



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Noble Energy Inc		Company Noble Energy Inc	
Well Douglas LC35-770		Well Douglas LC35-770	
Field Wildcat		Field Wildcat	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API #: 05-123-40660	
SEC 26 TWP 9N RGE 59W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
		Elevation 4812'	
		Elevation	
		K.B. 4836'	
		D.F. 4835'	
		G.L. 4812'	
Date		16-Jan-2016	
Run Number		One	
Depth Driller		10315 FT	
Depth Logger		6142 FT	
Bottom Logged Interval		6137 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		216°F	
Estimated Cement Top		134 FT	
Time Well Ready		ROA	
Time Logger on Bottom		1015	
Equipment Number		HD-0361	
Location		Fort Lupton, CO	
Recorded By		Jack Amidei	
Witnessed By		Bill Mansfield	
Borehole Record			
Tubing Record			
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lbs/ft)	
Intermediate #1		Grade	
Intermediate #2		Top	
Liner		Bottom	
4 1/2		11.6	
P-110 IC		6152 FT	
		10305 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 Kelly Bushing at 24 FT
Adjusted +2 FT to correlate with Kelly Bushing
Recorded Marker Joint from 5006.5 FT
Log ran from 6142 FT to surface
Recorded with 2500 PSI surface induced pressure
No debris found on logging tools upon completion of operations

Thank you for choosing FMC Technologies Surface Integrated Services.

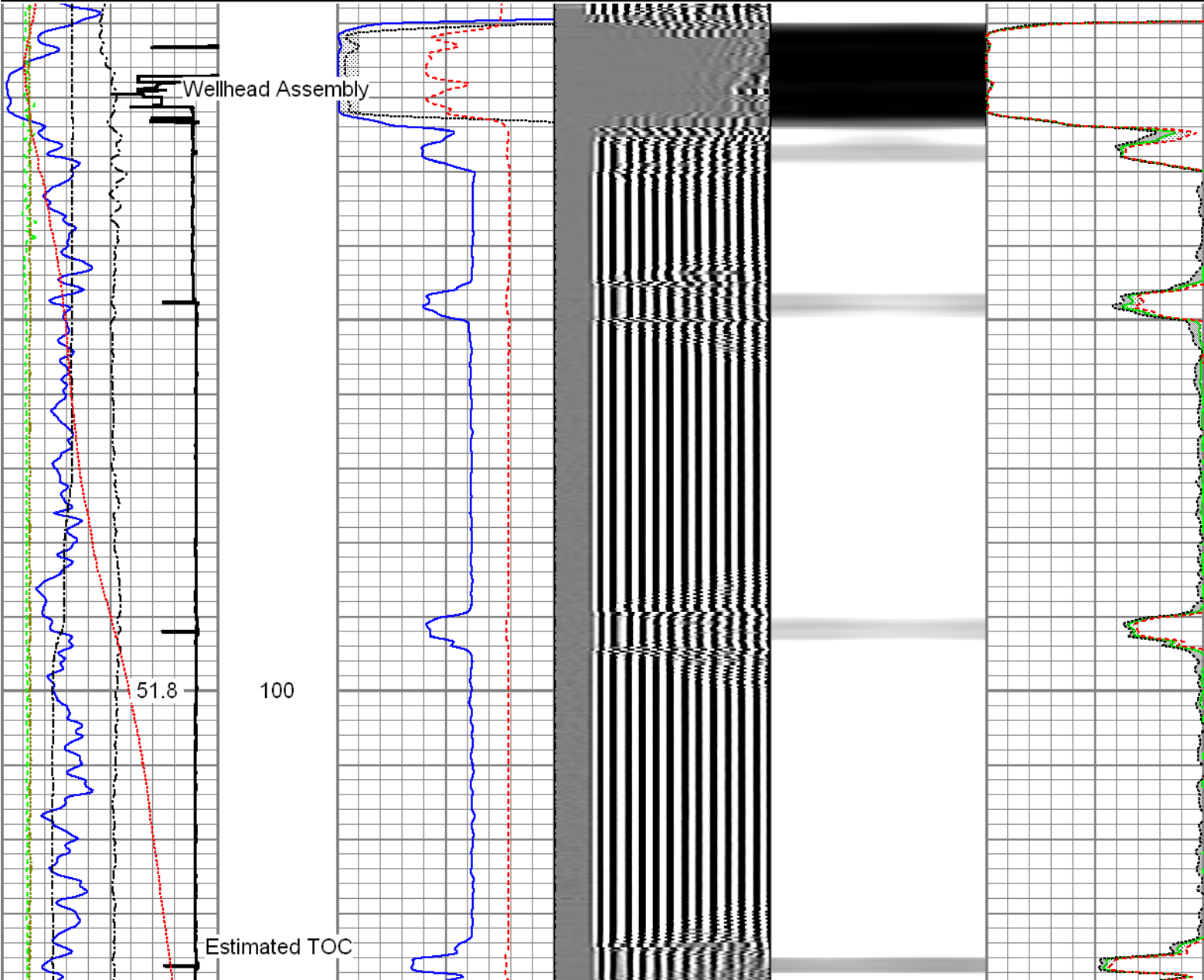


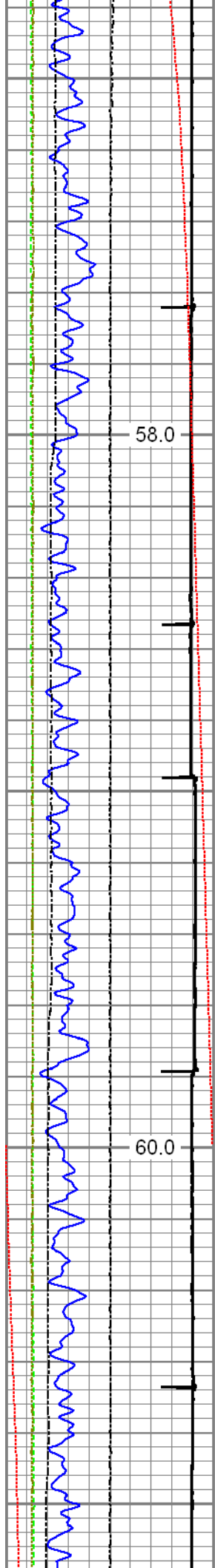
Main Pass

Recorded With 2500 PSI Surface Induced Pressure

Database File: 01-16-16_noble energy_douglas lc35-770_rbl.db
Dataset Pathname: pass11.1
Presentation Format: rbt4_mit
Dataset Creation: Tue Jan 19 08:45:04 2016 by Calc SCH 120430
Charted by: Depth in Feet scaled 1:240

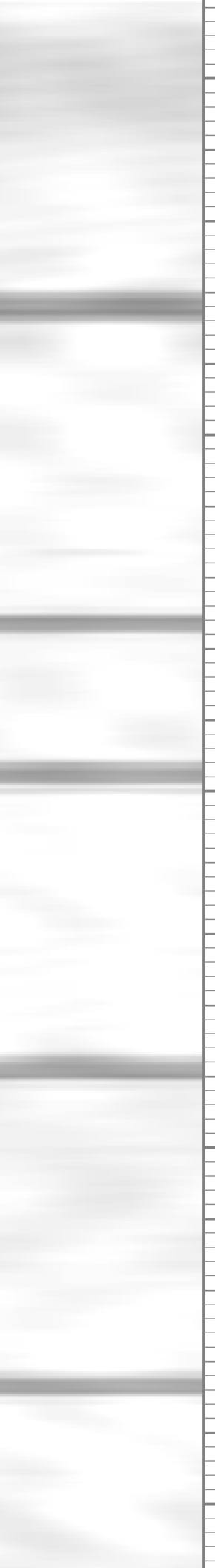
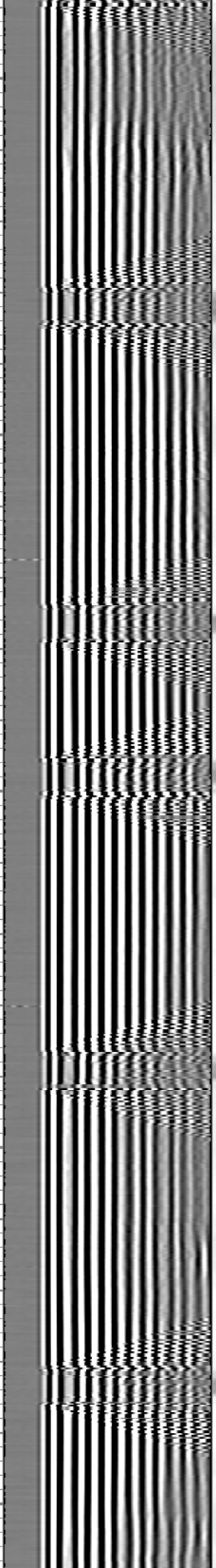
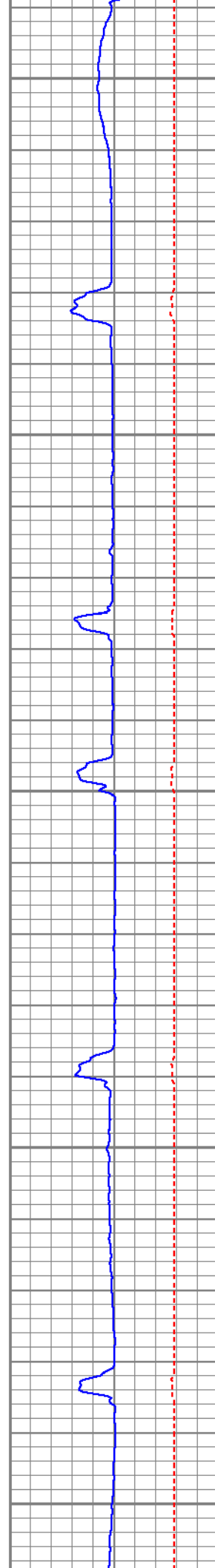
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

