



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Badger 22N-3HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Badger 22N-3HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-36449	
SEC 15 TWP 1N RGE 68W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		5138'	
K.B. 5163'		D.F. 5162'	
G.L. 5138'			
Date		11-AUG-2015	
Run Number		Two	
Depth Driller		15261 FT	
Depth Logger		7375 FT	
Bottom Logged Interval		7350 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		228°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		14:15	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		Robert Fogarty	
Witnessed By		Steve Vigil	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		7	
Intermediate #2		4 1/2	
Liner		11.6	
P-110 LT&C		7057 FT	
Bottom		1312 FT	
Surface		8080 FT	
Top		15256 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 liner top at 7057 FT
Adjusted log +3 FT to correlate with liner top
Log recorded with 2800 PSI surface induced pressure
No debris found on logging tools upon completion of run

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

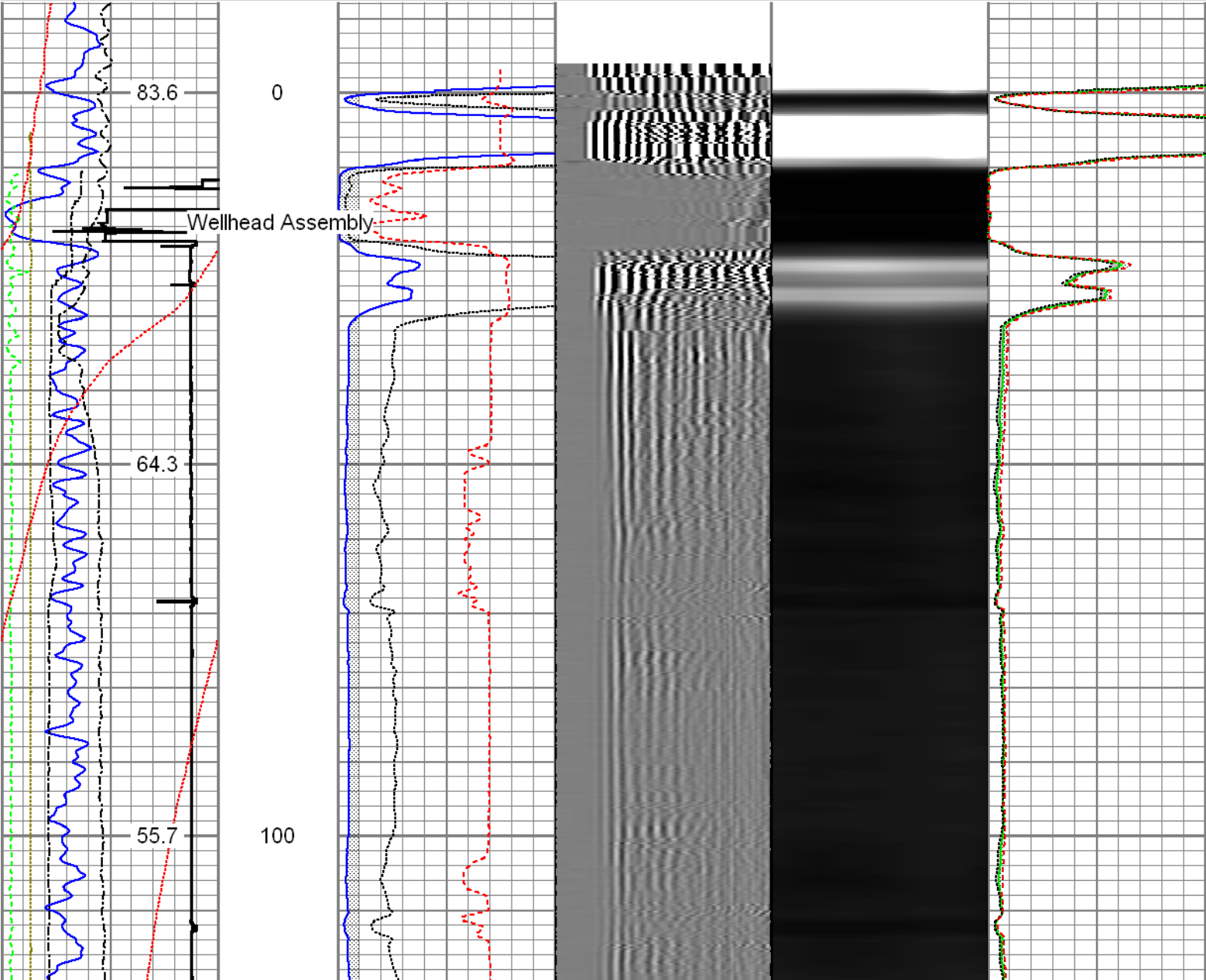


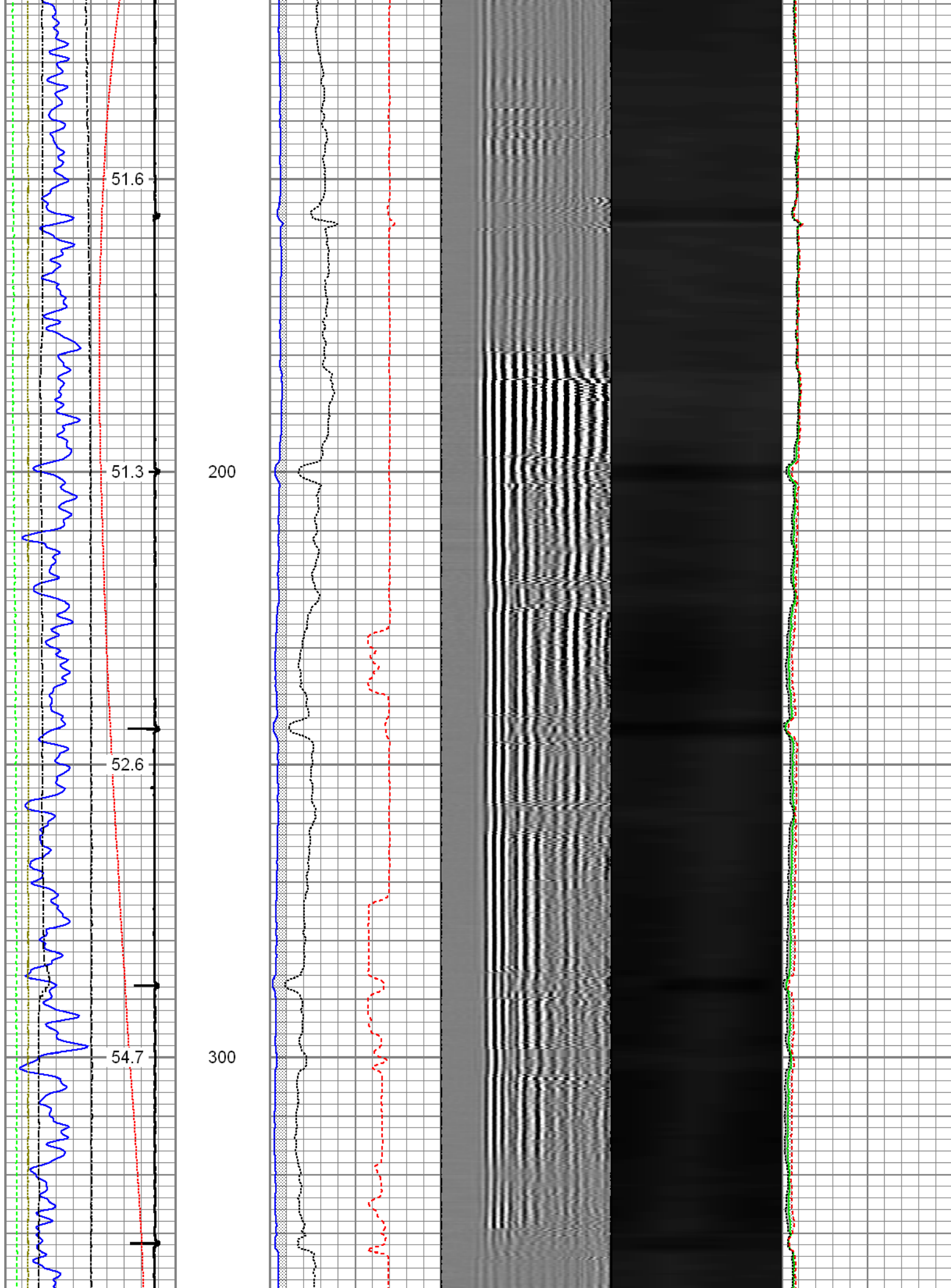
Main Pass

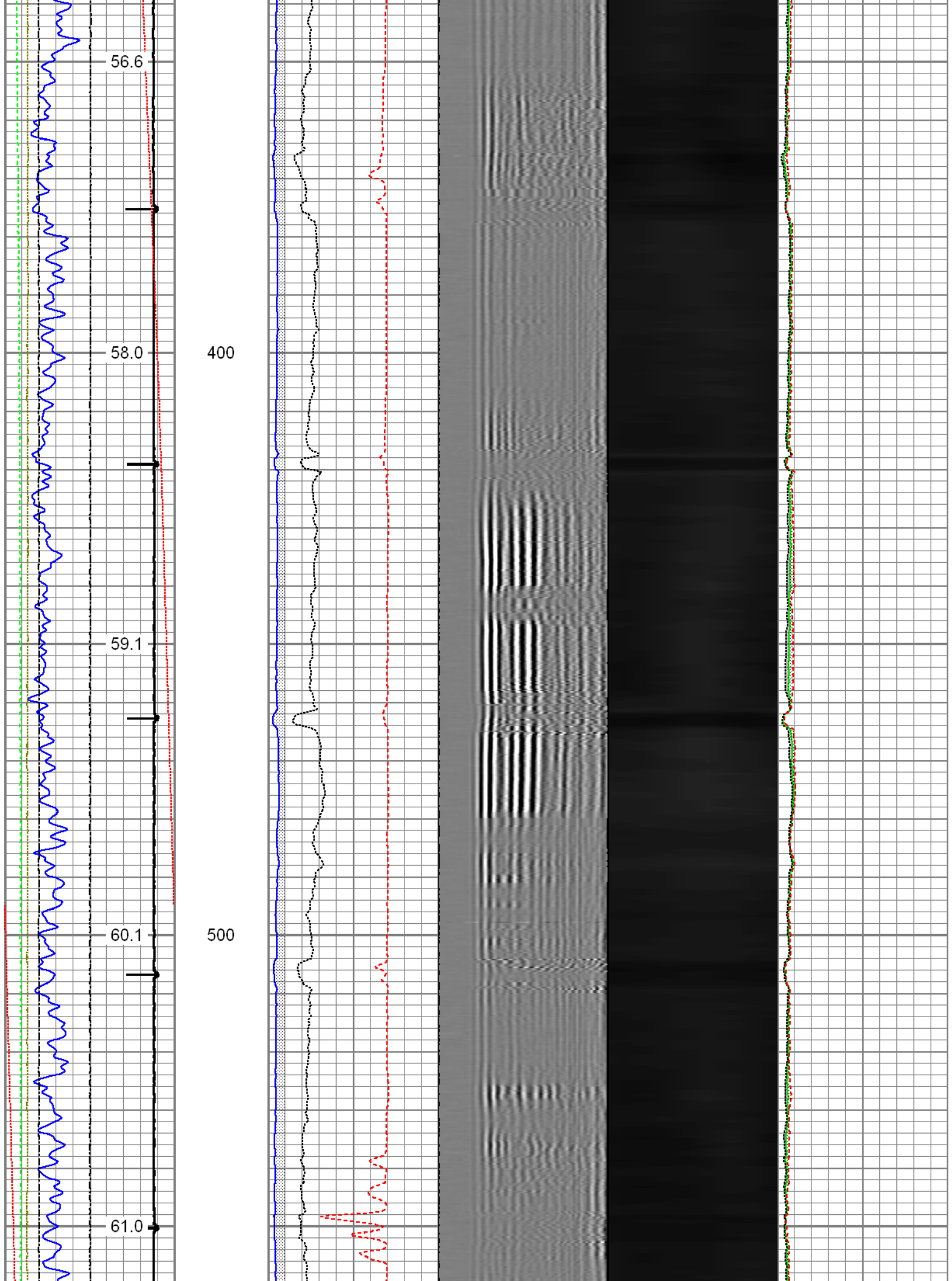
Recorded with 2800 PSI Surface Induced Pressure

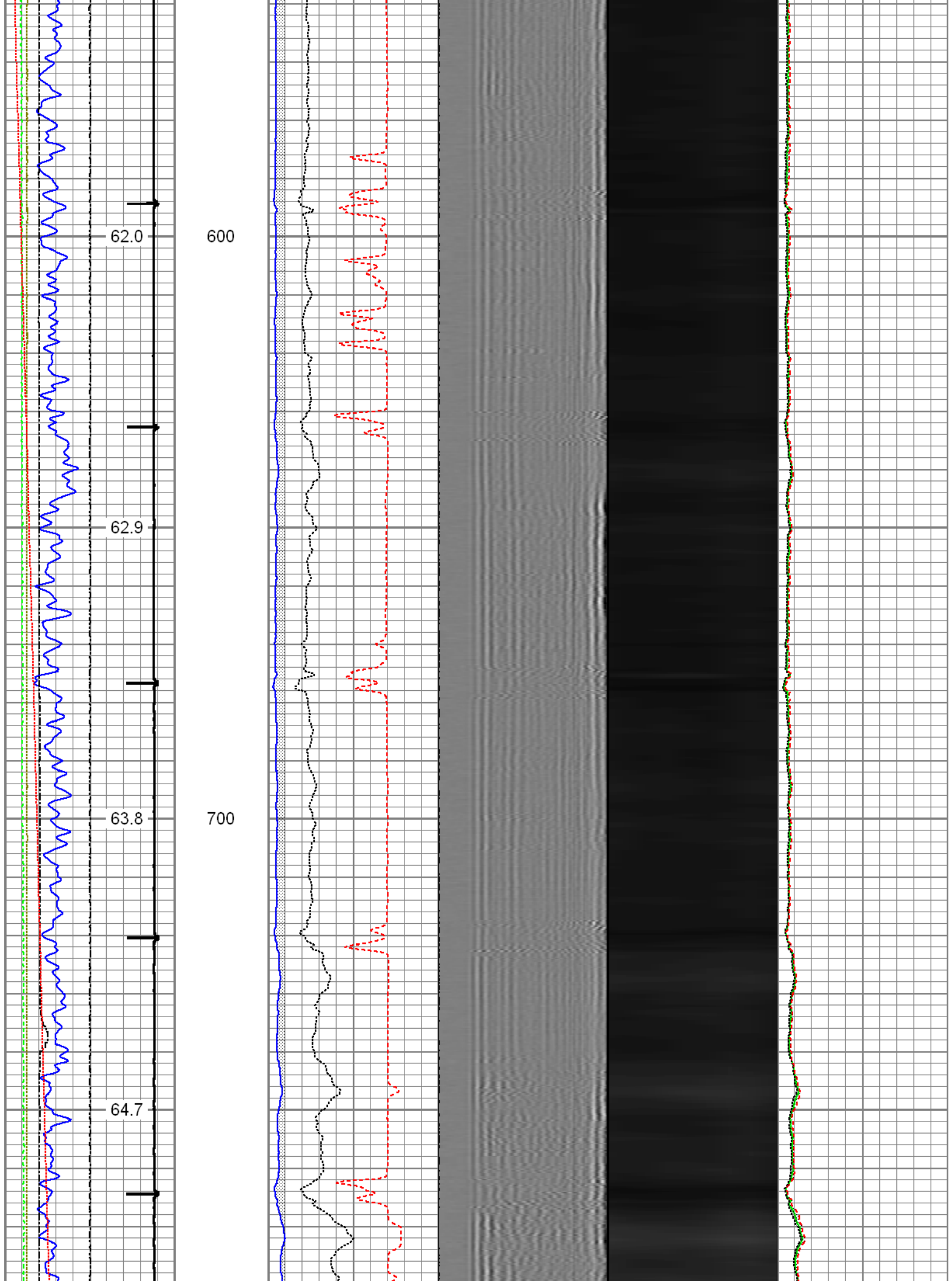
Database File: 0512336449_anadarko_badger 22n-3hz_08-11-15_mit_rbl.db
Dataset Pathname: pass5
Presentation Format: rbt4_mit
Dataset Creation: Tue Aug 11 14:35:21 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

