



Radial Cement Bond Gamma Ray Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Viper Pyro 26N-14HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API #: 05-123-41425	
SEC 15 TWP 3N RGE 67W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4794'	
Gauge Ring		MIT	
Elevation		K.B. 4814'	
Elevation		D.F. 4813'	
Elevation		G.L. 4794'	

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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 6,352 FT
Adjusted -24 FT to correlate to liner top
Gauge Ring/Junk Basket ran to 7,435 FT
Log ran from 6440 FT 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\0512341425_anadarko_viper pyro 26n-14hz_10-14-15_mit_rb\0512341425_anadarko

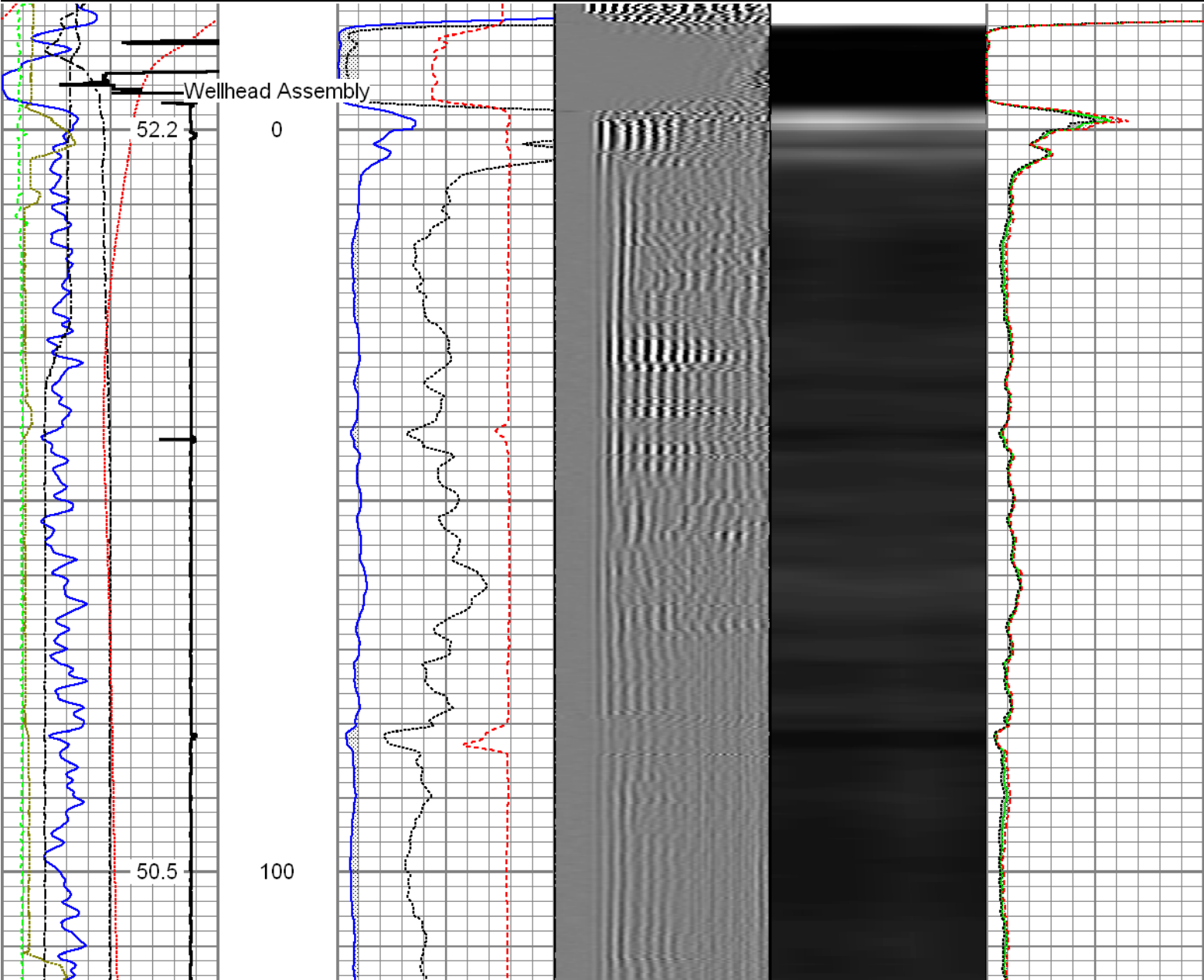
Dataset Pathname: pass7

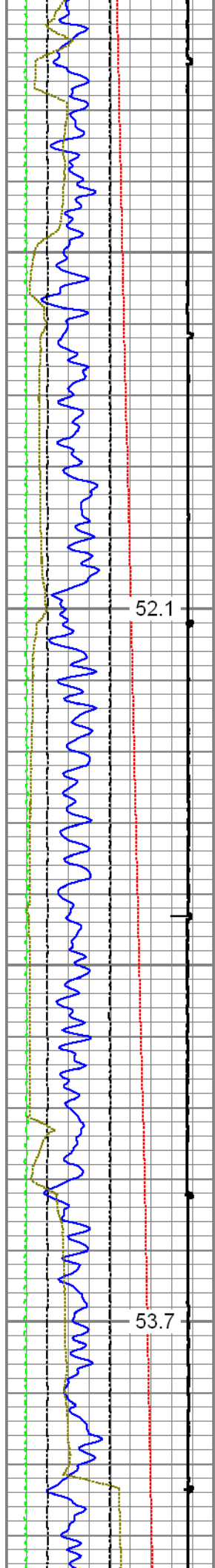
Presentation Format: rbt4_mit

Dataset Creation: Wed Oct 14 09:23:34 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

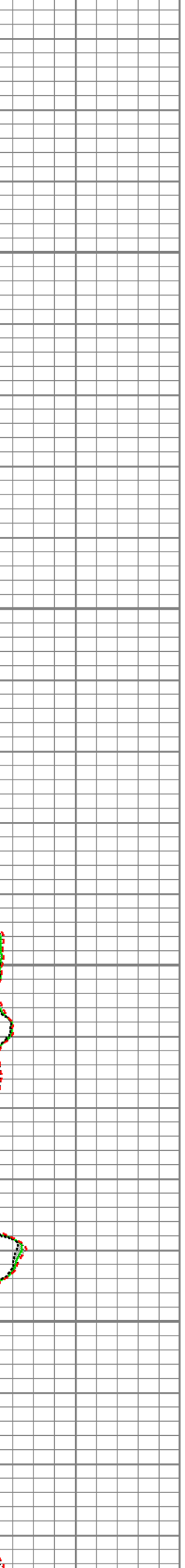
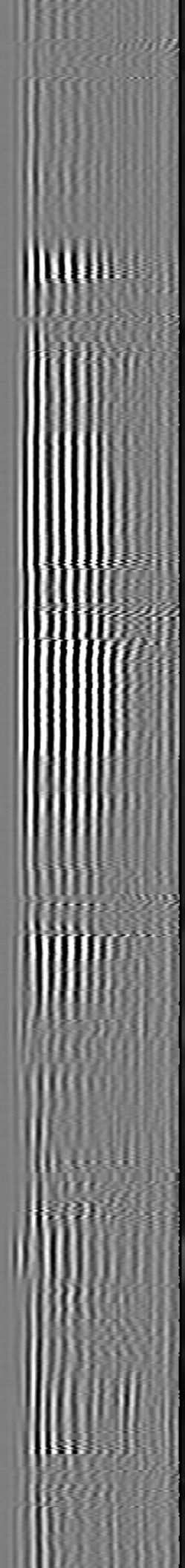
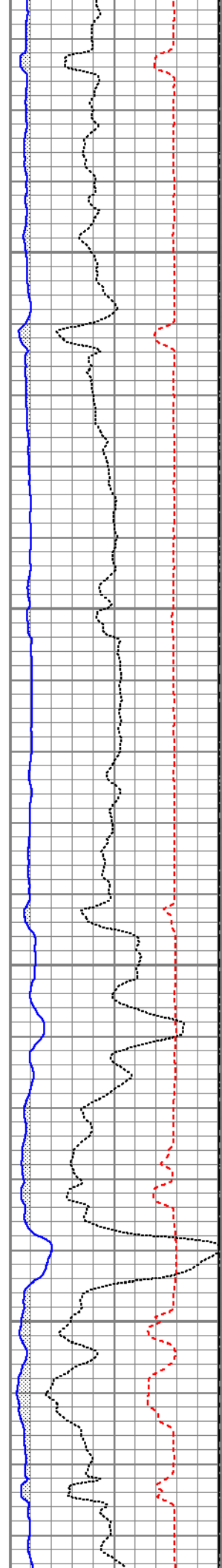
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Line Speed	3' Amplitude x 5			Minimum Amplitude
-100 (ft/min) 100	0 (mV) 20			0 100
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	650 (usec) 150			0 100
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
-10 Deviation (°) 90				
Casing Collar Locator				

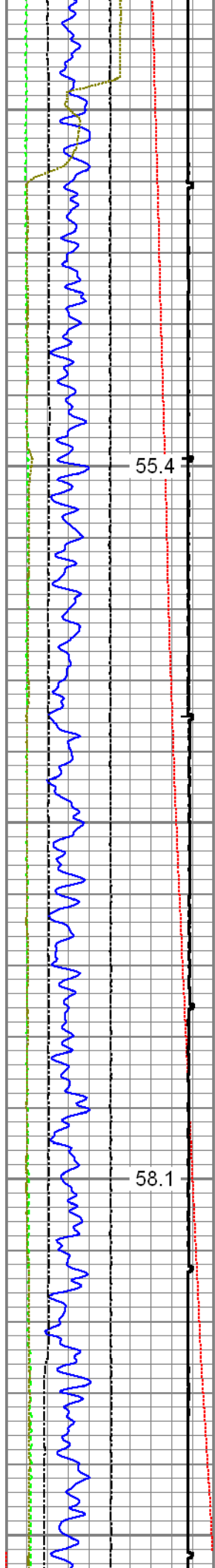




200

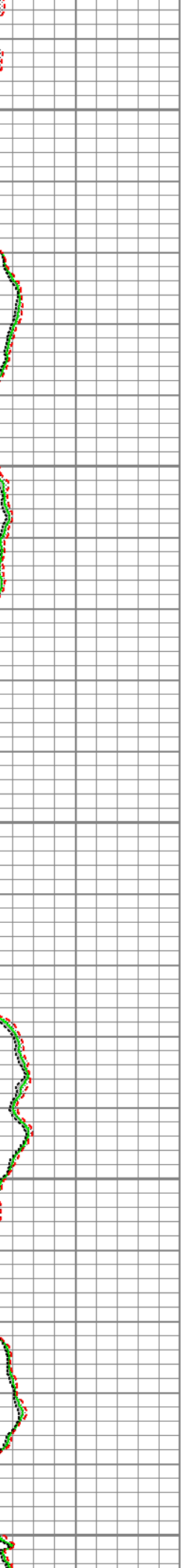
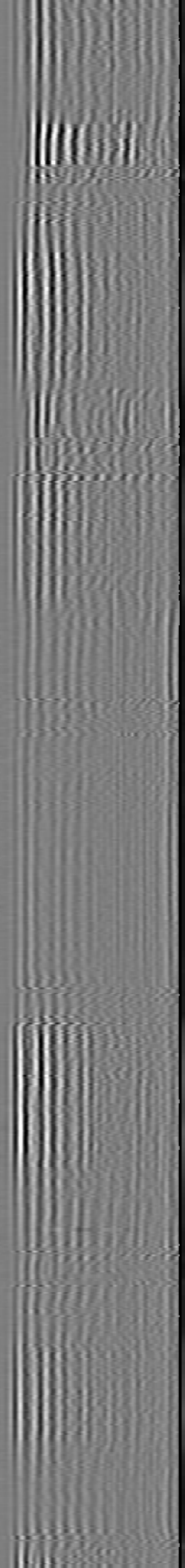
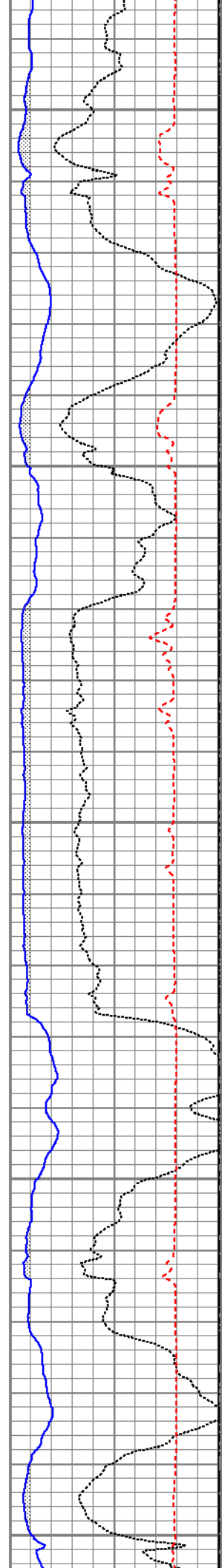
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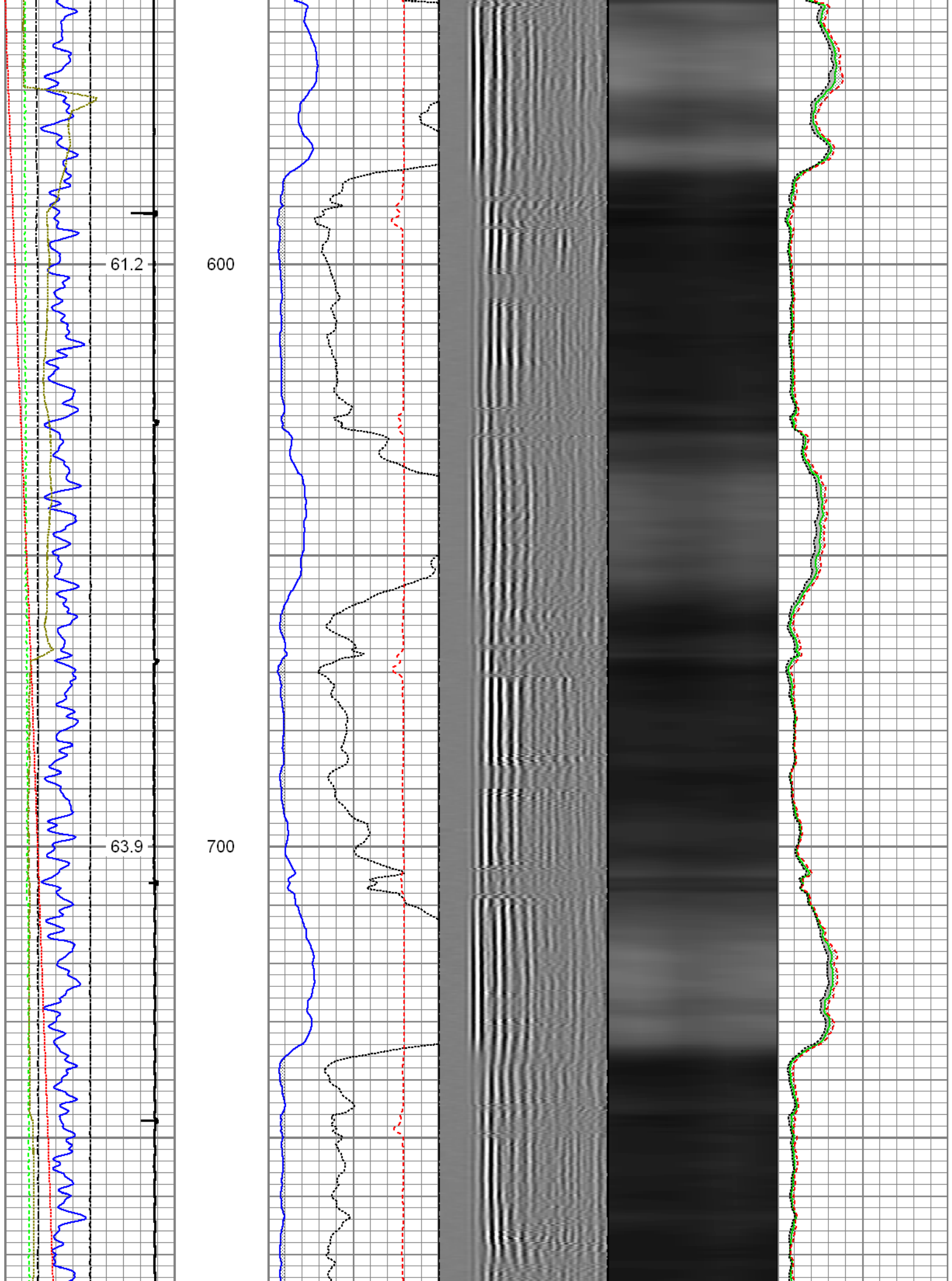