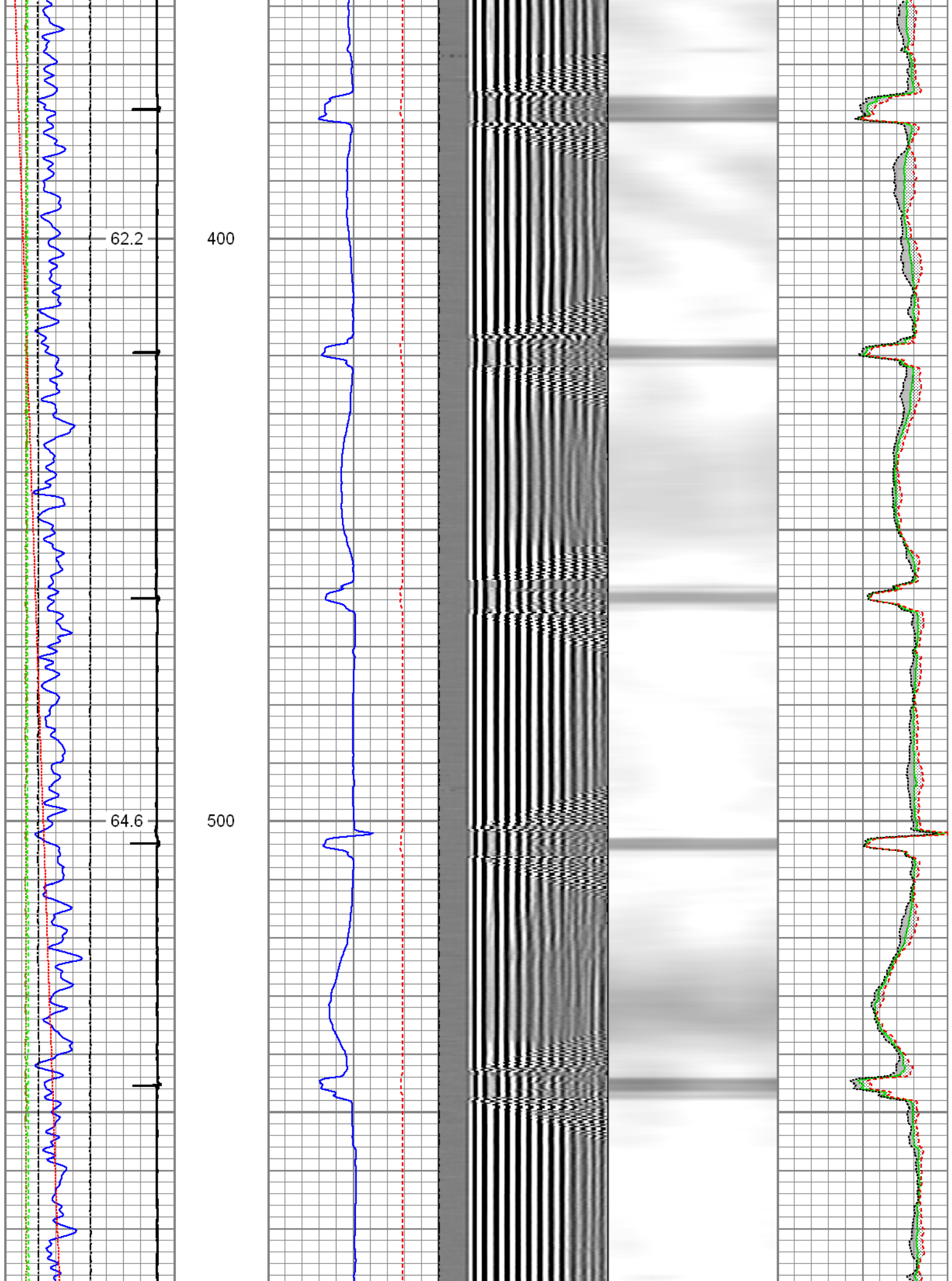


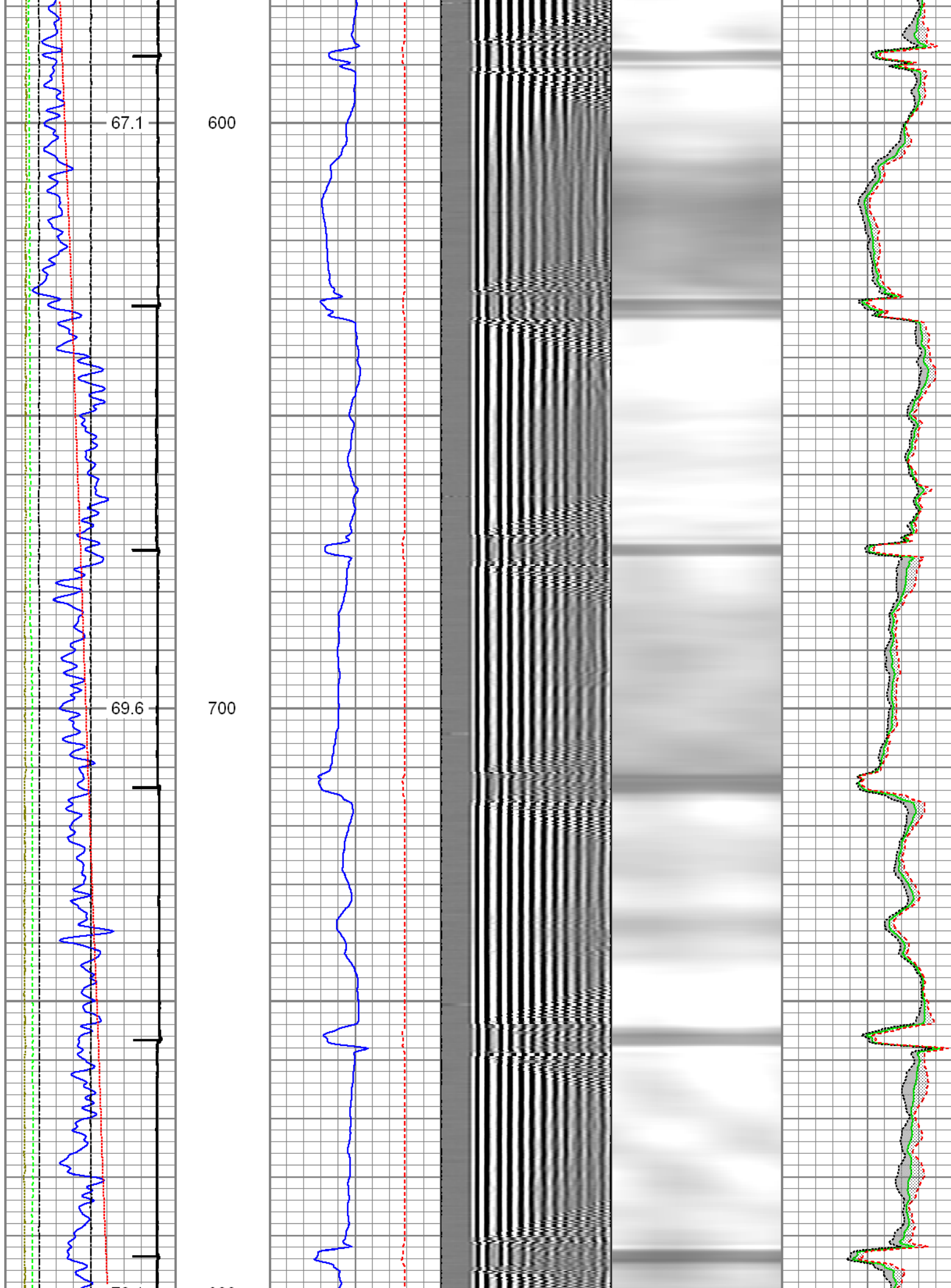


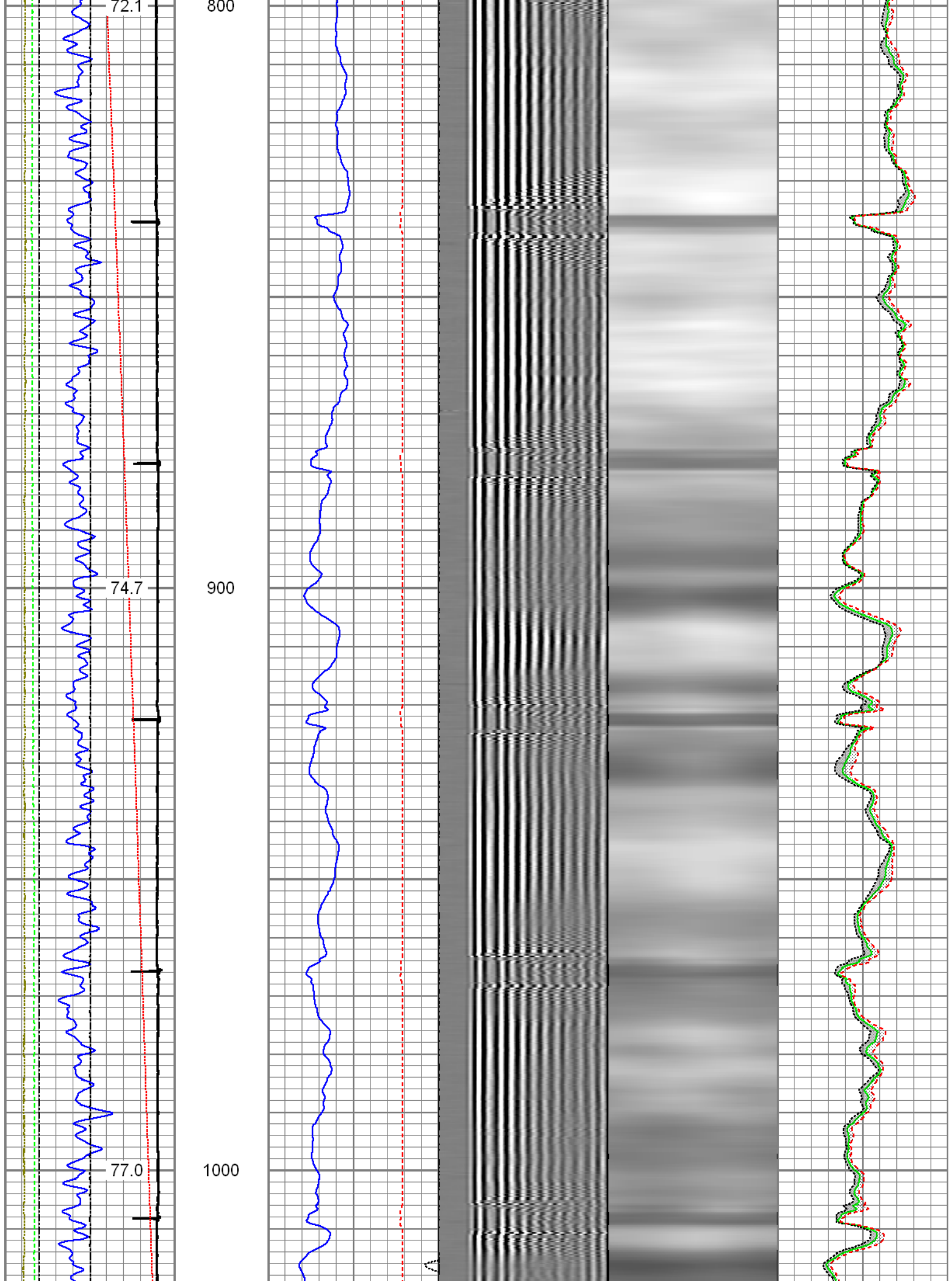
200

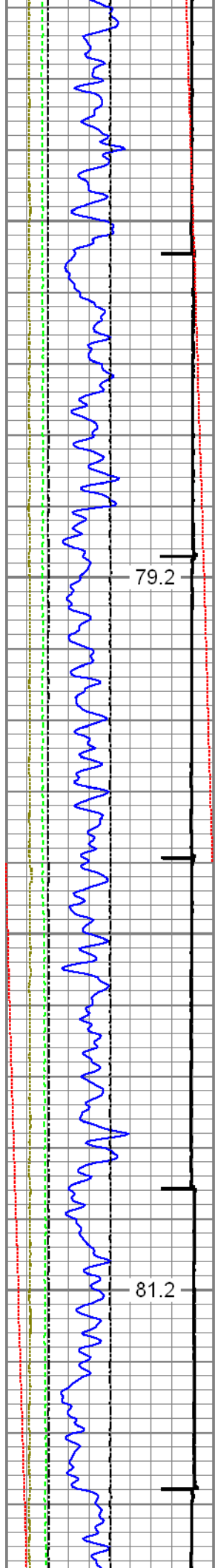
300





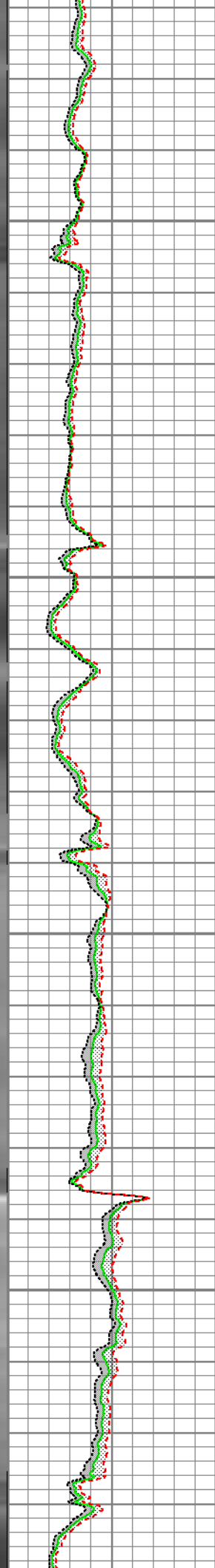
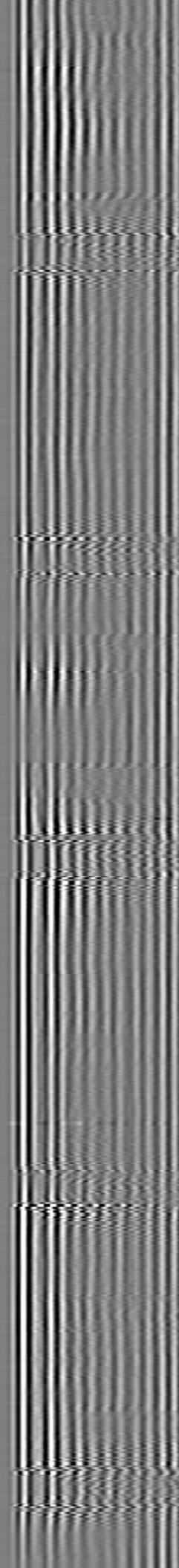
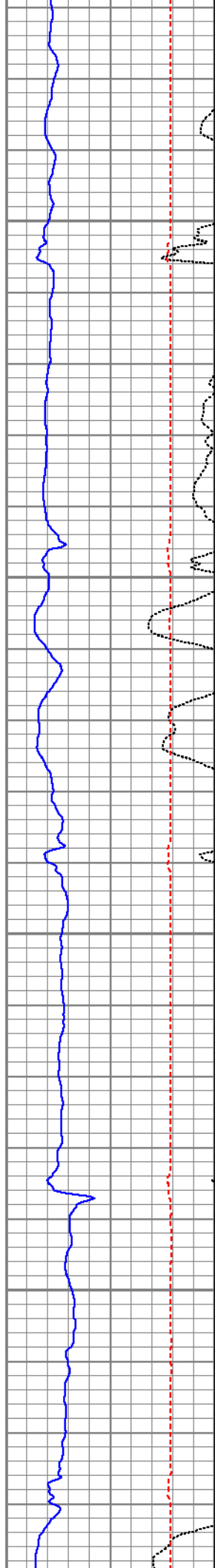