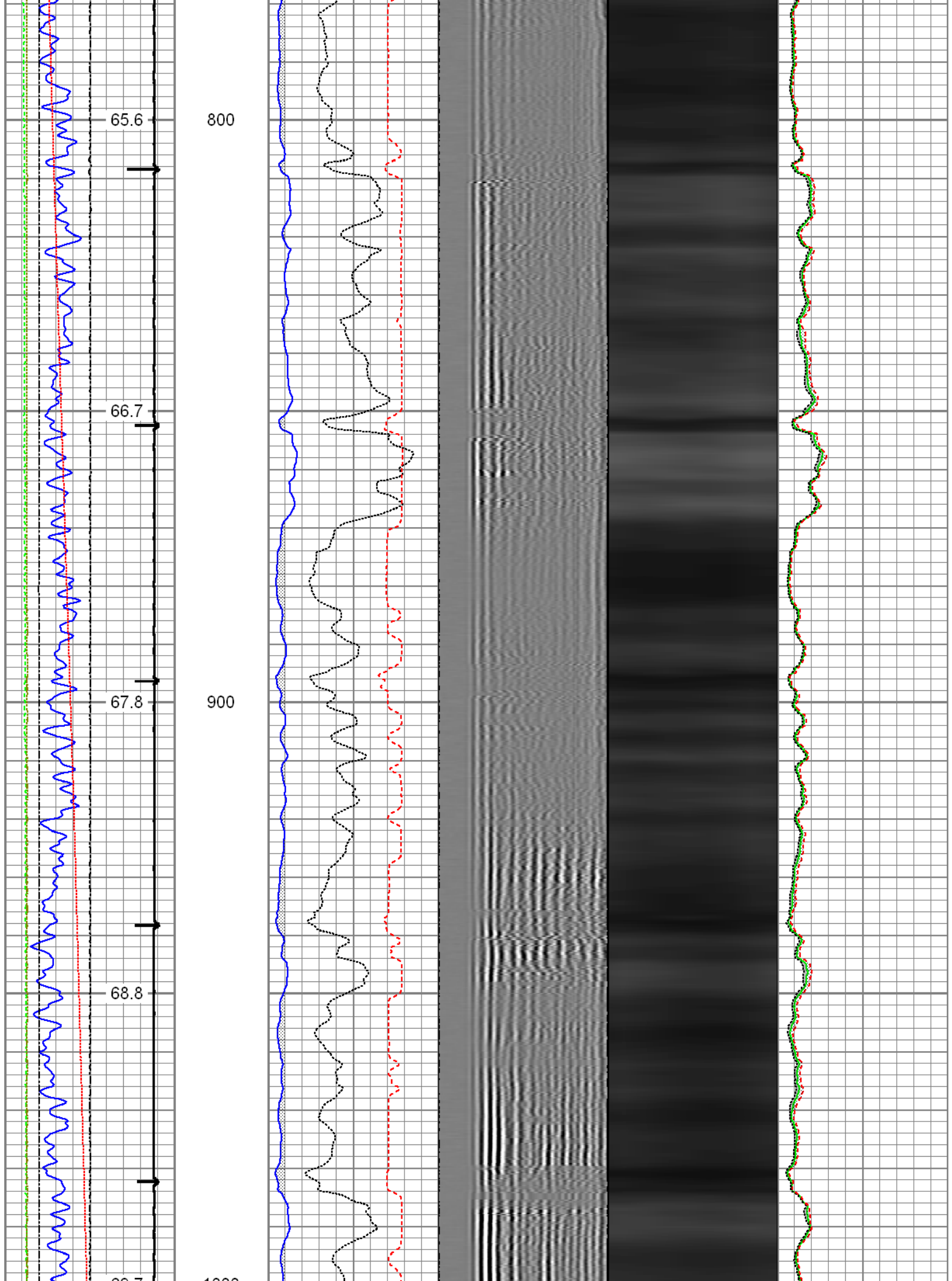
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