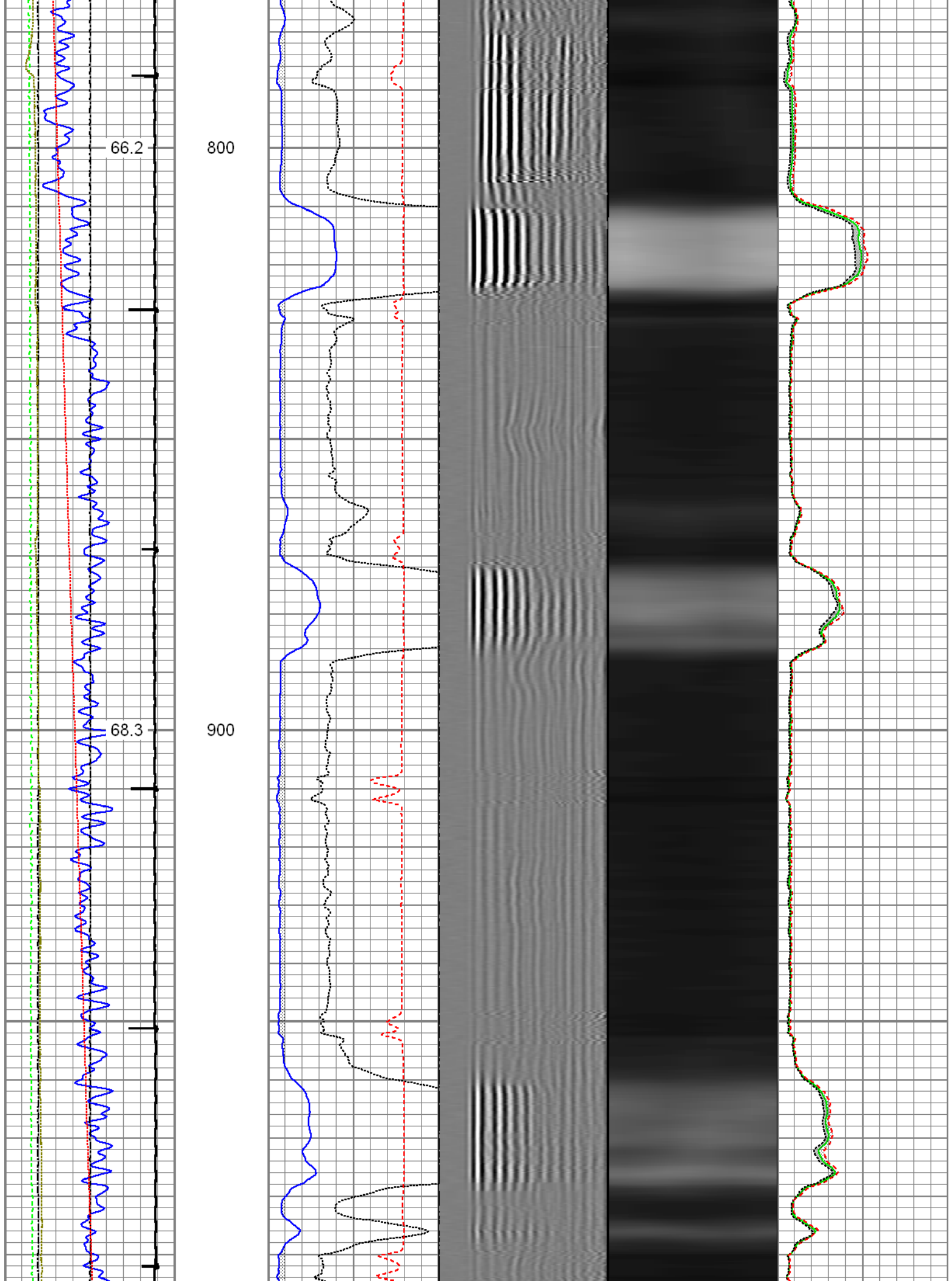


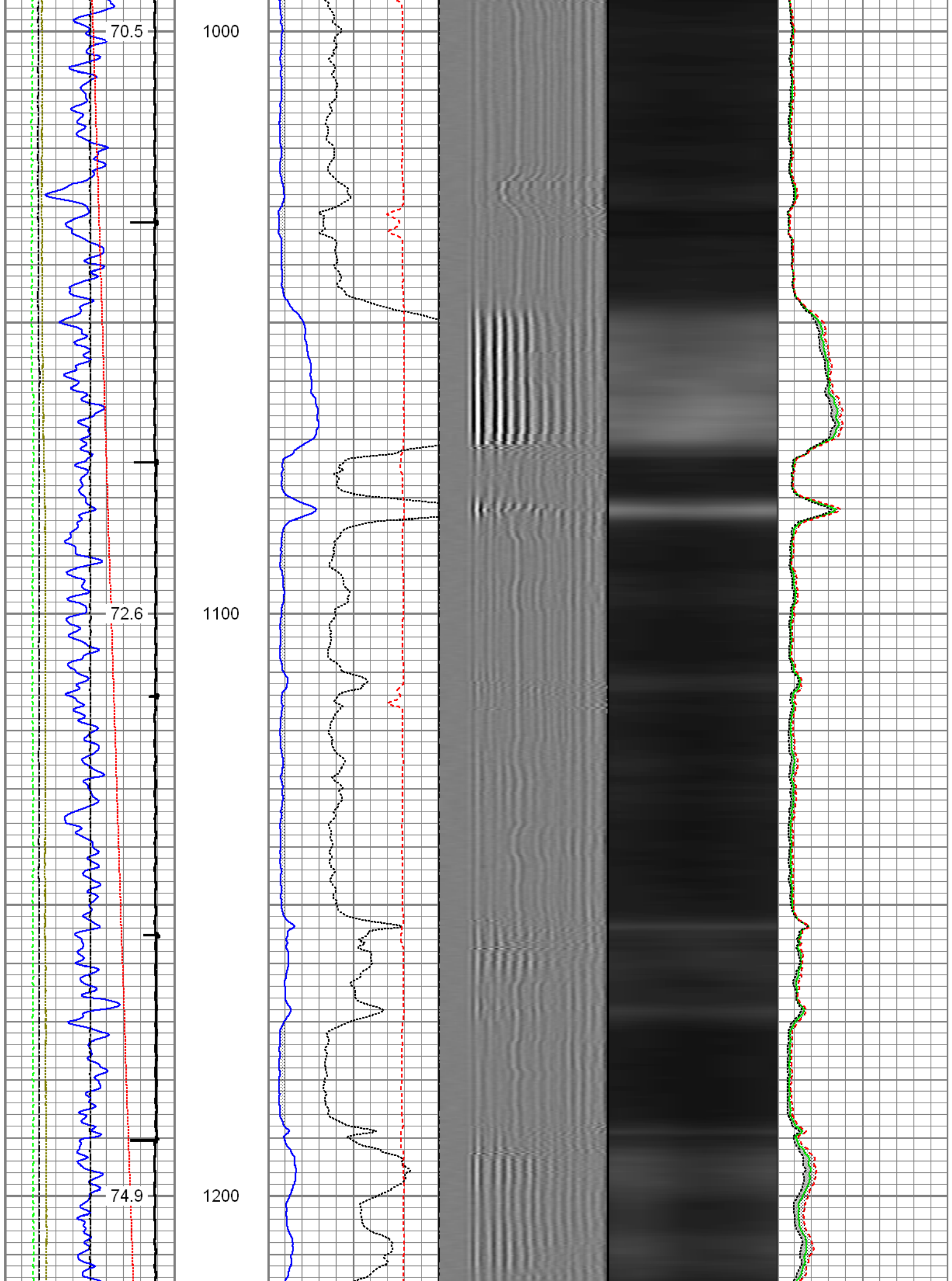
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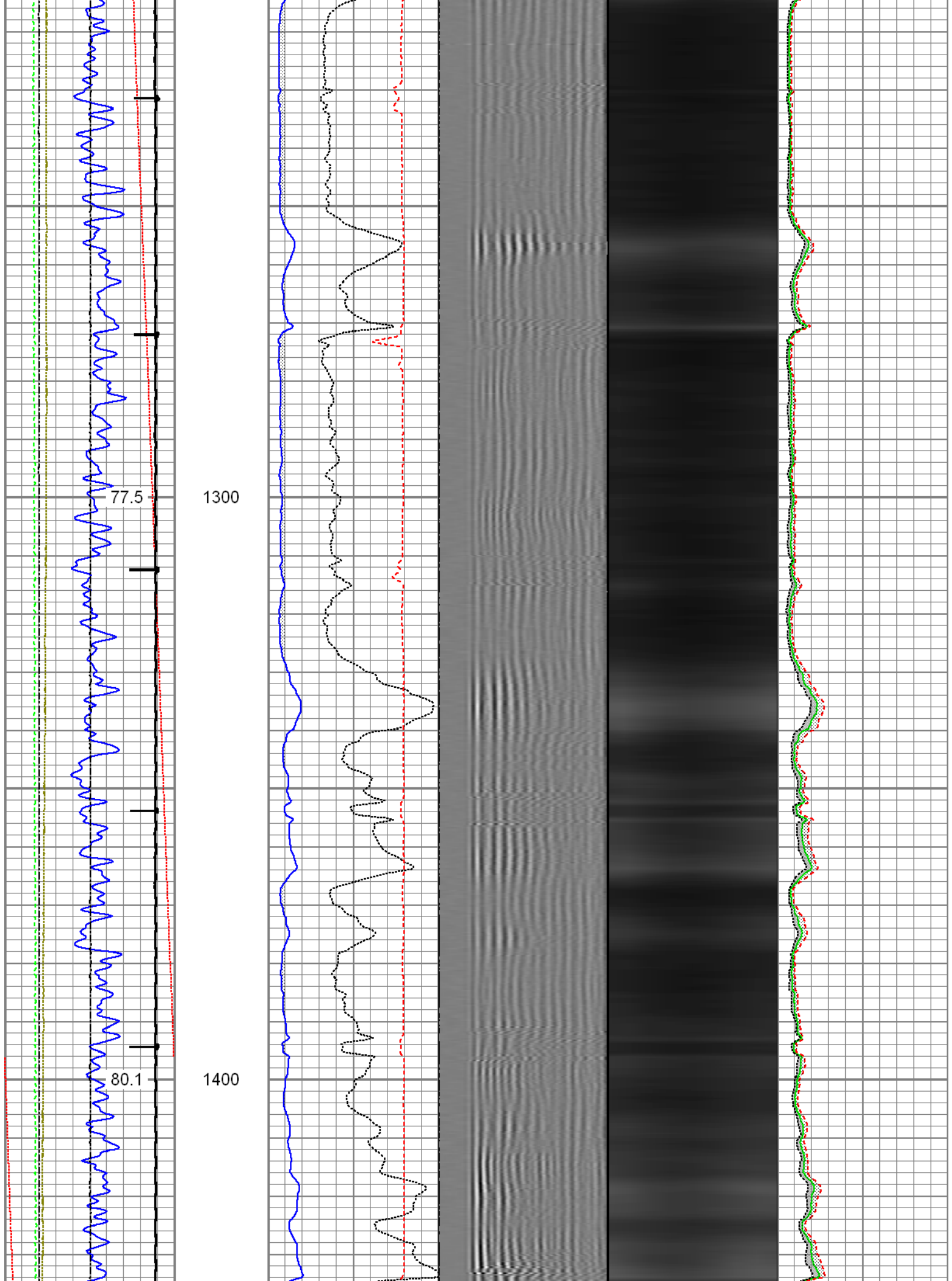
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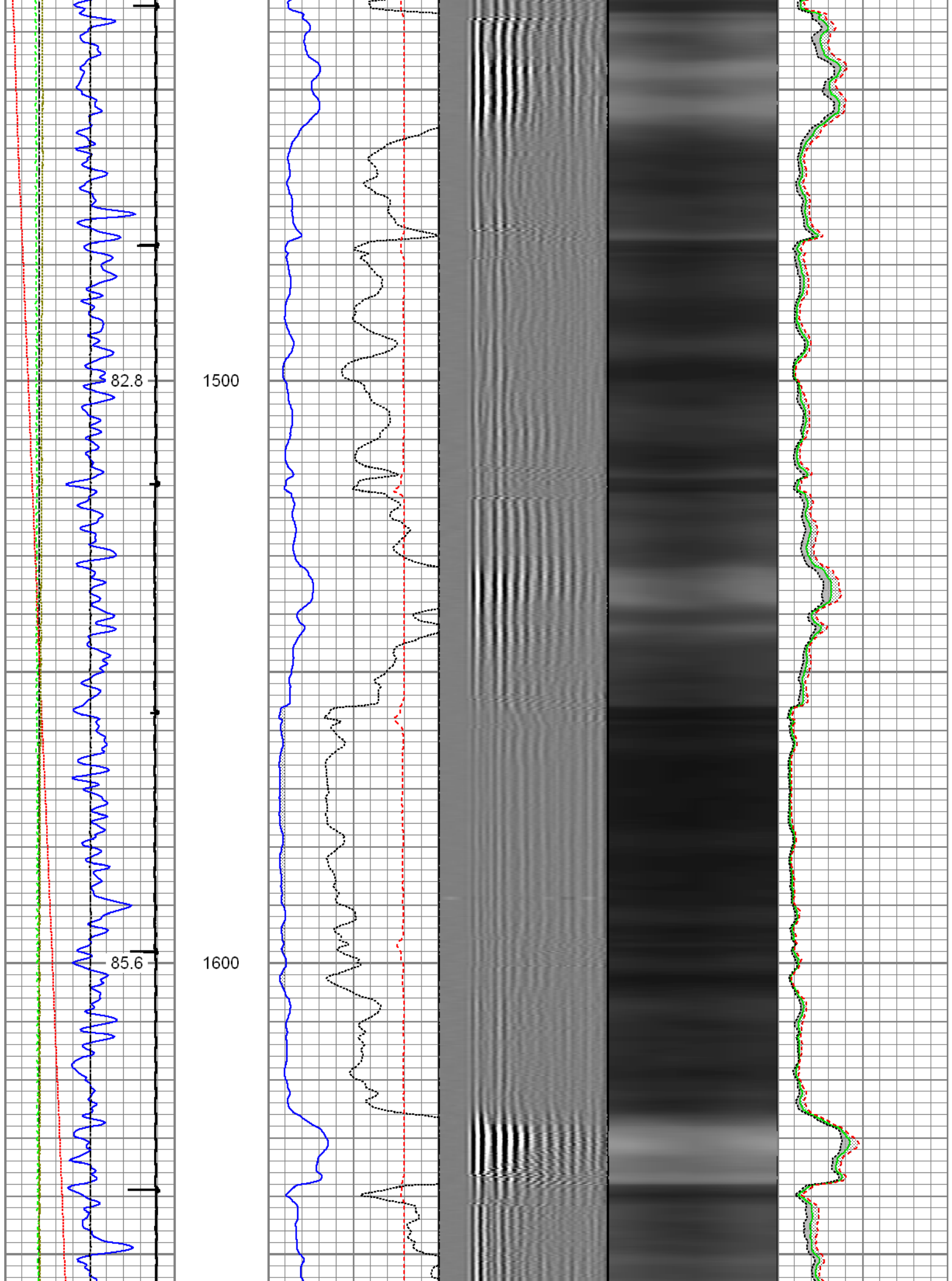