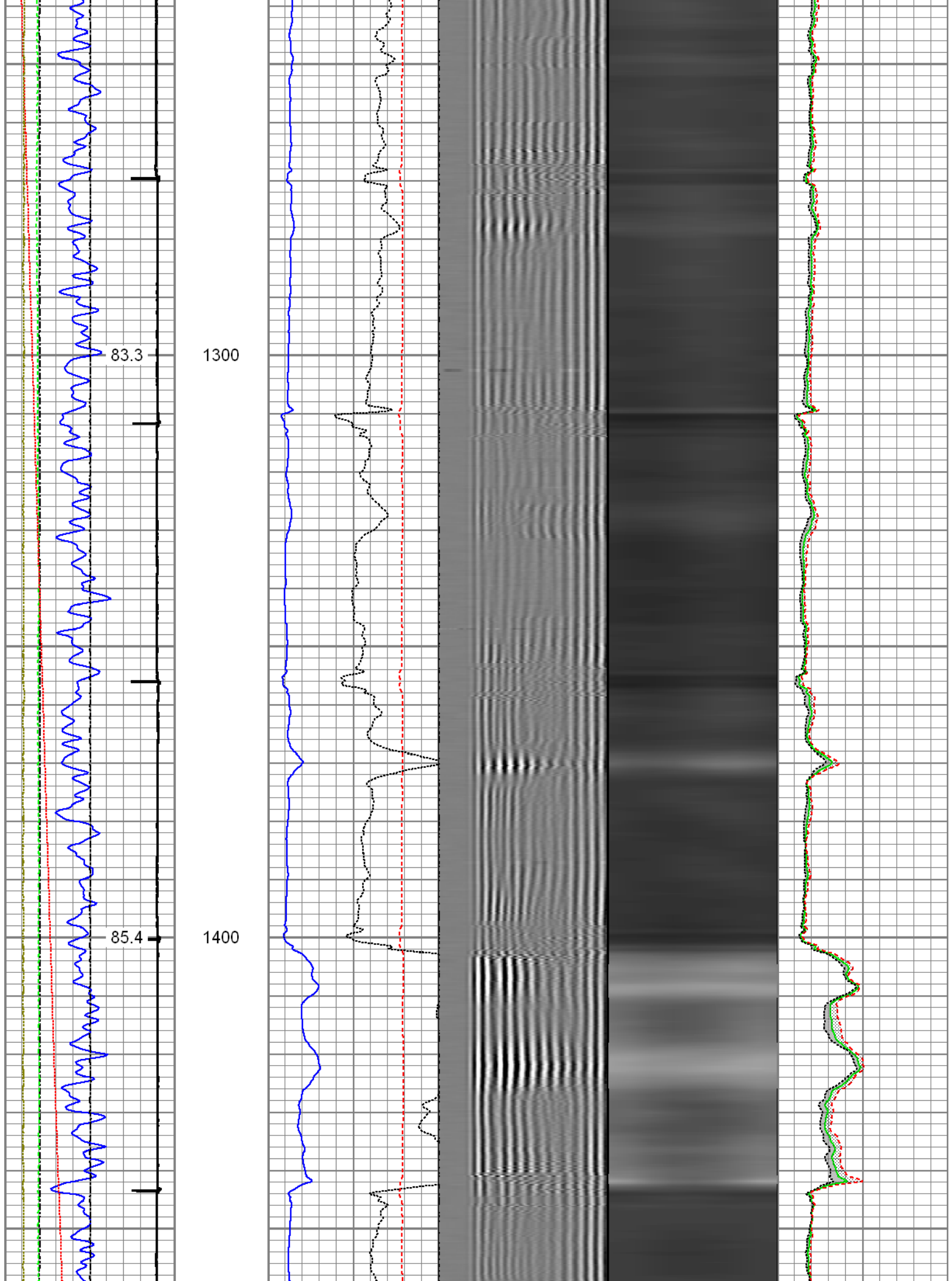


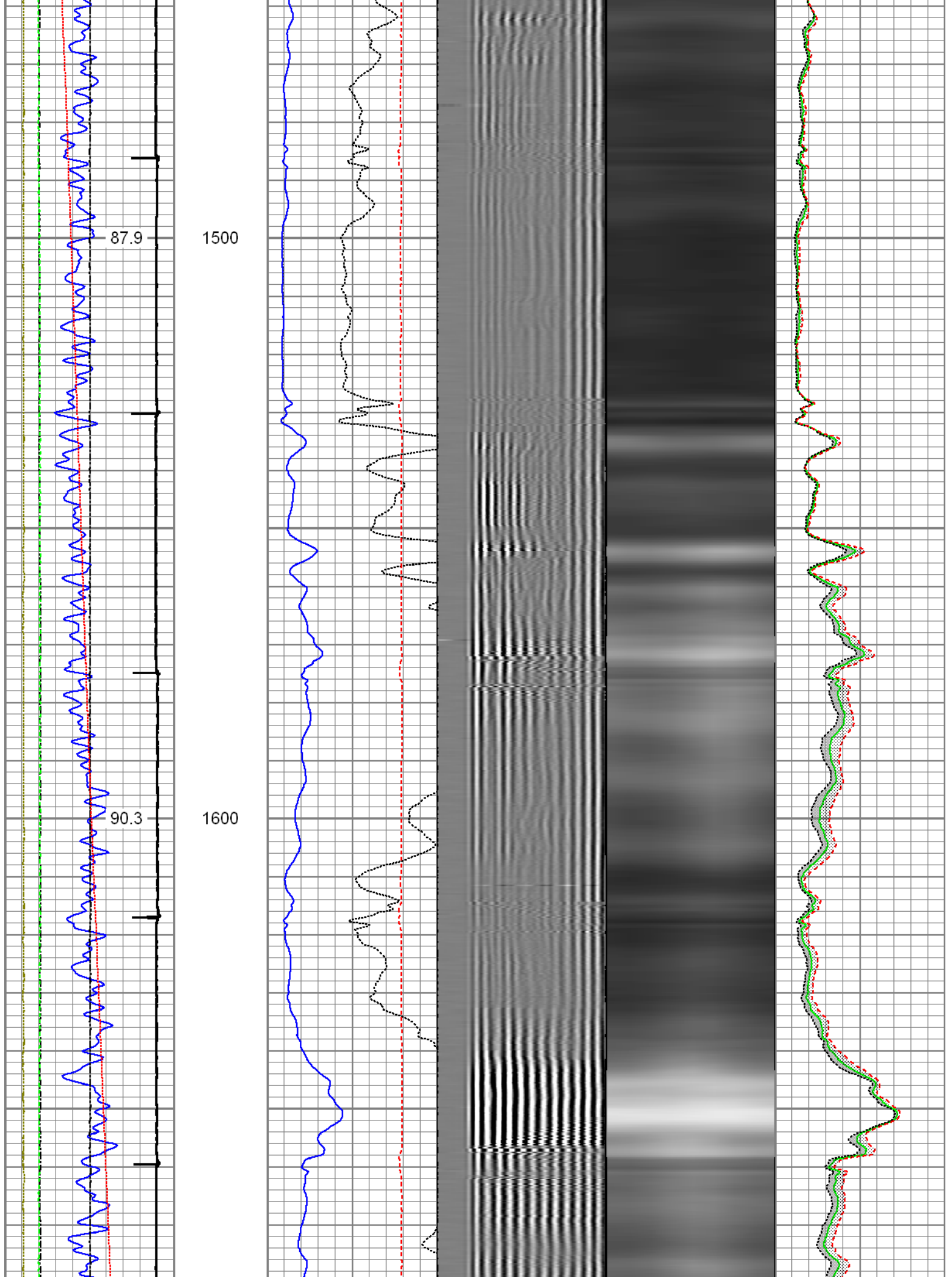


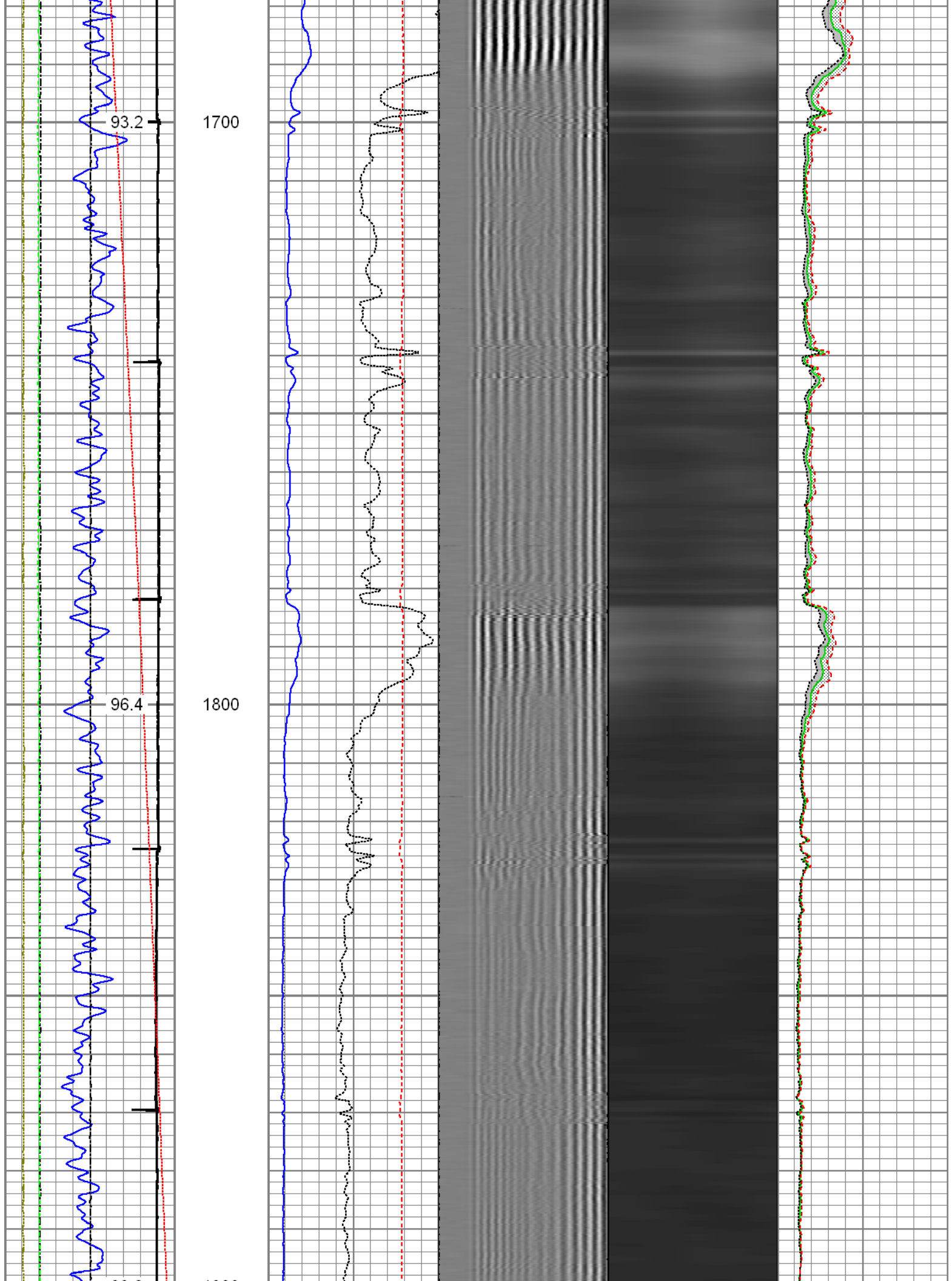
1100

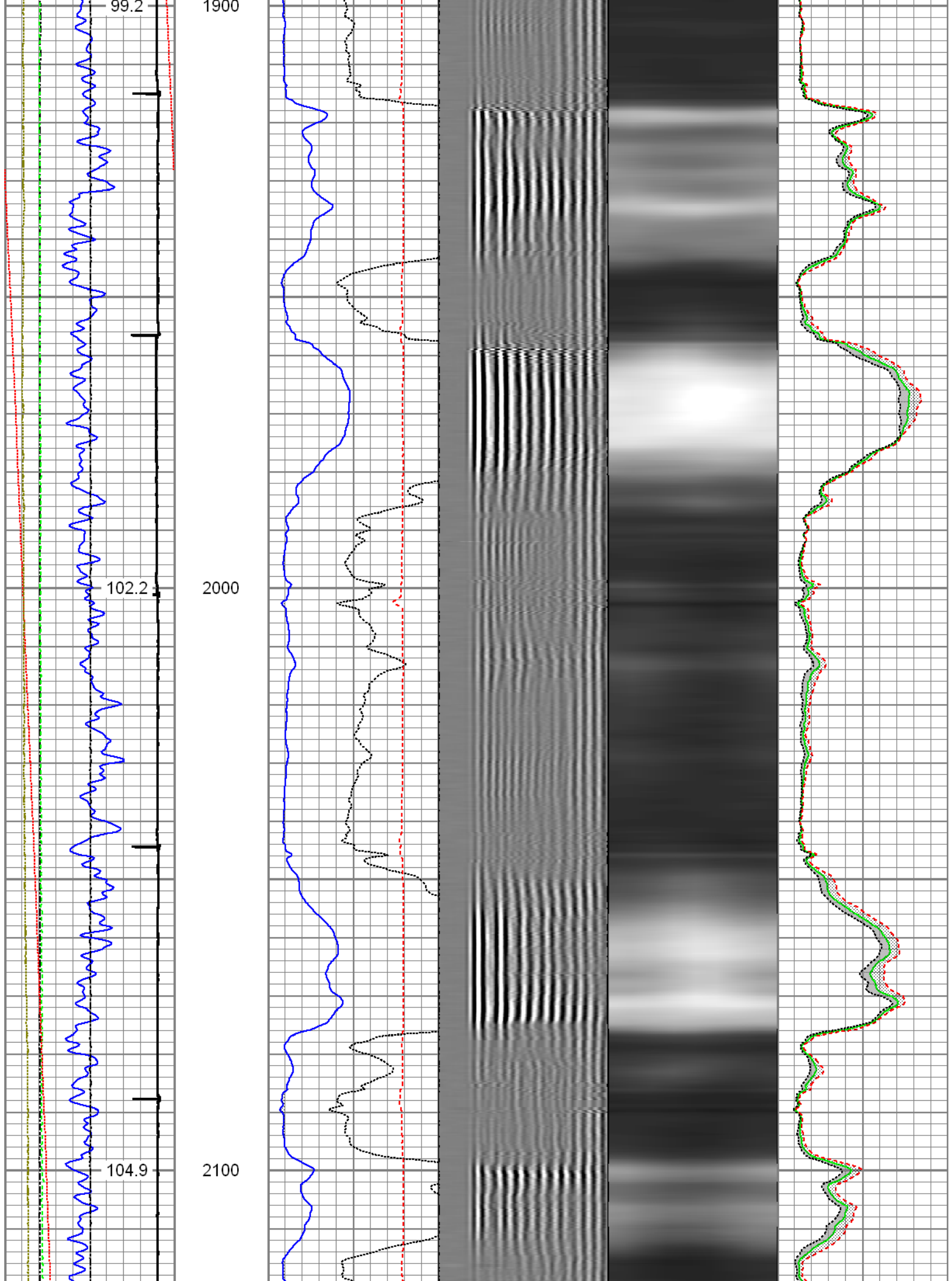
1200

