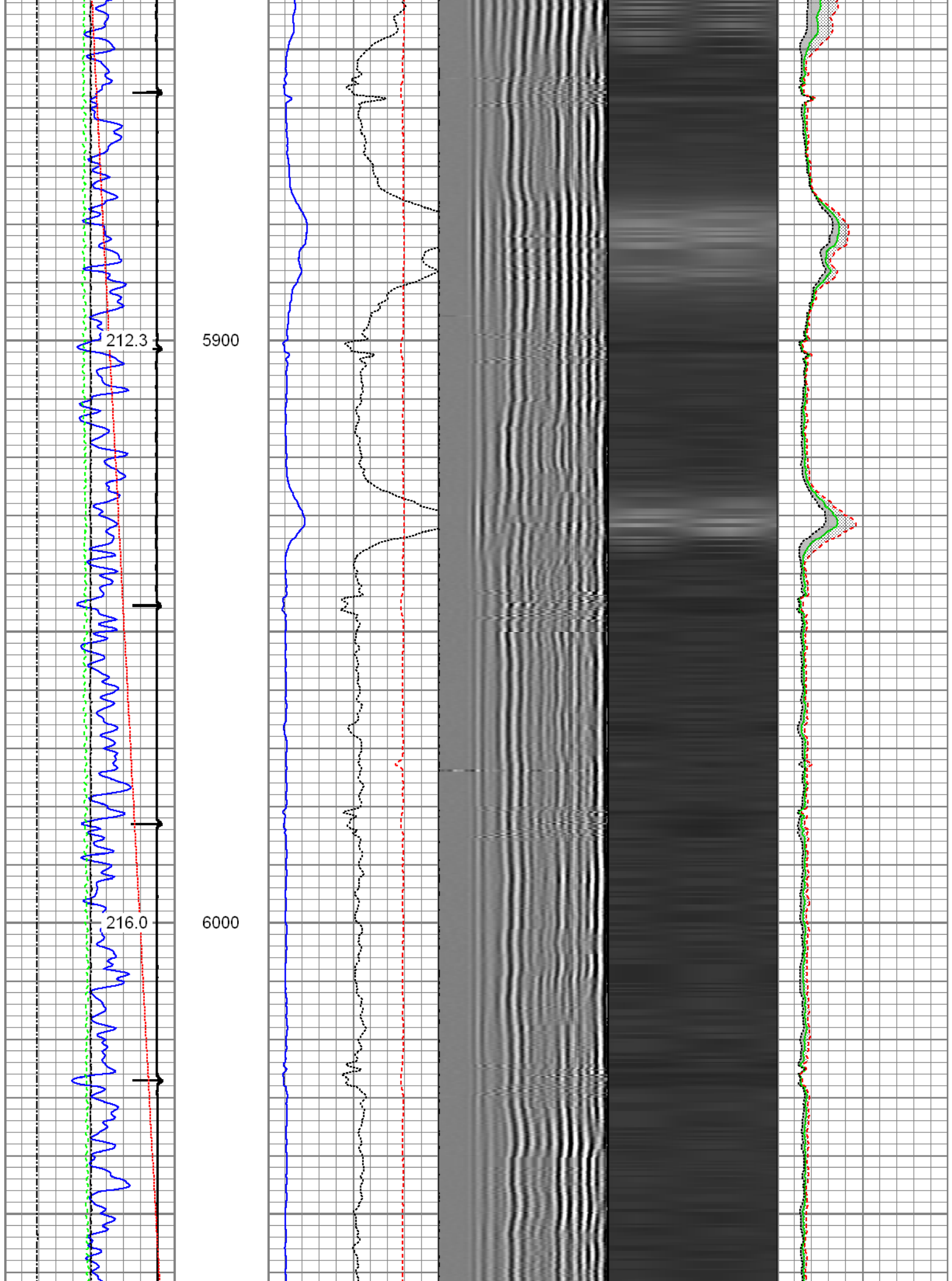


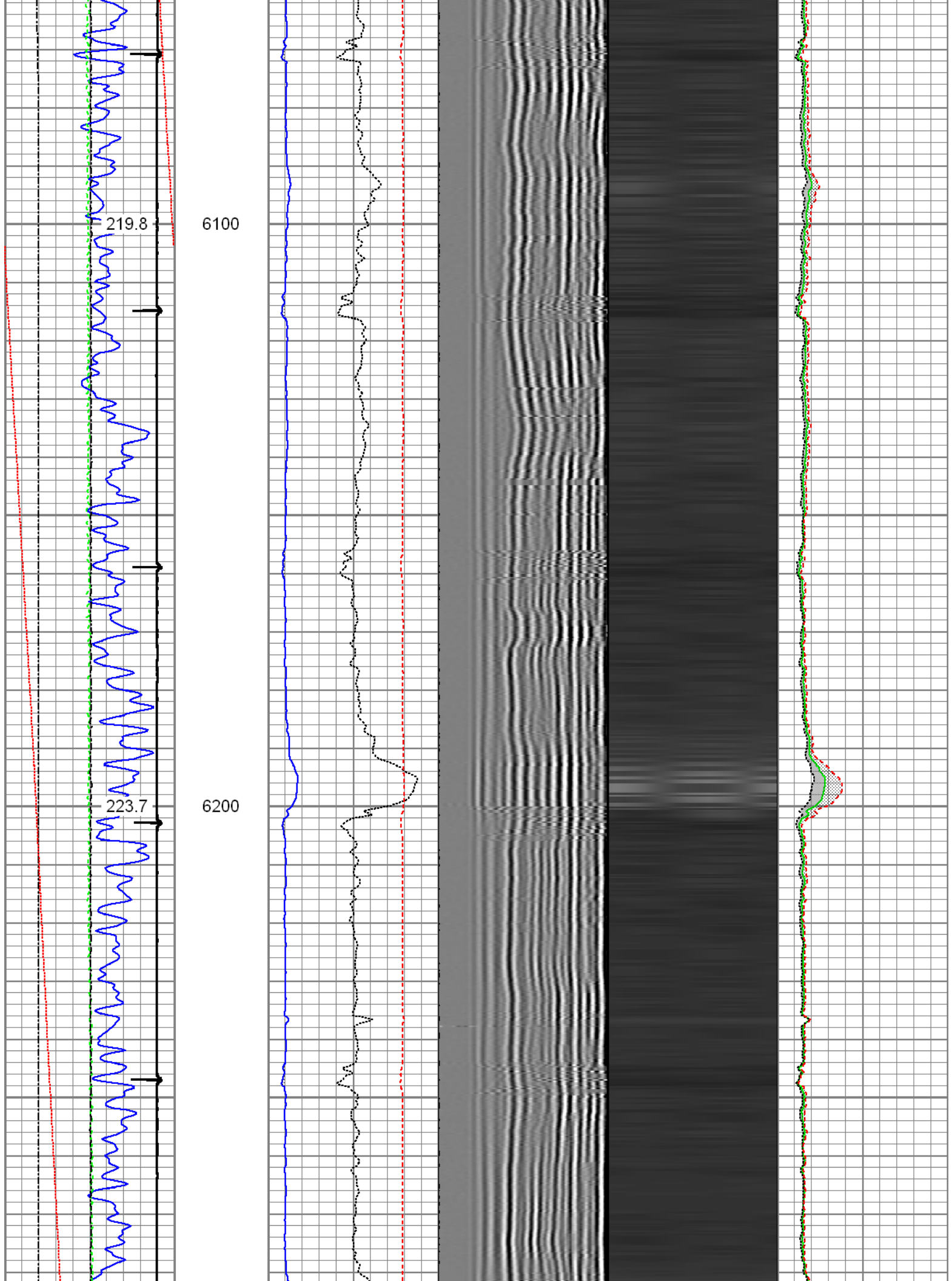