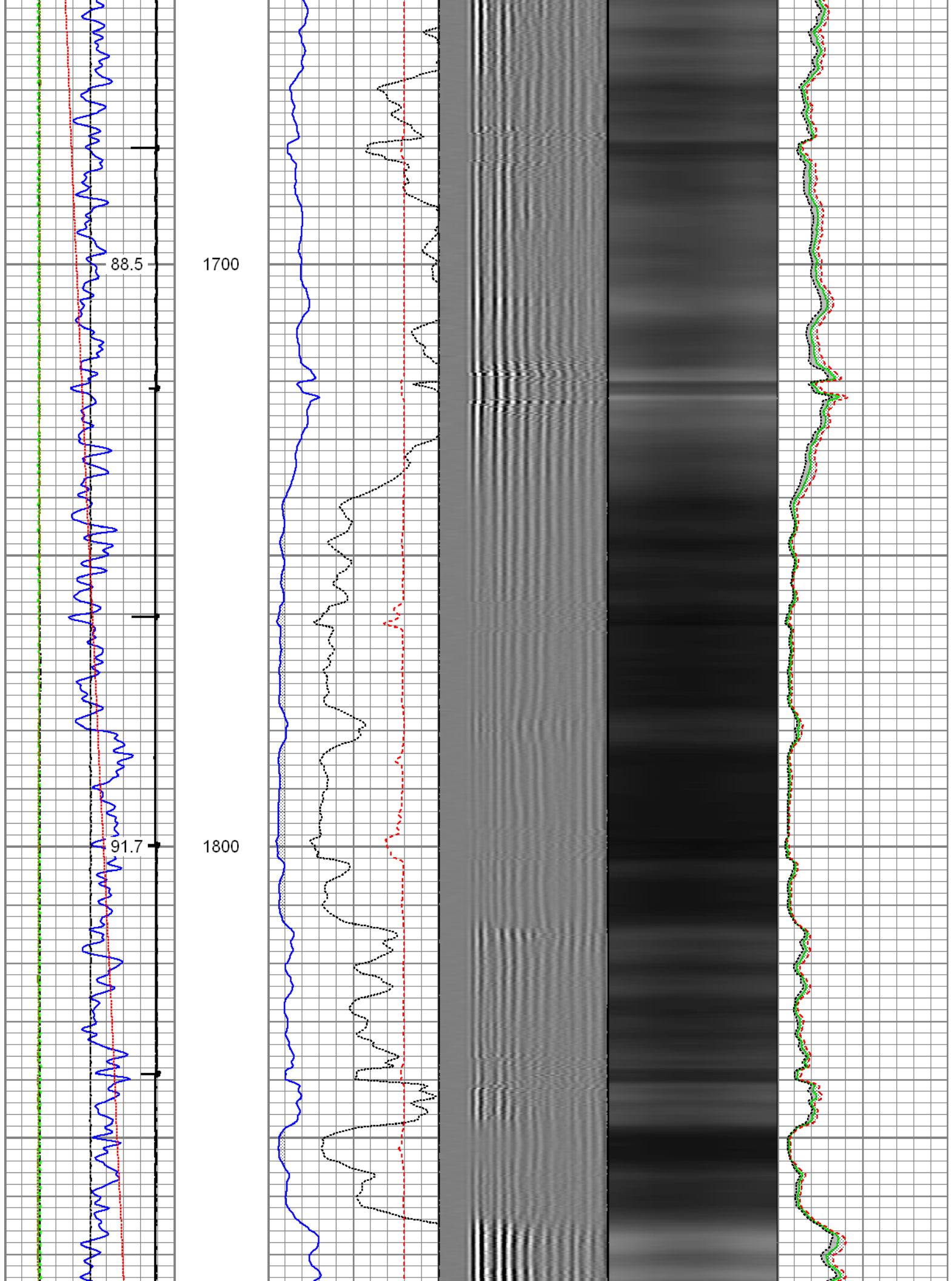


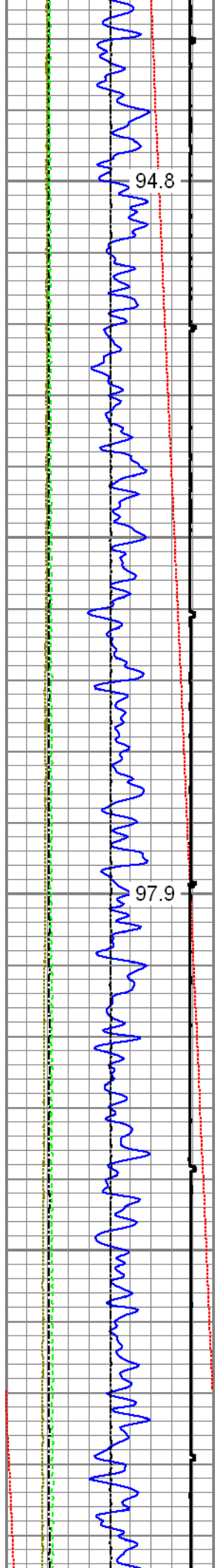






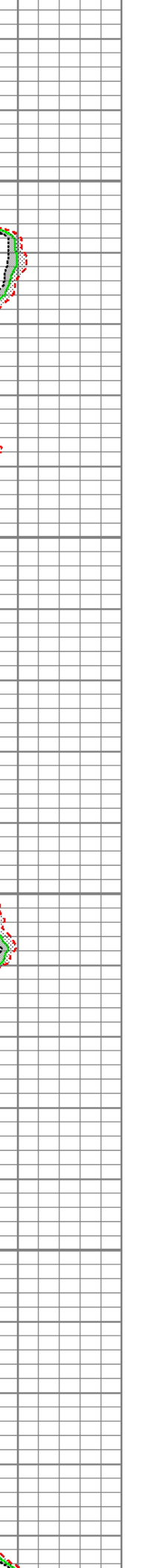
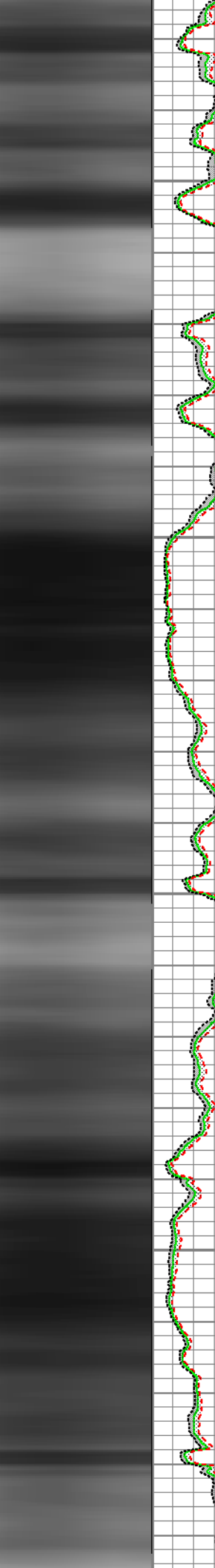
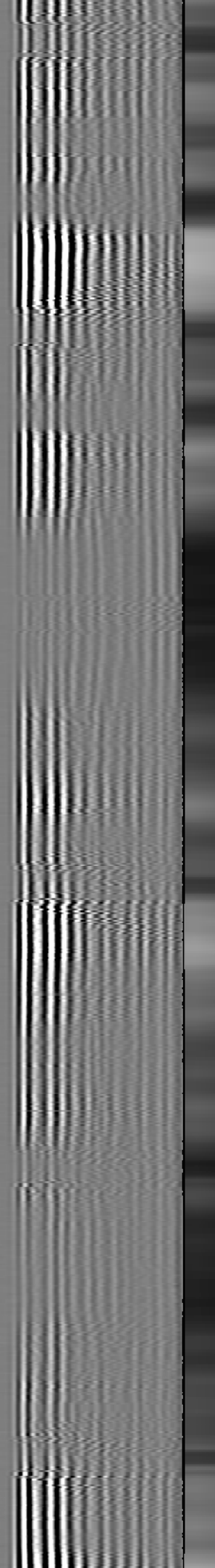
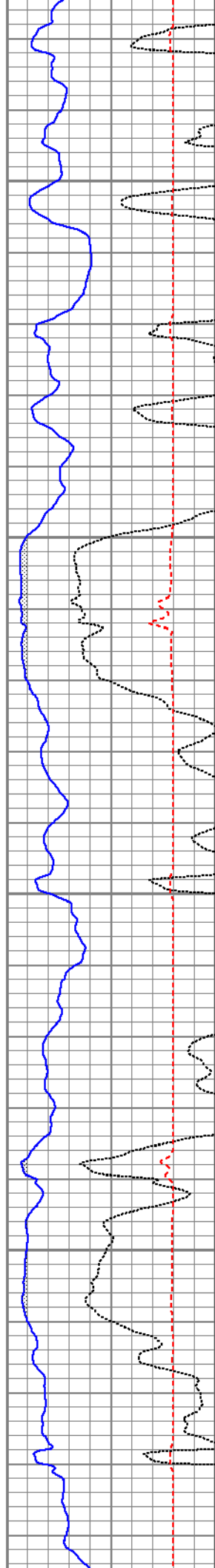


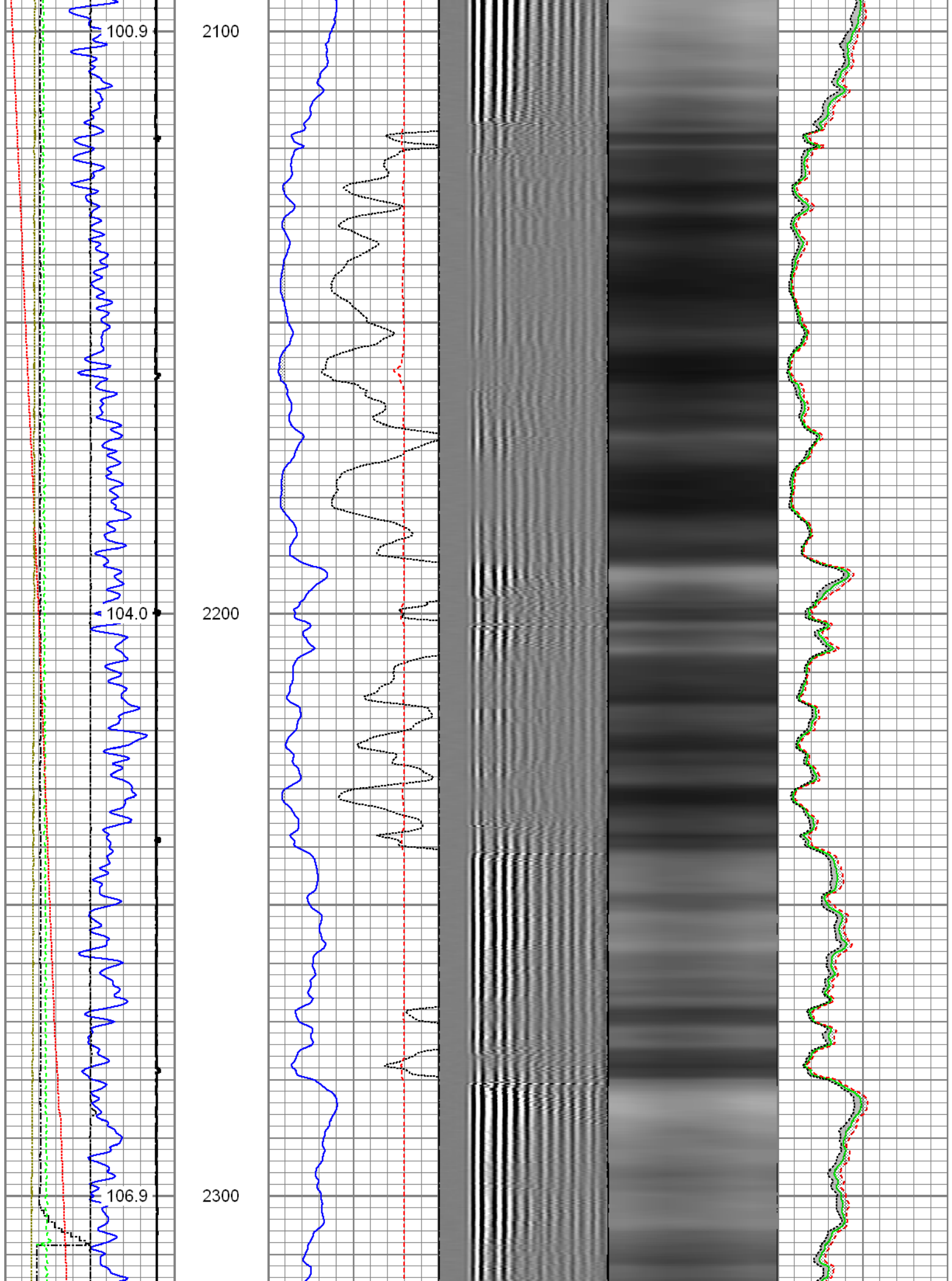


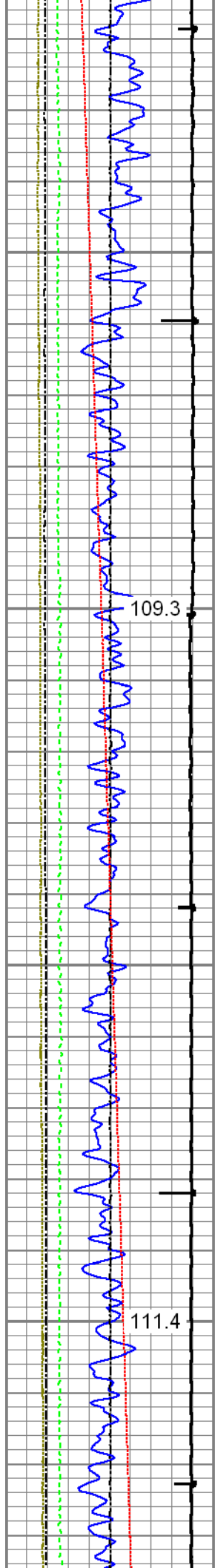


1900

2000

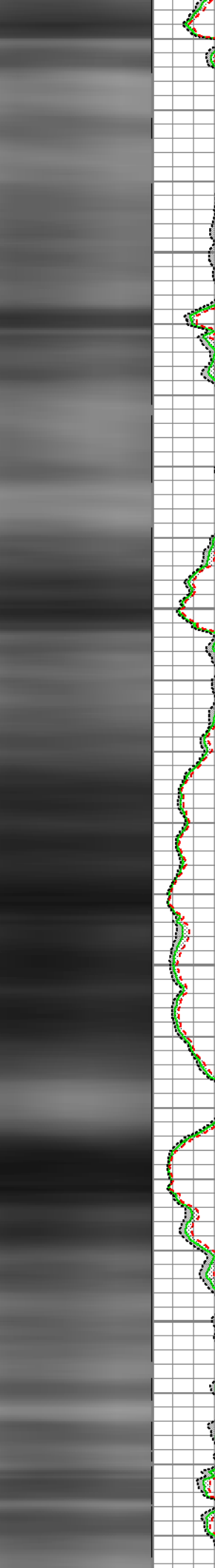
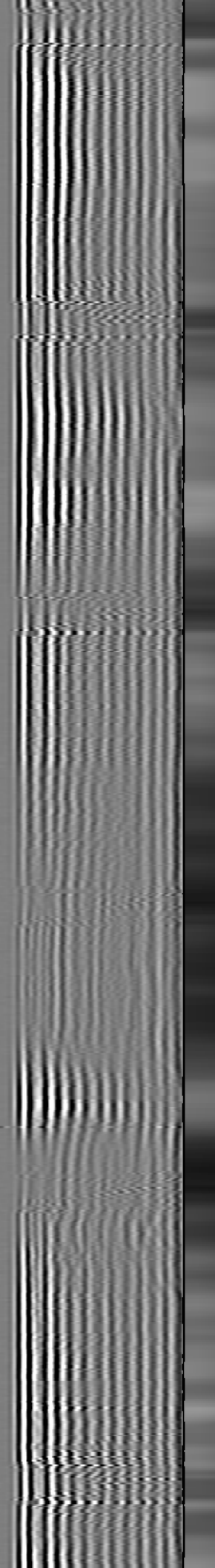
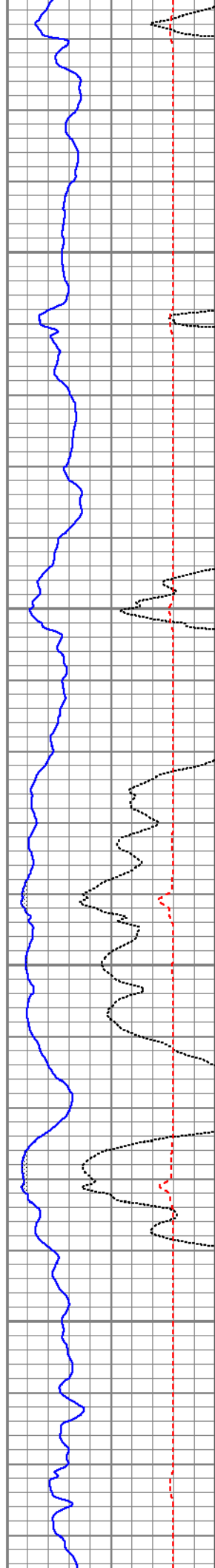