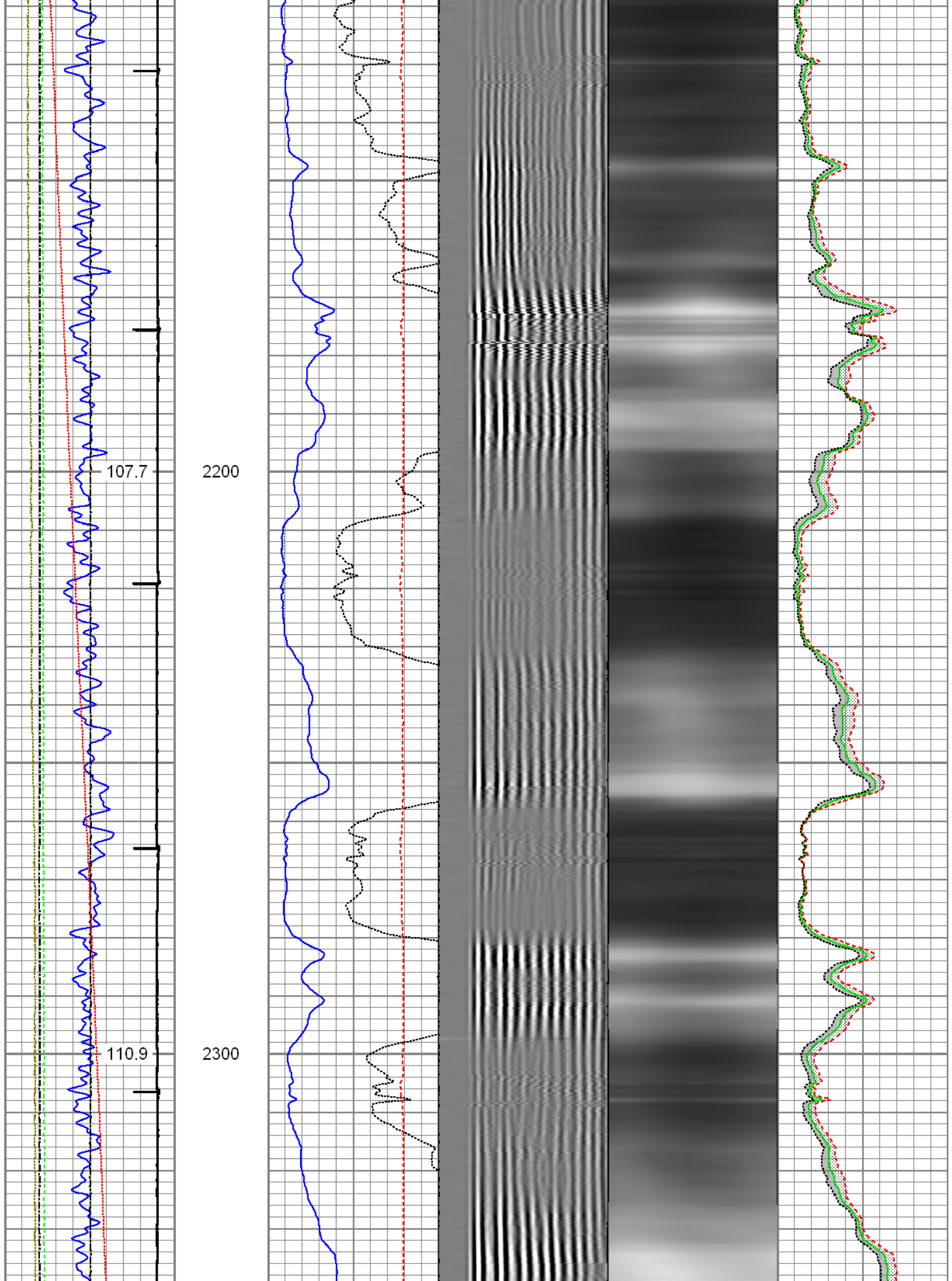


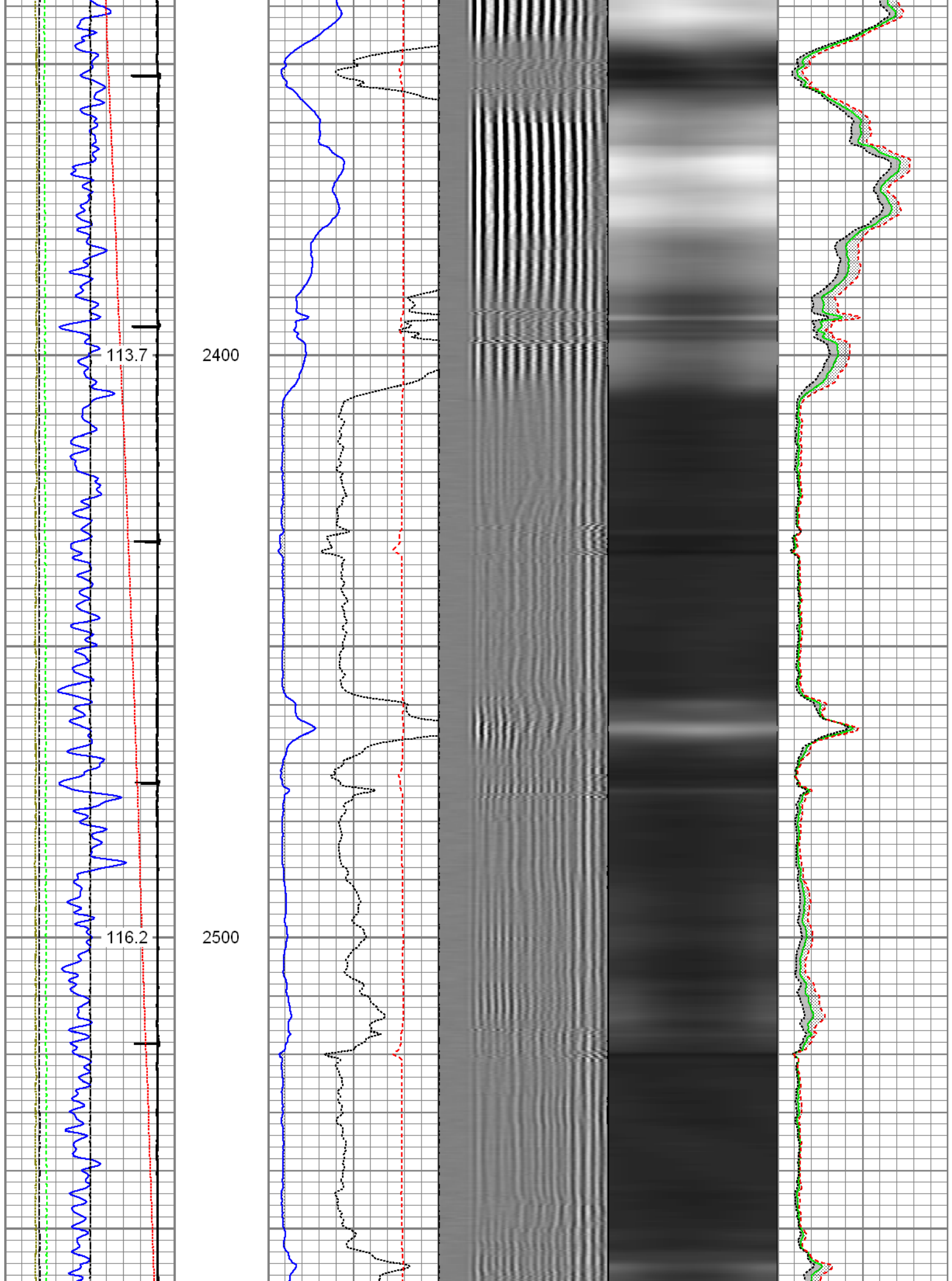


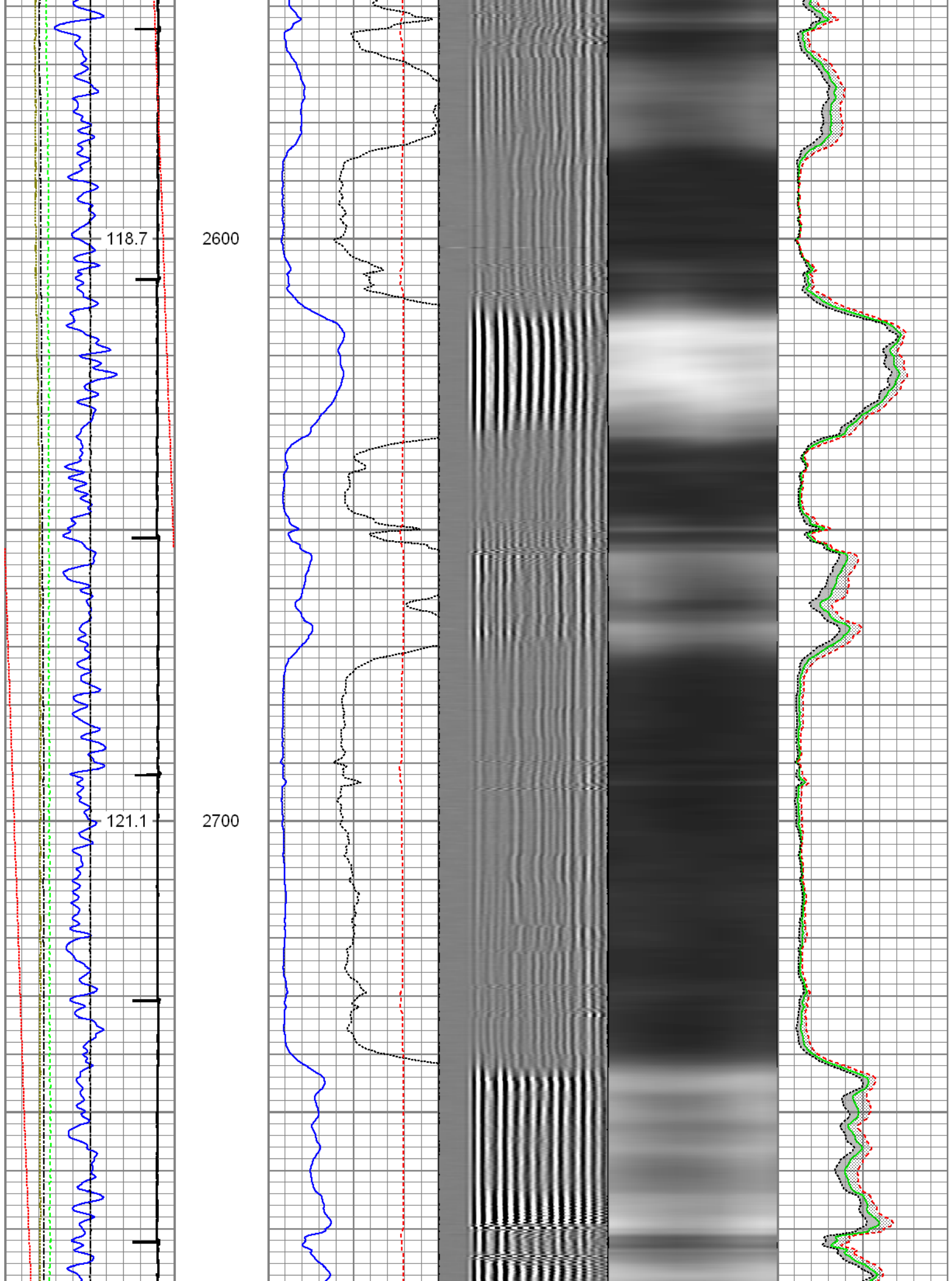


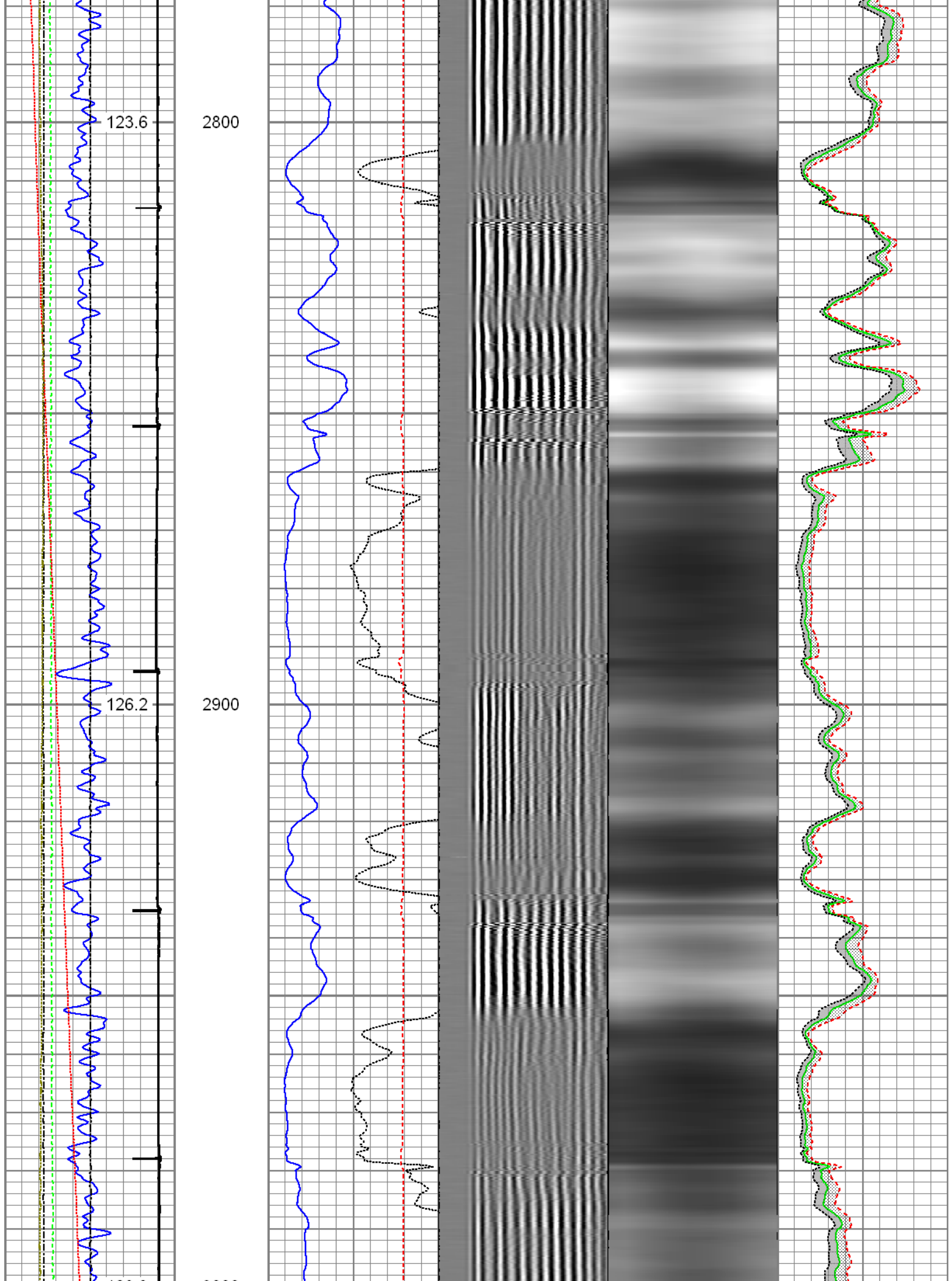


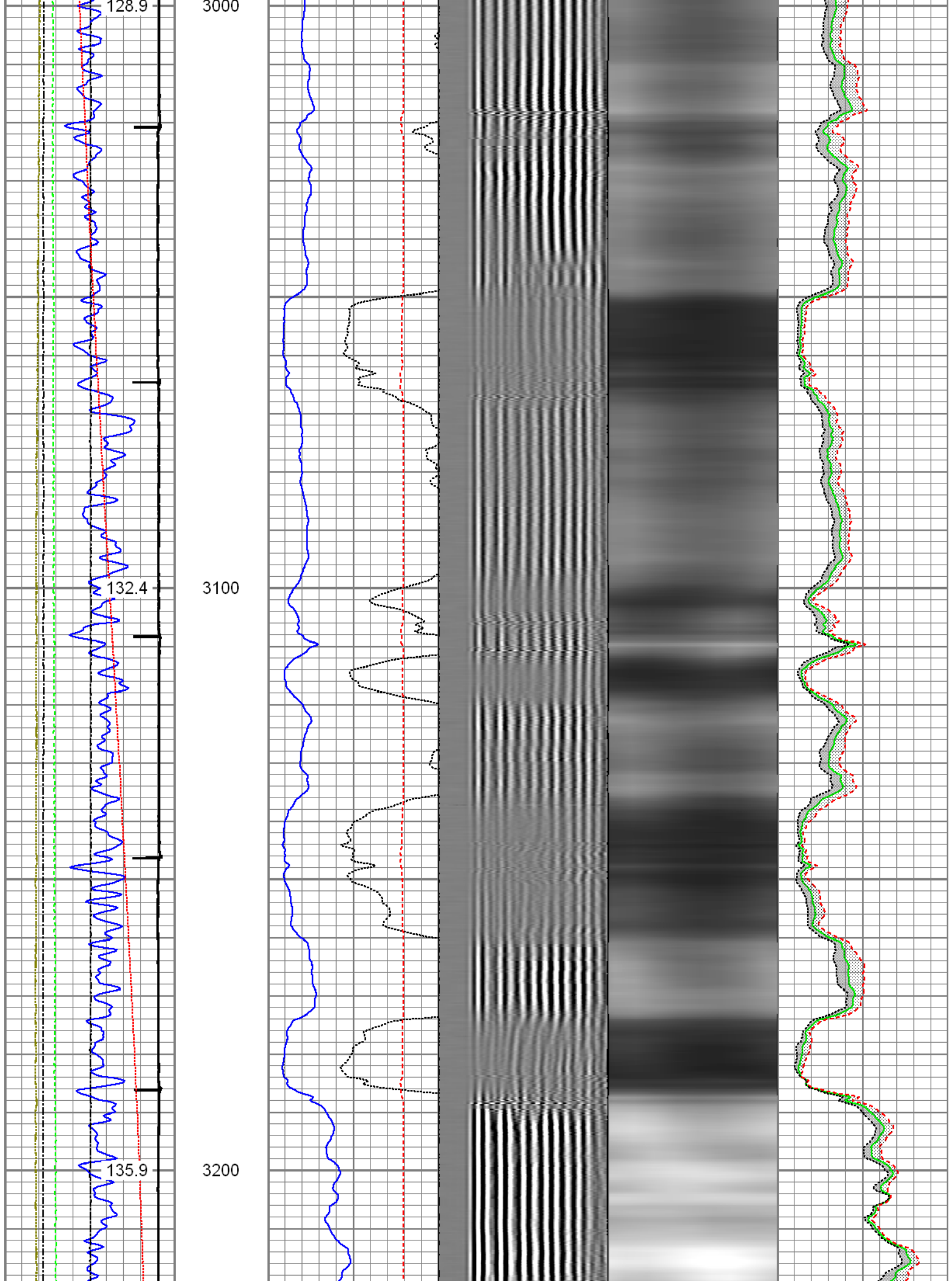