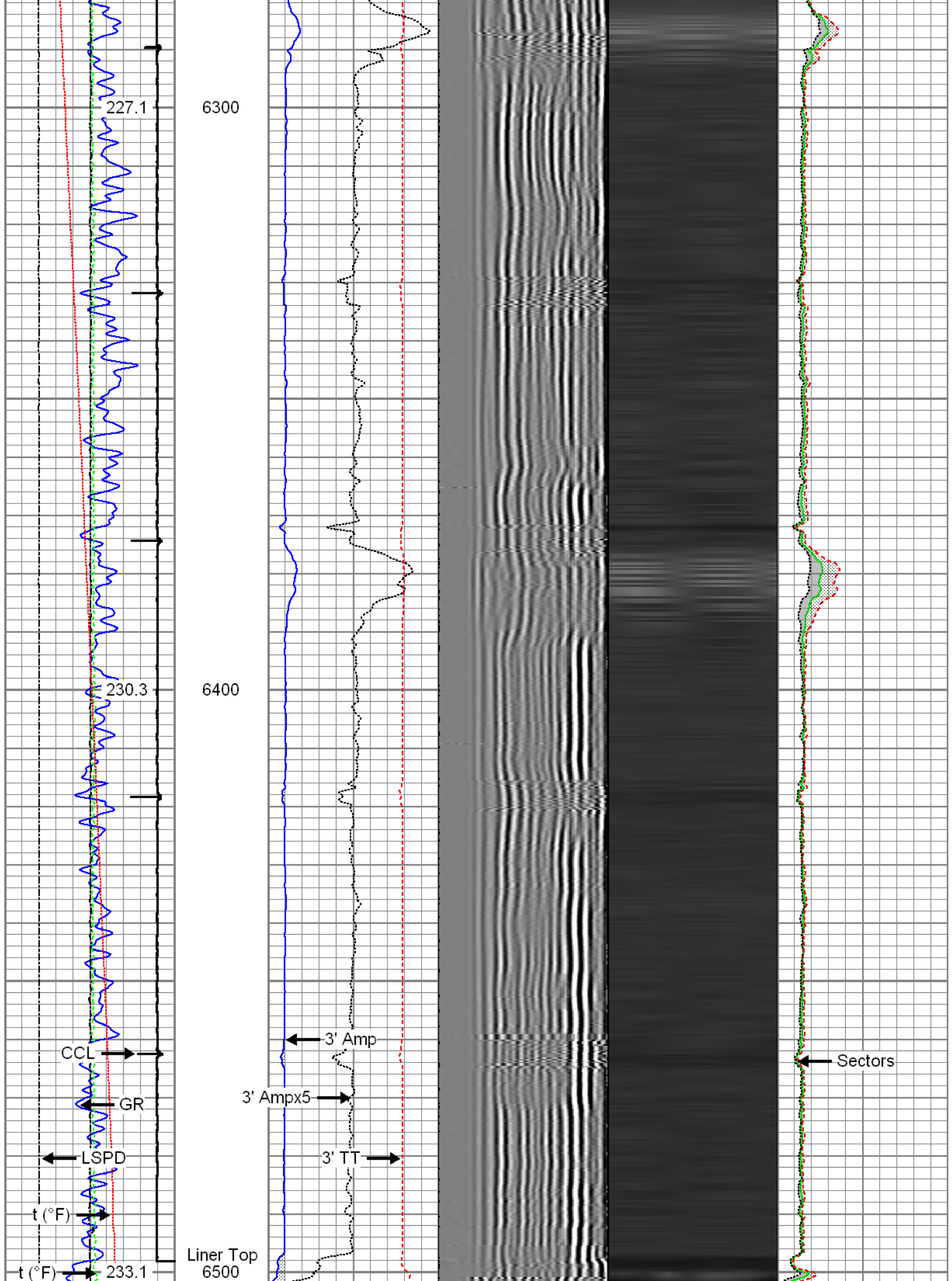


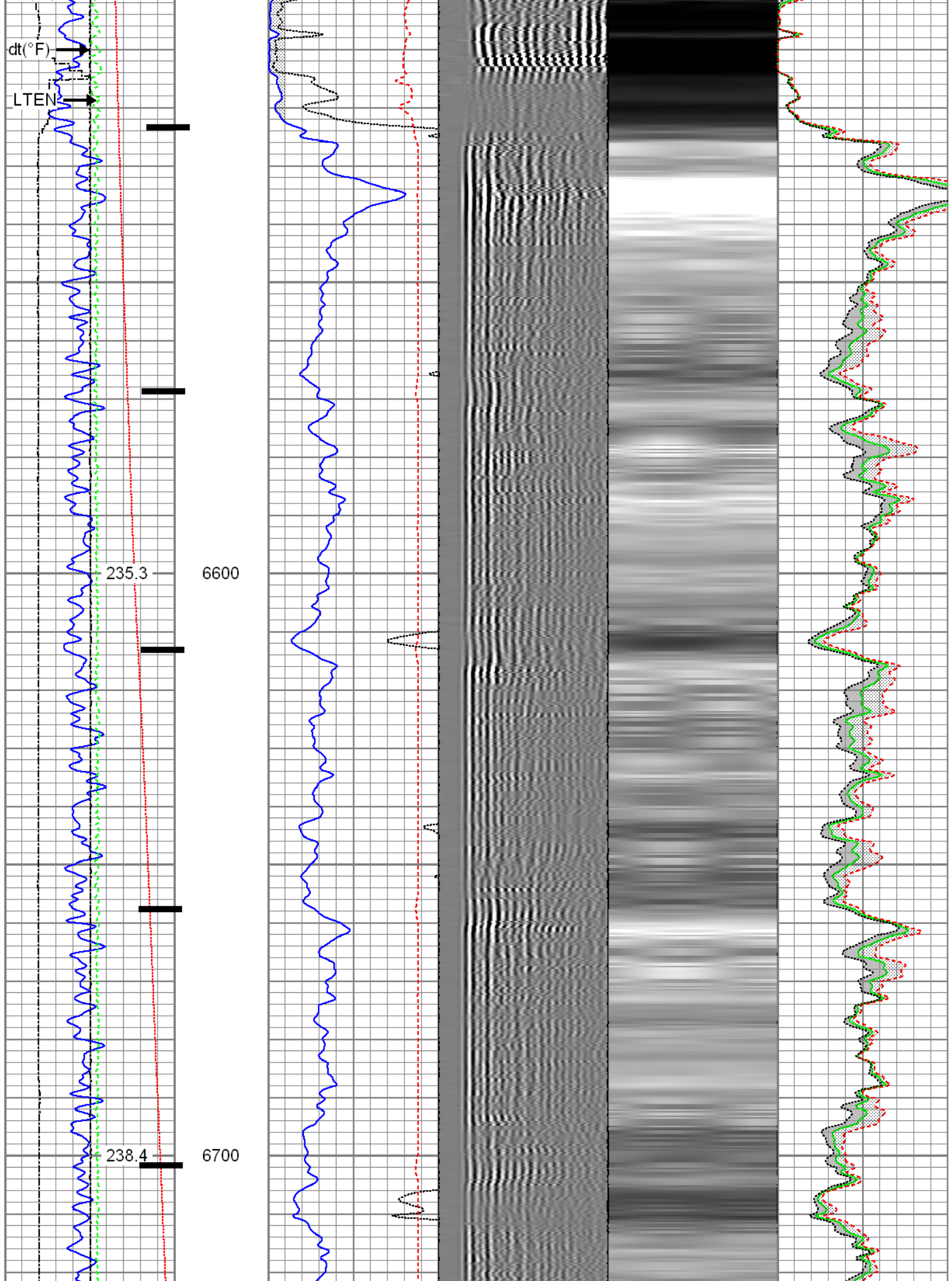


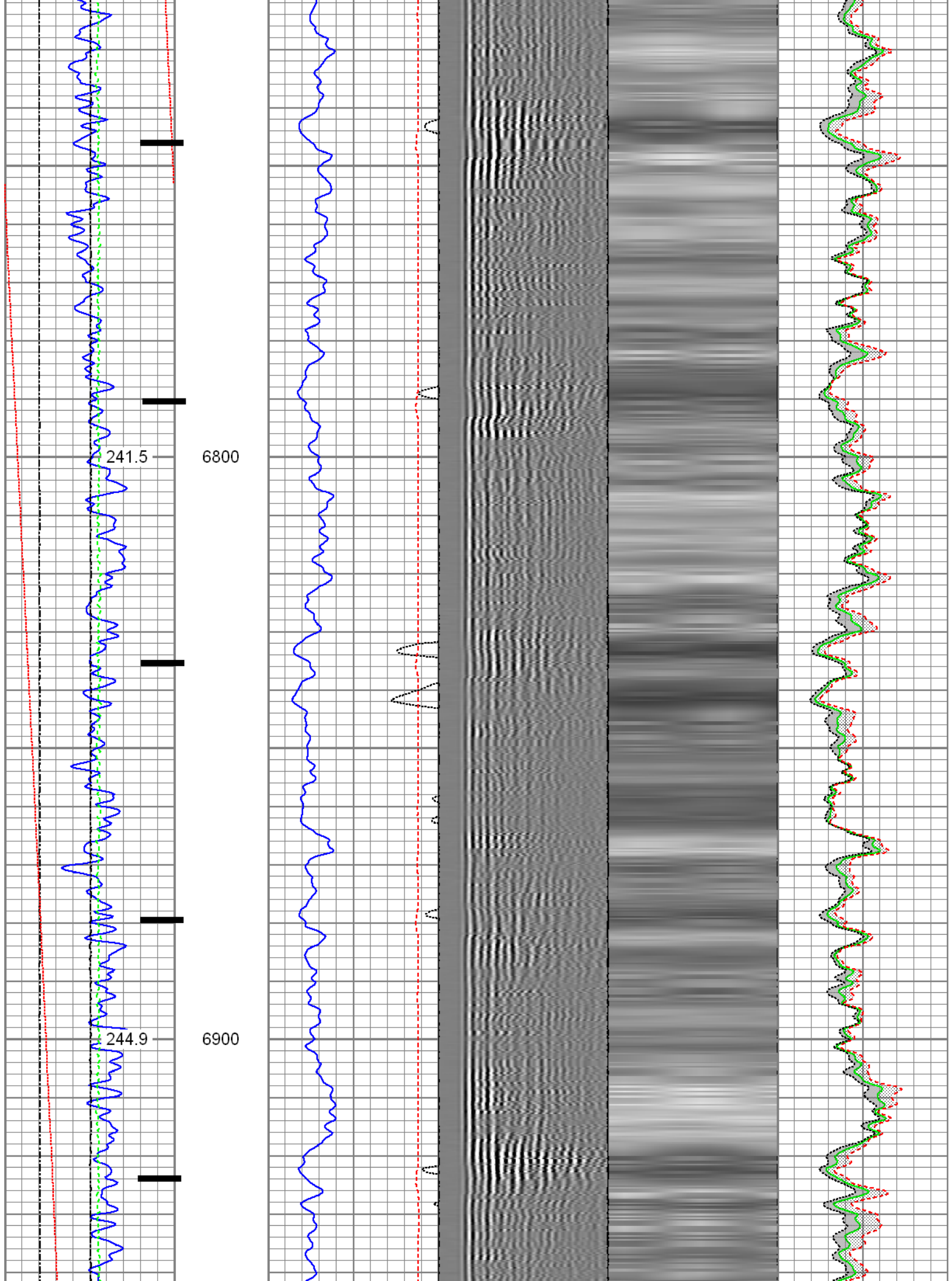