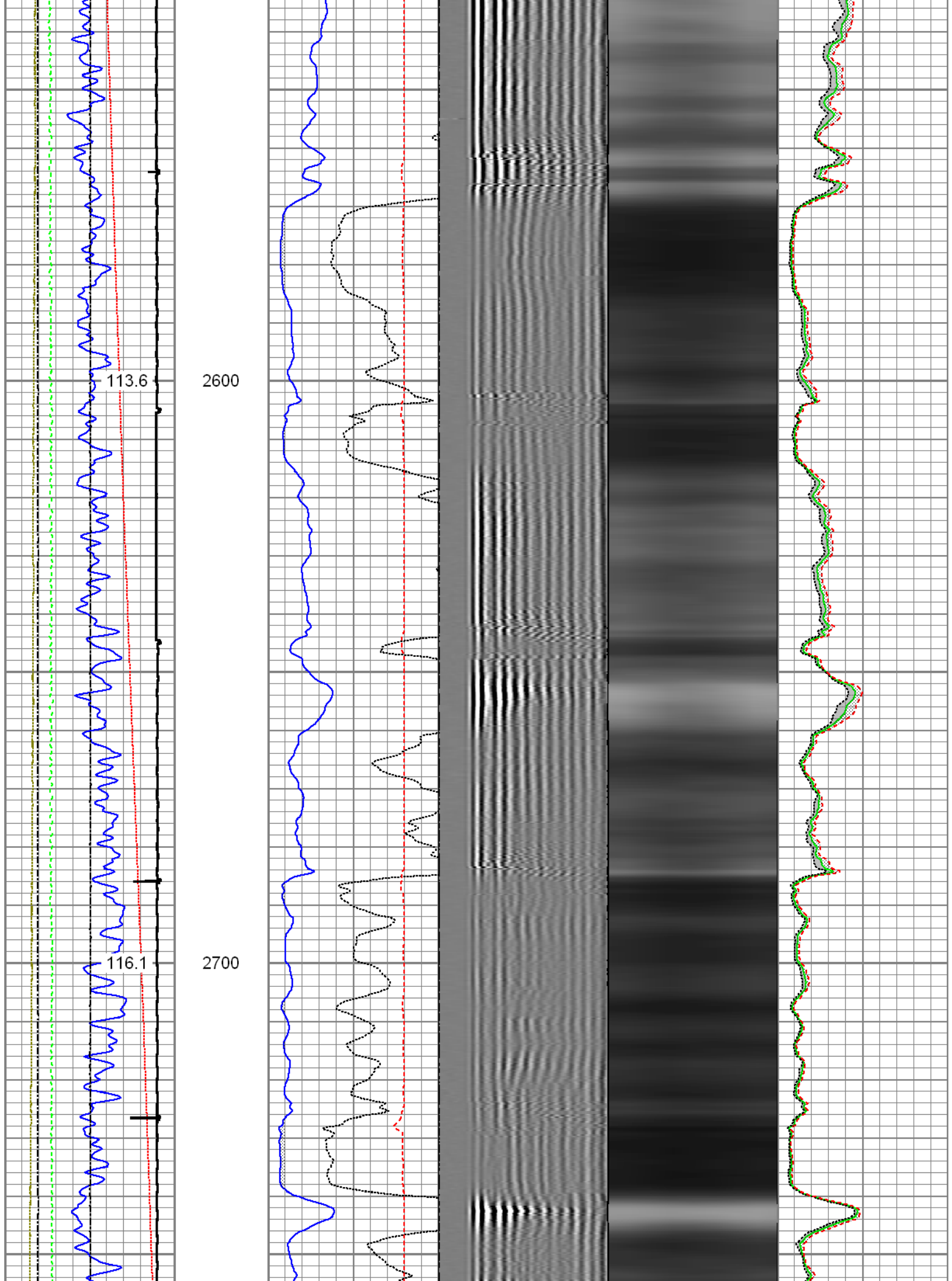


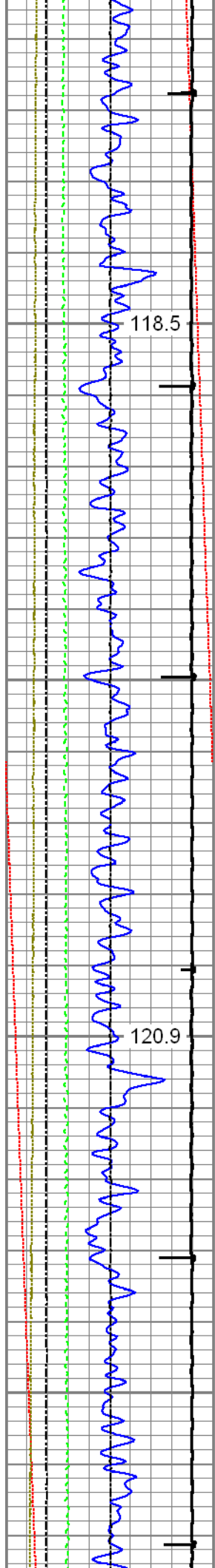


2400

2500





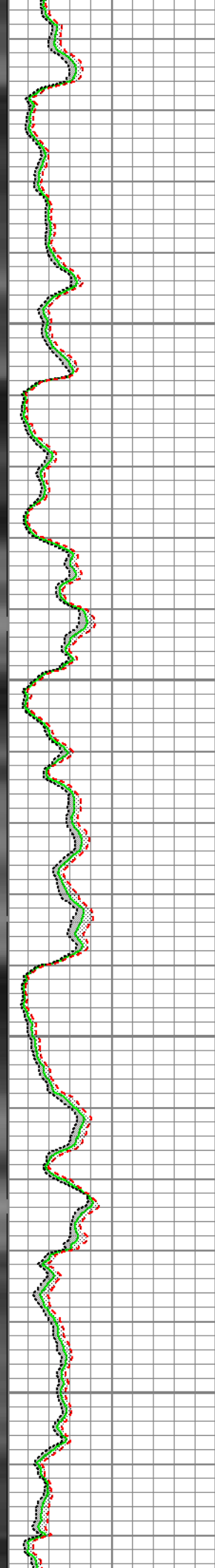
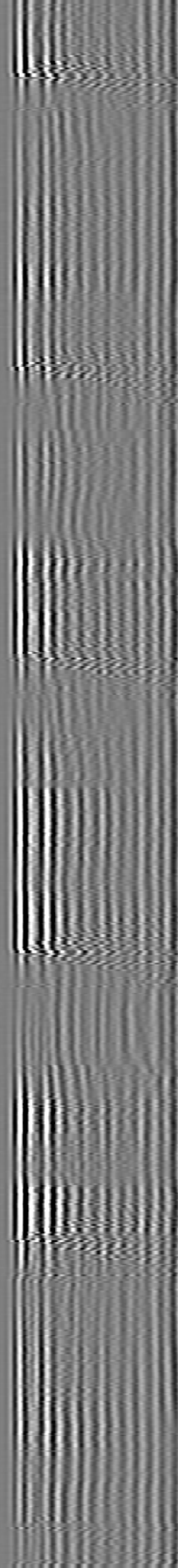
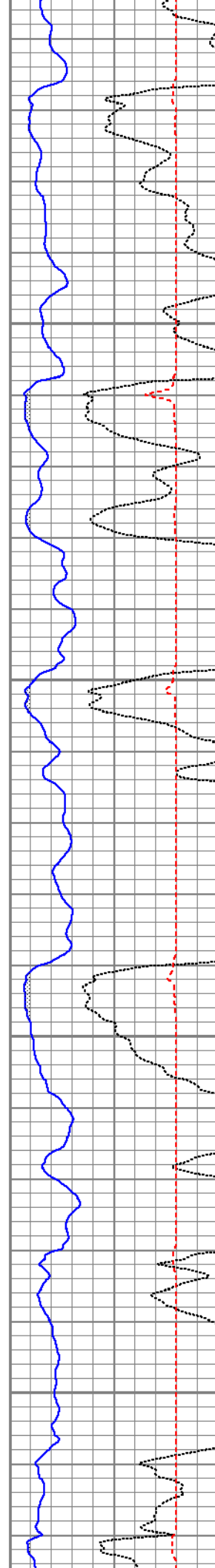


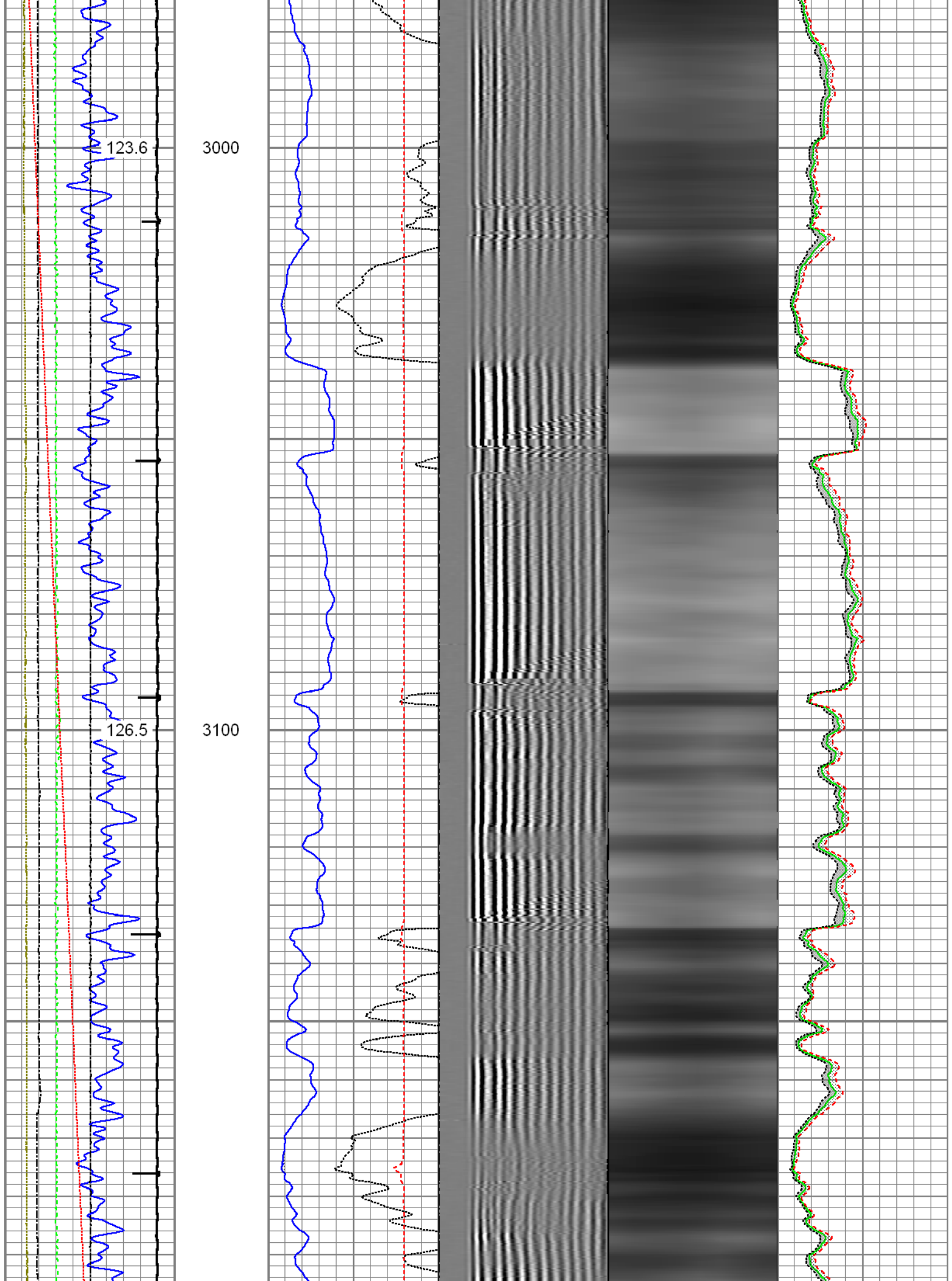
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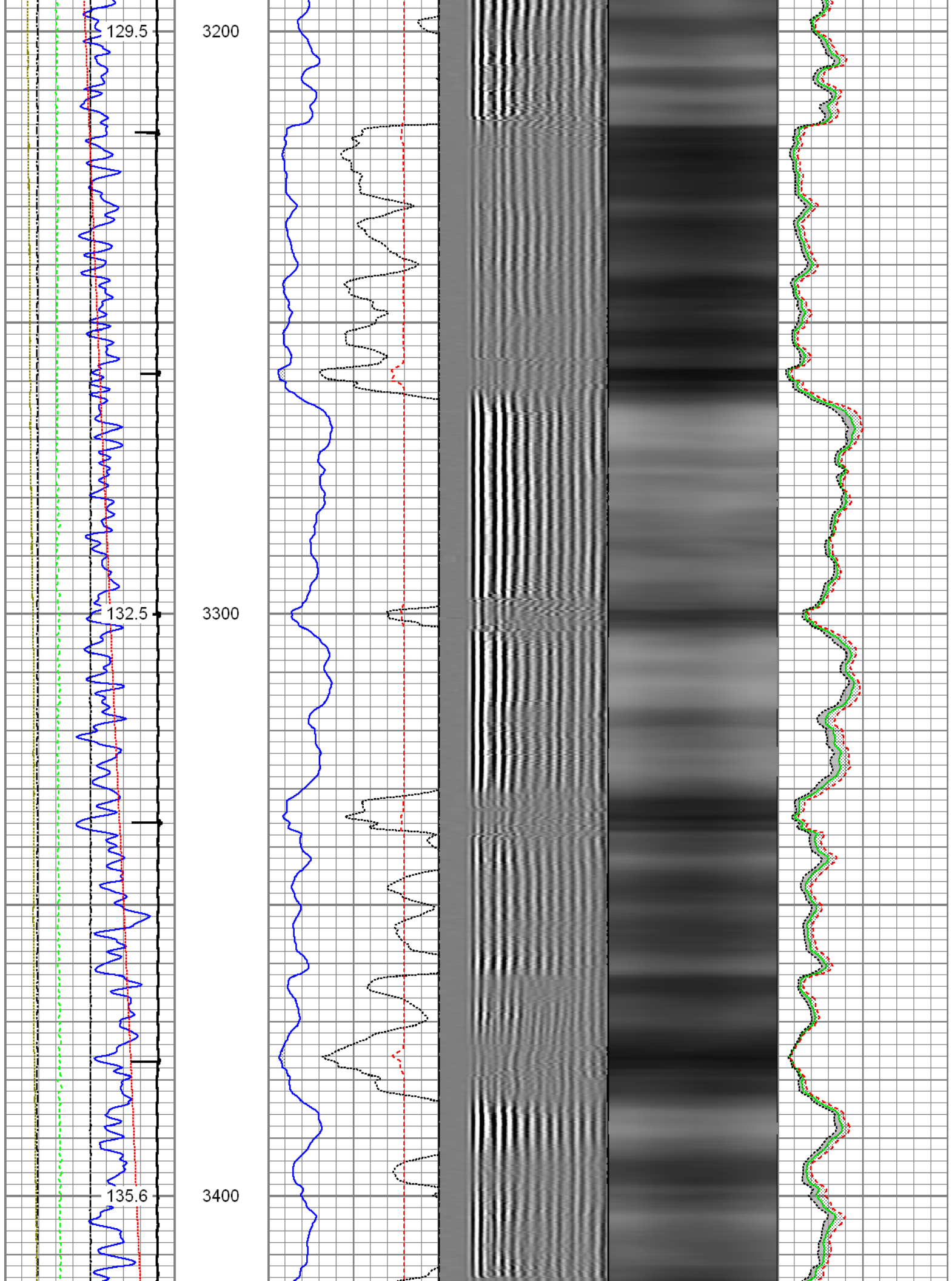
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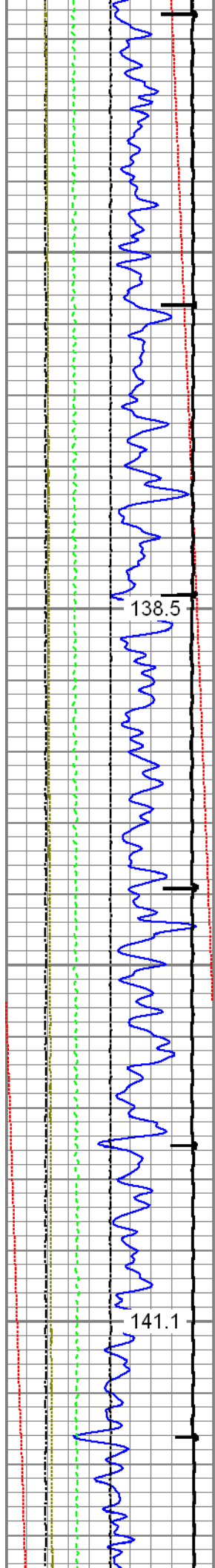
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2900



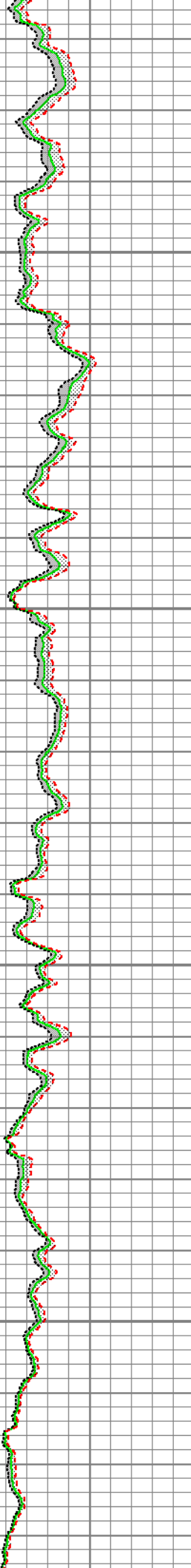
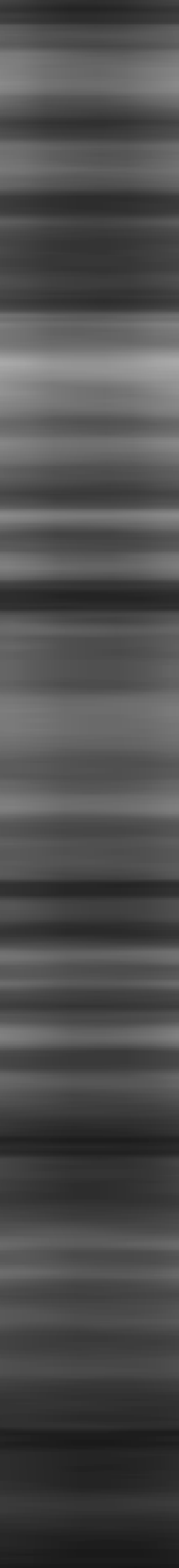
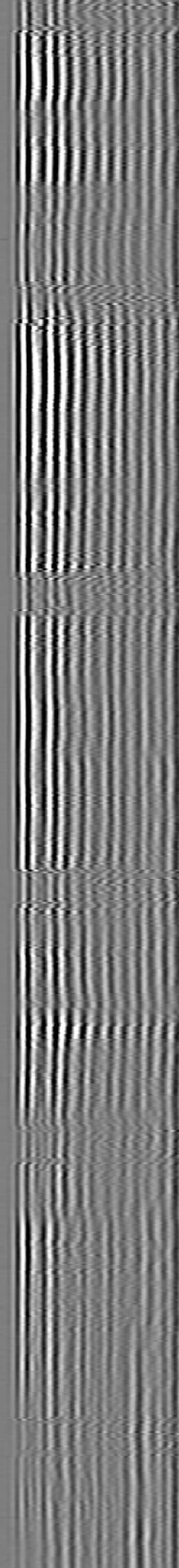
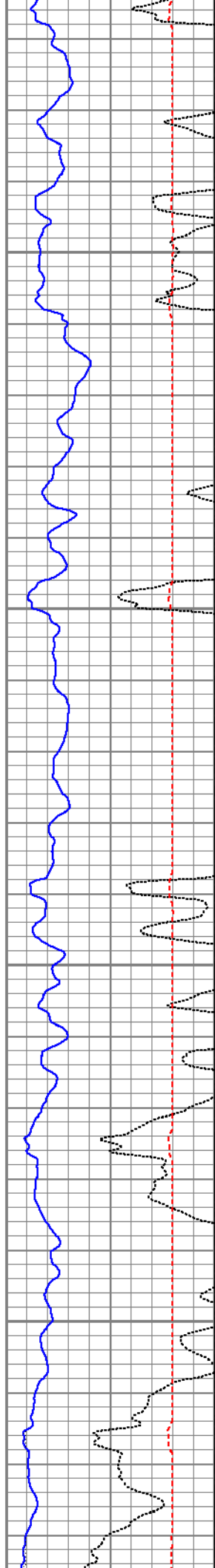