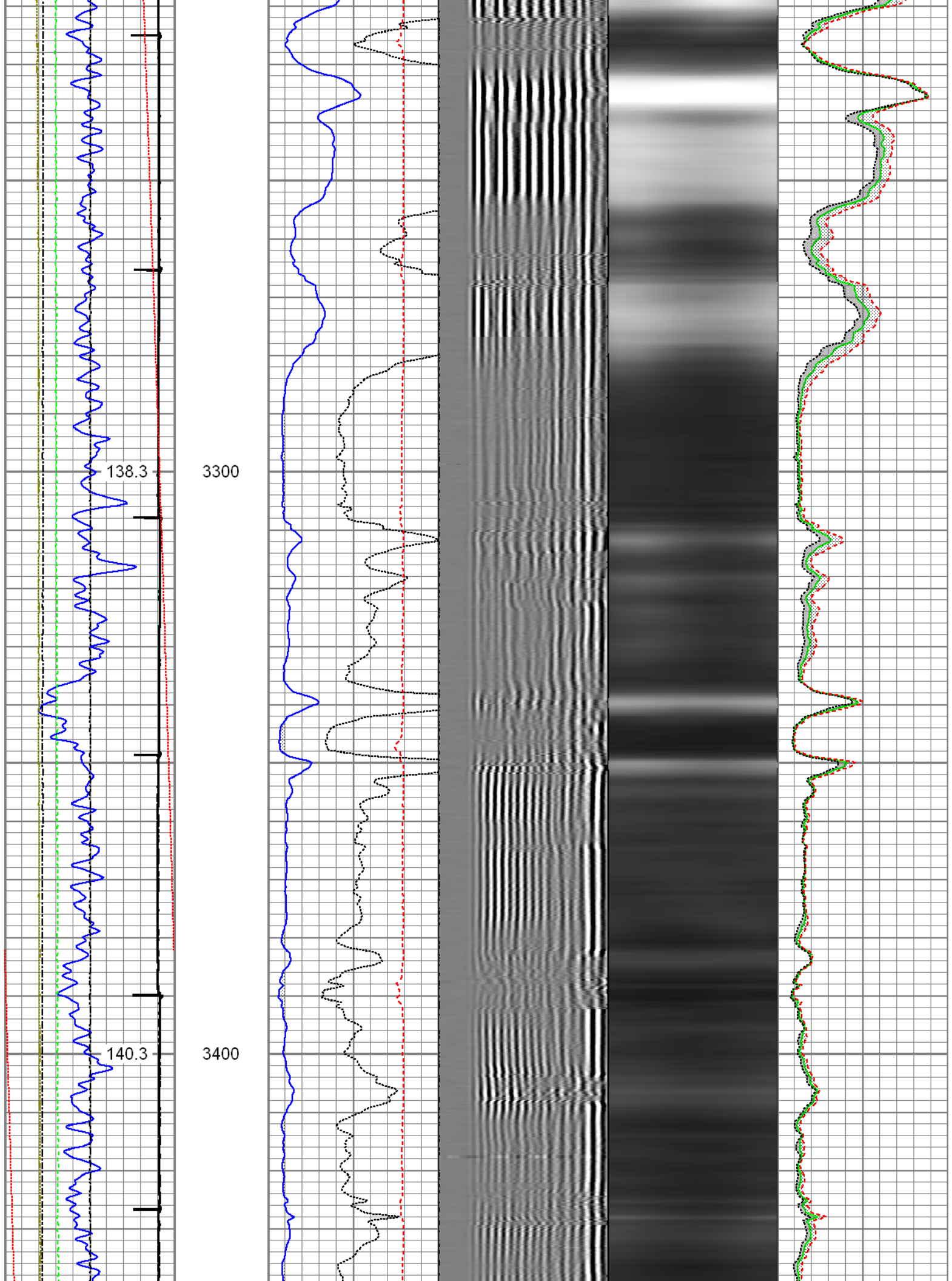


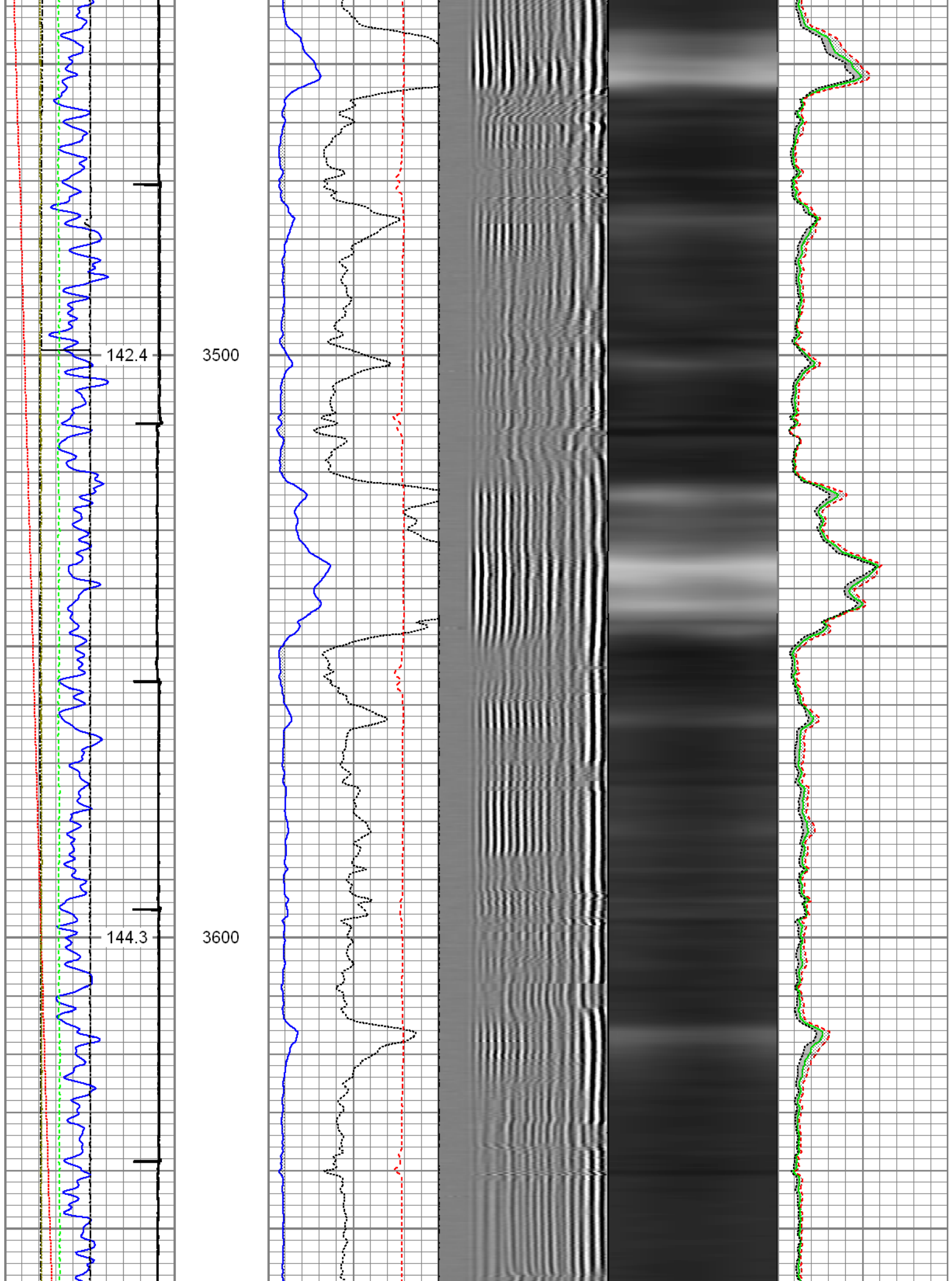


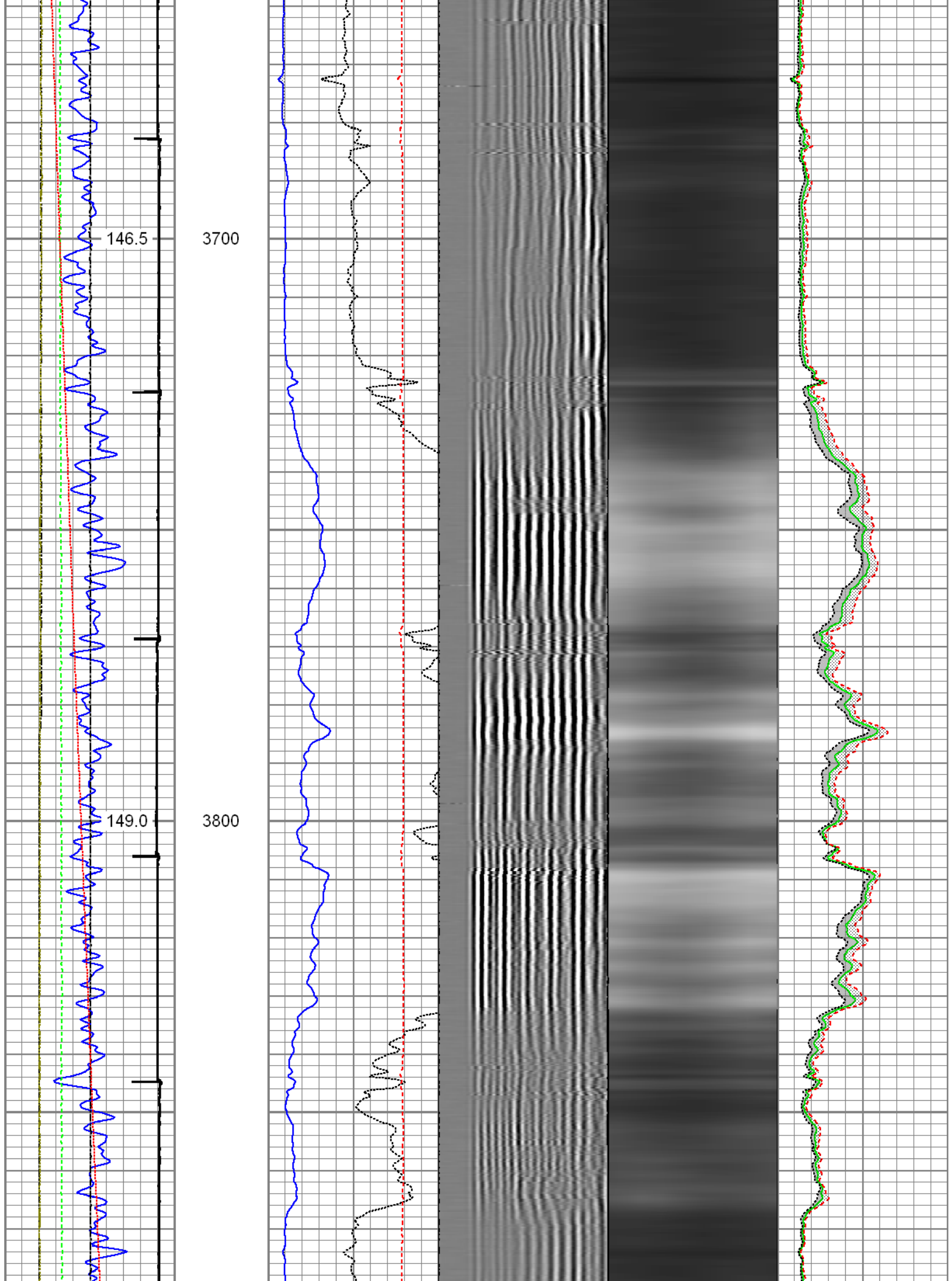


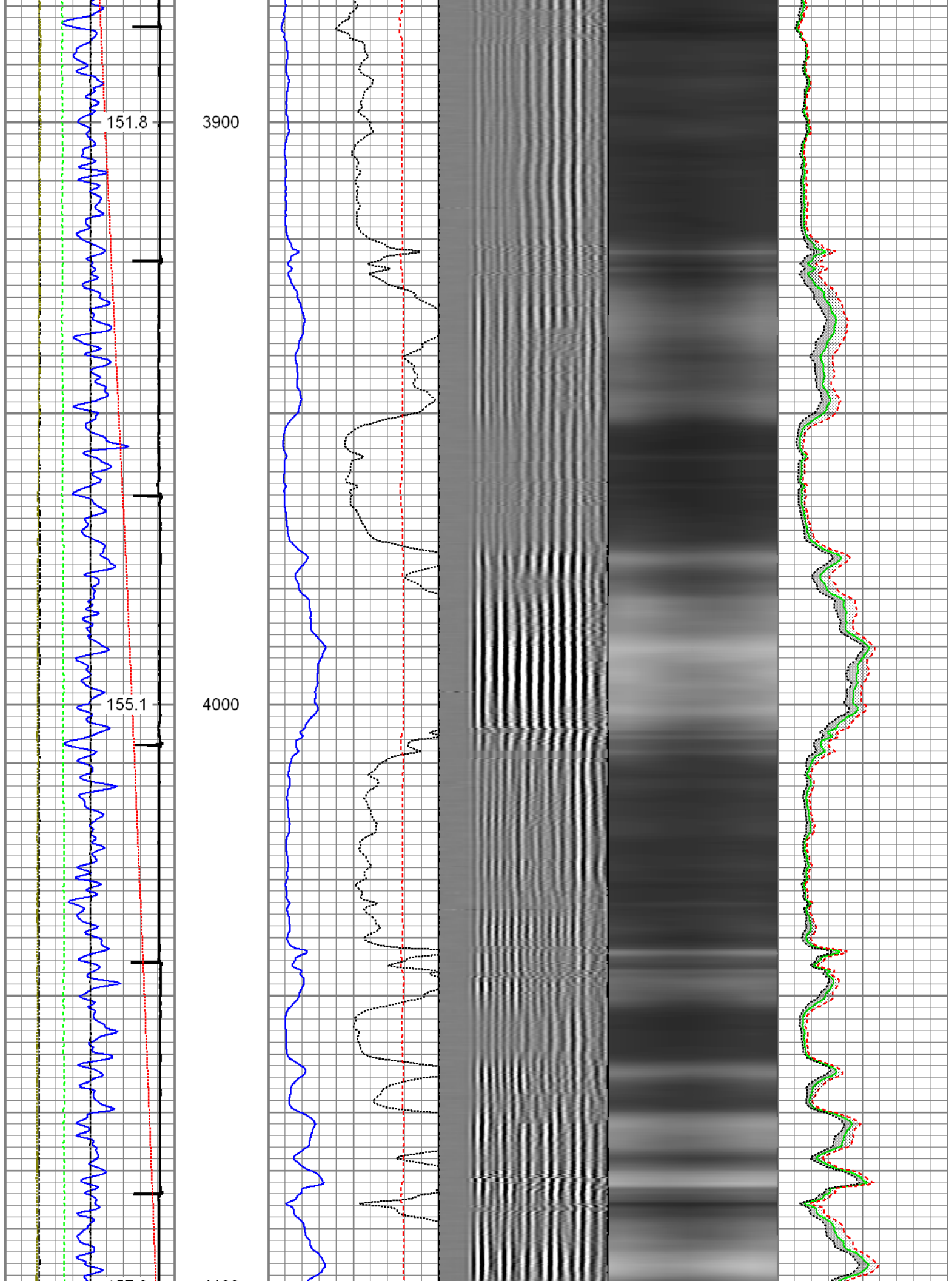