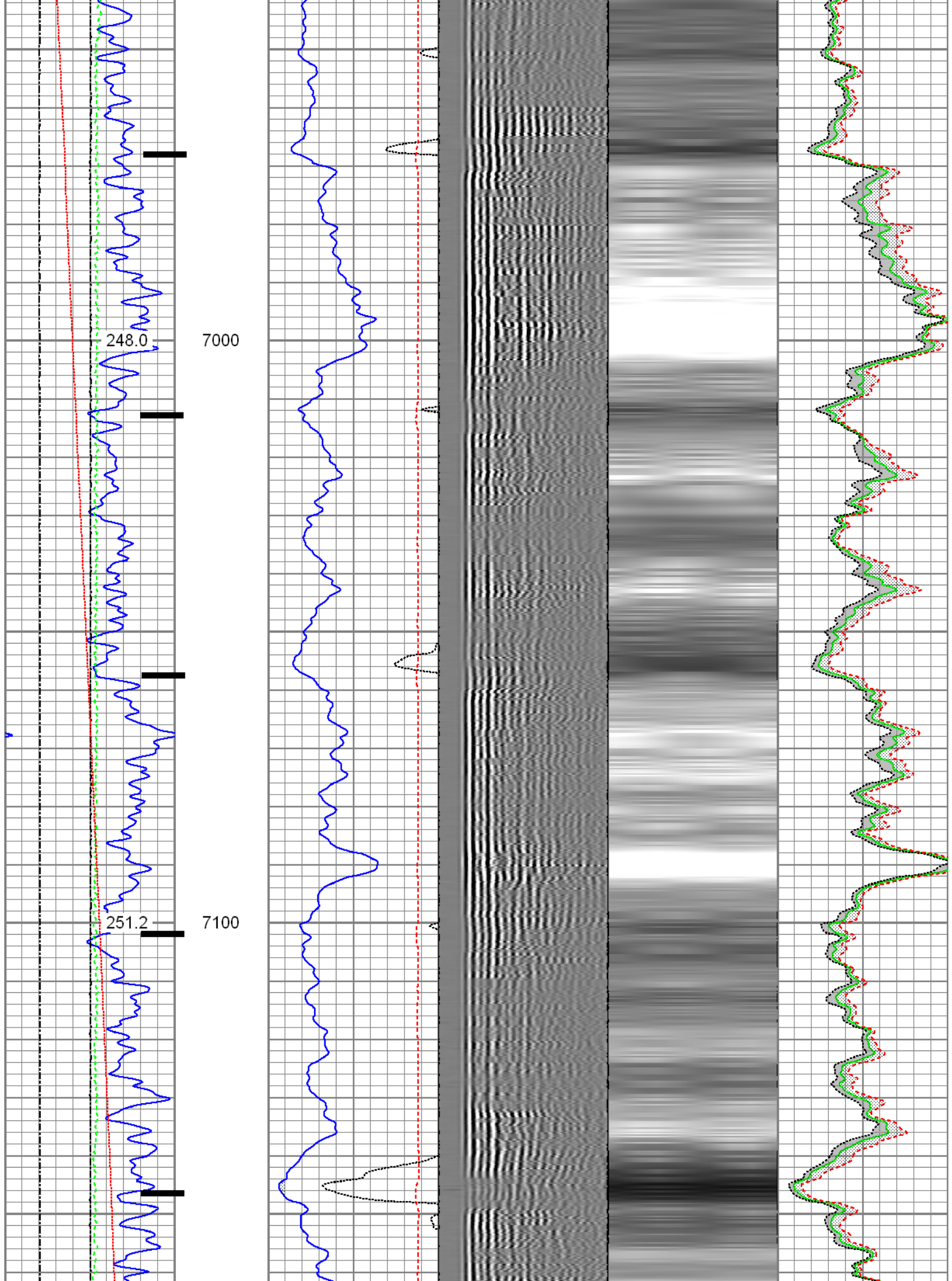


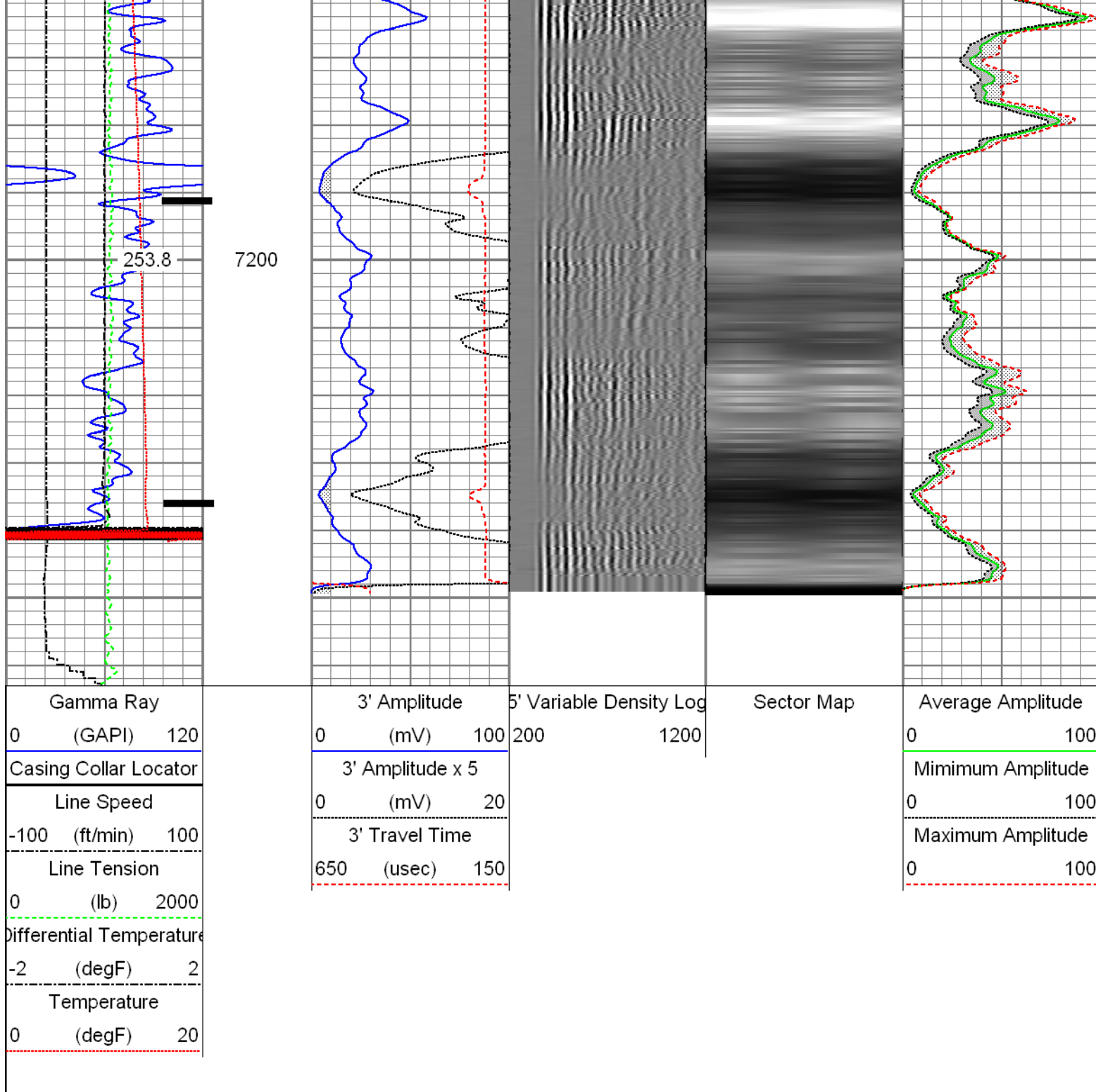












Repeat Pass

Recorded with 2800 PSI Surface Induced Pressure

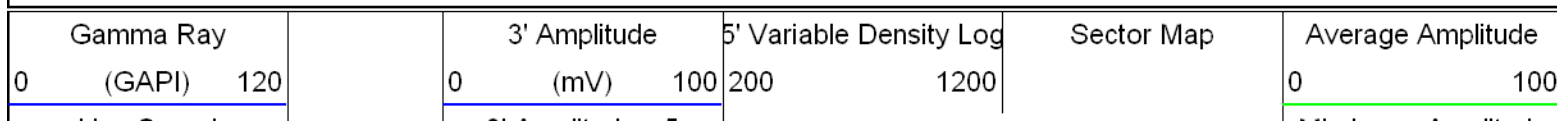
Database File: c:\warrior\data\anadarko_cream 15c-28hz\0512340959_anadarko_cream 15c-28hz_07-21-15_mit_rbl