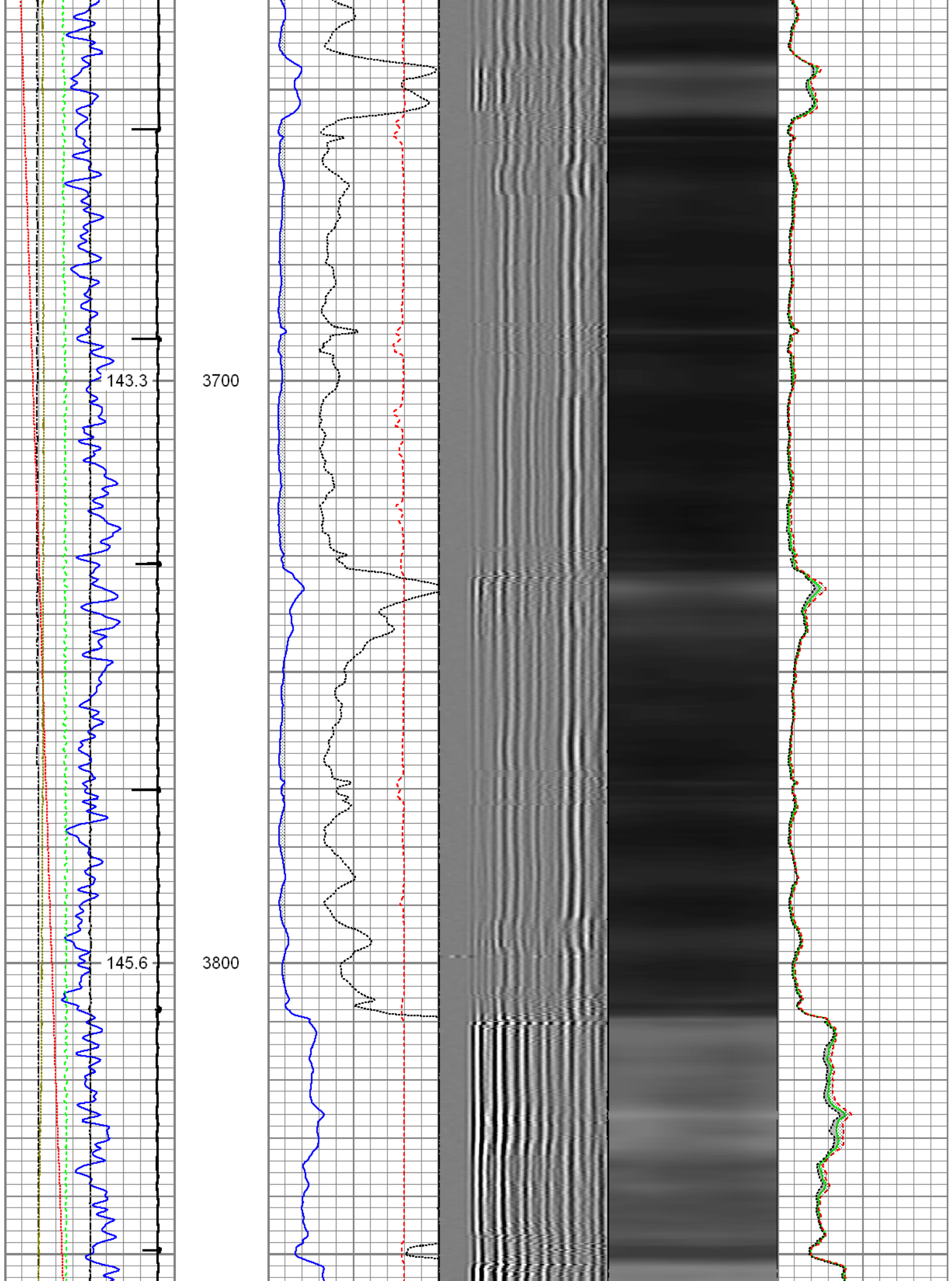


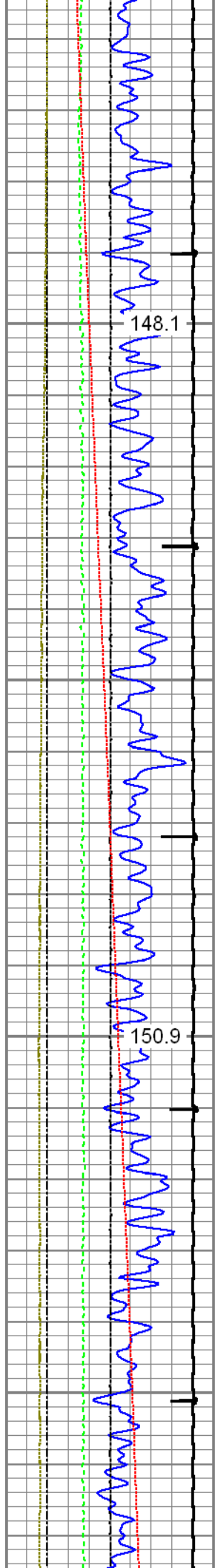


3500

3600

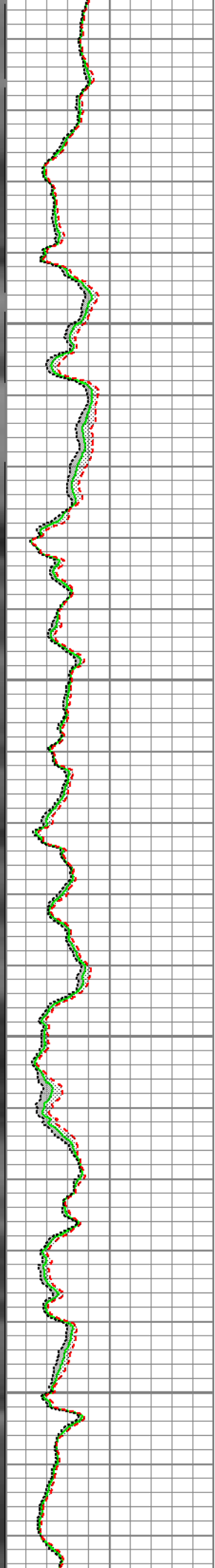
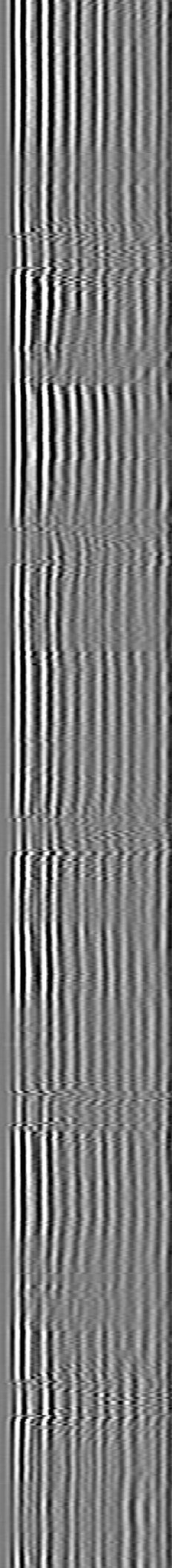
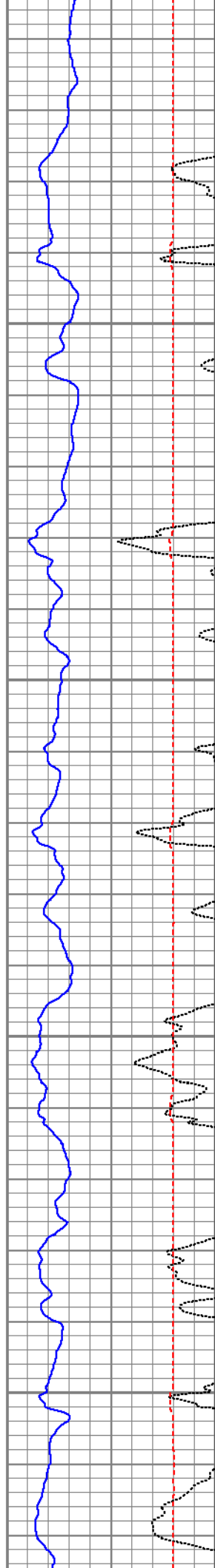