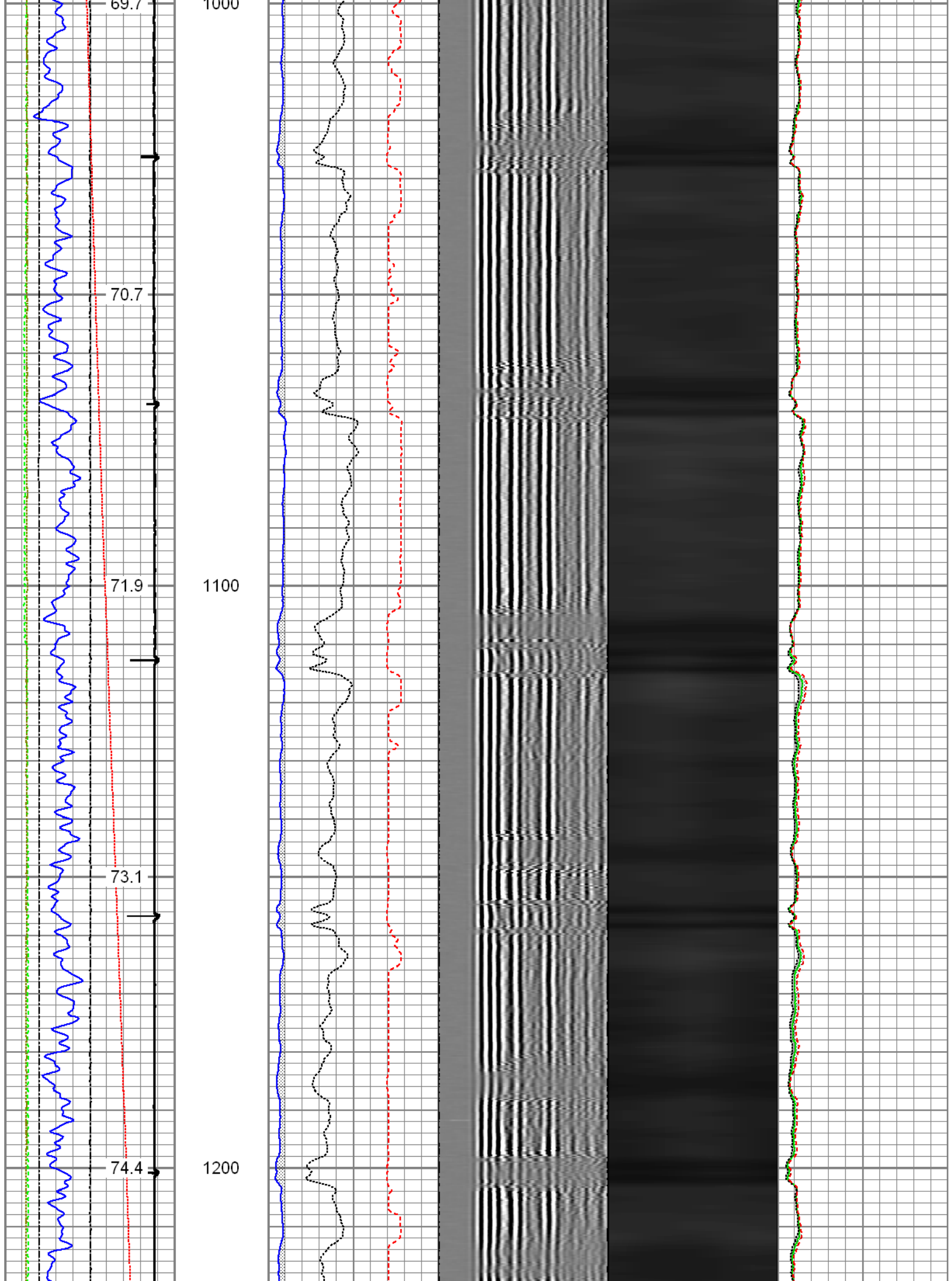


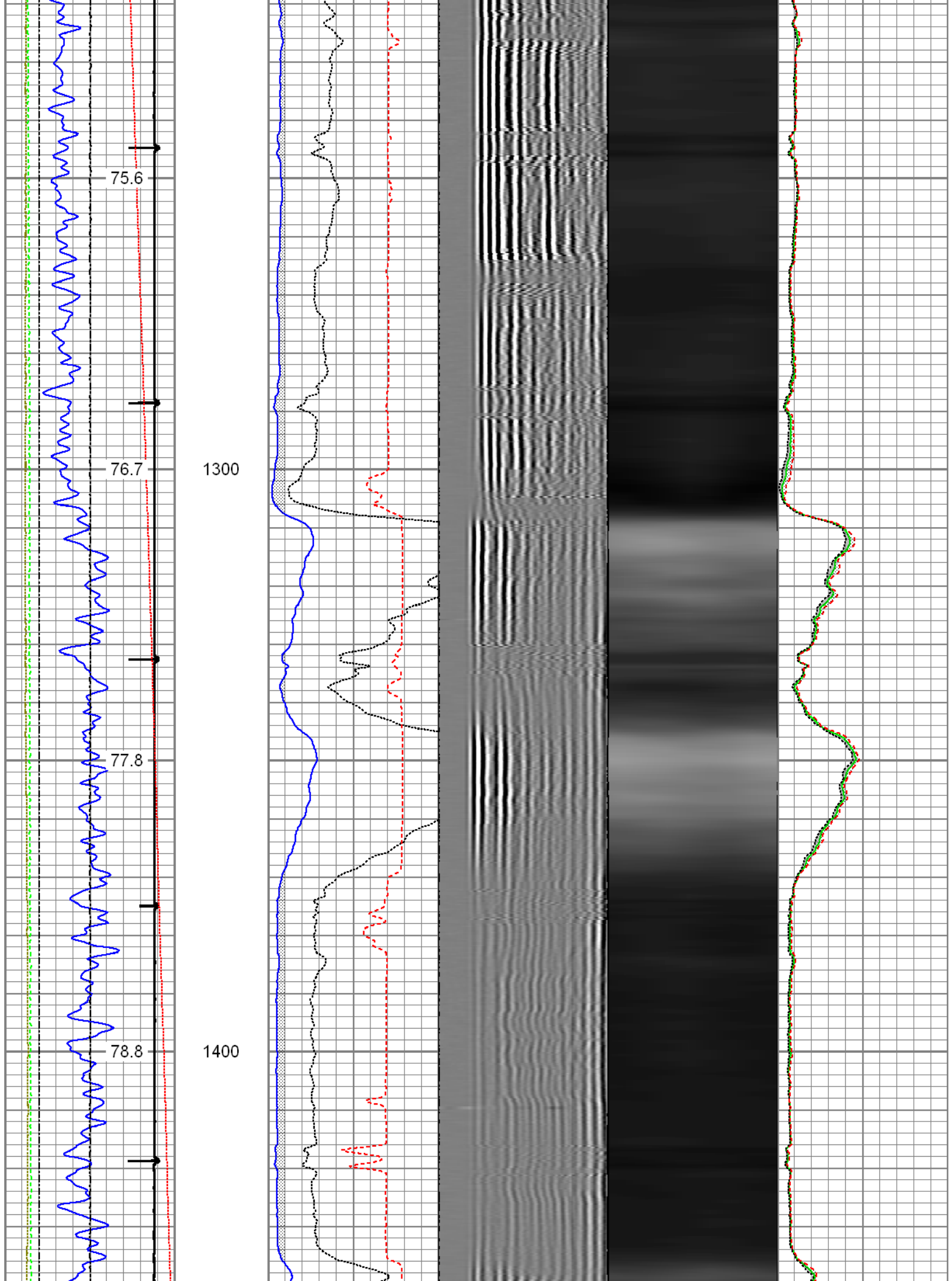


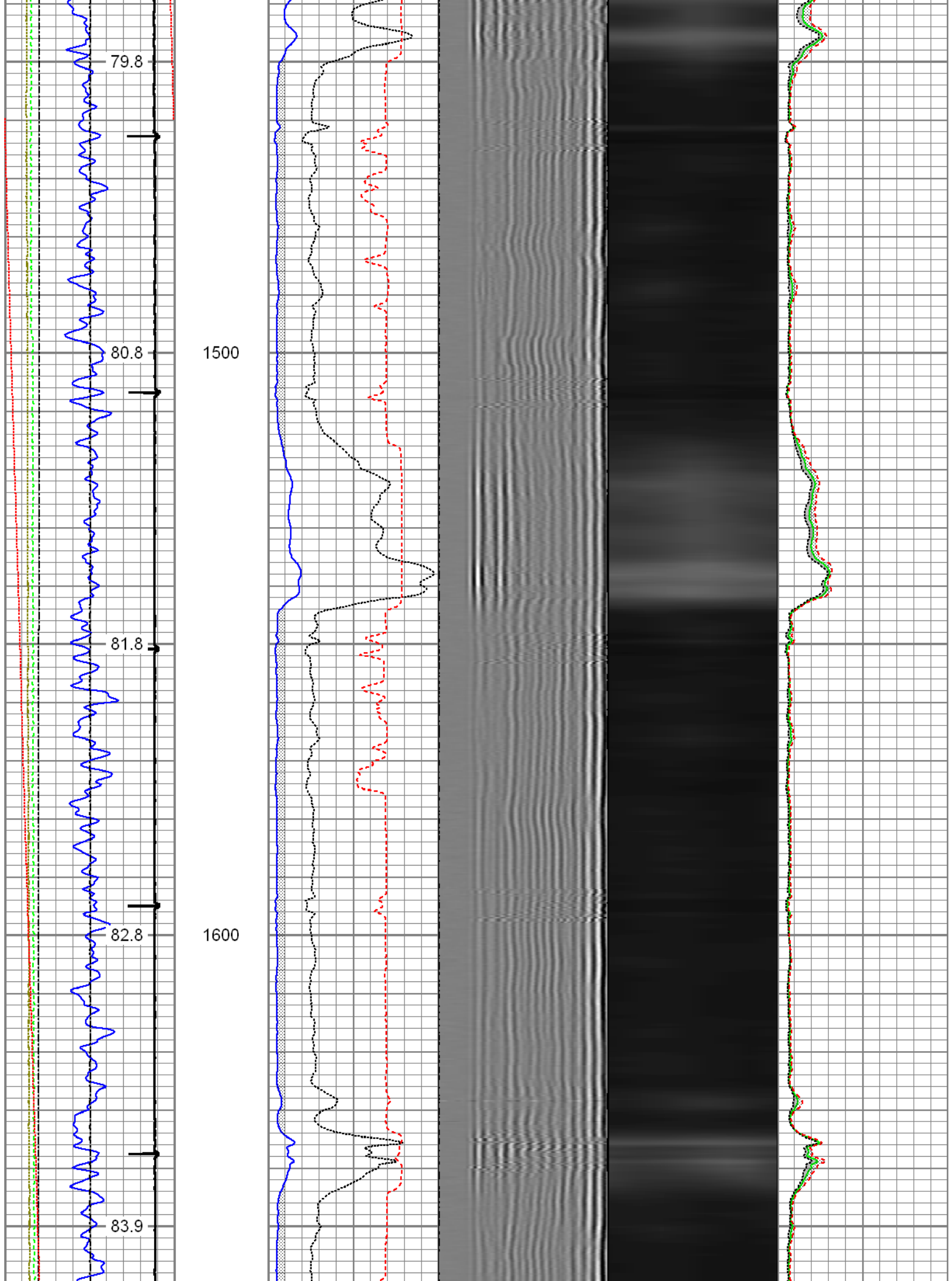


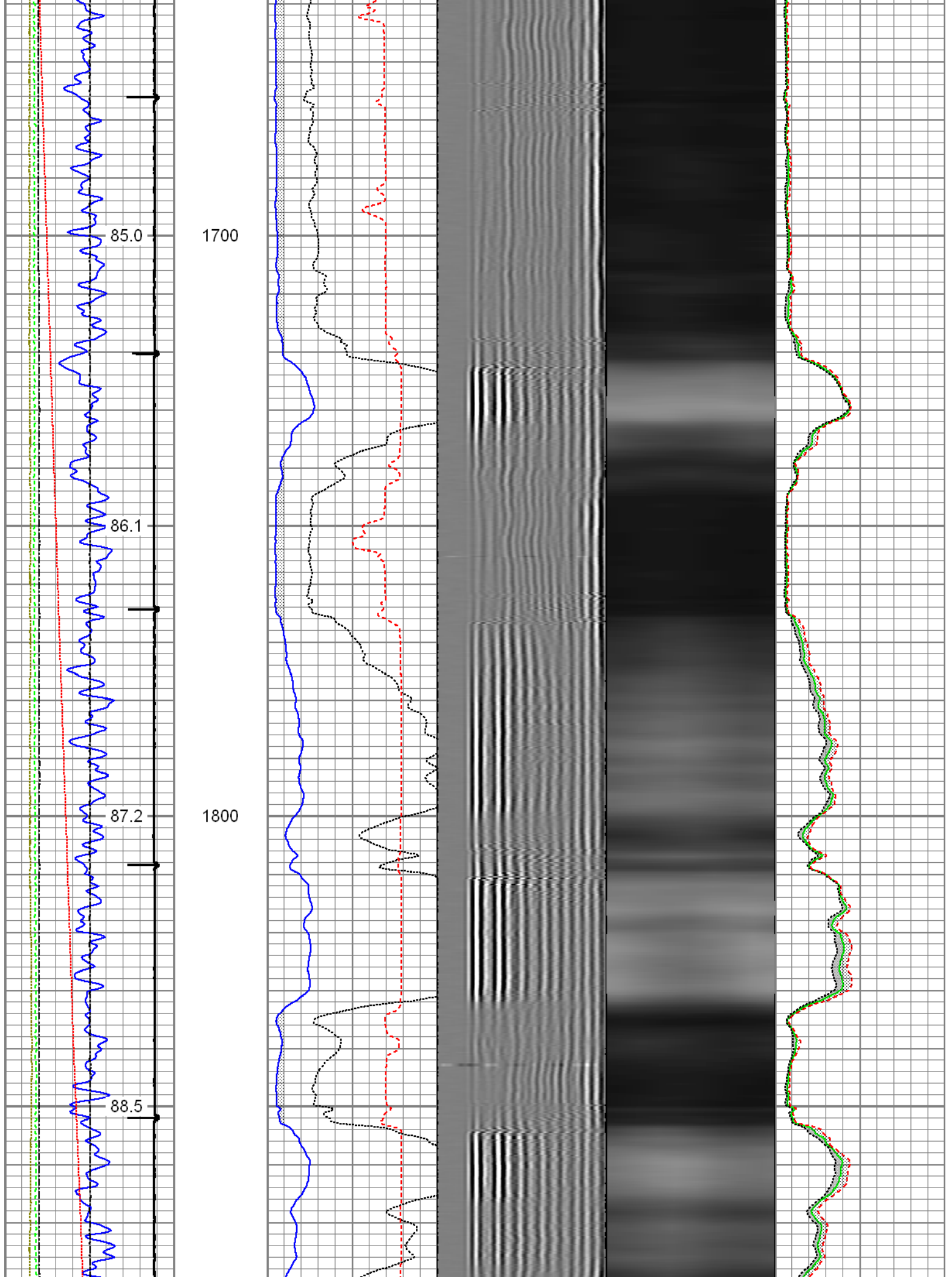


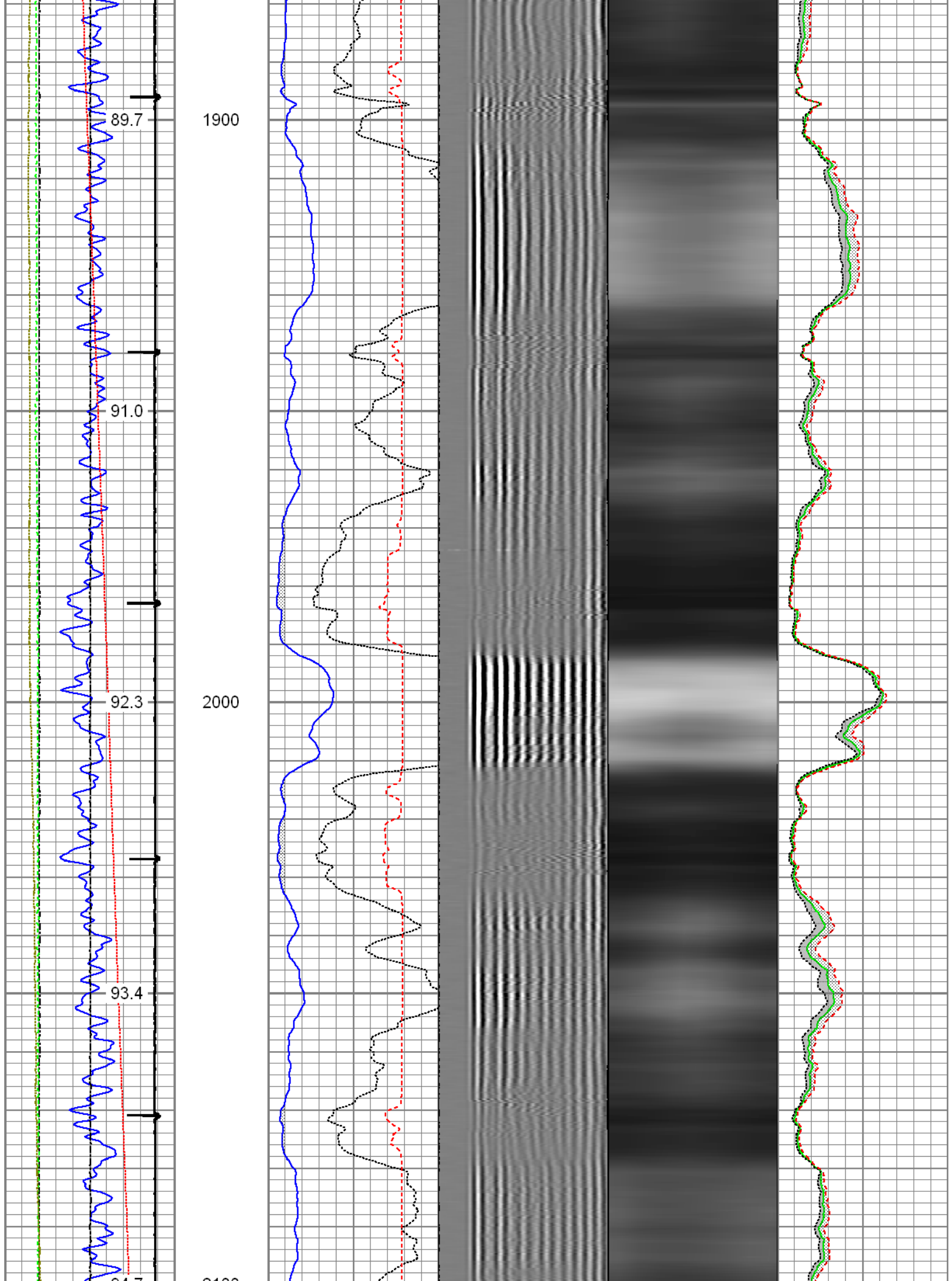


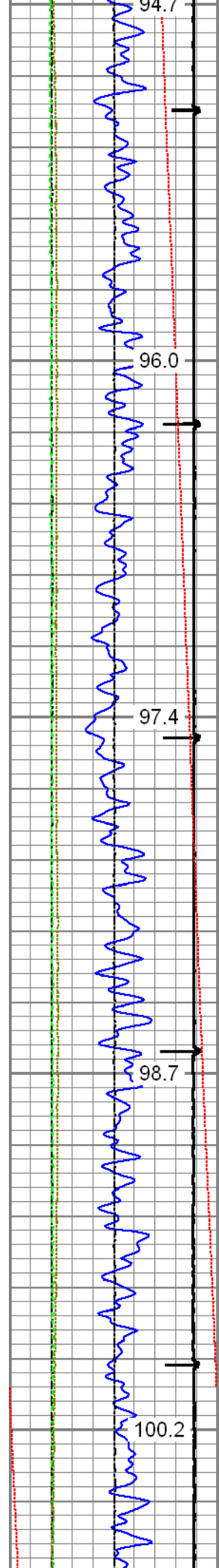












94.7

96.0

97.4

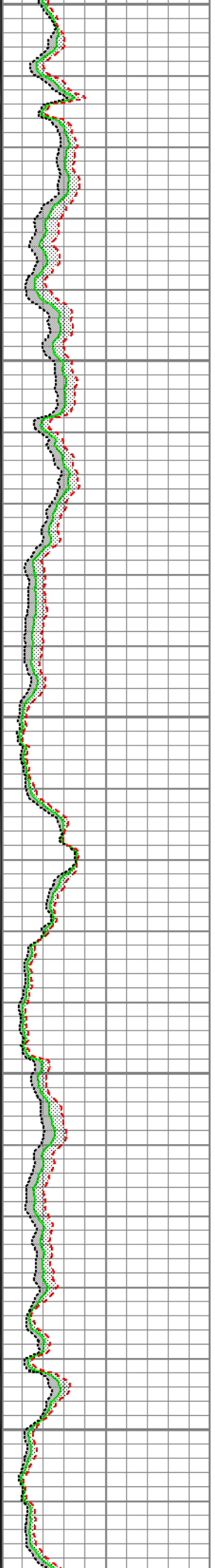
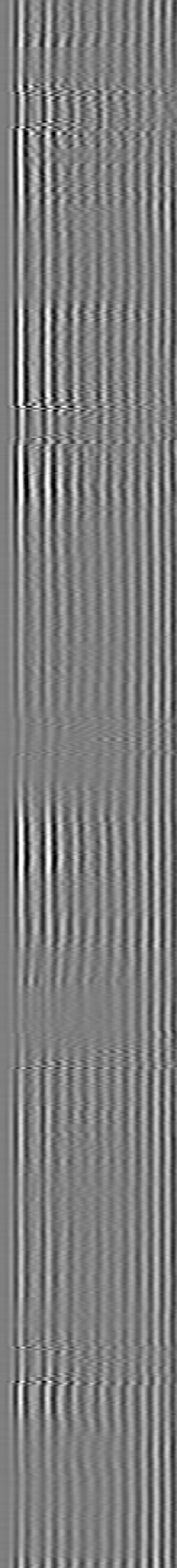
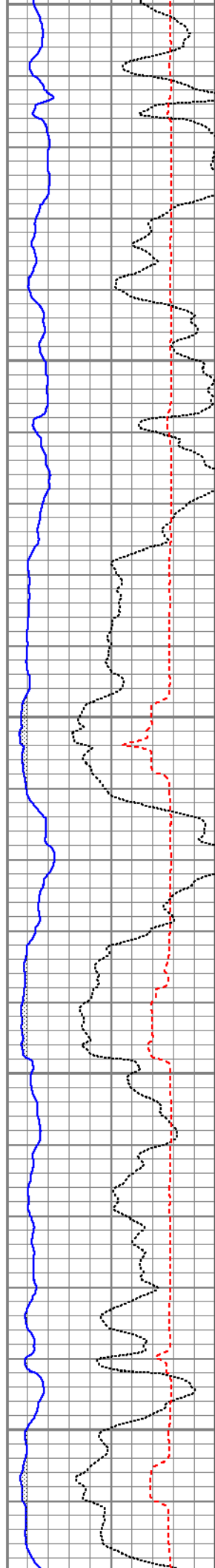
98.7