Dataset Pathname: pass2

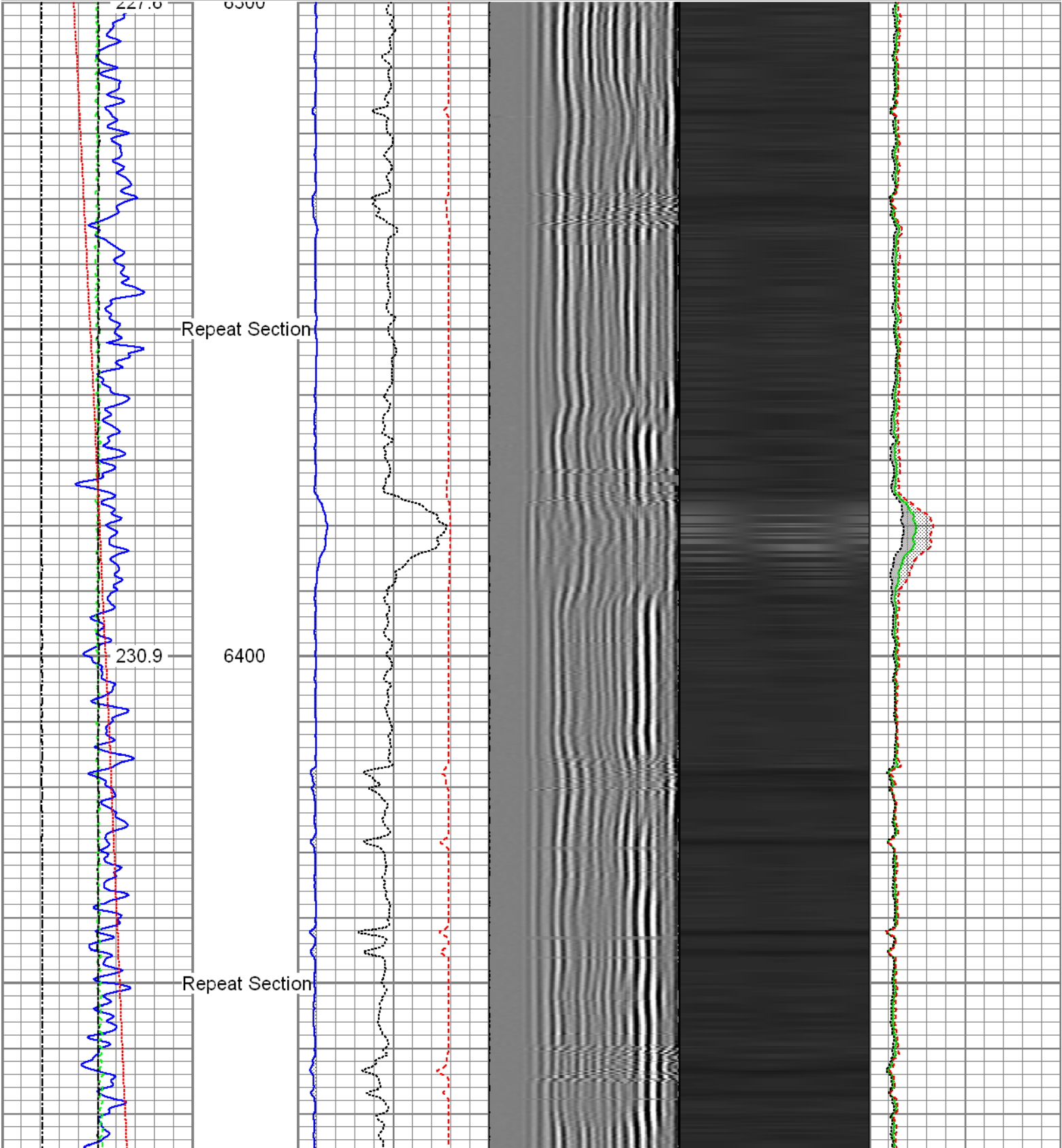
Presentation Format: rbt4_mit

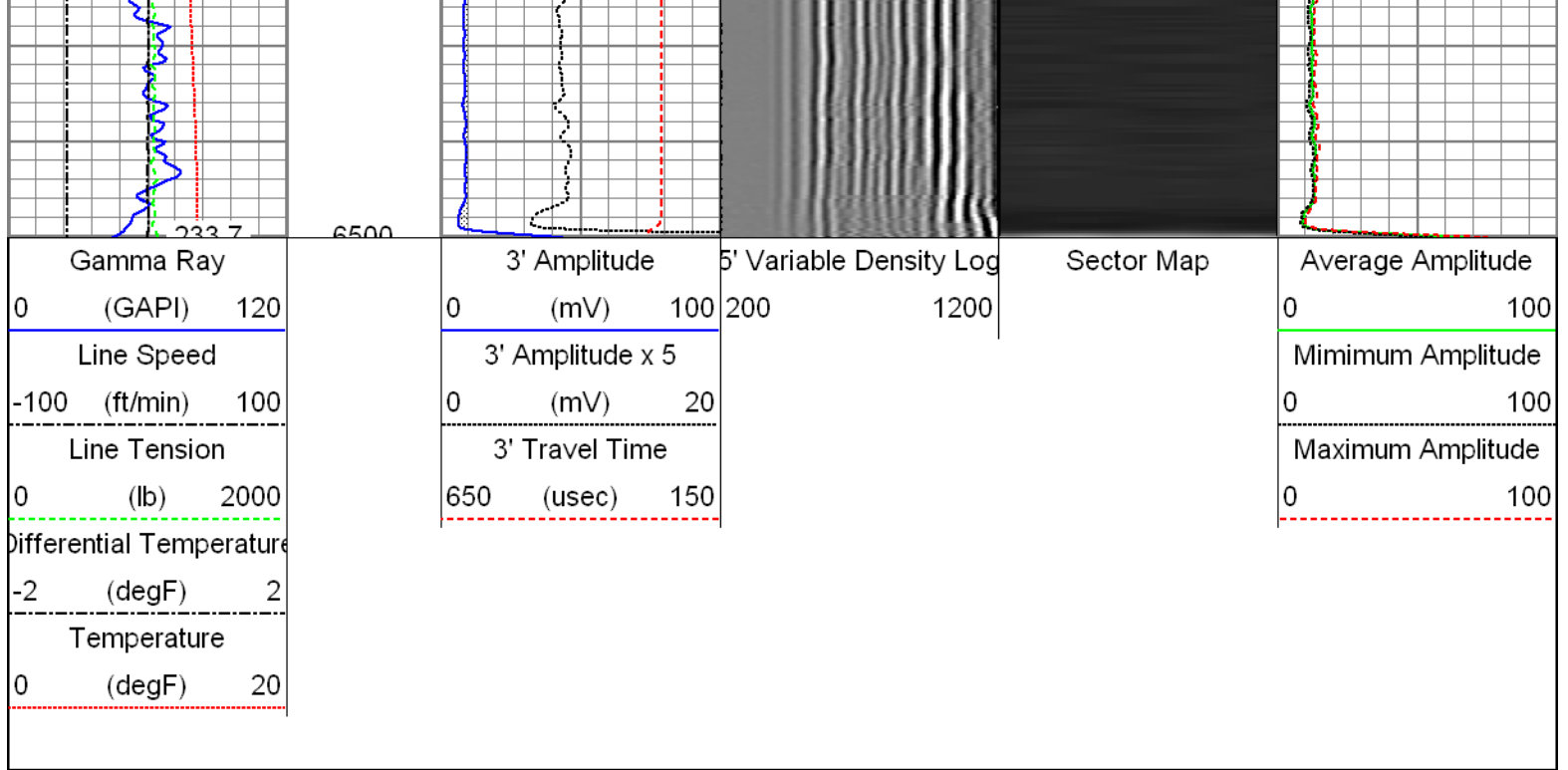
Dataset Creation: Tue Jul 21 08:32:24 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