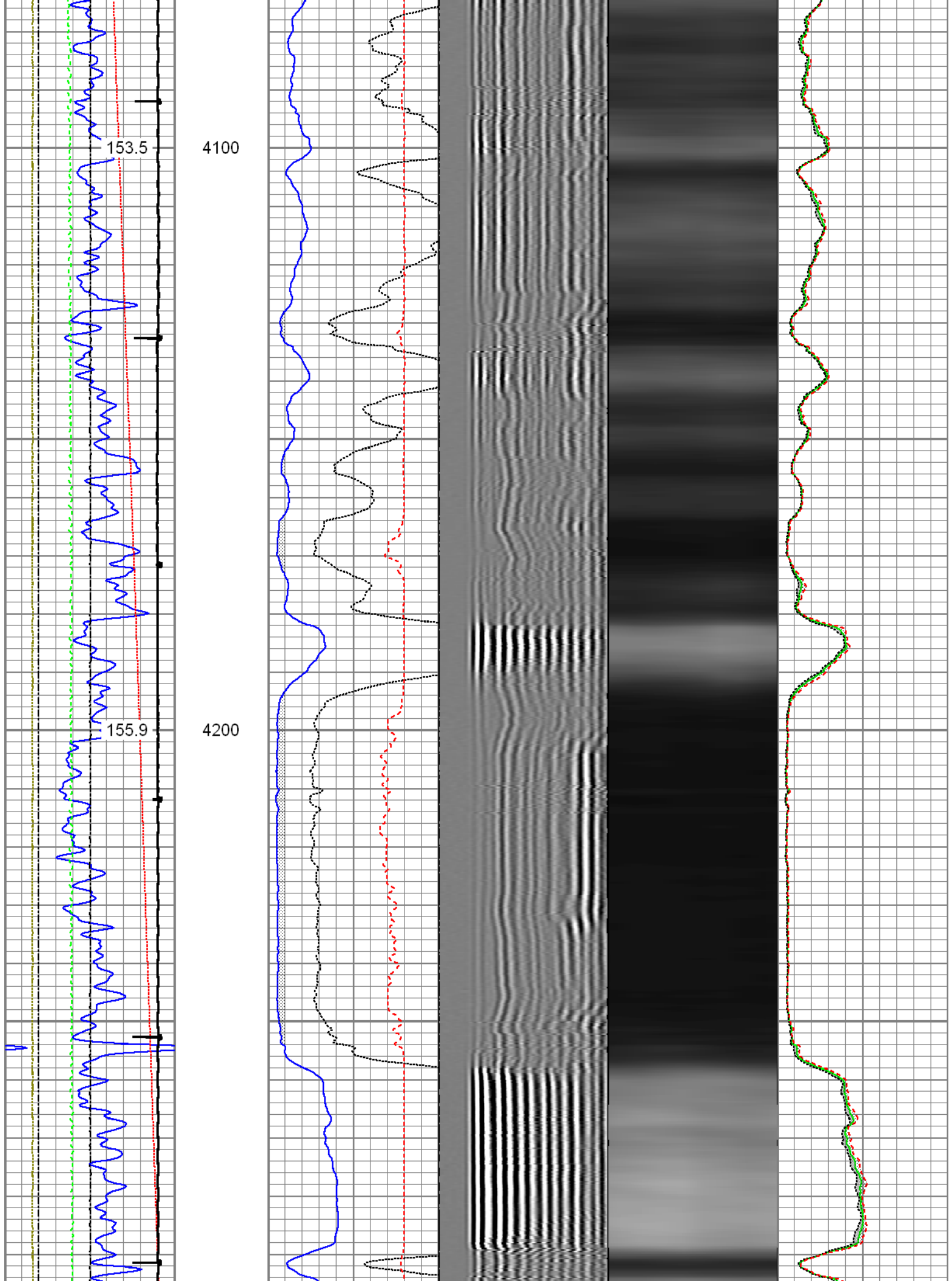


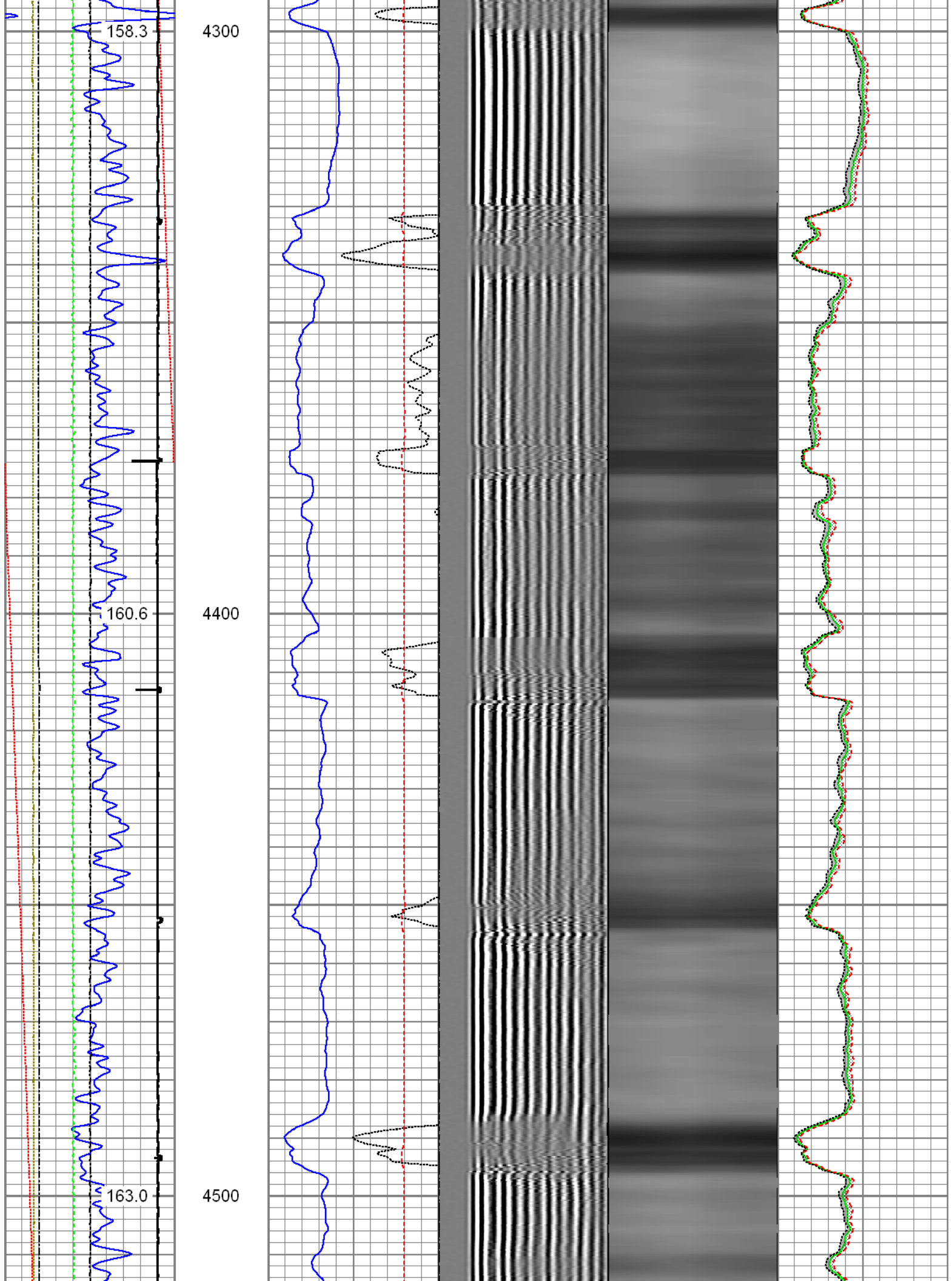


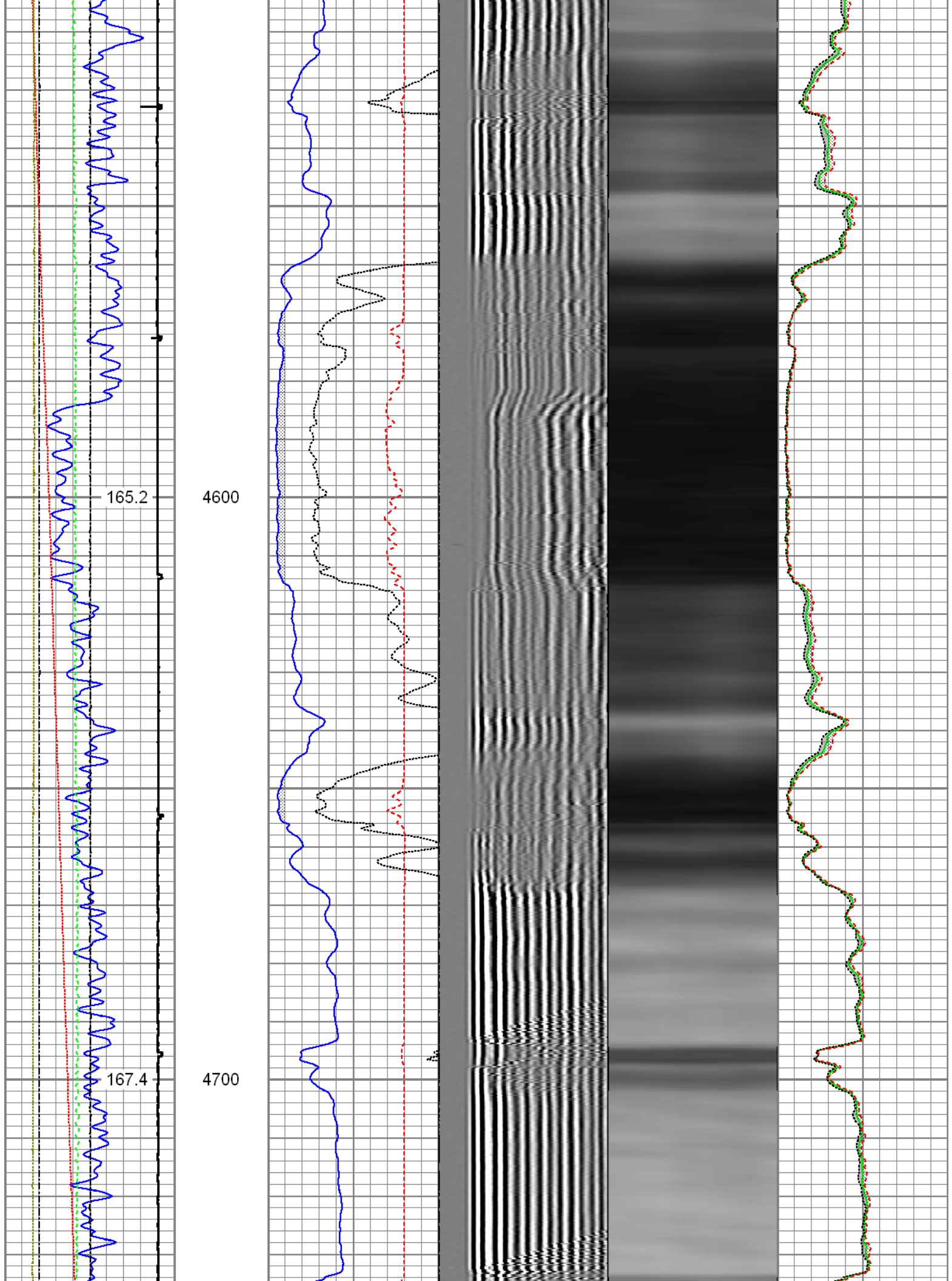
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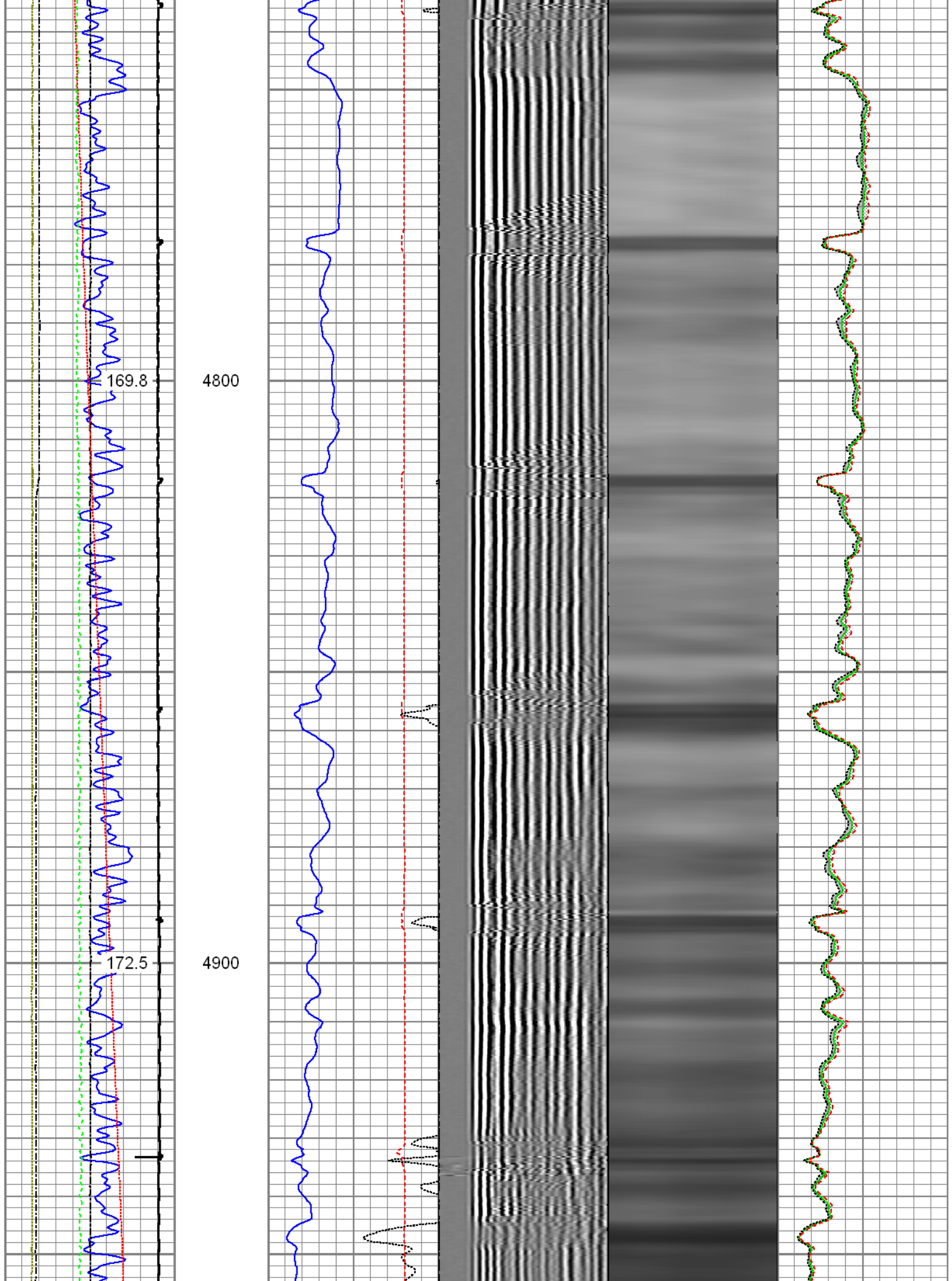
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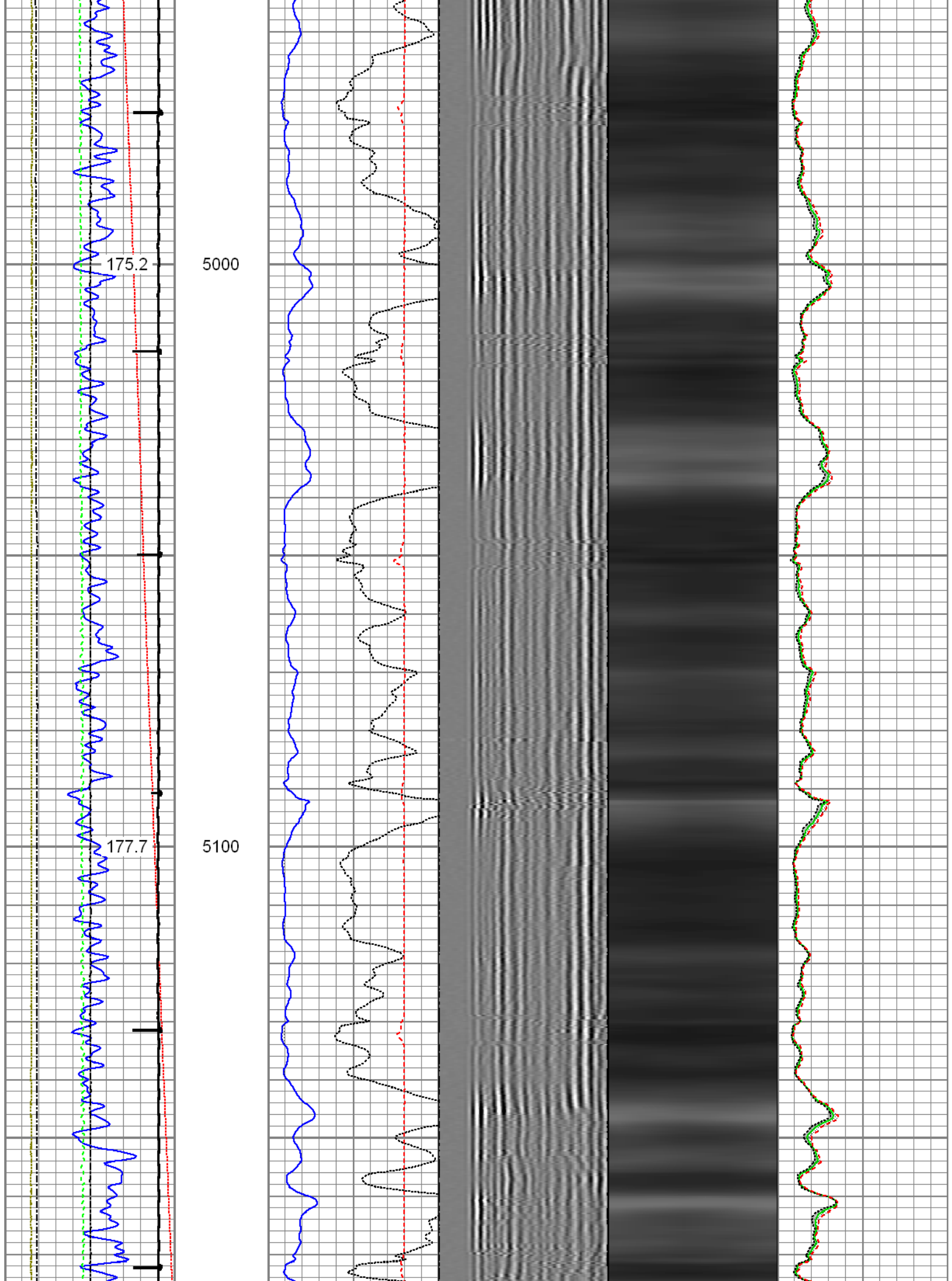