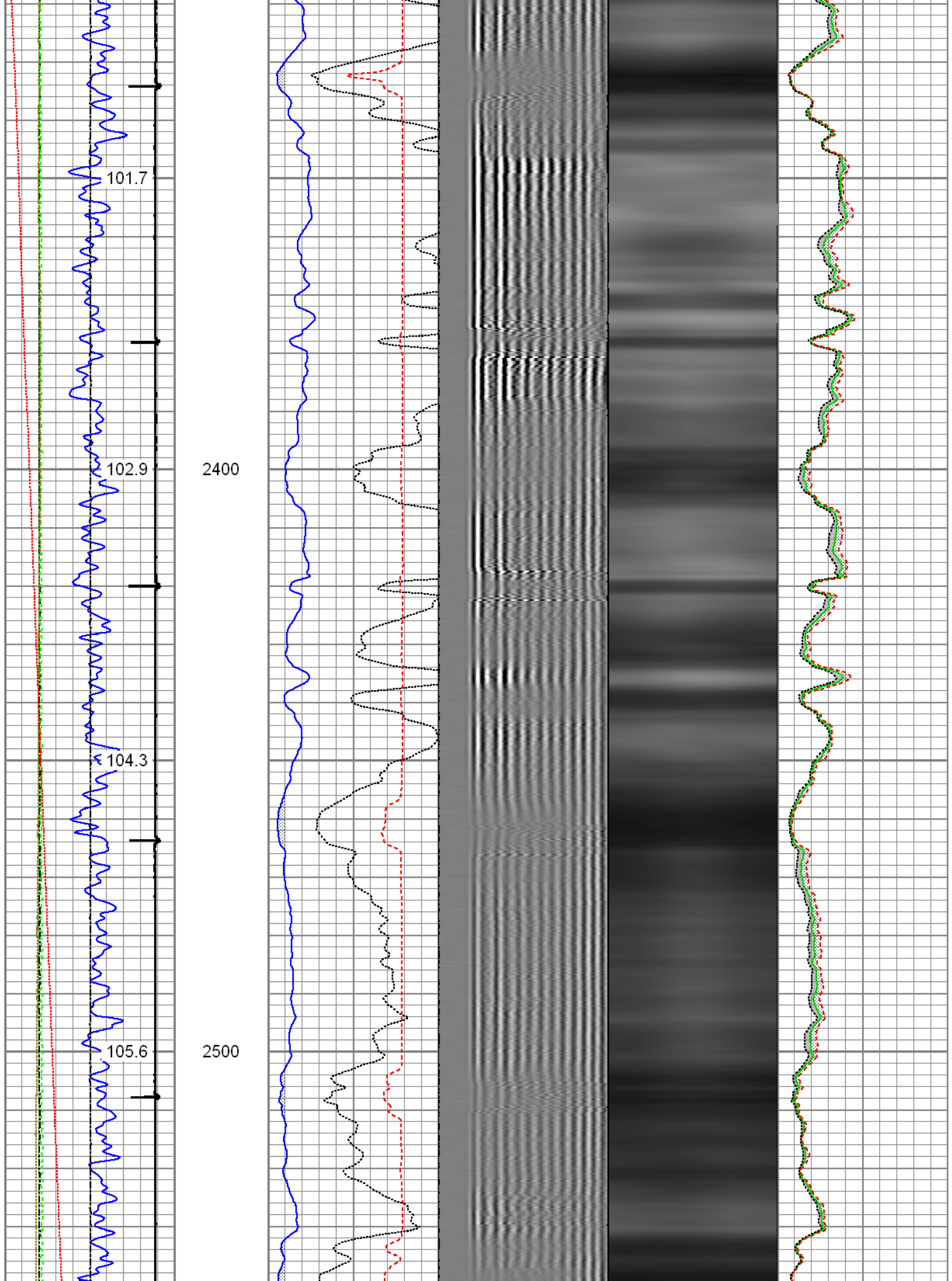
100.2

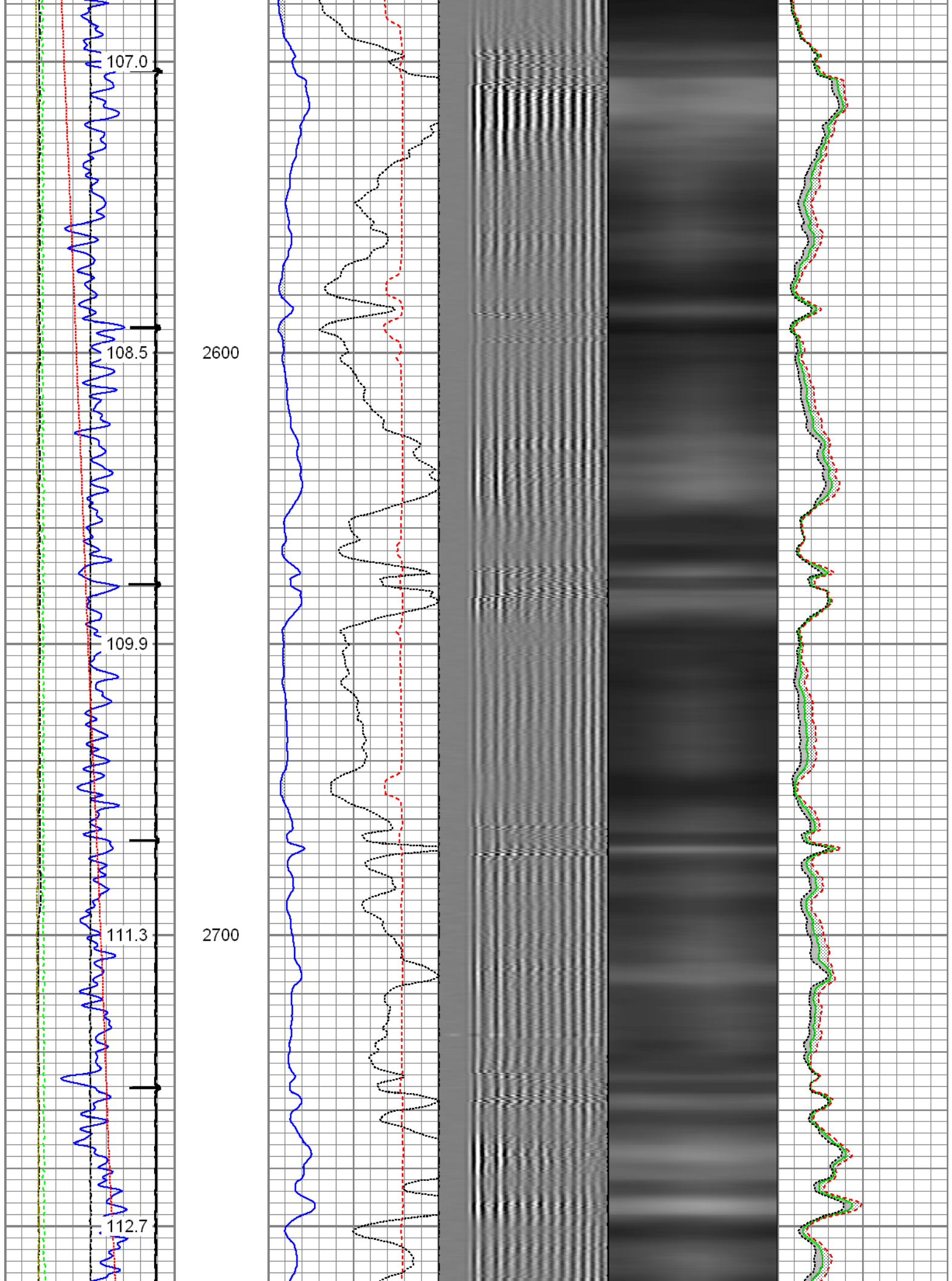
2100

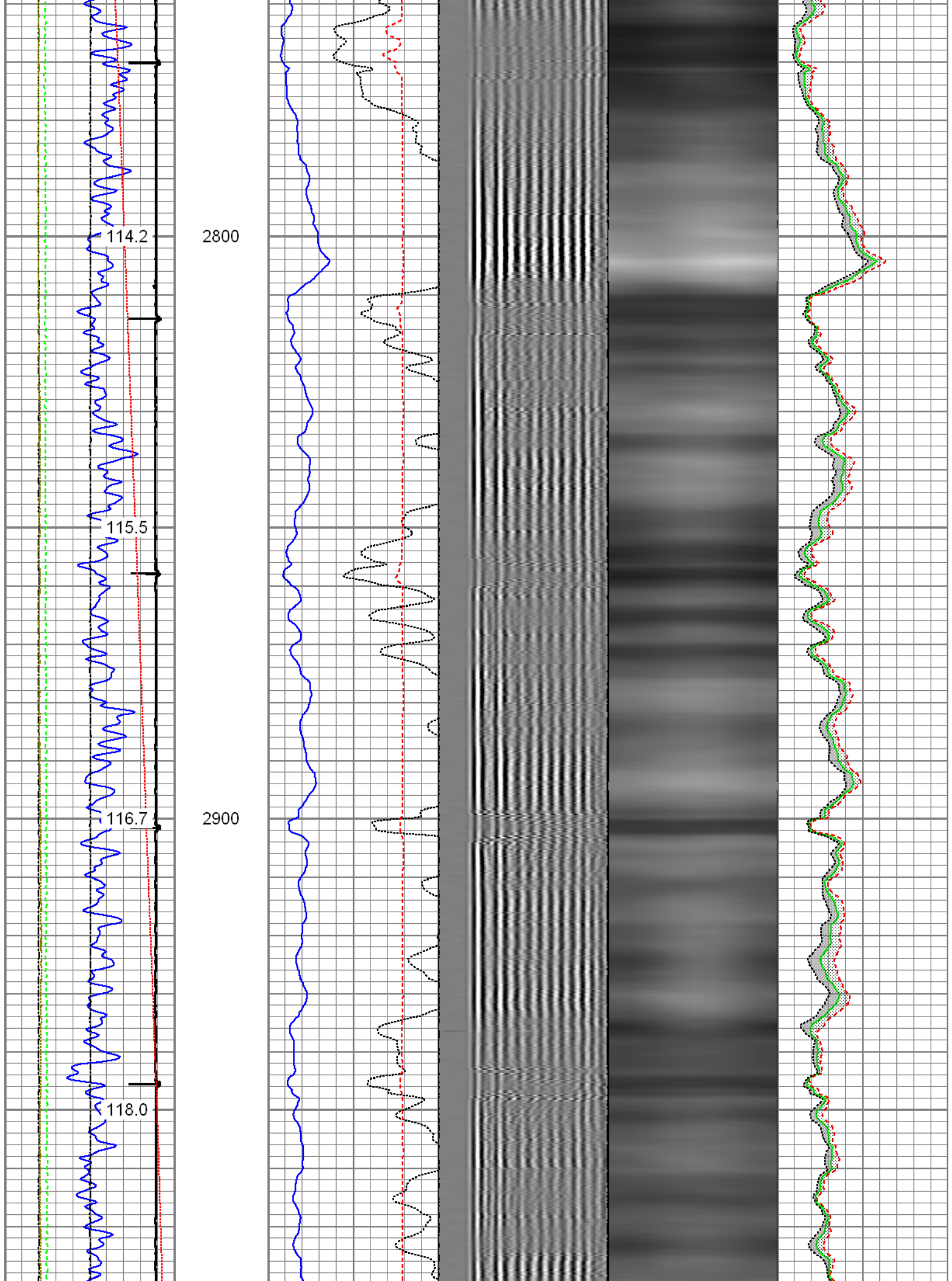
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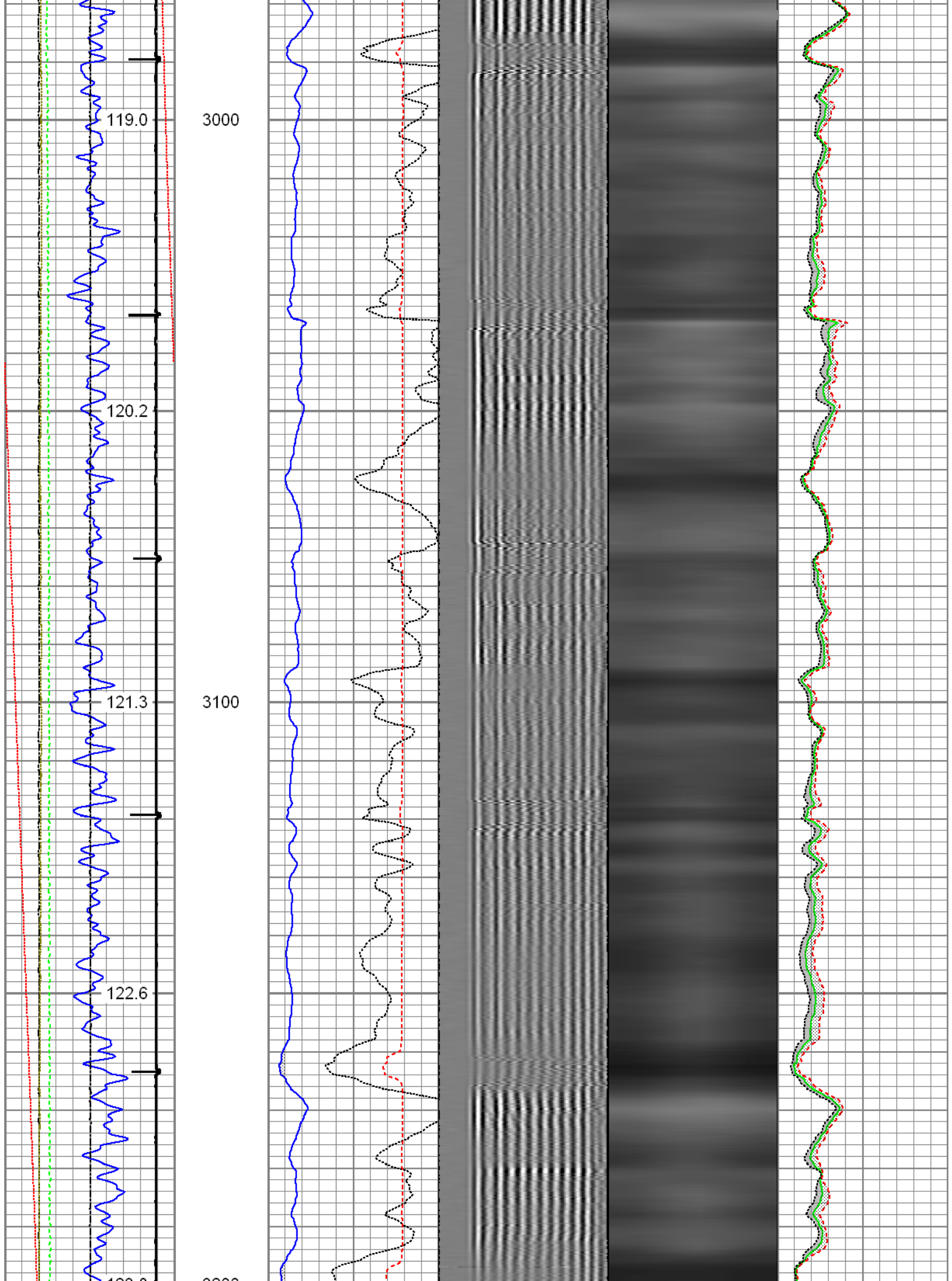
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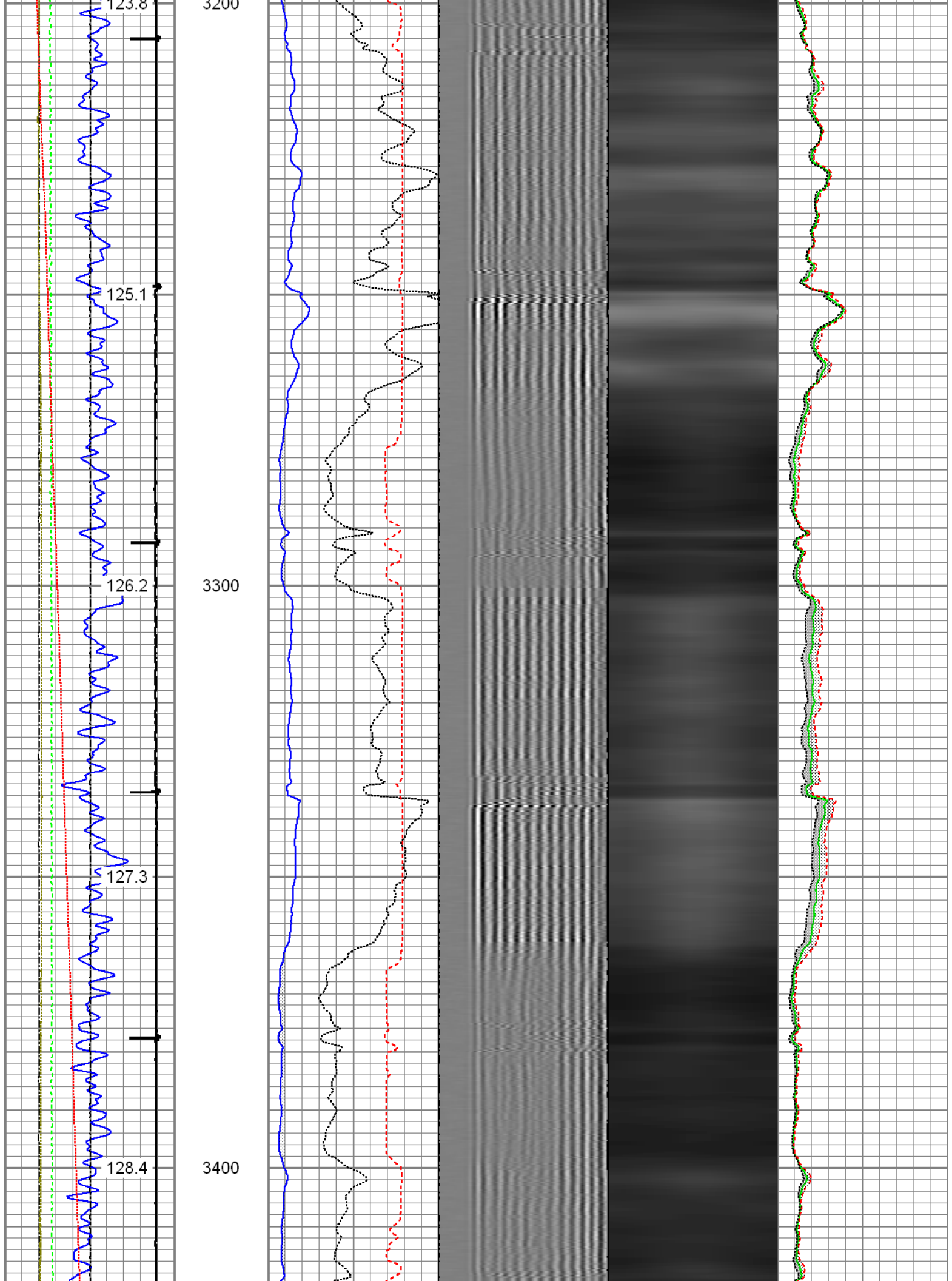