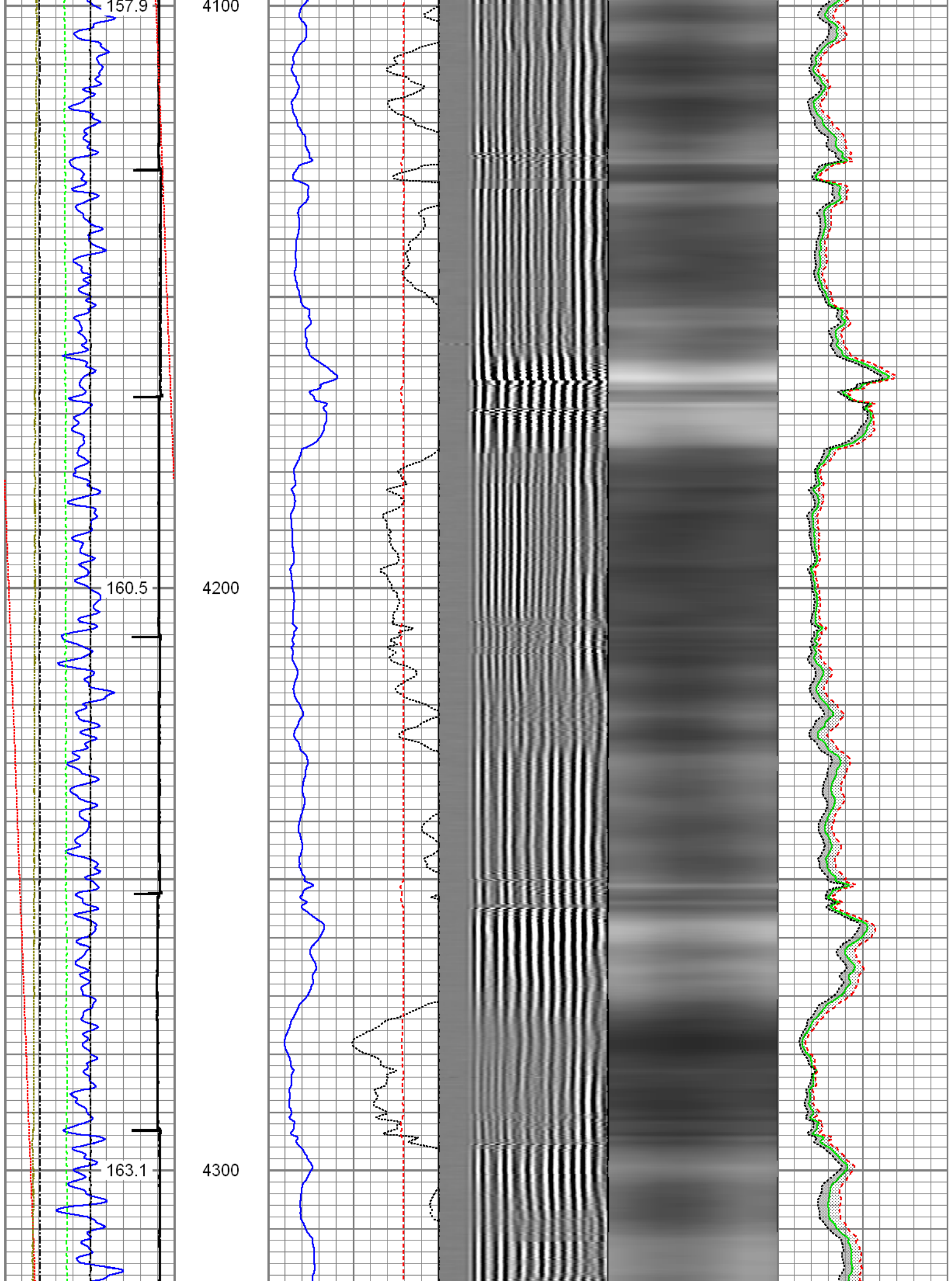


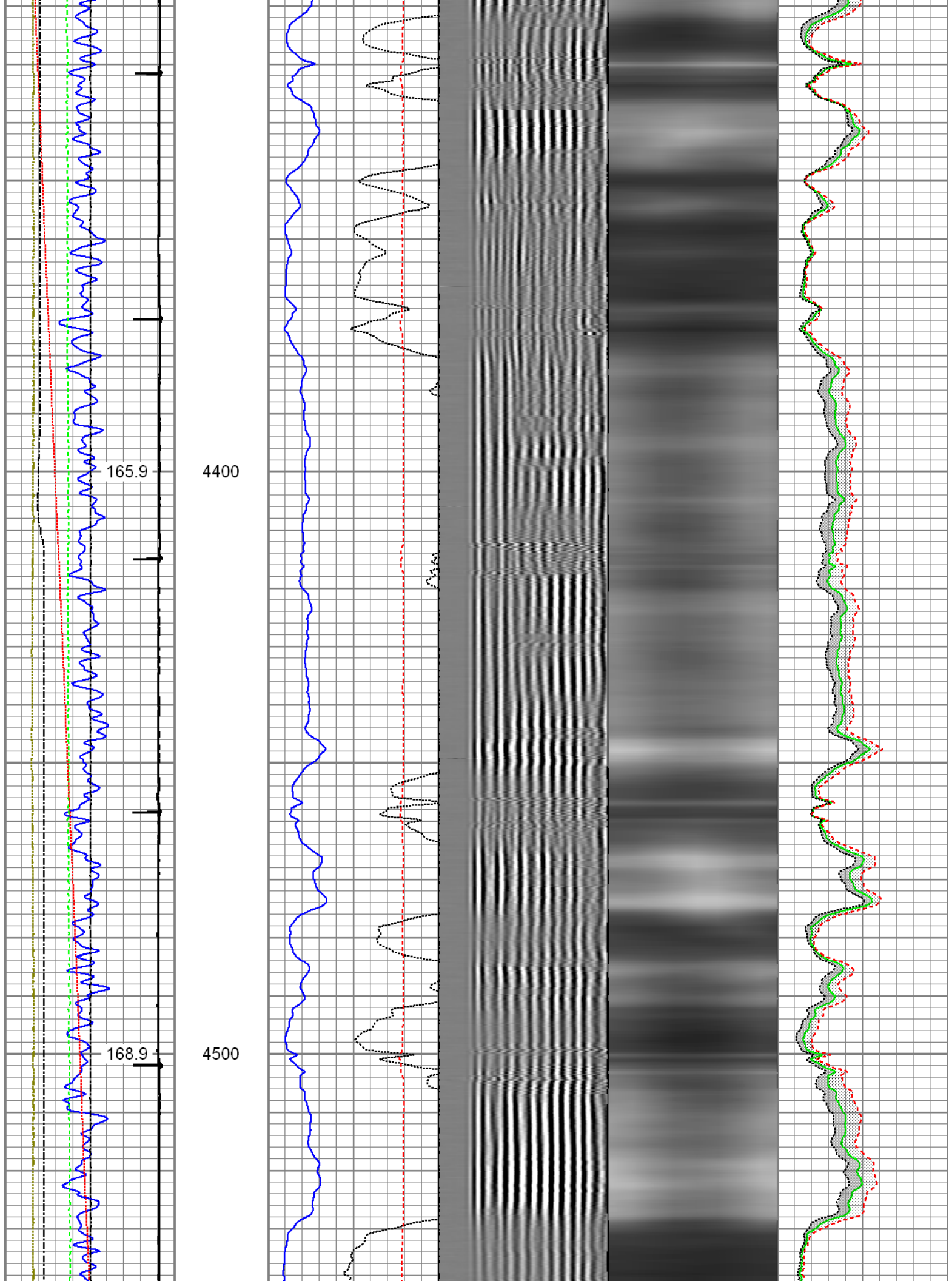


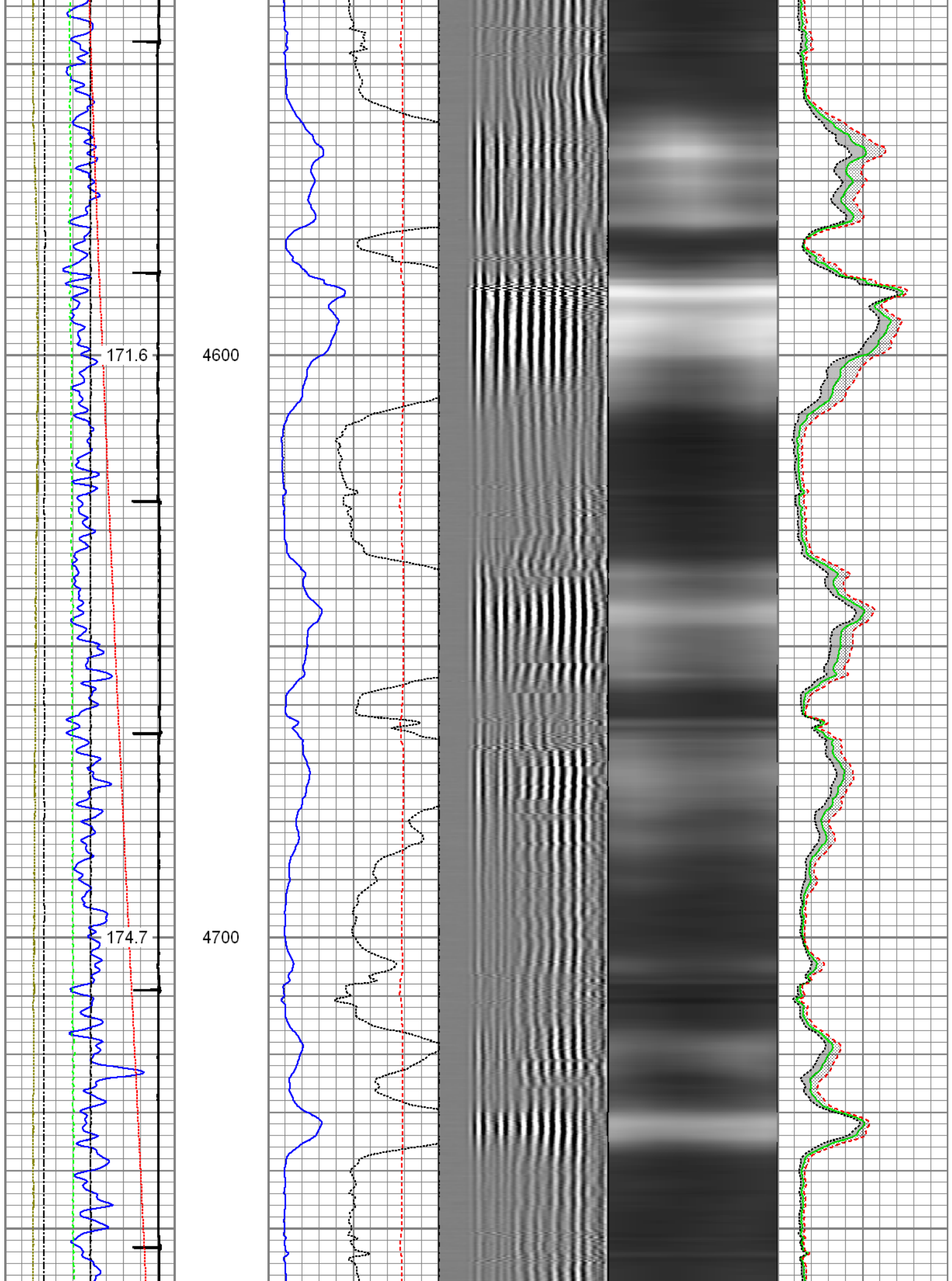


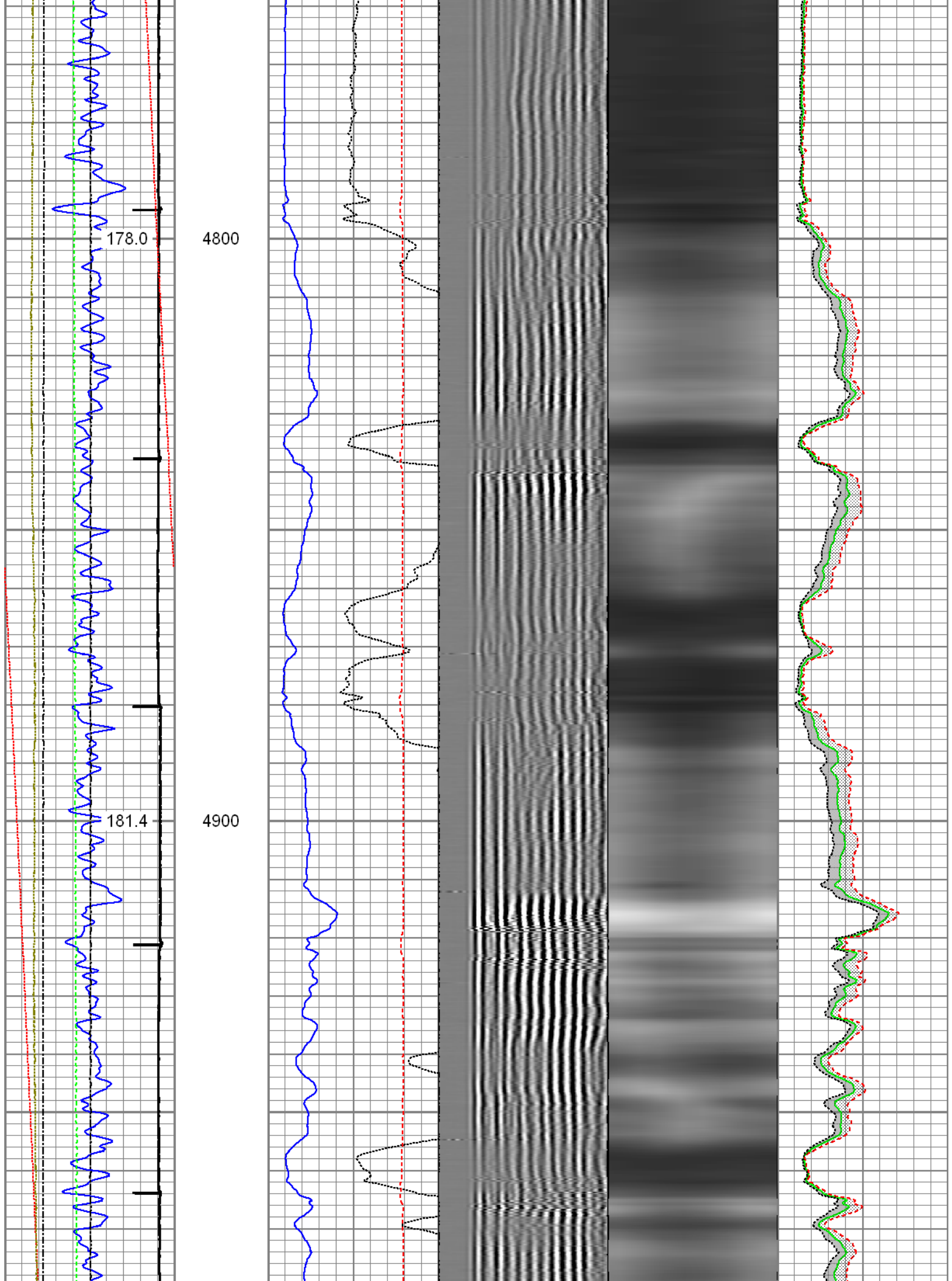