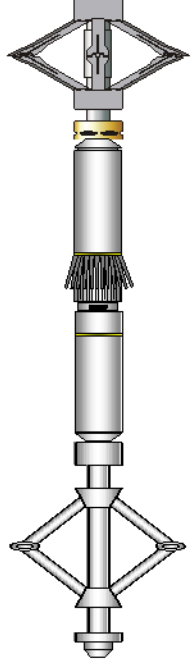


Line Speed			3' Amplitude x 5			Minimum Amplitude		
-100	(ft/min)	100	0	(mV)	20	0		100
Line Tension			3' Travel Time			Maximum Amplitude		
0	(lb)	2000	650	(usec)	150	0		100
Differential Temperature								
-2	(degF)	2						
Temperature								
0	(degF)	20						





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.85		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			GOpin-GOpin 2" GO Pin to GO Pin Connection	0.23	2.00	5.00
			UW_AGS-UW_AGS_001 (218874) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (219135) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10019072) Production Gamma Ray	1.93	1.69	9.50
TEMP	22.45		UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20
			UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVFS1	15.42		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS2	15.42					
WVFS3	15.42					
WVFS4	15.42					
WVFS5	15.42					
WVFS6	15.42					
WVFS7	15.42					
WVFS8	15.42					
CBLTEMP	15.42					
CBLROT	15.42					

WVF5FT	14.42		UW_PRC-DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00	
MIT	5.41		UW_MIT-UW_MIT40_042 (10020664) 40 Multifinger Imaging Tool	4.54	2.75	61.10	
TSTAMP	0.00		UW_PRC #4 -UW_PRC_057 (1101) 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: 0512340959_Anadarko_Cream 15C-28HZ_07-21-15_MIT_RBL.db: field/well/run1/pass4 Total Length: 28.32 ft Total Weight: 329.50 lb O.D. 3.13 in							

Calibration Report			
Database File:	c:\warrior\data\anadarko_cream 15c-28hz\0512340959_anadarko_cream 15c-28hz_07-21-15_mit_rbl.d		
Dataset Pathname:	pass7		
Dataset Creation:	Tue Jul 21 11:28:19 2015 by Log 7.0 B1		
Multi-finger Imaging Tool Calibration Report			
Serial Number:		10020664	
Number of Fingers:		40	
Tool Model:		UW_MIT40_042	
Inclinometer Calibration Report			
Performed:		Wed Nov 26 12:28:41 2014	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1946	1932
Finger 1 up:		1712	1699
Finger 31 up:		2180	1700
Finger 21 up:		2165	2167
Finger 11 up:		1708	2156
Sensitivity ratio:	1.00121		
X-axis angle:	134.04		
Deviation const.:	327.106		

Finger Calibration Report Performed: Tue Jul 21 08:08:11 2015							
Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1178	339.0	1517	378.0	1895	389.0	2284
Finger 02:	1190	345.0	1535	385.0	1920	395.0	2315
Finger 03:	1139	335.0	1474	385.0	1859	396.0	2255
Finger 04:	1150	350.0	1500	407.0	1907	412.0	2319
Finger 05:	1136	343.0	1479	399.0	1878	407.0	2285
Finger 06:	1171	340.0	1511	394.0	1905	390.0	2295
Finger 07:	1082	356.0	1438	414.0	1852	427.0	2279
Finger 08:	1139	334.0	1473	405.0	1878	408.0	2286

Finger 09:	1154	303.0	1457	405.0	1862	413.0	2275
Finger 10:	1028	351.0	1379	421.0	1800	436.0	2236
Finger 11:	1118	334.0	1452	395.0	1847	392.0	2239
Finger 12:	1093	338.0	1431	408.0	1839	424.0	2263
Finger 13:	1070	328.0	1398	403.0	1801	404.0	2205
Finger 14:	1046	335.0	1381	402.0	1783	407.0	2190
Finger 15:	1114	331.0	1445	388.0	1833	378.0	2211
Finger 16:	1065	331.0	1396	396.0	1792	409.0	2201
Finger 17:	1067	338.0	1405	398.0	1803	399.0	2202
Finger 18:	1016	334.0	1350	411.0	1761	407.0	2168
Finger 19:	1021	337.0	1358	396.0	1754	408.0	2162
Finger 20:	1063	339.0	1402	395.0	1797	405.0	2202
Finger 21:	1074	336.0	1410	384.0	1794	396.0	2190
Finger 22:	1074	348.0	1422	386.0	1808	398.0	2206
Finger 23:	1186	332.0	1518	350.0	1868	365.0	2233
Finger 24:	1043	348.0	1391	387.0	1778	407.0	2185
Finger 25:	1022	348.0	1370	384.0	1754	413.0	2167
Finger 26:	1092	352.0	1444	375.0	1819	398.0	2217
Finger 27:	1120	357.0	1477	378.0	1855	404.0	2259
Finger 28:	1105	354.0	1459	379.0	1838	403.0	2241
Finger 29:	1044	355.0	1399	383.0	1782	413.0	2195
Finger 30:	1148	355.0	1503	365.0	1868	396.0	2264
Finger 31:	1145	356.0	1501	371.0	1872	393.0	2265
Finger 32:	1184	349.0	1533	359.0	1892	382.0	2274
Finger 33:	1205	359.0	1564	367.0	1931	390.0	2321
Finger 34:	1152	360.0	1512	378.0	1890	406.0	2296
Finger 35:	1174	356.0	1530	380.0	1910	404.0	2314
Finger 36:	1217	350.0	1567	366.0	1933	393.0	2326
Finger 37:	1143	361.0	1504	389.0	1893	415.0	2308
Finger 38:	1106	367.0	1473	401.0	1874	428.0	2302
Finger 39:	1136	353.0	1489	402.0	1891	409.0	2300
Finger 40:	1166	351.0	1517	385.0	1902	405.0	2307