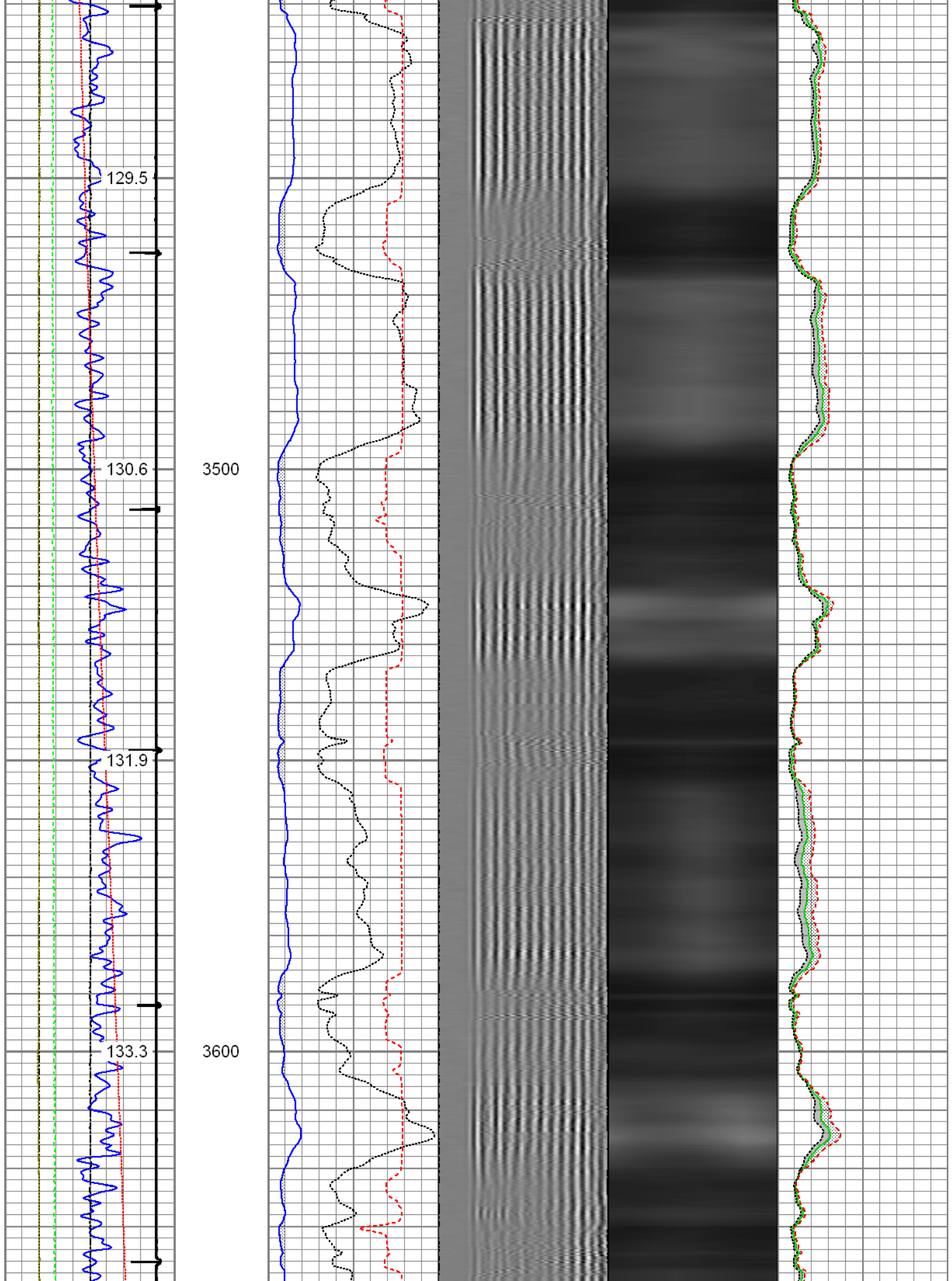


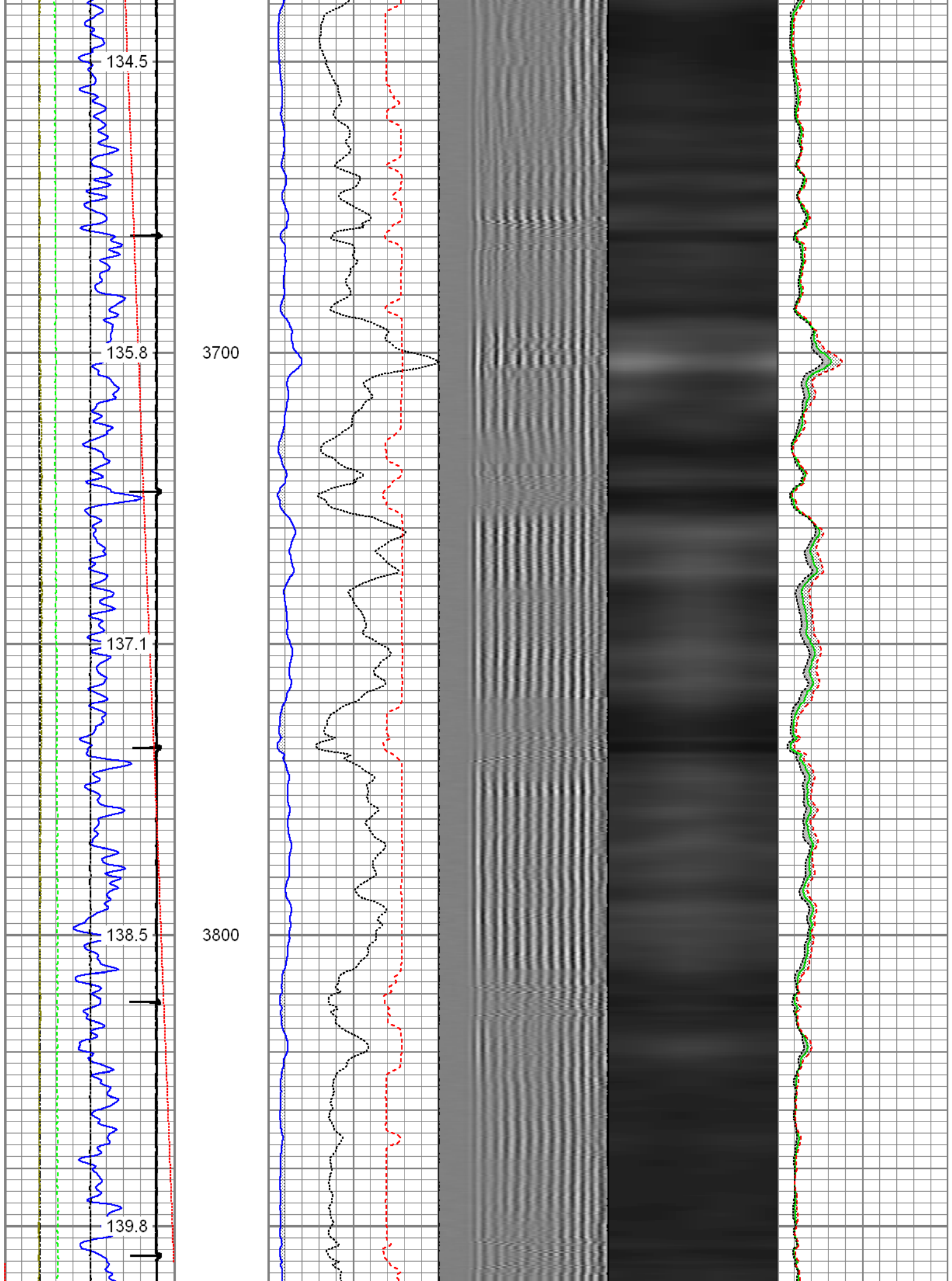


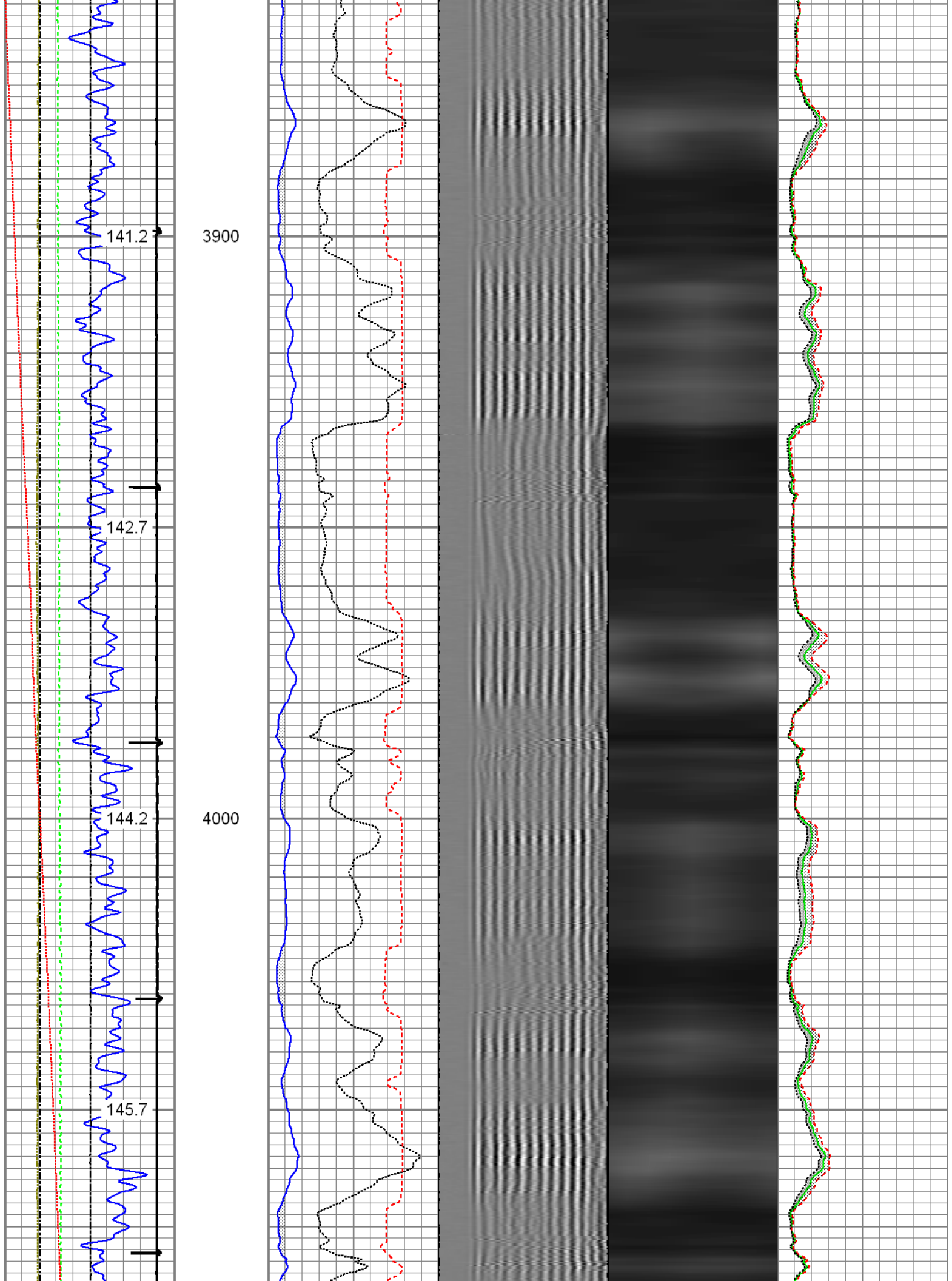


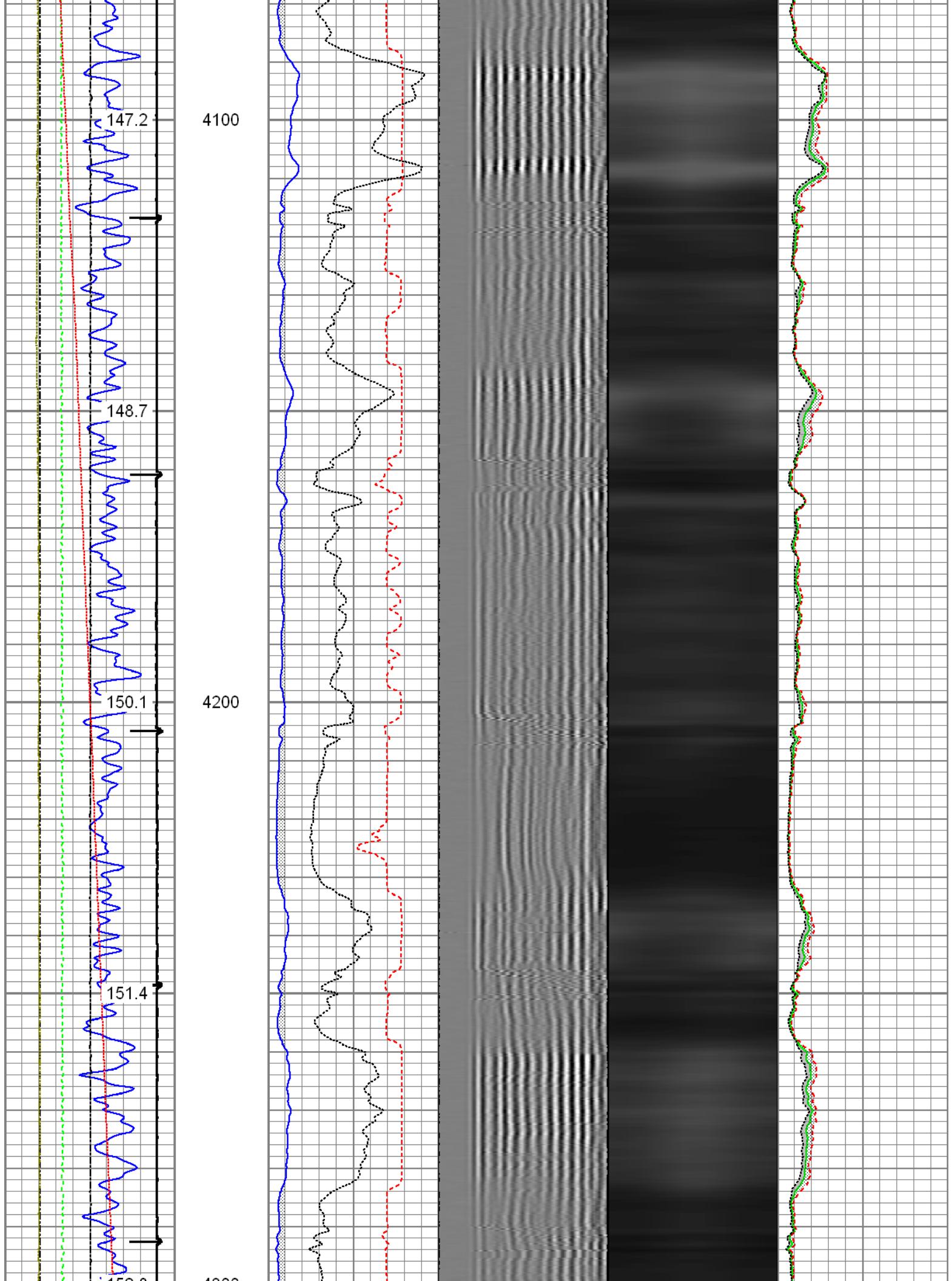


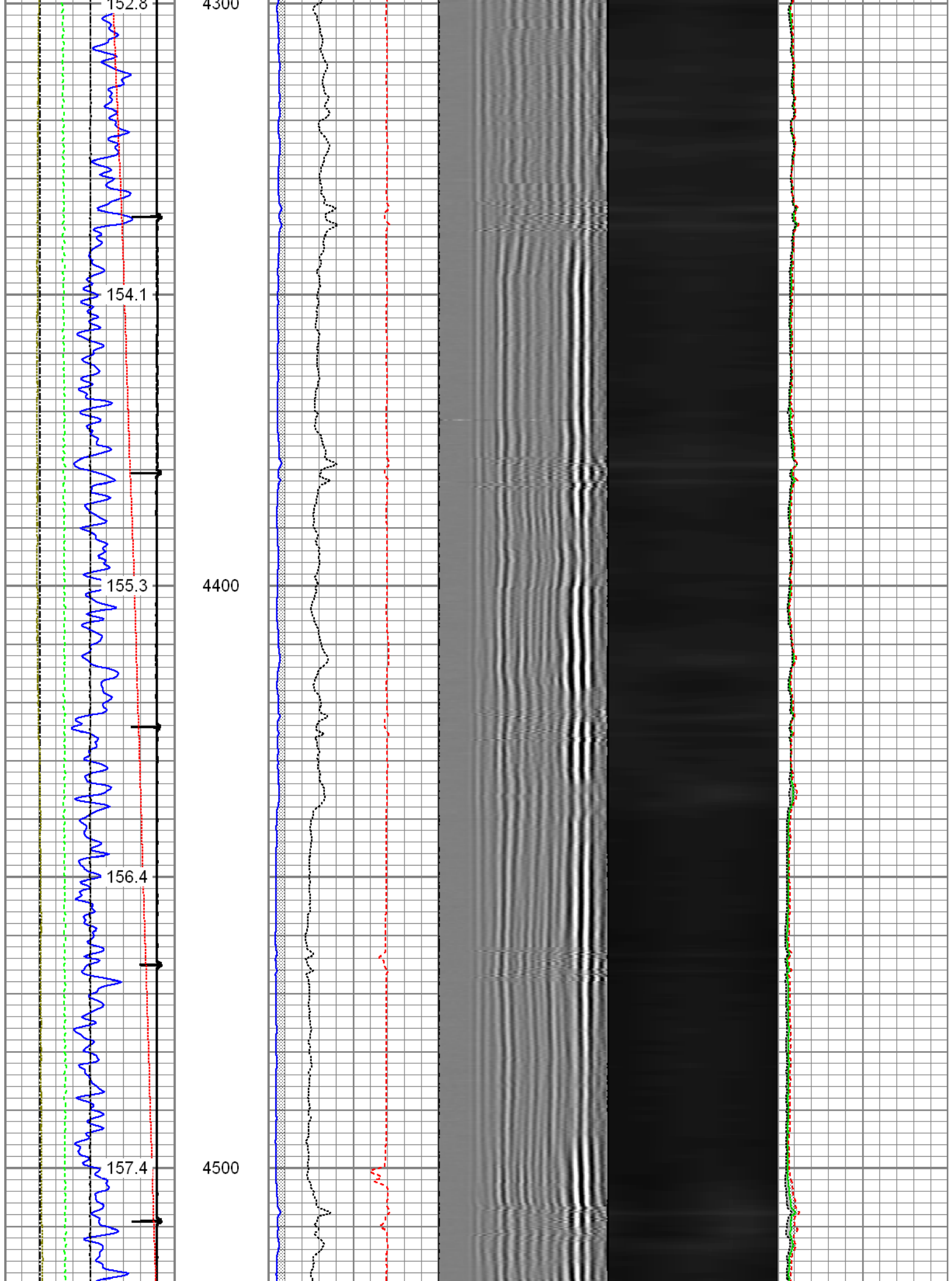


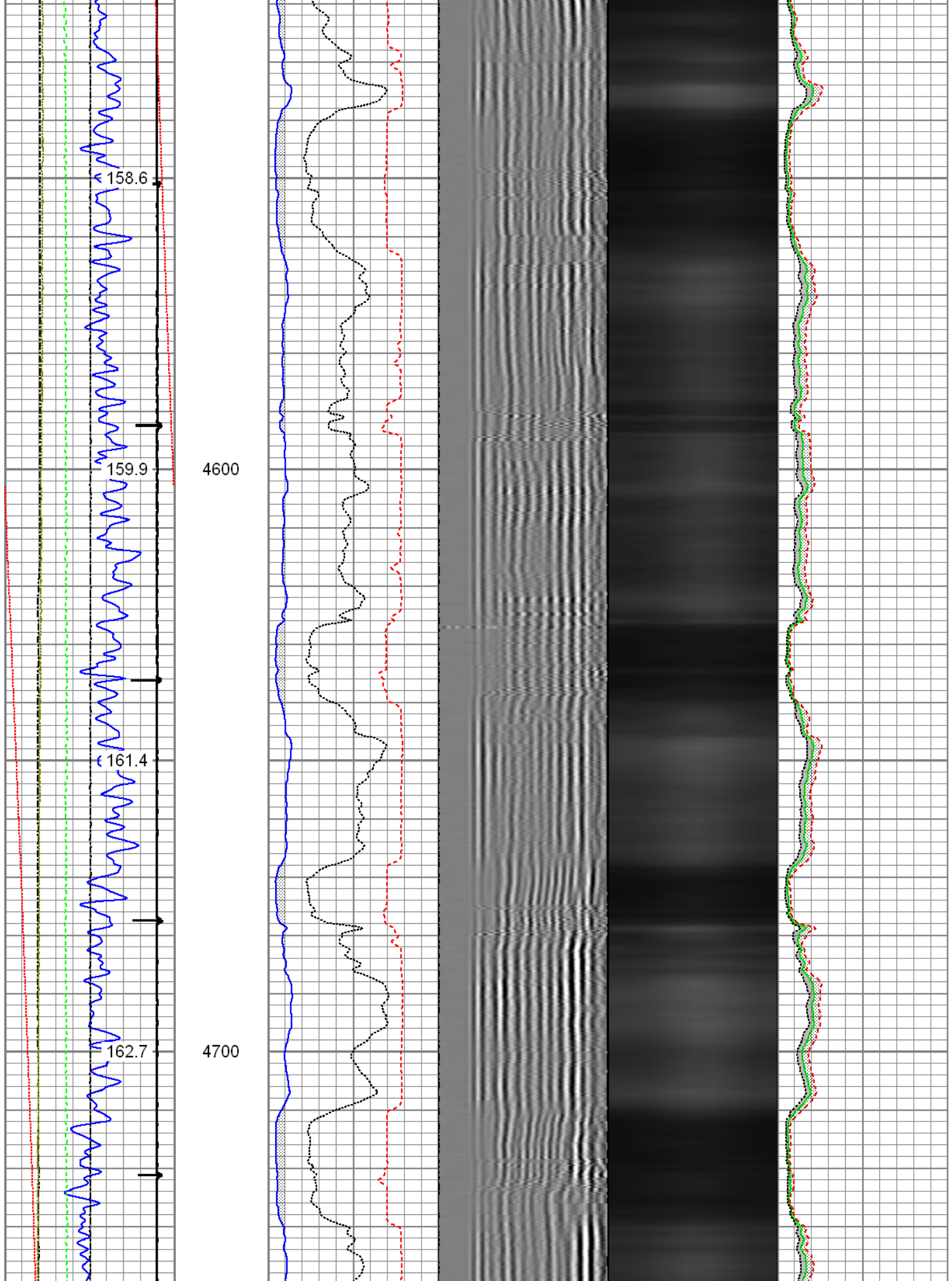


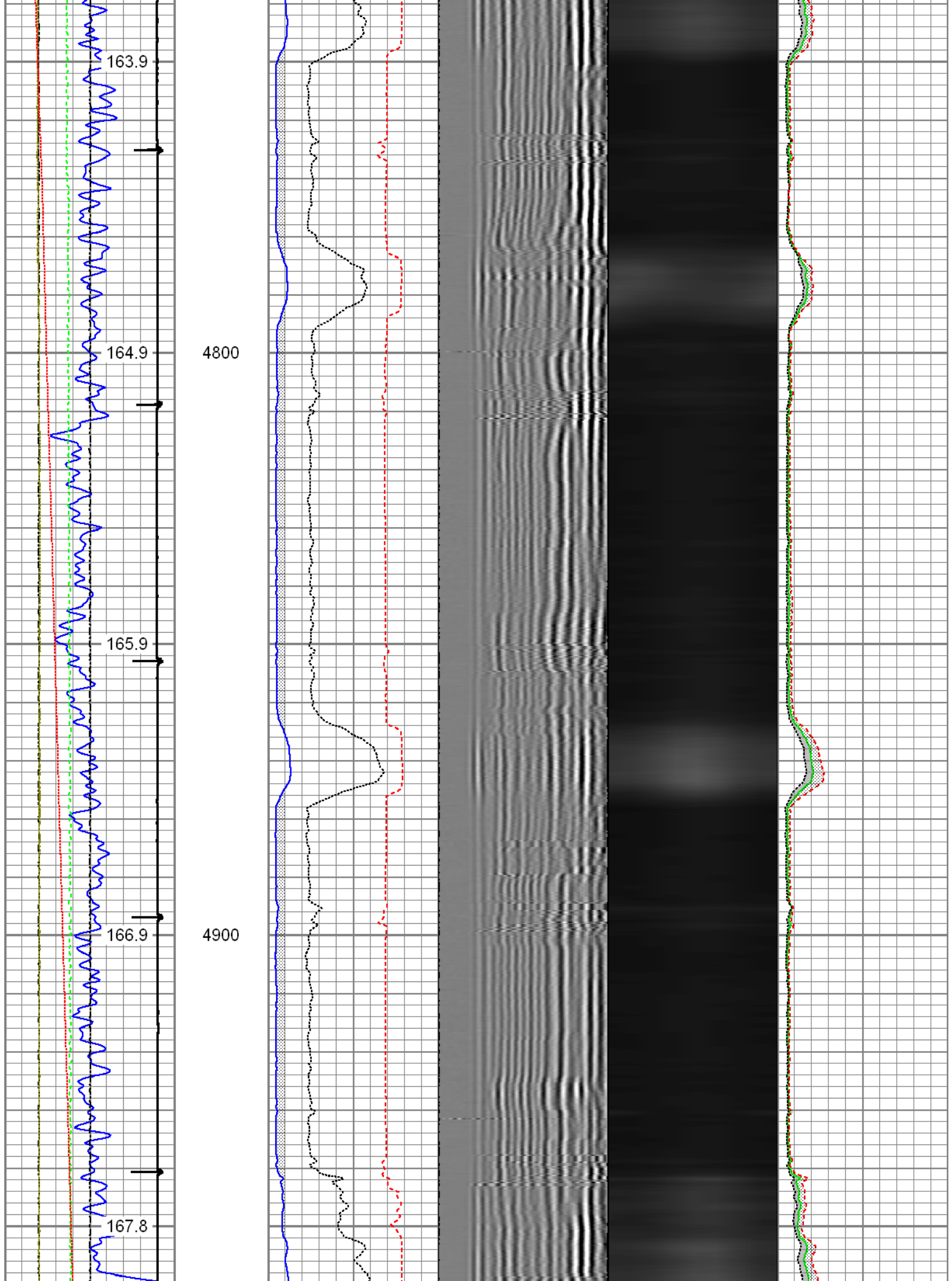


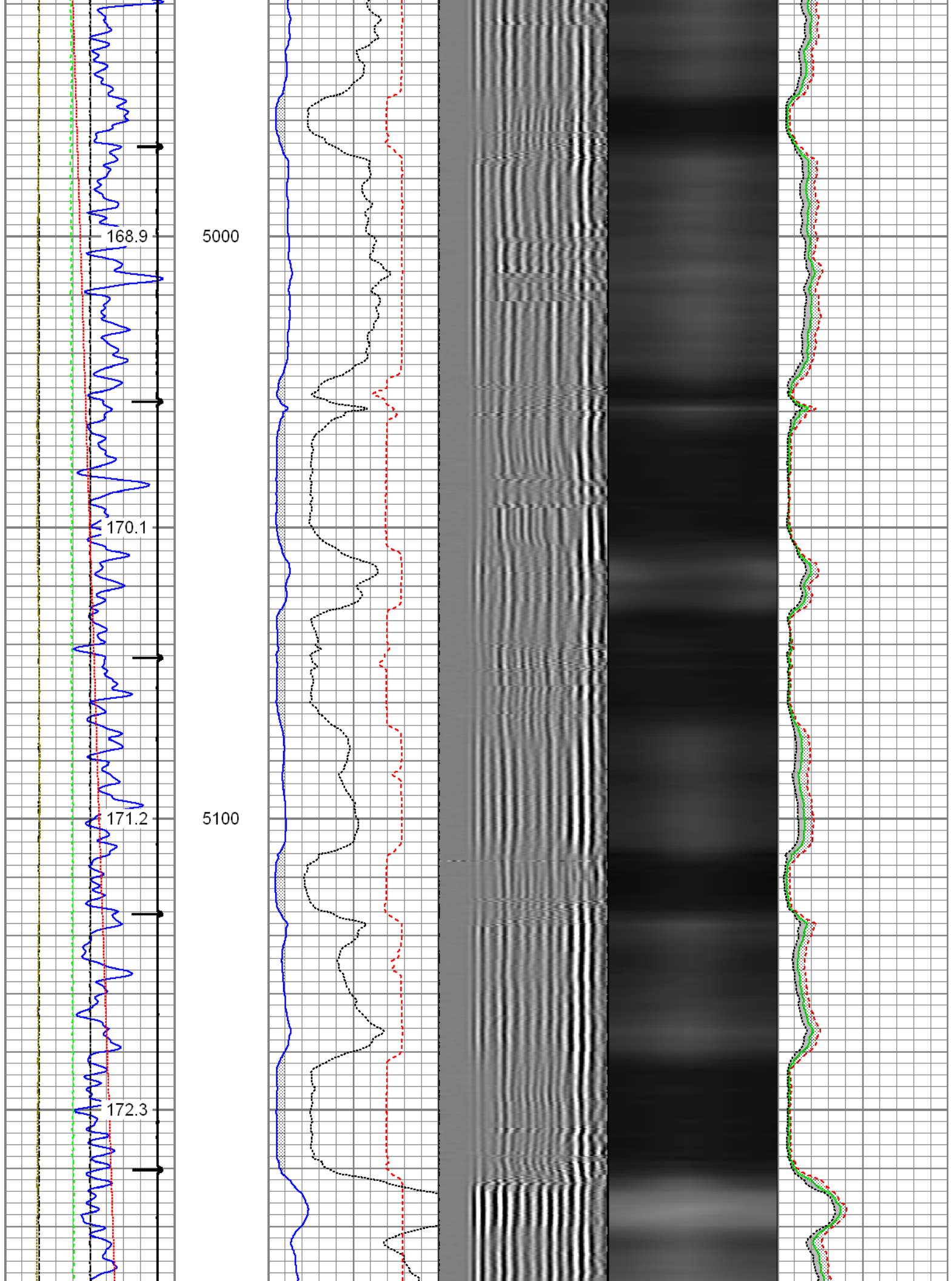


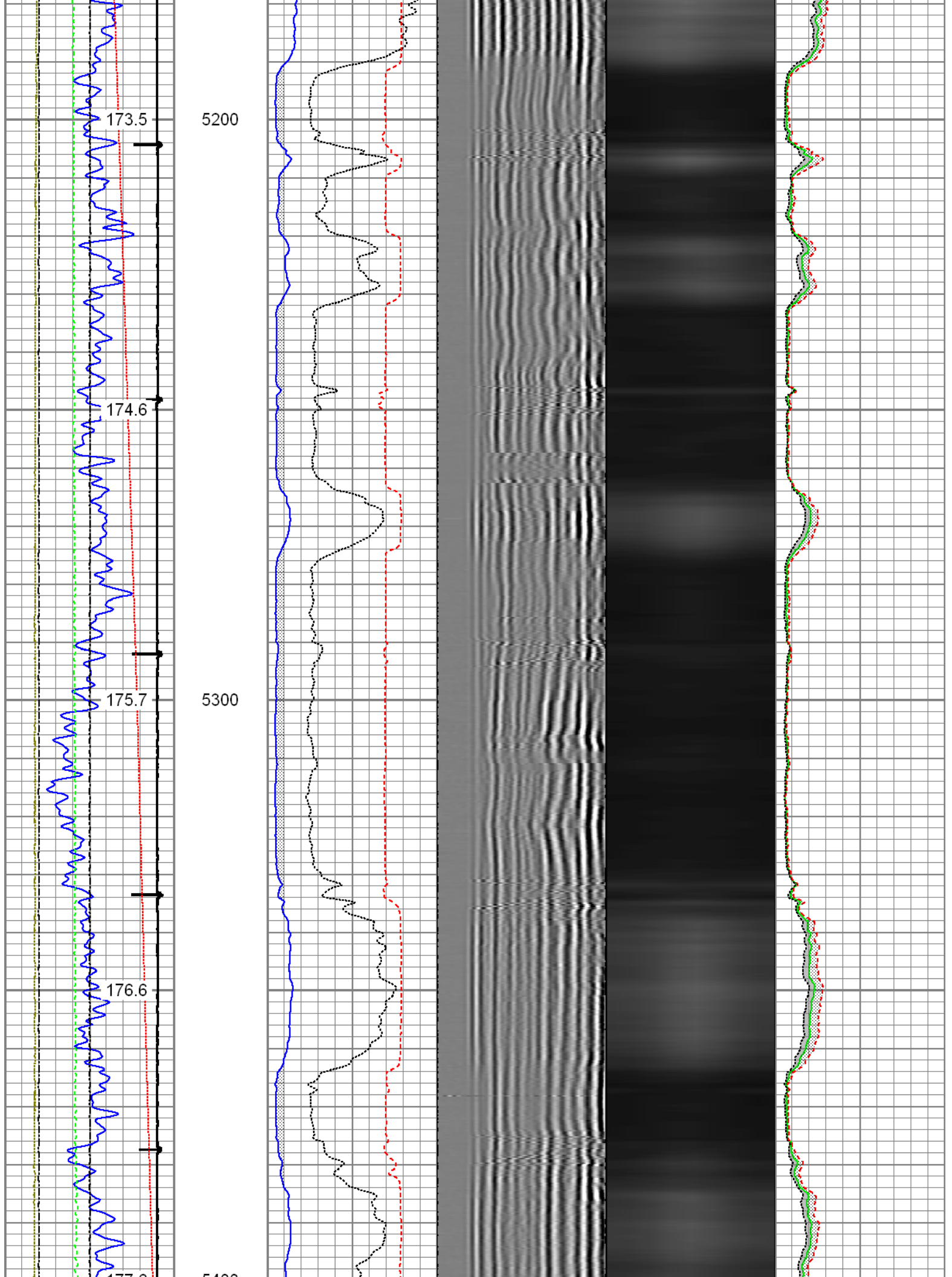


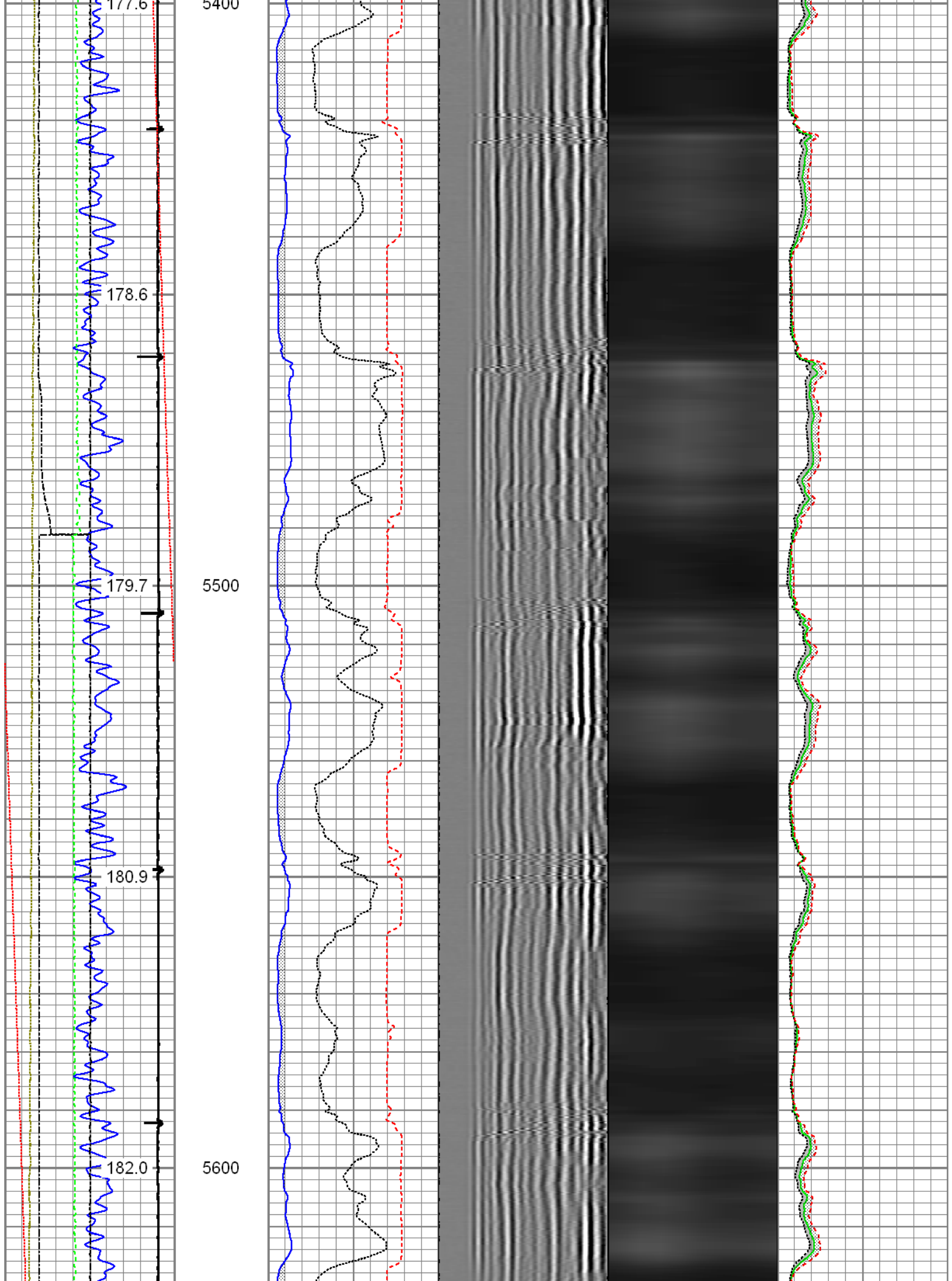


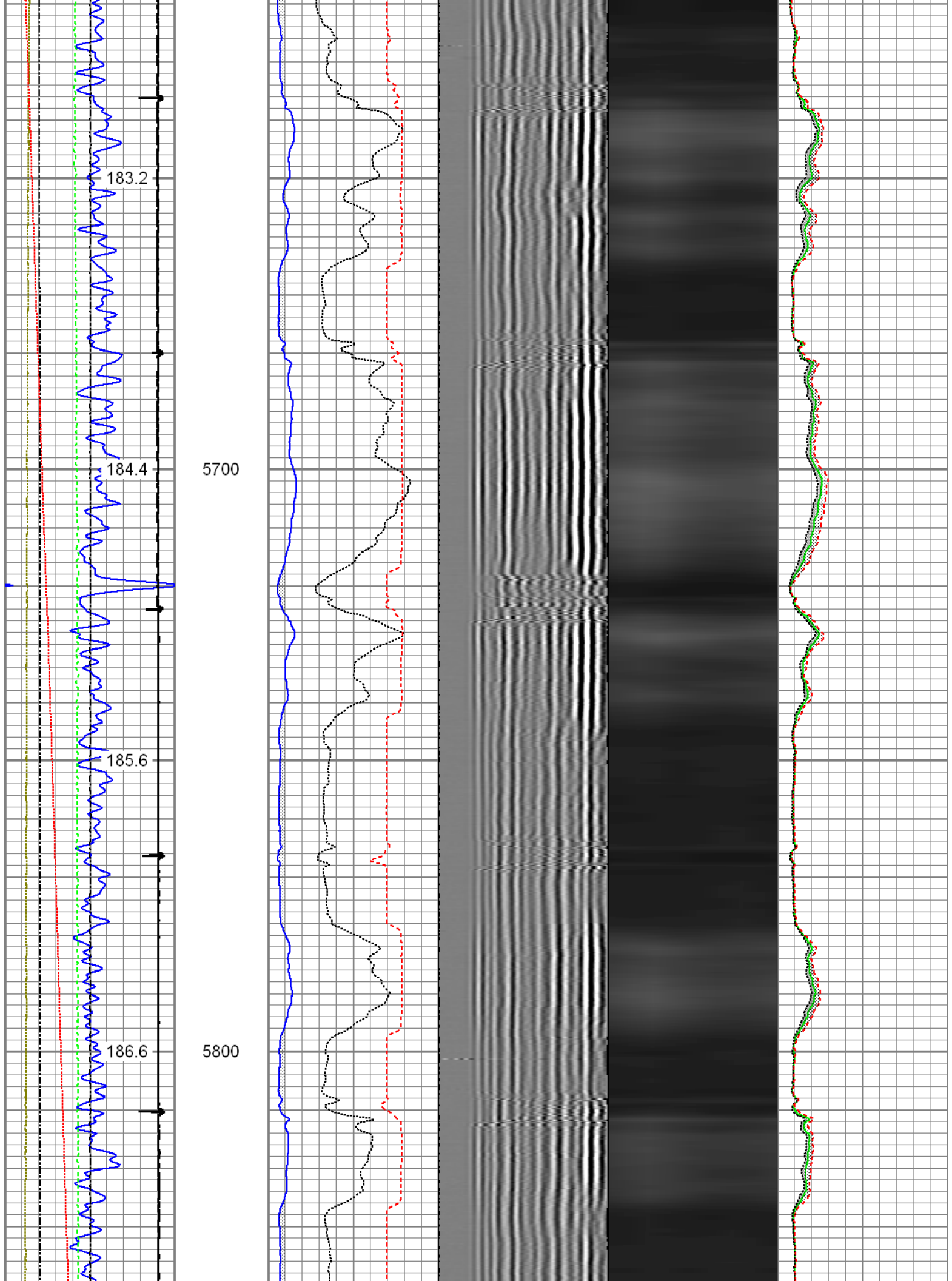


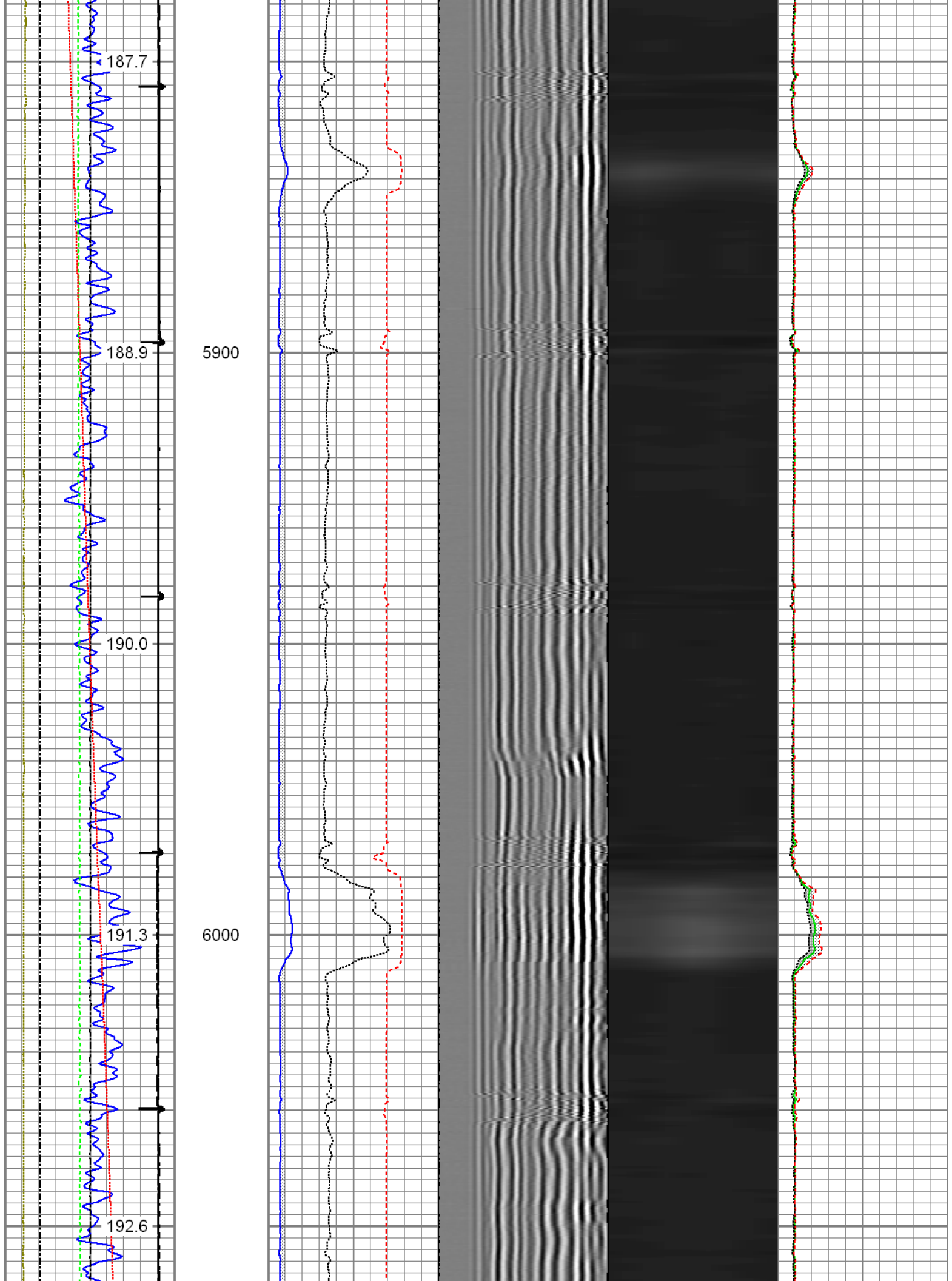


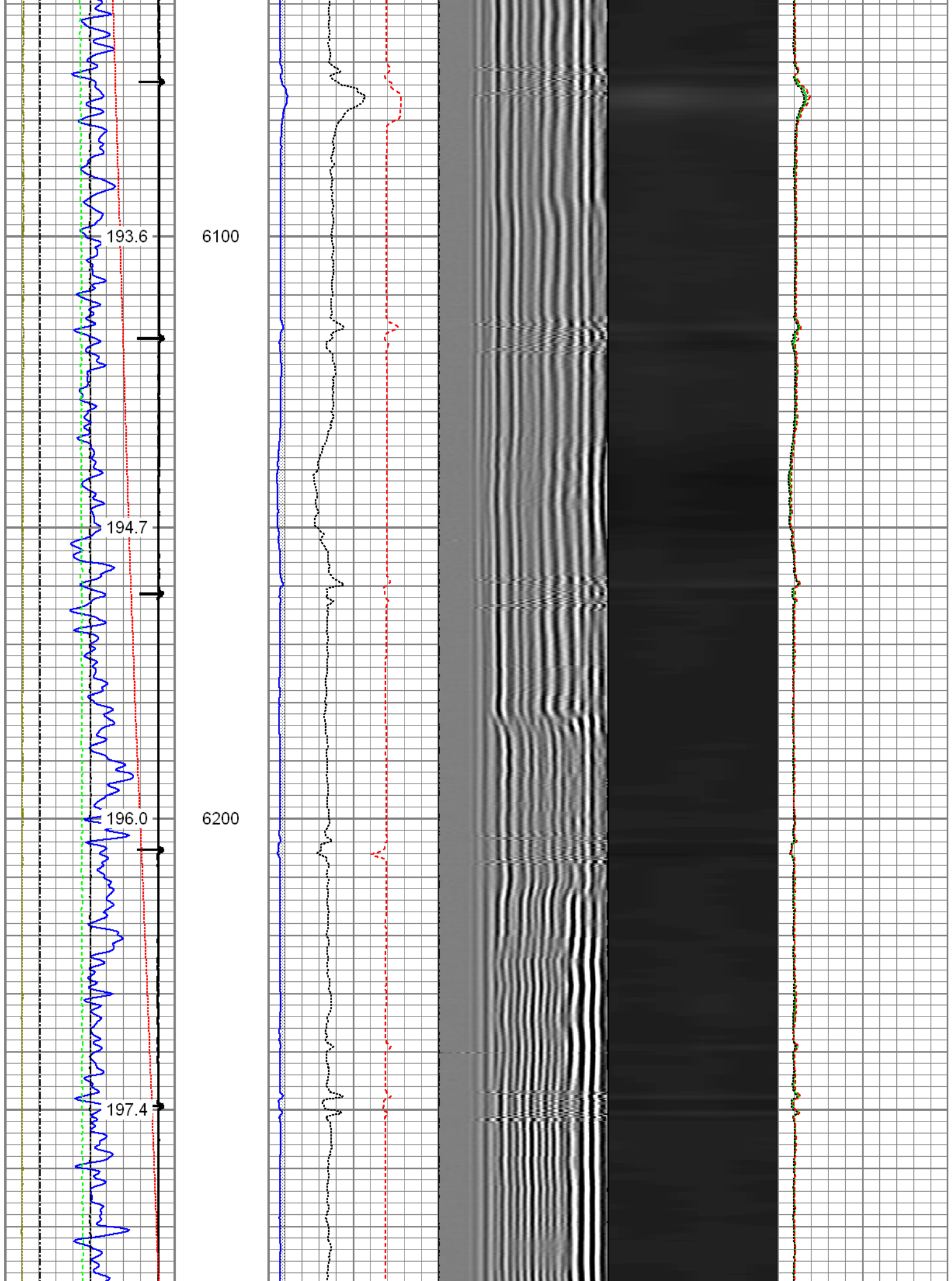


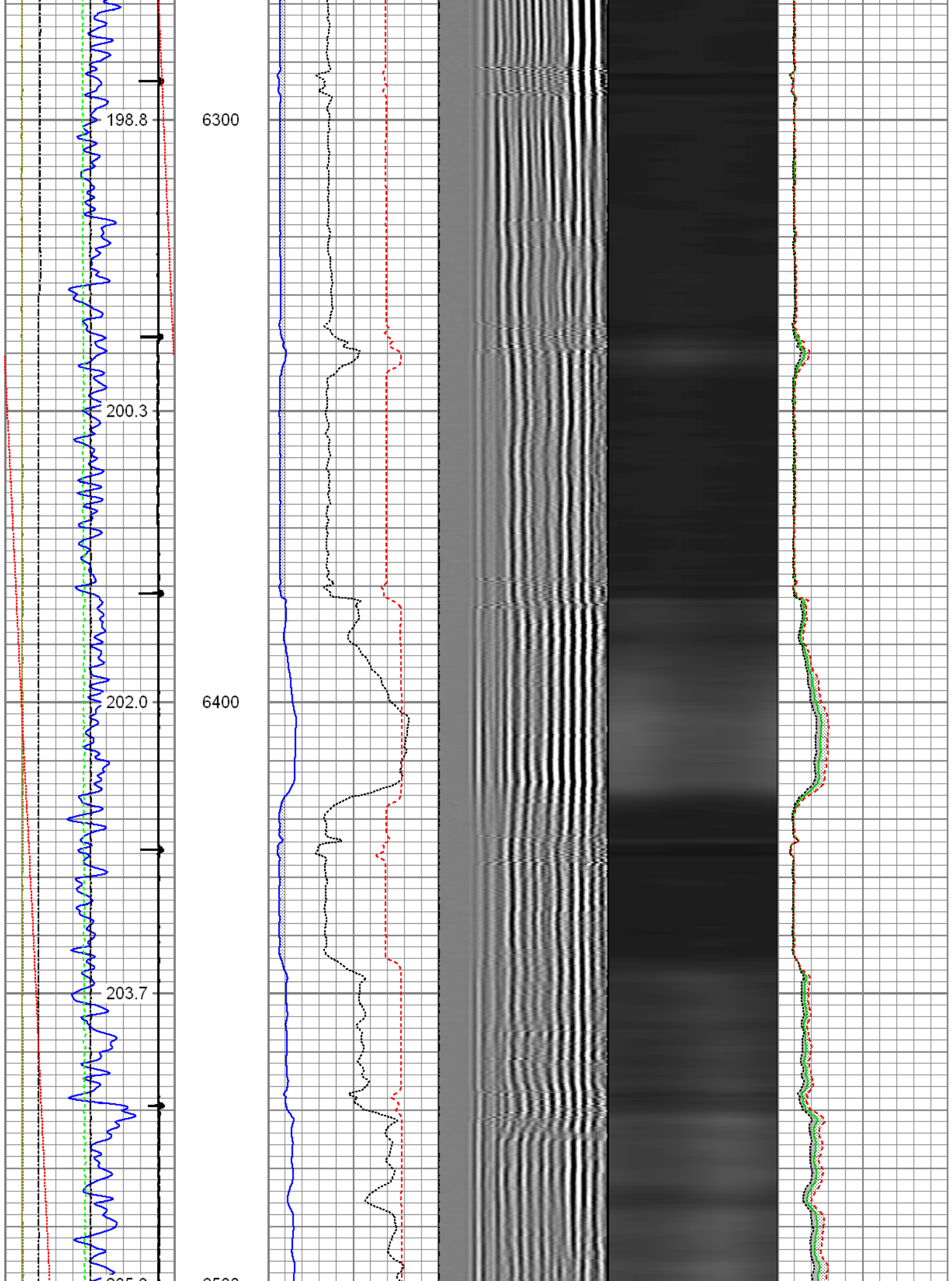


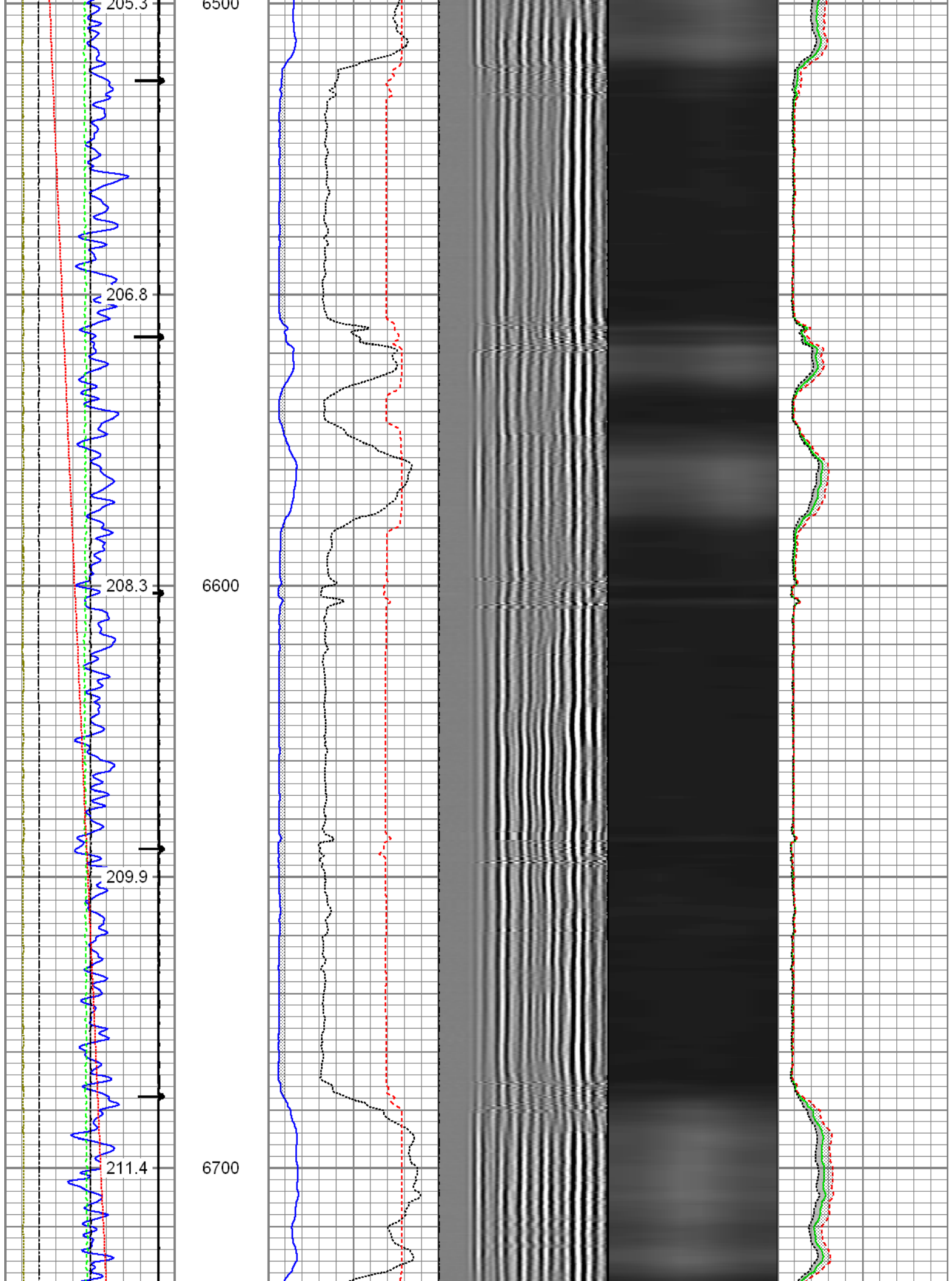


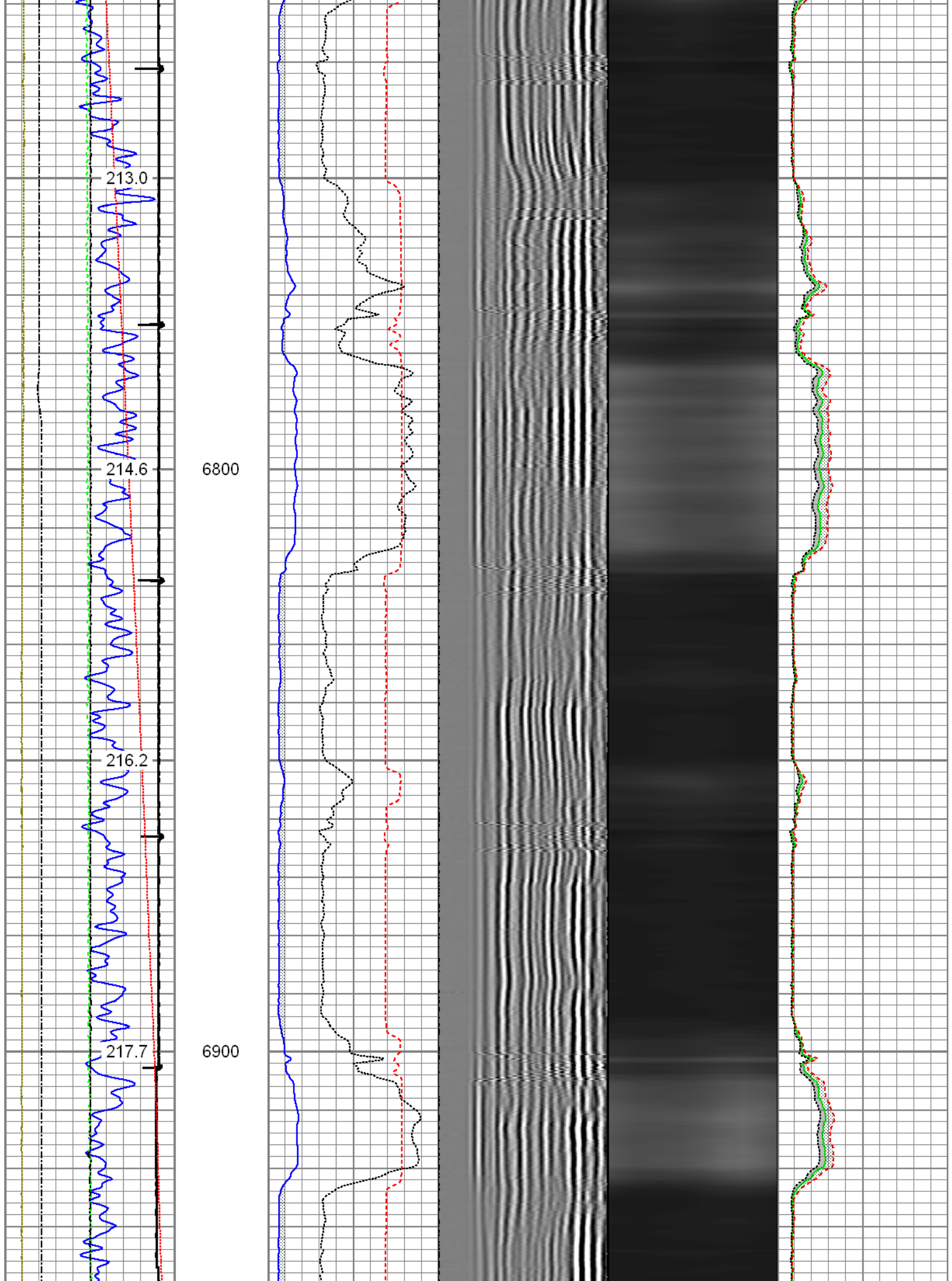


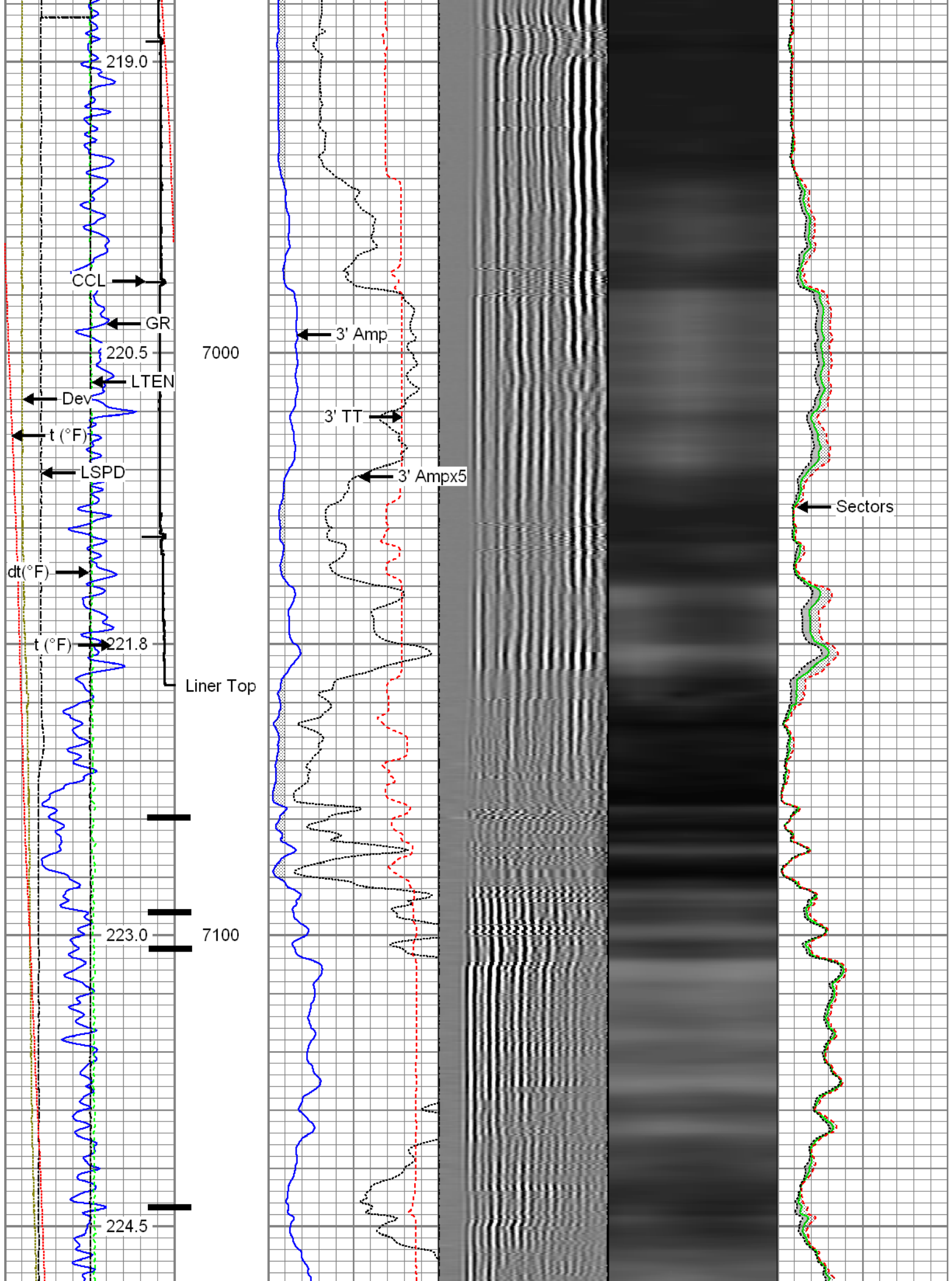


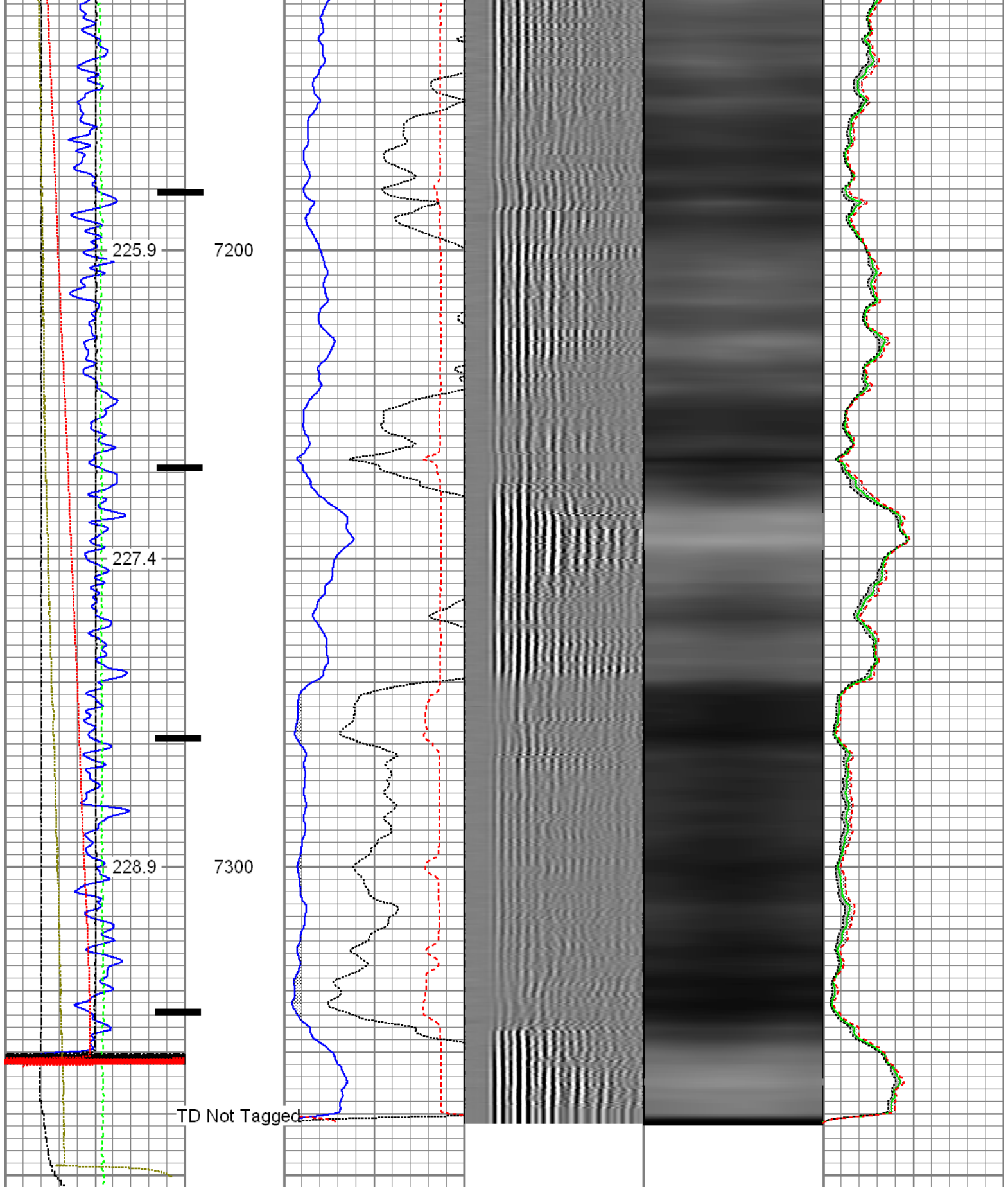













Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Casing Collar Locator	3' Amplitude x 5 0 (mV) 20			Minimum Amplitude 0 100
Line Speed -100 (ft/min) 100	3' Travel Time 650 (usec) 150			Maximum Amplitude 0 100
Line Tension				

Line Tension	0	(lb)	2000	650	(usec)	150	0	100
Differential Temperature	-2	(degF)	2					
-10 Deviation (°)	90							
Temperature	0	(degF)	20					

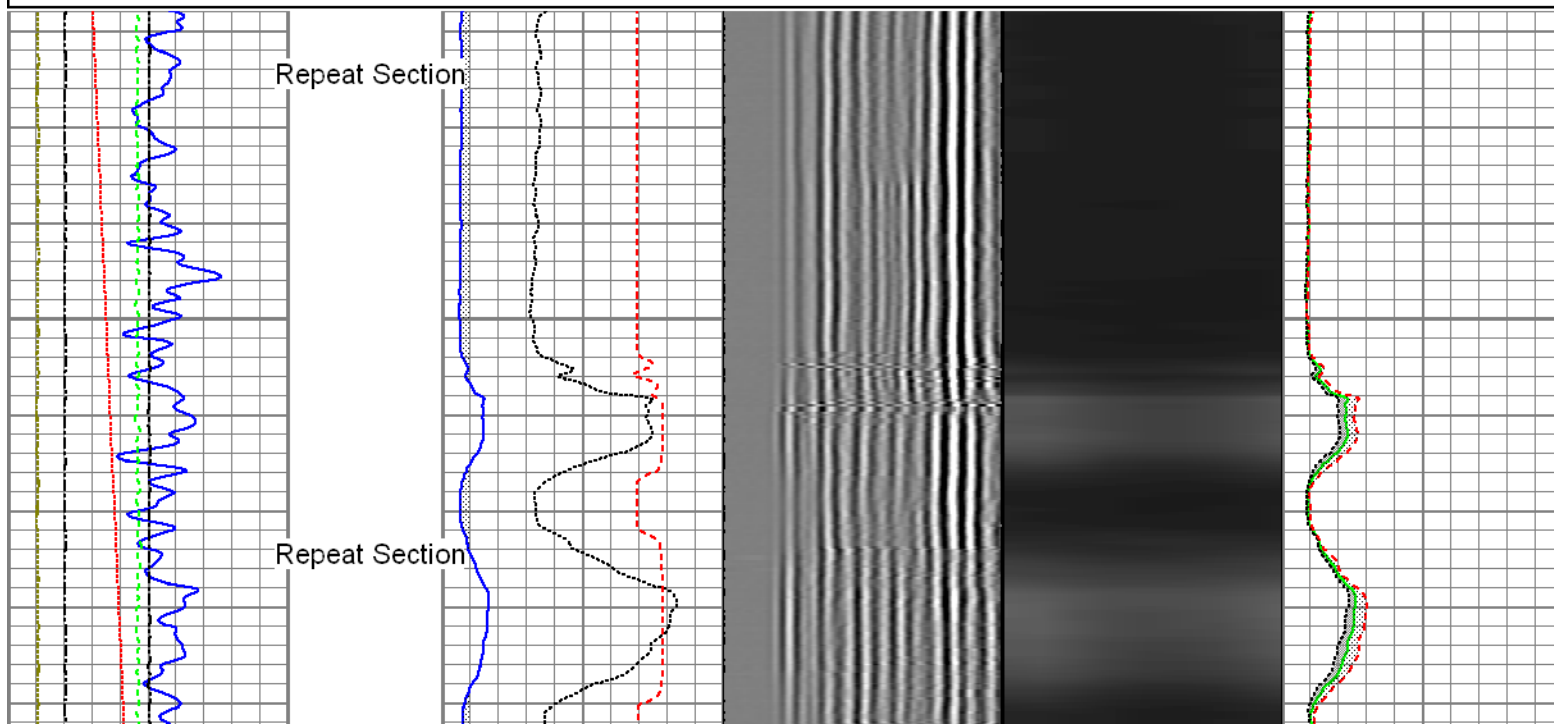


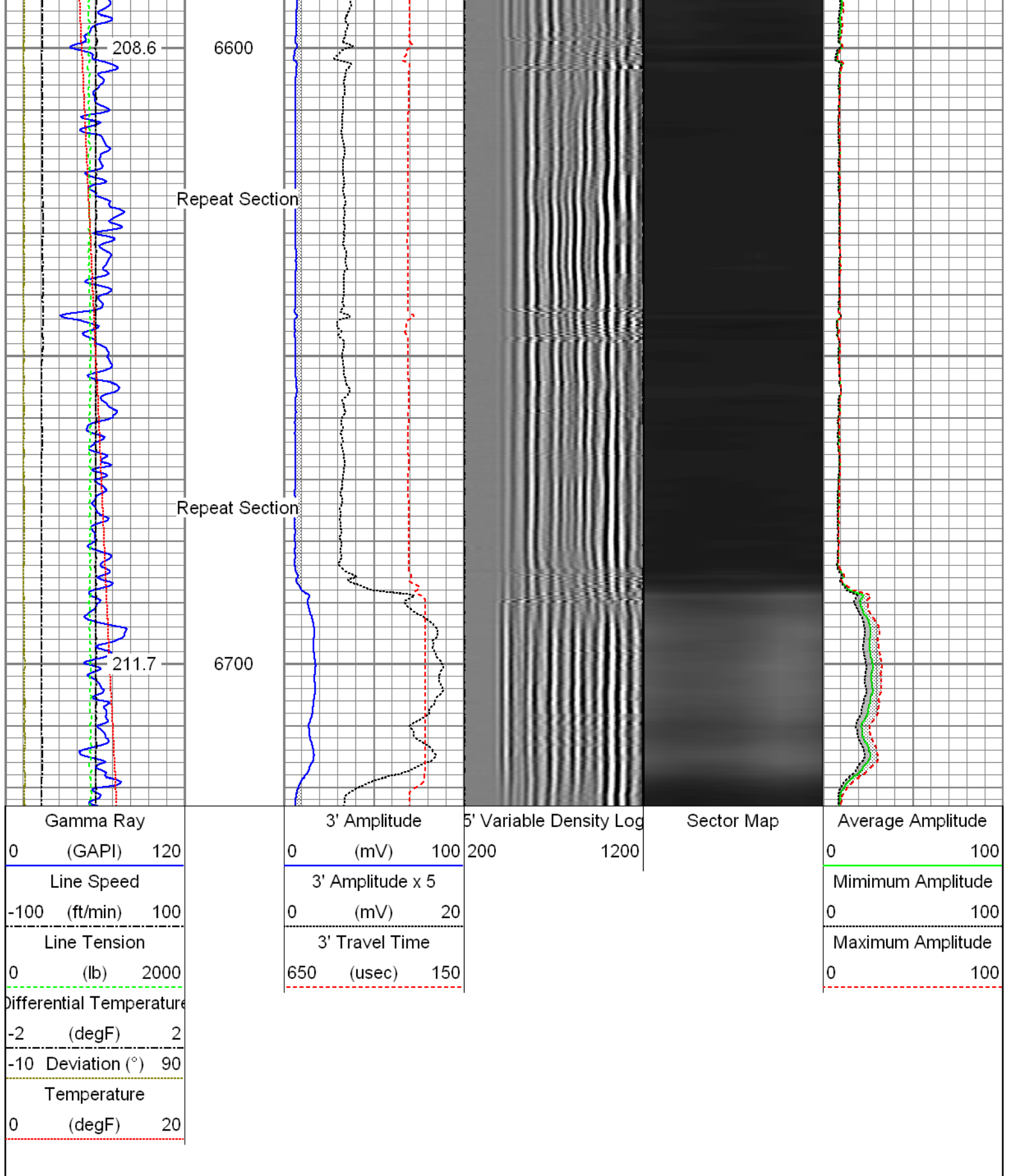
Repeat Pass


Recorded with 2800 PSI Surface Induced Pressure

Database File: 0512336449_anadarko_badger 22n-3hz_08-11-15_mit_rbl.db
 Dataset Pathname: pass4
 Presentation Format: rbt4_mit
 Dataset Creation: Tue Aug 11 14:21:09 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				
-10 Deviation (°) 90				
Temperature				