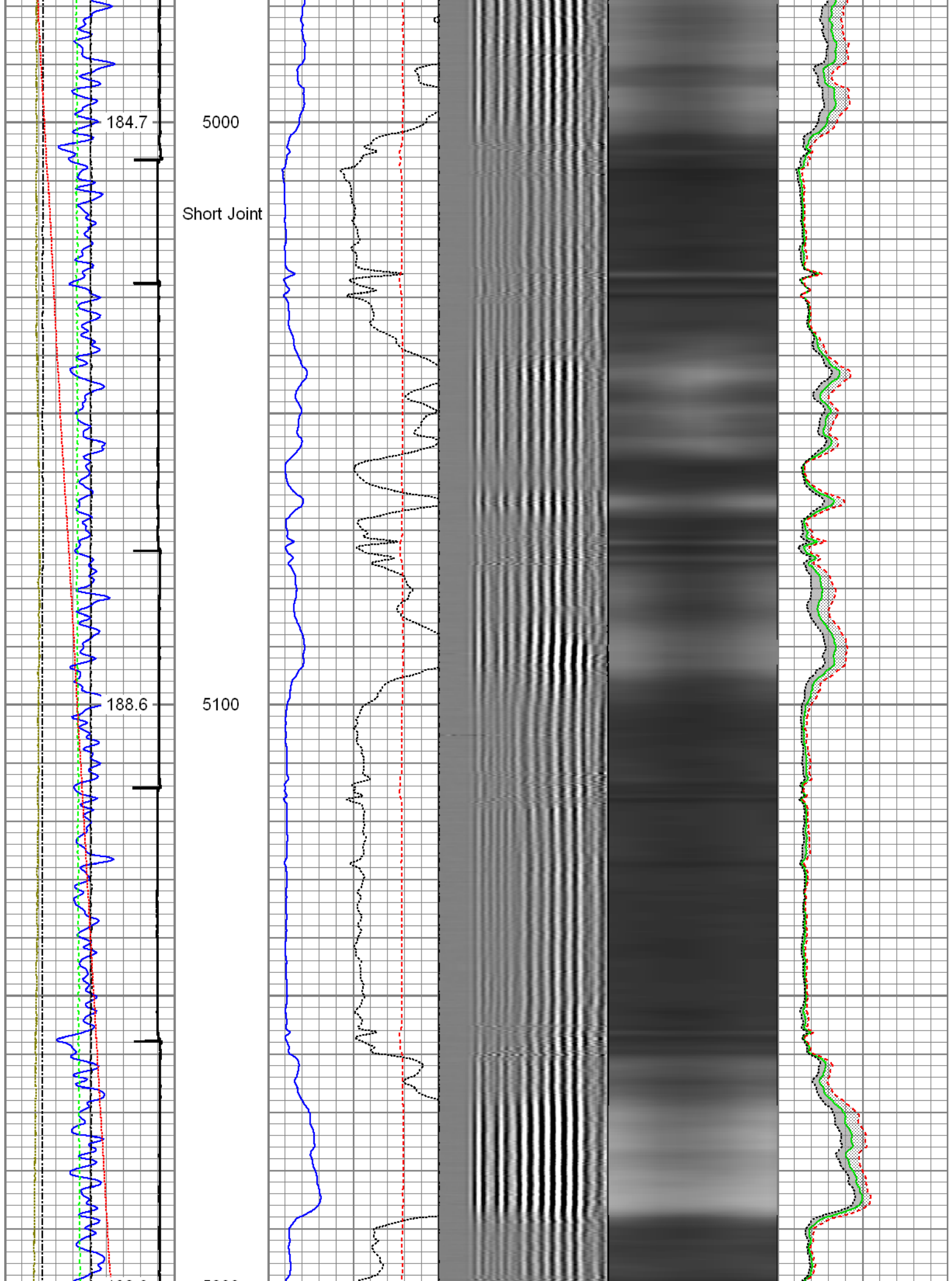


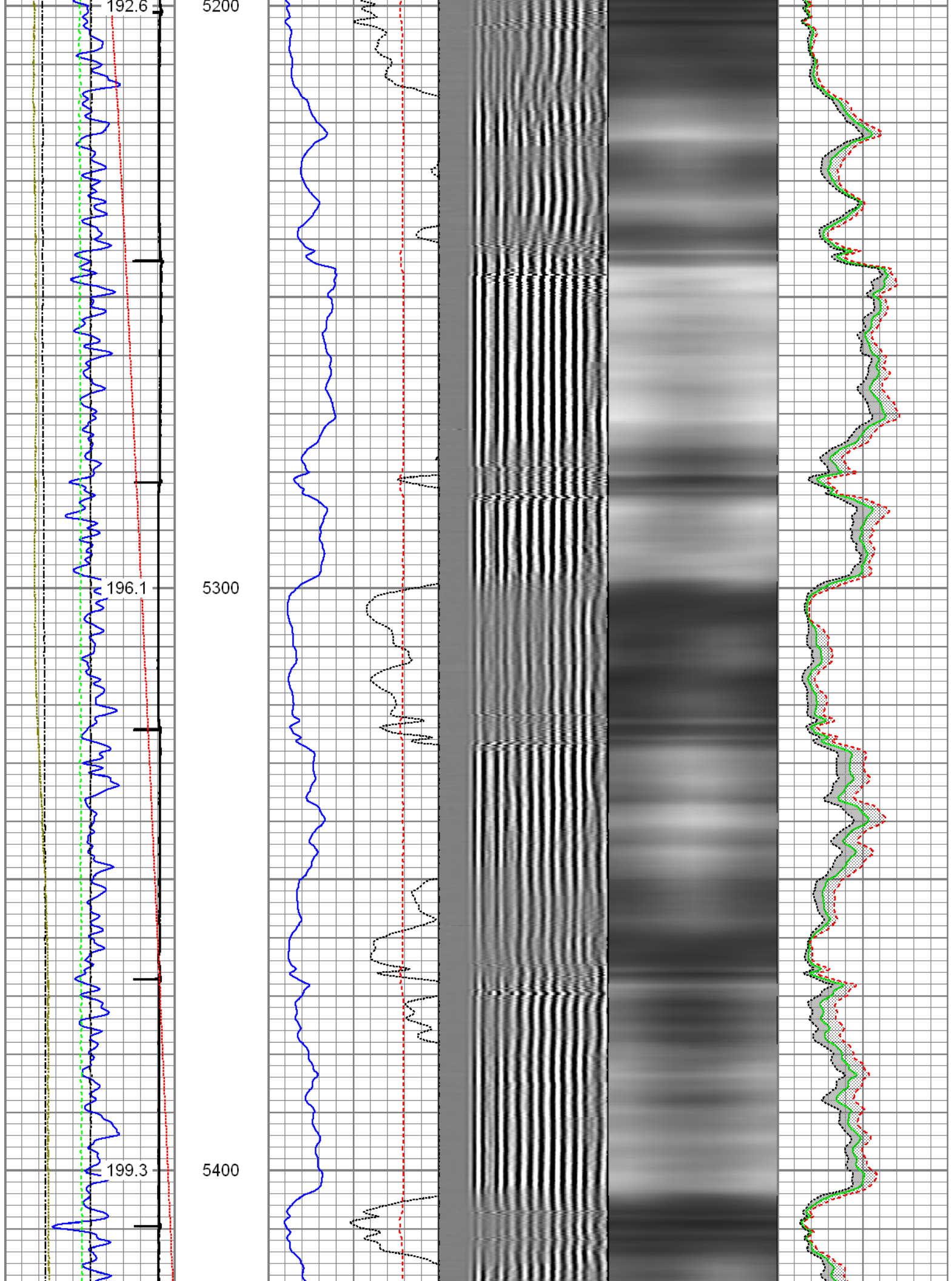


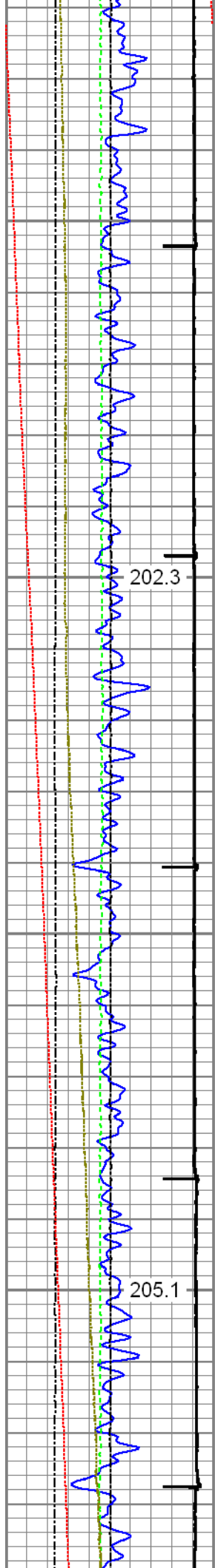






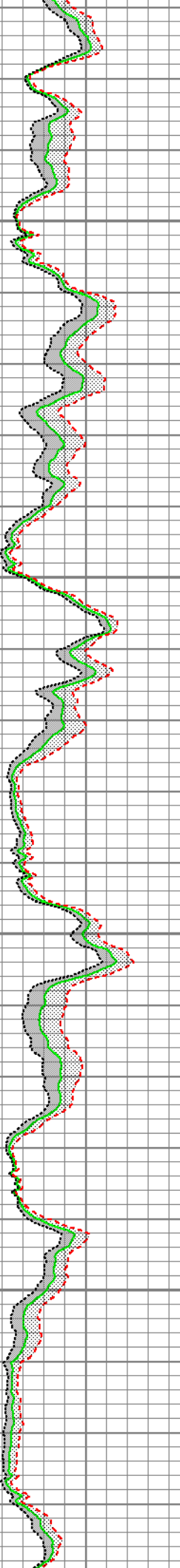
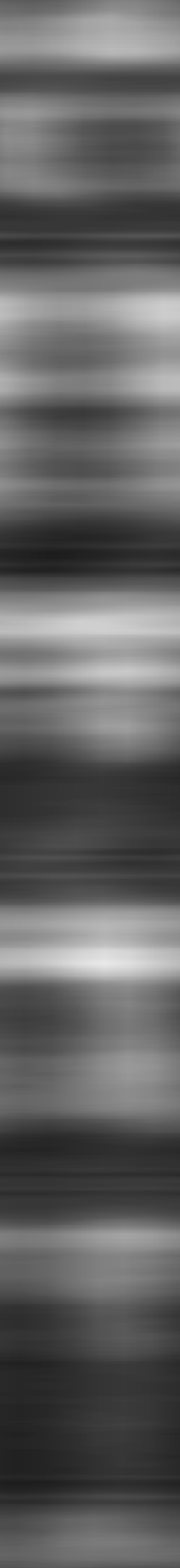