Post Survey Calibration Check								
Performed: Tue Jul 21 11:28:14 2015								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.970	-0.015	5.008	0.004	5.993	-0.003	7.000	0.000
Finger 02:	3.976	-0.012	5.014	0.007	5.991	-0.004	7.000	0.000
Finger 03:	3.973	-0.014	5.020	0.010	6.011	0.006	6.998	-0.001
Finger 04:	3.976	-0.012	5.019	0.009	5.986	-0.007	6.998	-0.001
Finger 05:	3.982	-0.009	5.012	0.006	5.996	-0.002	6.999	-0.000
Finger 06:	3.979	-0.011	5.012	0.006	5.987	-0.007	6.998	-0.001
Finger 07:	4.000	-0.000	4.997	-0.001	5.994	-0.003	7.000	0.000
Finger 08:	3.984	-0.008	5.023	0.011	5.998	-0.001	7.008	0.004
Finger 09:	3.819	-0.090	5.002	0.001	5.991	-0.004	7.001	0.001
Finger 10:	3.978	-0.011	5.005	0.003	5.990	-0.005	7.009	0.004
Finger 11:	3.976	-0.012	5.017	0.009	5.990	-0.005	7.003	0.001
Finger 12:	3.987	-0.006	5.014	0.007	6.000	0.000	6.972	-0.014
Finger 13:	3.975	-0.013	5.019	0.009	6.000	0.000	7.004	0.002
Finger 14:	3.966	-0.017	5.001	0.001	5.993	-0.003	6.995	-0.002
Finger 15:	3.969	-0.016	5.008	0.004	5.980	-0.010	6.997	-0.001
Finger 16:	3.985	-0.008	5.014	0.007	5.996	-0.002	6.970	-0.015
Finger 17:	3.977	-0.012	5.003	0.001	5.999	-0.001	7.002	0.001
Finger 18:	3.963	-0.018	5.029	0.014	5.982	-0.009	7.014	0.007
Finger 19:	3.986	-0.007	5.014	0.007	5.997	-0.001	7.014	0.007
Finger 20:	3.971	-0.014	5.015	0.008	6.001	0.001	7.002	0.001
Finger 21:	3.983	-0.008	5.018	0.009	5.999	-0.001	7.005	0.002
Finger 22:	3.981	-0.010	5.012	0.006	6.001	0.000	7.007	0.004
Finger 23:	3.973	-0.013	5.016	0.008	5.996	-0.002	6.995	-0.002
Finger 24:	3.978	-0.011	5.014	0.007	5.990	-0.005	6.993	-0.004
Finger 25:	3.978	-0.011	5.014	0.007	5.996	-0.002	6.998	-0.001
Finger 26:	3.983	-0.008	5.013	0.007	5.995	-0.002	7.000	-0.000
Finger 27:	3.984	-0.008	4.999	-0.000	5.993	-0.003	6.991	-0.005
Finger 28:	3.984	-0.008	5.014	0.007	5.990	-0.005	6.997	-0.001

Finger 29:	3.982	-0.009	5.025	0.013	5.985	-0.008	6.994	-0.003
Finger 30:	3.983	-0.009	5.004	0.002	6.001	0.000	6.997	-0.002
Finger 31:	3.984	-0.008	5.012	0.006	5.994	-0.003	7.002	0.001
Finger 32:	3.978	-0.011	5.008	0.004	5.988	-0.006	6.998	-0.001
Finger 33:	3.979	-0.010	5.012	0.006	6.005	0.003	7.012	0.006
Finger 34:	3.969	-0.016	4.999	-0.000	5.990	-0.005	6.993	-0.004
Finger 35:	3.974	-0.013	5.012	0.006	5.992	-0.004	6.999	-0.000
Finger 36:	3.970	-0.015	5.016	0.008	5.991	-0.004	6.996	-0.002
Finger 37:	3.973	-0.013	5.015	0.007	5.987	-0.006	6.993	-0.003
Finger 38:	3.975	-0.012	5.010	0.005	5.992	-0.004	6.996	-0.002
Finger 39:	3.972	-0.014	5.026	0.013	5.990	-0.005	7.013	0.006
Finger 40:	3.983	-0.008	5.018	0.009	6.011	0.006	6.991	-0.005
Average:	3.974	-0.013	5.013	0.006	5.994	-0.003	6.999	-0.001

Segmented Cement Bond Log Calibration Report								
Serial Number:			1066					
Tool Model:			UW_RBT_004					
Calibration Casing Diameter:			7.000	in				
Calibration Depth:			7.940	ft				

Master Calibration, performed Tue Jul 21 08:05:50 2015:						
Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.005	0.693	0.800	62.165	89.233	0.368
5FT	-0.001	0.653	0.800	62.165	93.804	0.915
S1	0.005	0.666	0.000	100.000	151.312	-0.709
S2	0.004	0.677	0.000	100.000	148.557	-0.539
S3	0.004	0.686	0.000	100.000	146.508	-0.565
S4	0.004	0.701	0.000	100.000	143.335	-0.525
S5	0.004	0.705	0.000	100.000	142.646	-0.549
S6	0.004	0.712	0.000	100.000	141.101	-0.517
S7	0.005	0.715	0.000	100.000	140.793	-0.639
S8	0.005	0.688	0.000	100.000	146.461	-0.704

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:		10019072			
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	Cream 15C-28HZ
	Field	Wattenberg
	County	Weld
	State	Colorado