0 (degF) 20				





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			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
GR	25.46		UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.93	1.69	9.50
TEMP	24.07		UW_PRT-UW_PRT_016 (10025095) Platinum Resistance Thermometer	1.04	1.69	5.20
			UW_PRC #4 -DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CCL	20.27		UW_CCL-UW_CCL_028 (10009470) Ultrawire 3-1/8" CCL	1.61	3.13	36.00
WVFS3FT	15.42					
WVFS1	15.42		UW_RBT-UW_RBT_004 (10013454) 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					
WVFS5FT	14.42		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_042 (10012912) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC-UW_PRC_057 (1102) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 0512336449_Anadarko_Badger 22N-3HZ_08-11-15_MIT_RBL.db: field/well/run1/pass5 Total Length: 29.71 ft Total Weight: 360.50 lb O.D. 3.13 in						

Calibration Report	
Database File:	0512336449_anadarko_badger 22n-3hz_08-11-15_mit_rbl.db
Dataset Pathname:	pass5
Dataset Creation:	Tue Aug 11 14:35:21 2015 by Log 7.0 B1

Multi-finger Imaging Tool Calibration Report

Serial Number: 10012912
 Number of Fingers: 40
 Tool Model: UW_MIT40_042

Inclinometer Calibration Report

Performed: Mon Jul 15 09:39:36 2013
 Calibration Angle: 45

		Inc X	Inc Y
Vertical:		1968	1974
Finger 1 up:		1740	1744
Finger 31 up:		2215	1741
Finger 21 up:		2205	2224
Finger 11 up:		1731	2217
Sensitivity ratio:	0.992868		
X-axis angle:	134.307		
Deviation const.:	335.589		

Finger Calibration Report