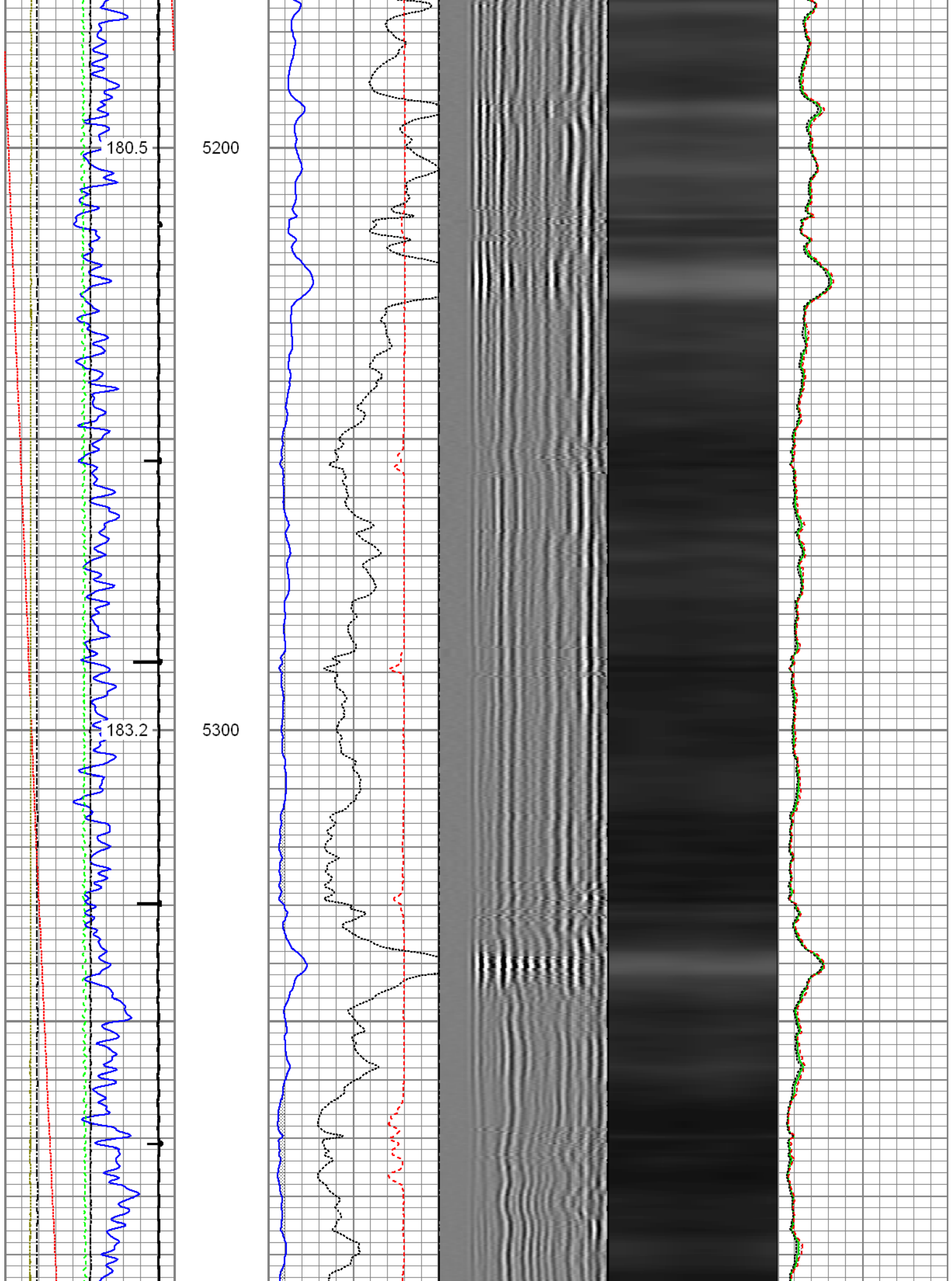


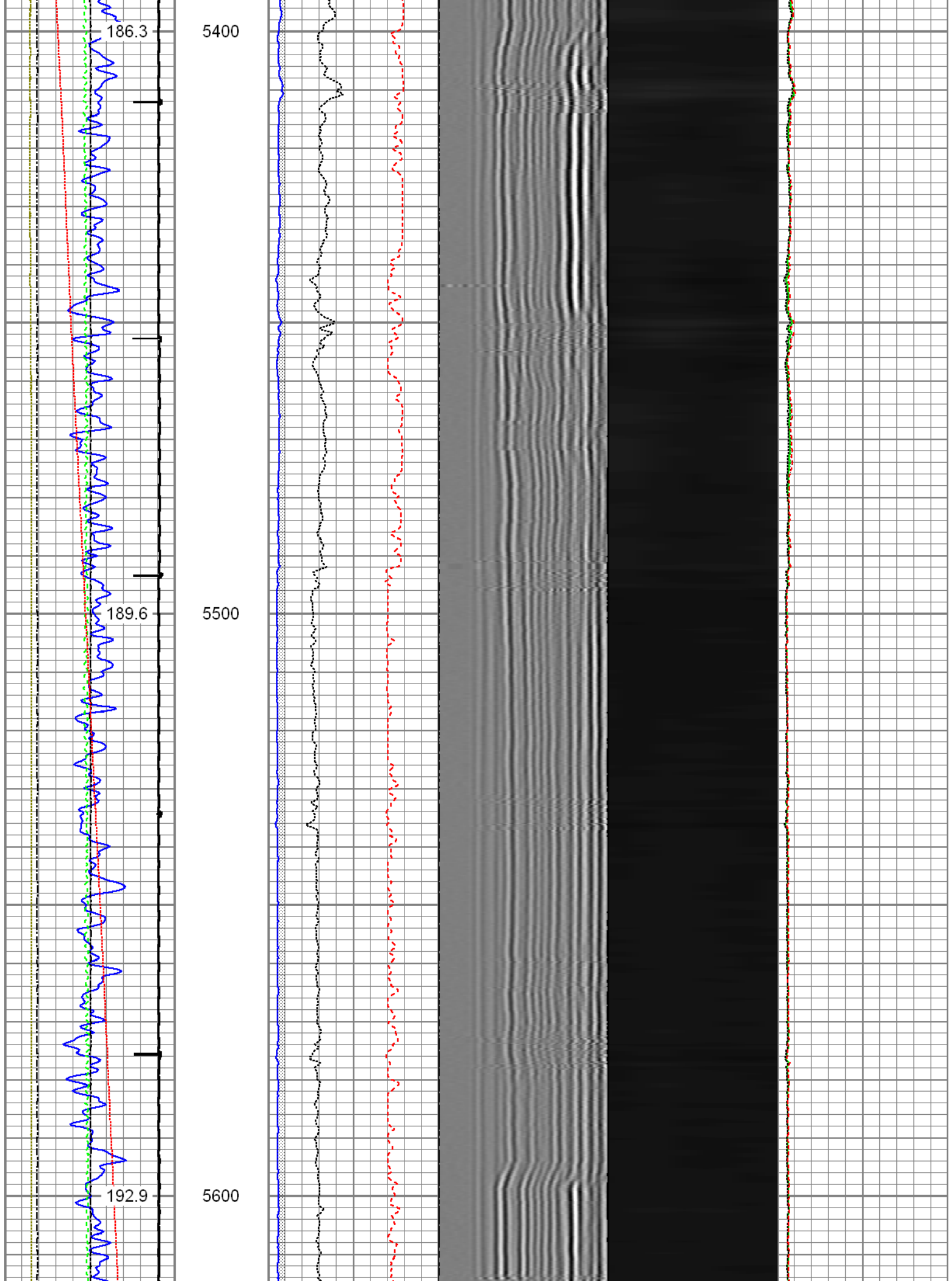


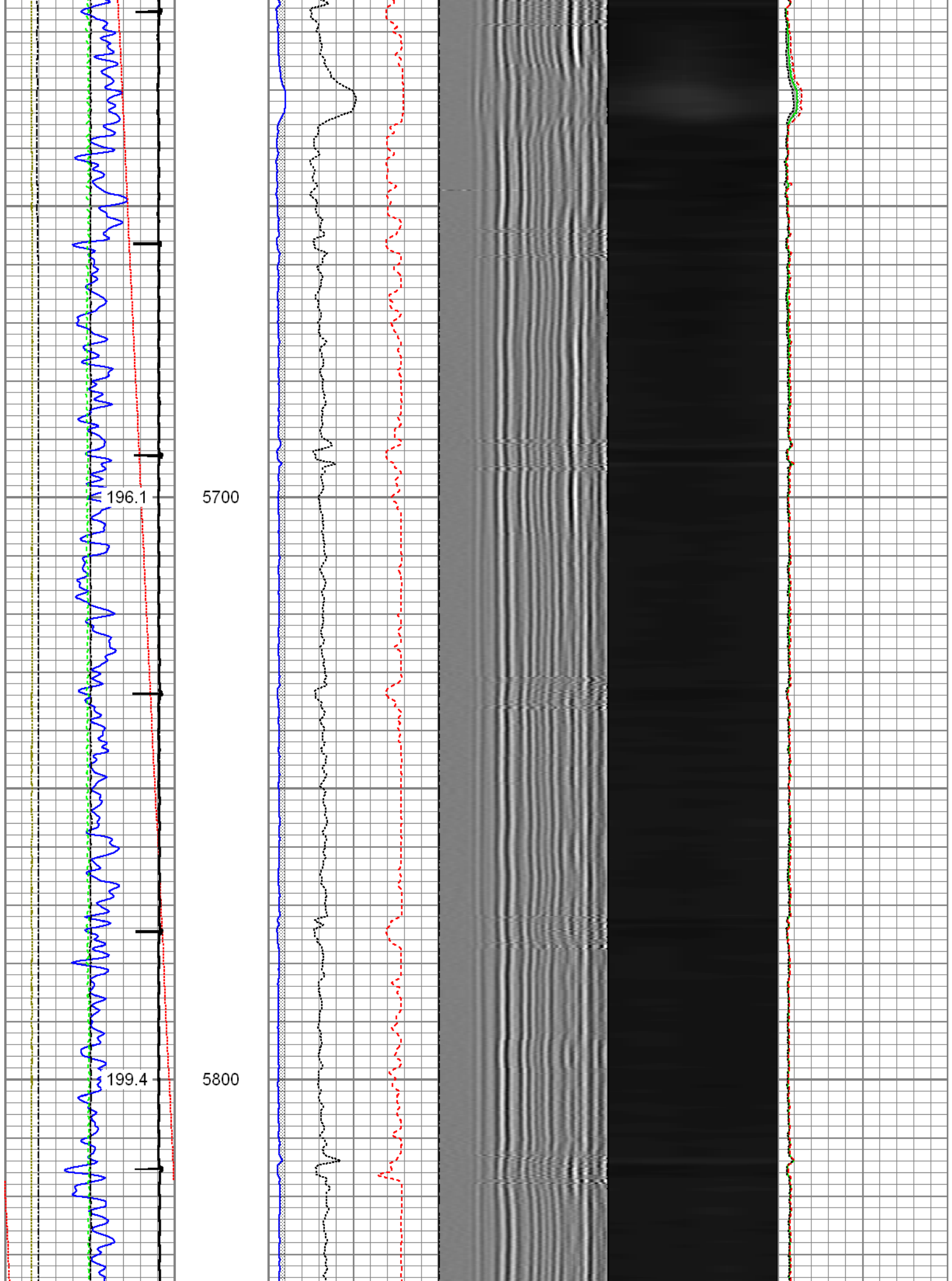


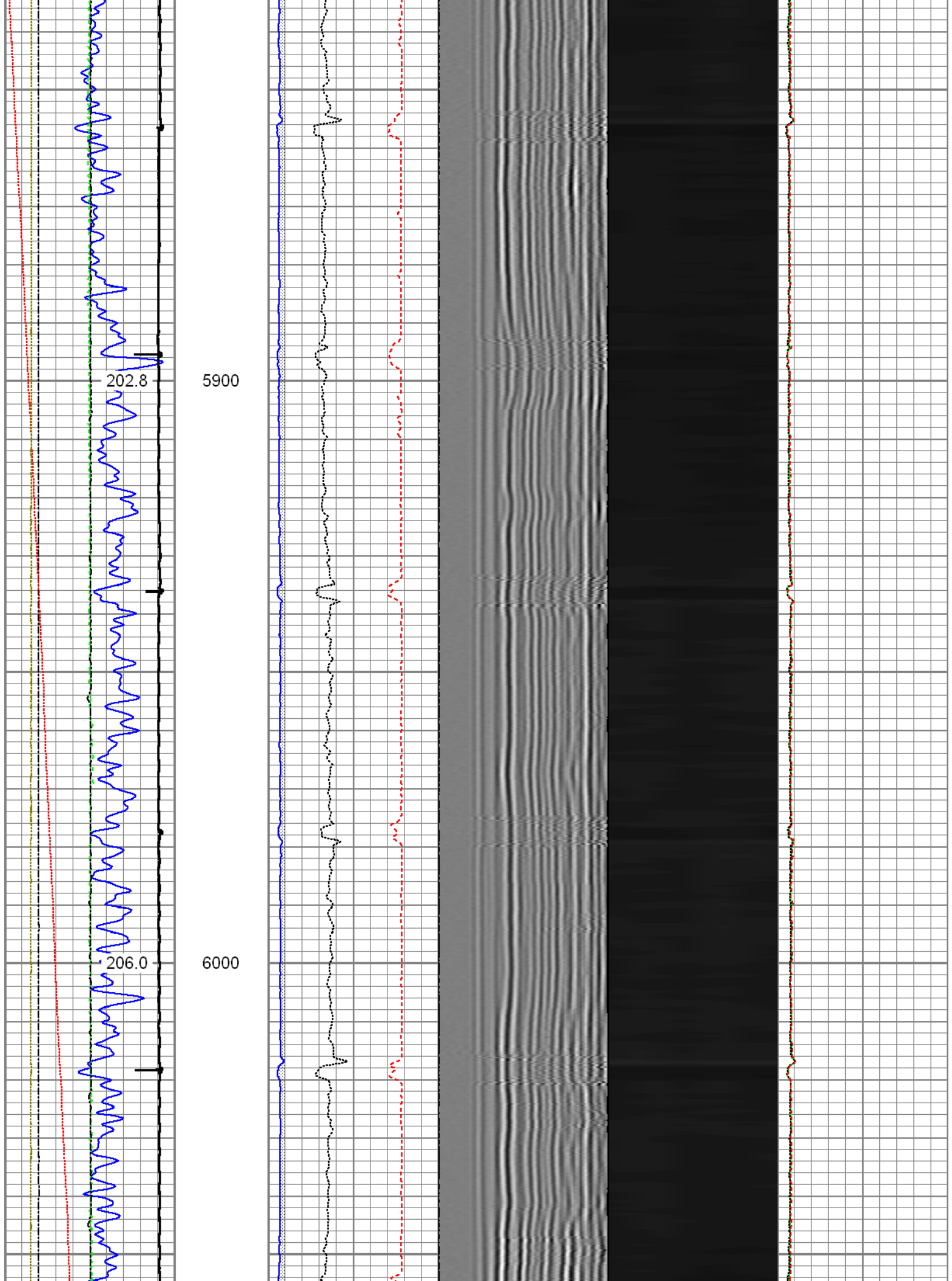


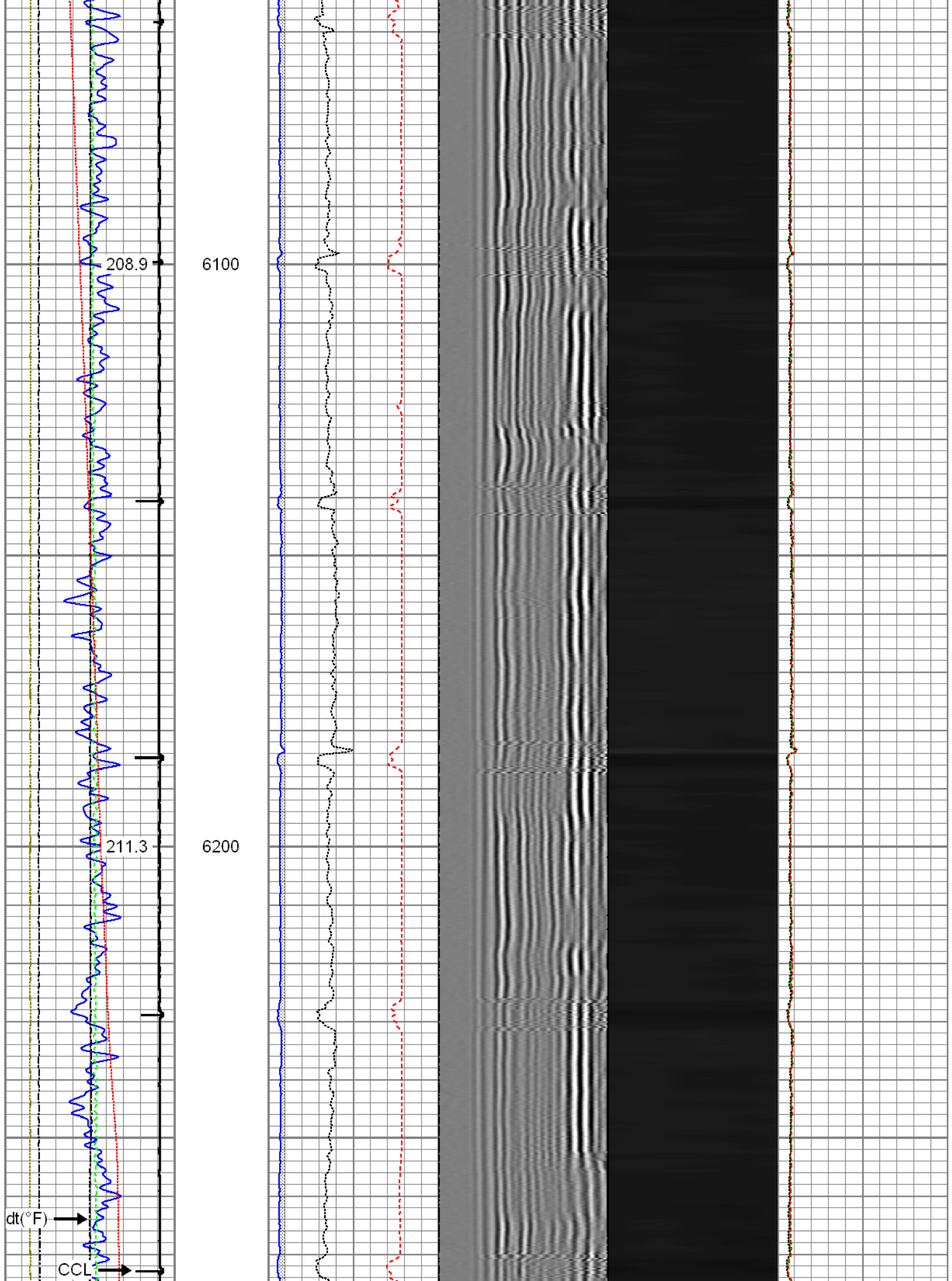


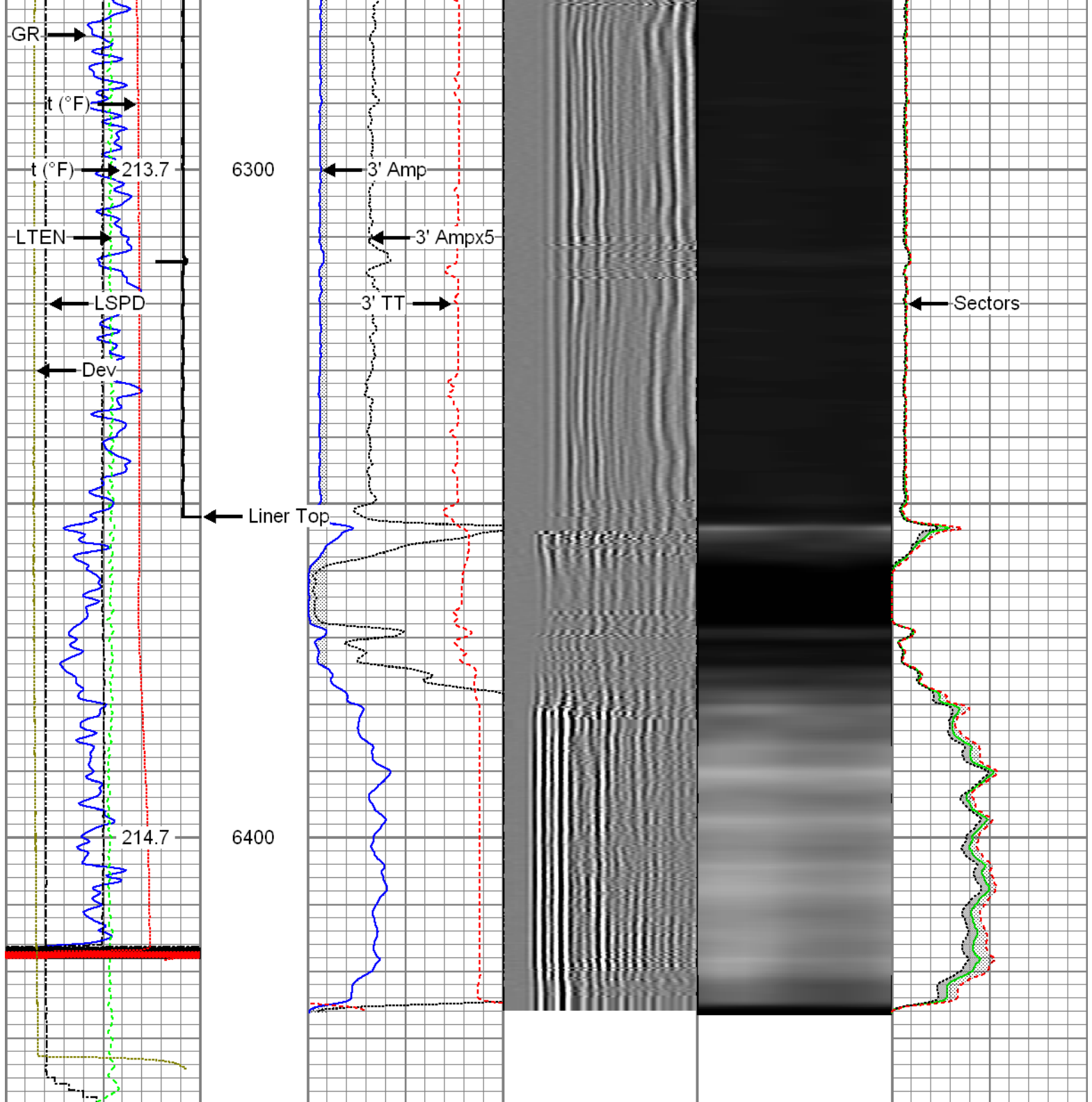












Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Line Speed (ft/min)	3' Amplitude x 5 (mV)			Minimum Amplitude
-100 100	0 20			0 100
Line Tension (lb)	3' Travel Time (usec)			Maximum Amplitude
0 2000	650 150			0 100
Differential Temperature (degF)				
-2 2				
Temperature (degF)				
0 20				
-10 Deviation (°)				
90				