Performed: Tue Aug 11 13:27:38 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1015	387.0	1402	388.0	1790	412.0	2202
Finger 02:	1155	398.0	1553	387.0	1940	409.0	2349
Finger 03:	1065	410.0	1475	405.0	1880	434.0	2314
Finger 04:	1064	389.0	1453	392.0	1845	425.0	2270
Finger 05:	1060	398.0	1458	397.0	1855	426.0	2281
Finger 06:	1069	399.0	1468	398.0	1866	422.0	2288
Finger 07:	1052	399.0	1451	400.0	1851	425.0	2276
Finger 08:	1080	392.0	1472	394.0	1866	421.0	2287
Finger 09:	1068	395.0	1463	393.0	1856	419.0	2275
Finger 10:	1074	395.0	1469	392.0	1861	417.0	2278
Finger 11:	1073	397.0	1470	390.0	1860	410.0	2270
Finger 12:	1077	397.0	1474	392.0	1866	415.0	2281
Finger 13:	1079	395.0	1474	385.0	1859	403.0	2262
Finger 14:	1066	403.0	1469	395.0	1864	414.0	2278
Finger 15:	1016	404.0	1420	405.0	1825	424.0	2249
Finger 16:	1030	404.0	1434	405.0	1839	424.0	2263
Finger 17:	940	384.0	1324	389.0	1713	421.0	2134
Finger 18:	1084	398.0	1482	389.0	1871	401.0	2272
Finger 19:	1040	398.0	1438	393.0	1831	408.0	2239
Finger 20:	1030	404.0	1434	405.0	1839	422.0	2261
Finger 21:	1037	416.0	1453	405.0	1858	402.0	2260
Finger 22:	1008	408.0	1416	403.0	1819	418.0	2237
Finger 23:	966	410.0	1376	410.0	1786	431.0	2217
Finger 24:	1033	407.0	1440	390.0	1830	393.0	2223
Finger 25:	969	416.0	1385	404.0	1789	424.0	2213
Finger 26:	1112	405.0	1517	377.0	1894	387.0	2281
Finger 27:	1045	410.0	1455	398.0	1853	405.0	2258
Finger 28:	1058	397.0	1455	383.0	1838	397.0	2235
Finger 29:	993	405.0	1398	403.0	1801	419.0	2220
Finger 30:	1048	411.0	1459	395.0	1854	412.0	2266
Finger 31:	1057	398.0	1455	392.0	1847	404.0	2251