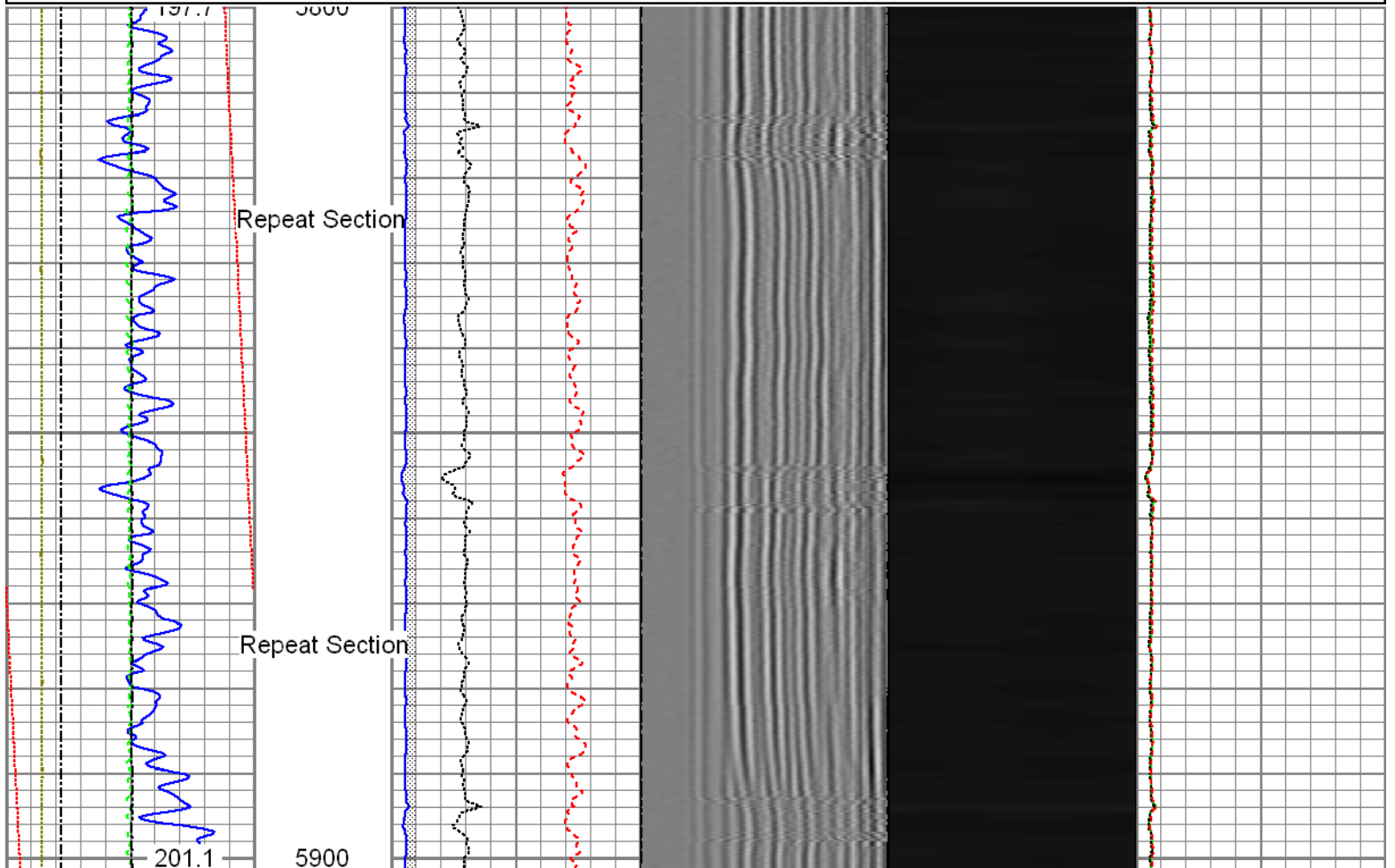


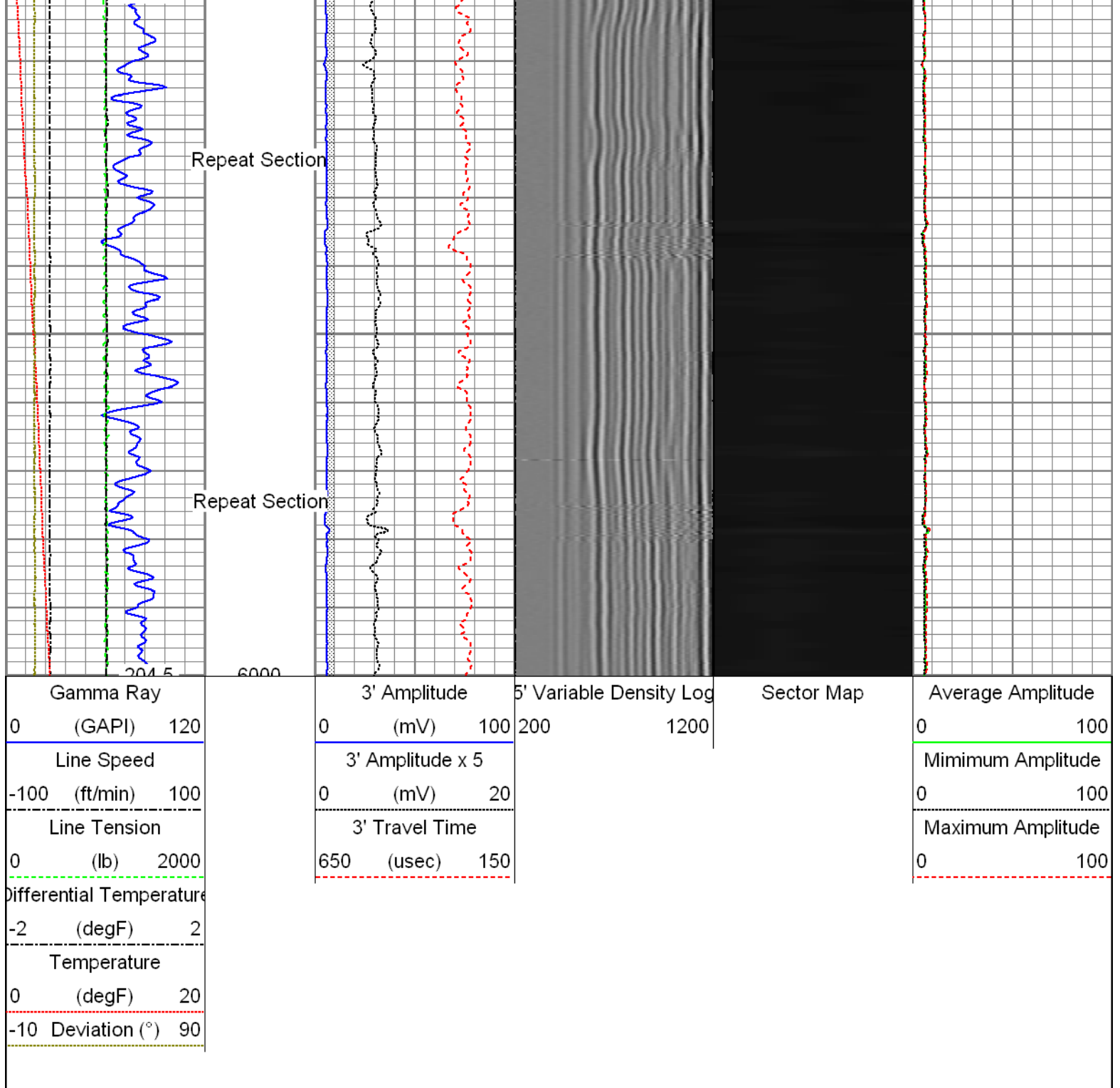
Repeat Pass

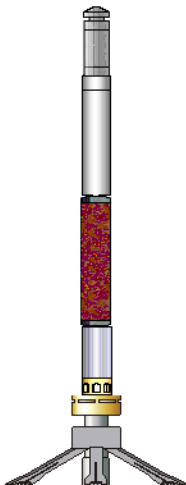
Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341425_anadarko_viper pyro 26n-14hz_10-14-15_mit_rbl\0512341425_anadarko
 Dataset Pathname: pass4
 Presentation Format: rbt4_mit
 Dataset Creation: Wed Oct 14 09:09:05 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
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				
-10 Deviation (°) 90				





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
			UW_AGS-UW_AGS_001 (215017) 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 (10013902) Production Gamma Ray	1.93	1.69	9.50
			UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	22.45		UW_PRC-DSSRAC (081) DSSRAC	2.55	2.75	32.00

			UW_PRC-DSSRAC (001) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	15.42		UW_RBT-UW_RBT_004 (1063) 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					
CBLROT	15.42					
WVF5FT	14.42					
			UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	5.41		UW_MIT-UW_MIT40_027 (218949) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #4 -UW_PRC_057 (1038) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (218706) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 0512341425_Anadarko_Viper Pyro 26N-14HZ_10-14-15_MIT_RBL.db: field/well/run1/pass7 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report	
Database File:	c:\warrior\data\0512341425_anadarko_viper pyro 26n-14hz_10-14-15_mit_rbl\0512341425_anadarko_
Dataset Pathname:	pass8
Dataset Creation:	Wed Oct 14 11:27:06 2015 by Log 7.0 B1
Multi-finger Imaging Tool Calibration Report	
Serial Number:	218949
Number of Fingers:	40
Tool Model:	UW_MIT40_027
Inclinometer Calibration Report	
Performed:	Mon, Oct, 06 14:03:04 2008
Calibration Angle:	45

Vertical:		Inc X	Inc Y
Finger 1 up:		1996	1984
Finger 31 up:		1780	1738
Finger 21 up:		2235	1756
Finger 11 up:		2216	2228
		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report

Performed: Wed Oct 14 08:51:56 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1370	282.0	1652	296.0	1948	312.0	2260
Finger 02:	1438	278.0	1716	291.0	2007	303.0	2310
Finger 03:	1653	282.0	1935	283.0	2218	288.0	2506
Finger 04:	1663	280.0	1943	281.0	2224	284.0	2508
Finger 05:	1530	266.0	1796	269.0	2065	280.0	2345
Finger 06:	1525	260.0	1785	265.0	2050	271.0	2321
Finger 07:	1340	273.0	1613	288.0	1901	300.0	2201
Finger 08:	1534	257.0	1791	267.0	2058	274.0	2332
Finger 09:	1409	281.0	1690	287.0	1977	287.0	2264
Finger 10:	1485	271.0	1756	273.0	2029	282.0	2311
Finger 11:	1469	270.0	1739	268.0	2007	279.0	2286
Finger 12:	1314	278.0	1592	296.0	1888	308.0	2196
Finger 13:	1583	282.0	1865	289.0	2154	290.0	2444
Finger 14:	1456	286.0	1742	302.0	2044	305.0	2349
Finger 15:	1531	263.0	1794	274.0	2068	282.0	2350
Finger 16:	1397	282.0	1679	296.0	1975	307.0	2282
Finger 17:	1633	272.0	1905	280.0	2185	285.0	2470
Finger 18:	1368	290.0	1658	308.0	1966	322.0	2288
Finger 19:	1633	260.0	1893	262.0	2155	265.0	2420
Finger 20:	1502	264.0	1766	275.0	2041	290.0	2331
Finger 21:	1582	256.0	1838	261.0	2099	270.0	2369
Finger 22:	1454	268.0	1722	281.0	2003	290.0	2293
Finger 23:	1344	275.0	1619	290.0	1909	307.0	2216
Finger 24:	1675	266.0	1941	272.0	2213	282.0	2495
Finger 25:	1359	290.0	1649	308.0	1957	327.0	2284
Finger 26:	1528	290.0	1818	298.0	2116	310.0	2426
Finger 27:	1495	265.0	1760	274.0	2034	285.0	2319
Finger 28:	1628	278.0	1906	286.0	2192	295.0	2487
Finger 29:	1370	269.0	1639	280.0	1919	291.0	2210
Finger 30:	1347	283.0	1630	277.0	1907	292.0	2199
Finger 31:	1510	270.0	1780	279.0	2059	291.0	2350
Finger 32:	1337	269.0	1606	282.0	1888	302.0	2190
Finger 33:	1603	305.0	1908	314.0	2222	323.0	2545
Finger 34:	1535	273.0	1808	280.0	2088	289.0	2377
Finger 35:	1445	270.0	1715	284.0	1999	297.0	2296
Finger 36:	1582	285.0	1867	290.0	2157	300.0	2457
Finger 37:	1596	278.0	1874	286.0	2160	297.0	2457
Finger 38:	1488	276.0	1764	287.0	2051	301.0	2352
Finger 39:	1461	277.0	1738	295.0	2033	314.0	2347
Finger 40:	1576	289.0	1865	296.0	2161	309.0	2470

Post Survey Calibration Check

Performed: Wed Oct 14 11:26:55 2015

Ring size:	4	Nom.	5	Nom.	6	Nom.	7	Nom.
(in)		wear		wear		wear		wear
Finger 01:	4.012	0.006	5.007	0.003	5.960	-0.020	7.009	0.004
Finger 02:	3.998	-0.001	4.992	-0.004	5.953	-0.024	7.001	0.000
Finger 03:	3.950	-0.025	4.946	-0.027	5.936	-0.032	7.002	0.001
Finger 04:	4.018	0.009	5.004	0.002	5.960	-0.020	7.003	0.001
Finger 05:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 06:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 07:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 08:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 09:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 10:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 11:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 12:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 13:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 14:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 15:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 16:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 17:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 18:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 19:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 20:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 21:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 22:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 23:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 24:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 25:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 26:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 27:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 28:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 29:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 30:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 31:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 32:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 33:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 34:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 35:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 36:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 37:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 38:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 39:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000
Finger 40:	4.011	0.000	5.000	0.000	5.955	-0.020	7.007	0.000

Finger 05:	4.011	0.006	4.992	-0.004	5.955	-0.022	7.007	0.003
Finger 06:	4.018	0.009	4.995	-0.003	5.945	-0.028	6.995	-0.002
Finger 07:	4.011	0.005	5.004	0.002	5.961	-0.019	6.991	-0.004
Finger 08:	4.007	0.004	5.000	-0.000	5.942	-0.029	6.991	-0.005
Finger 09:	4.008	0.004	4.972	-0.014	5.944	-0.028	7.015	0.008
Finger 10:	4.099	0.050	5.090	0.045	6.056	0.028	7.112	0.056
Finger 11:	4.006	0.003	4.982	-0.009	5.973	-0.013	6.985	-0.008
Finger 12:	4.037	0.019	5.036	0.018	5.994	-0.003	7.037	0.019
Finger 13:	4.048	0.024	5.048	0.024	6.004	0.002	7.054	0.027
Finger 14:	4.058	0.029	5.064	0.032	6.006	0.003	7.058	0.029
Finger 15:	3.999	-0.000	4.998	-0.001	5.955	-0.022	6.997	-0.001
Finger 16:	3.999	-0.000	4.999	-0.000	5.951	-0.025	6.997	-0.002
Finger 17:	3.993	-0.004	5.000	0.000	5.953	-0.024	6.995	-0.003
Finger 18:	4.014	0.007	5.000	-0.000	5.949	-0.025	7.012	0.006
Finger 19:	3.998	-0.001	5.000	0.000	5.947	-0.026	6.996	-0.002
Finger 20:	3.995	-0.002	5.013	0.007	5.969	-0.016	7.020	0.010
Finger 21:	4.022	0.011	5.005	0.002	5.951	-0.025	6.998	-0.001
Finger 22:	4.006	0.003	4.995	-0.002	5.967	-0.016	6.996	-0.002
Finger 23:	3.994	-0.003	4.997	-0.002	5.958	-0.021	6.995	-0.003
Finger 24:	3.997	-0.001	4.993	-0.003	5.955	-0.022	7.001	0.001
Finger 25:	3.996	-0.002	4.994	-0.003	5.959	-0.021	7.001	0.001
Finger 26:	4.009	0.004	4.988	-0.006	5.952	-0.024	7.005	0.002
Finger 27:	4.036	0.018	5.034	0.017	5.993	-0.004	7.049	0.025
Finger 28:	3.998	-0.001	4.988	-0.006	5.943	-0.028	6.993	-0.003
Finger 29:	4.012	0.006	4.994	-0.003	5.952	-0.024	7.009	0.004
Finger 30:	3.992	-0.004	4.940	-0.030	5.928	-0.036	7.011	0.005
Finger 31:	4.020	0.010	4.998	-0.001	5.952	-0.024	7.010	0.005
Finger 32:	4.019	0.010	4.999	-0.000	5.971	-0.015	7.002	0.001
Finger 33:	4.014	0.007	4.998	-0.001	5.960	-0.020	7.001	0.001
Finger 34:	4.015	0.008	5.005	0.003	5.964	-0.018	7.010	0.005
Finger 35:	4.052	0.026	5.058	0.029	6.018	0.009	7.055	0.028
Finger 36:	4.011	0.006	4.995	-0.003	5.951	-0.025	7.001	0.000
Finger 37:	4.021	0.010	5.017	0.009	5.968	-0.016	7.008	0.004
Finger 38:	4.012	0.006	5.008	0.004	5.962	-0.019	7.012	0.006
Finger 39:	4.004	0.002	5.054	0.027	5.974	-0.013	7.005	0.003
Finger 40:	4.017	0.009	5.005	0.002	5.962	-0.019	7.004	0.002
Average:	4.013	0.007	5.005	0.003	5.964	-0.018	7.011	0.005

Segmented Cement Bond Log Calibration Report

Calibration Casing Diameter: 4.500 in
Calibration Depth: 0.000 ft

Master Calibration, performed Wed Oct 14 08:32:05 2015:

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: 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 Kerr-McGee Oil & Gas Onshore, L.P.
Well Viper Pyro 26N-14HZ
Field Wattenberg
County Weld
State Colorado