Finger 32:	1026	407.0	1433	412.0	1845	417.0	2262
Finger 33:	1115	400.0	1515	378.0	1893	387.0	2280
Finger 34:	1077	394.0	1471	390.0	1861	407.0	2268
Finger 35:	1010	411.0	1421	414.0	1835	436.0	2271
Finger 36:	1029	401.0	1430	401.0	1831	425.0	2256
Finger 37:	1084	400.0	1484	393.0	1877	412.0	2289
Finger 38:	1107	397.0	1504	388.0	1892	403.0	2295
Finger 39:	1105	389.0	1494	384.0	1878	404.0	2282
Finger 40:	1054	396.0	1450	396.0	1846	423.0	2269

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454
Tool Model: UW_RBT_004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 2.304 ft

Master Calibration, performed Tue Aug 11 13:29:30 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.001	1.002	0.800	62.165	61.185	0.849
5FT	-0.003	0.990	0.800	62.165	61.773	1.013
S1	-0.000	1.002	0.000	100.000	99.790	0.021
S2	-0.002	1.002	0.000	100.000	99.547	0.237
S3	-0.002	1.007	0.000	100.000	99.134	0.201
S4	-0.002	1.007	0.000	100.000	99.051	0.242
S5	-0.001	1.009	0.000	100.000	98.942	0.121
S6	-0.002	1.009	0.000	100.000	98.843	0.241
S7	-0.001	0.998	0.000	100.000	100.098	0.122
S8	-0.001	1.000	0.000	100.000	99.903	0.122

Temperature Calibration Report

Serial Number: 10025095
Tool Model: UW_PRT_016
Performed: Wed Feb 11 13:43:20 2015

Point #	Reading	Reference
1	12798.00 cps	68.00 degF
2	18136.00 cps	104.00 degF
3	29513.00 cps	176.00 degF
4	40905.00 cps	248.00 degF
5	52487.00 cps	320.00 degF
6	58362.00 cps	356.00 degF
7		degF
8		degF
9		degF
10		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 Badger 22N-3HZ
Field Wattenberg
County Weld

	County	Frank
	State	Colorado