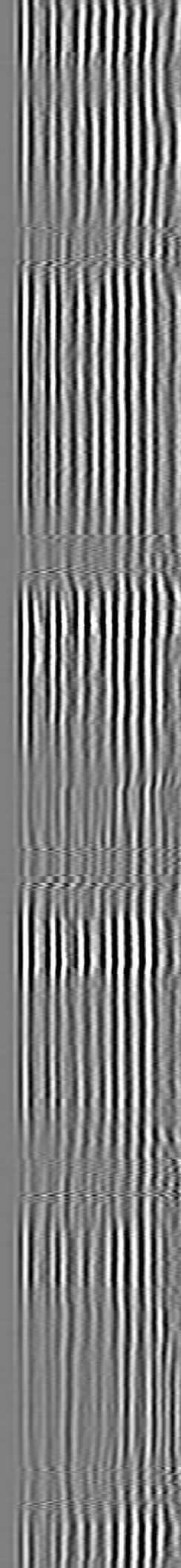
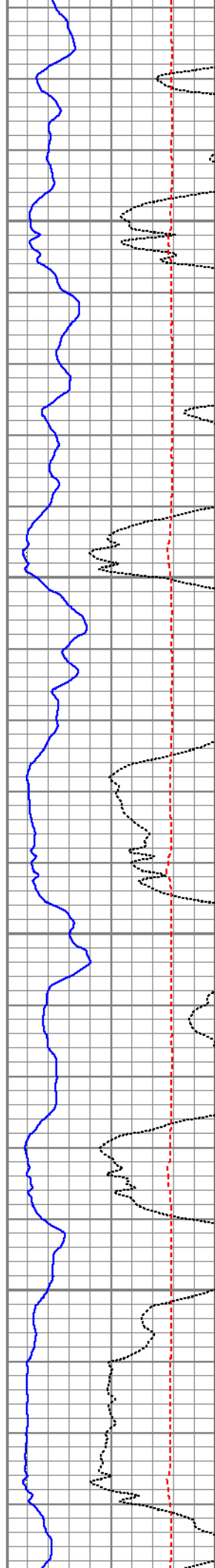


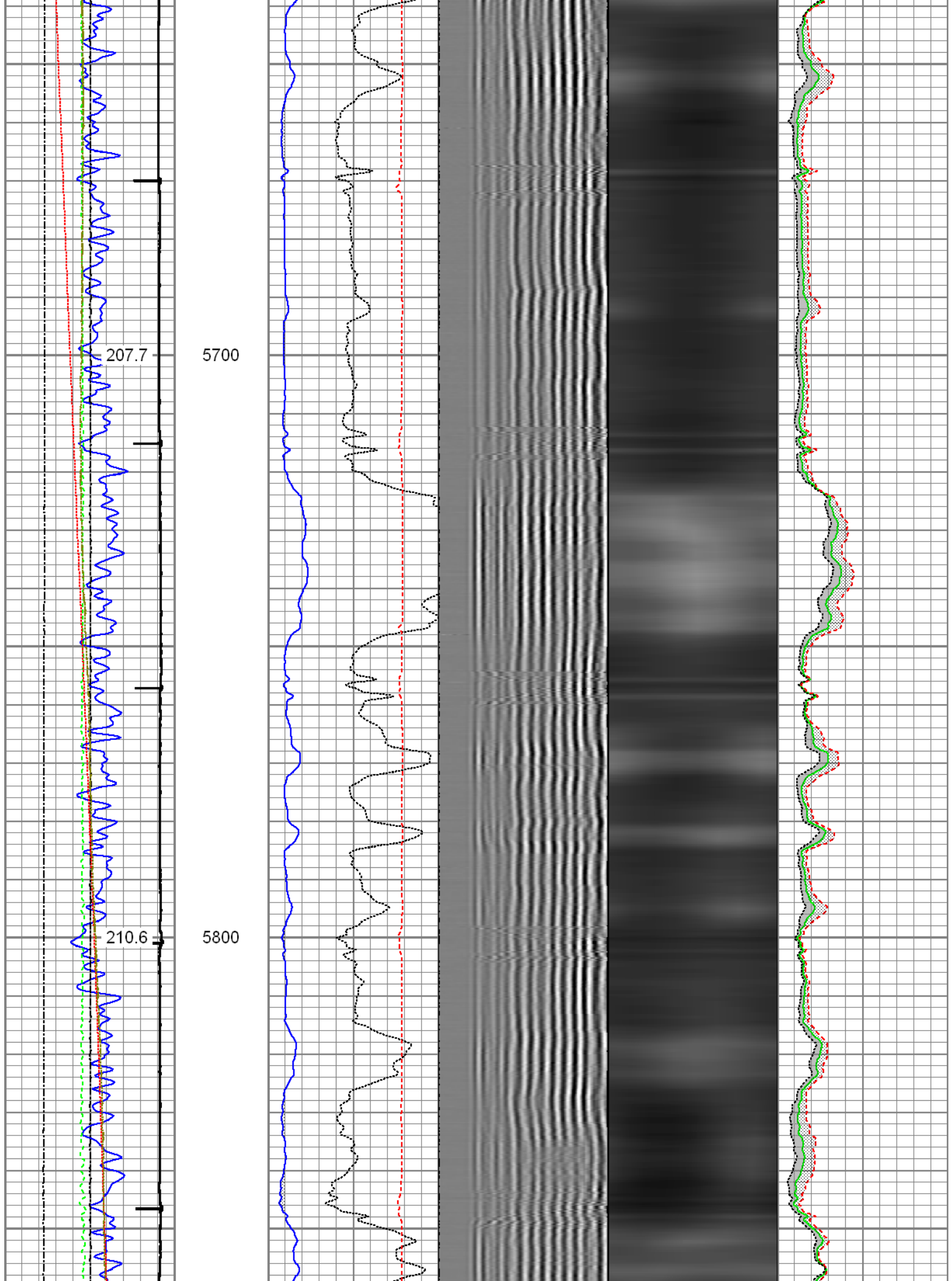


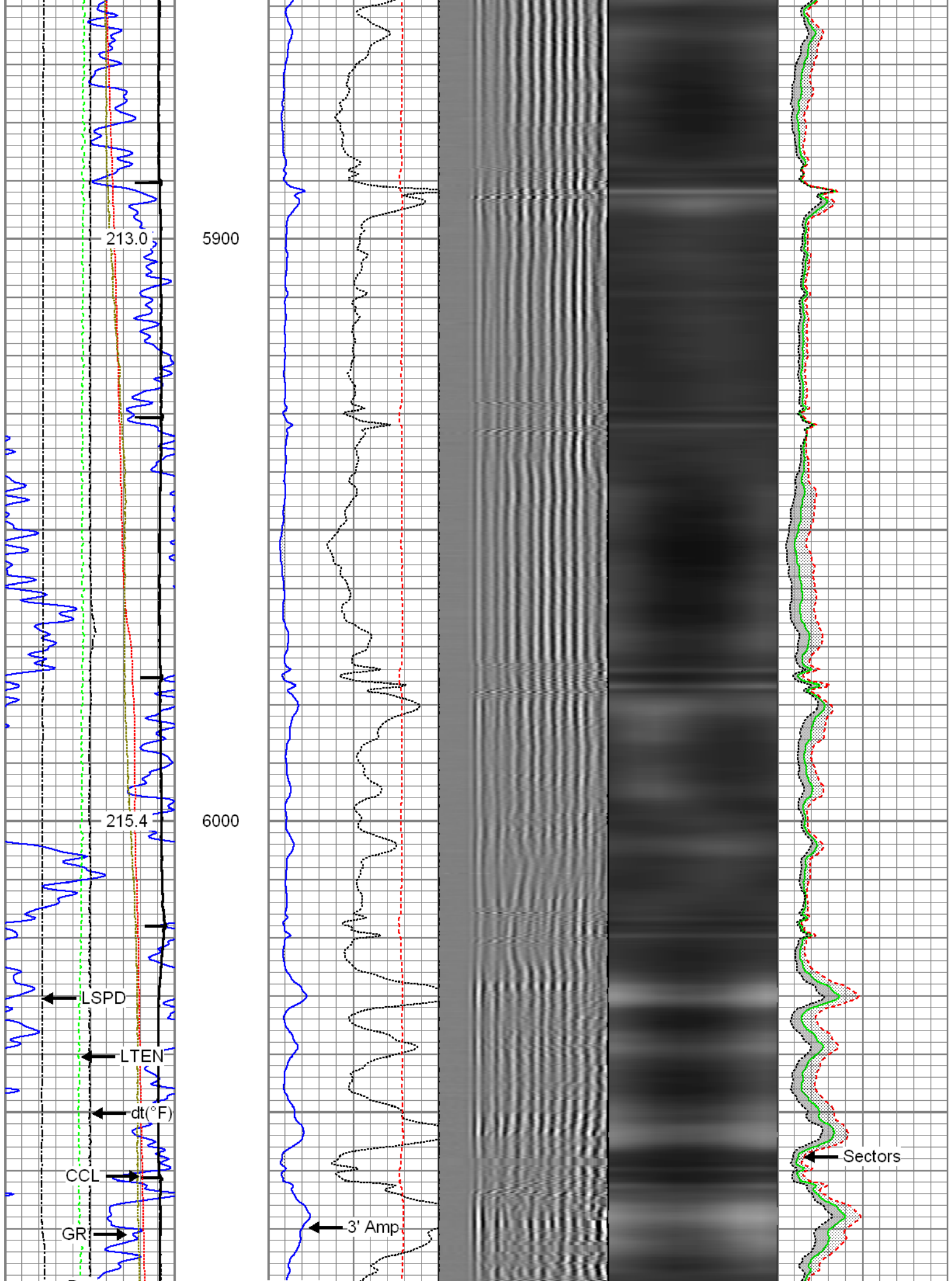


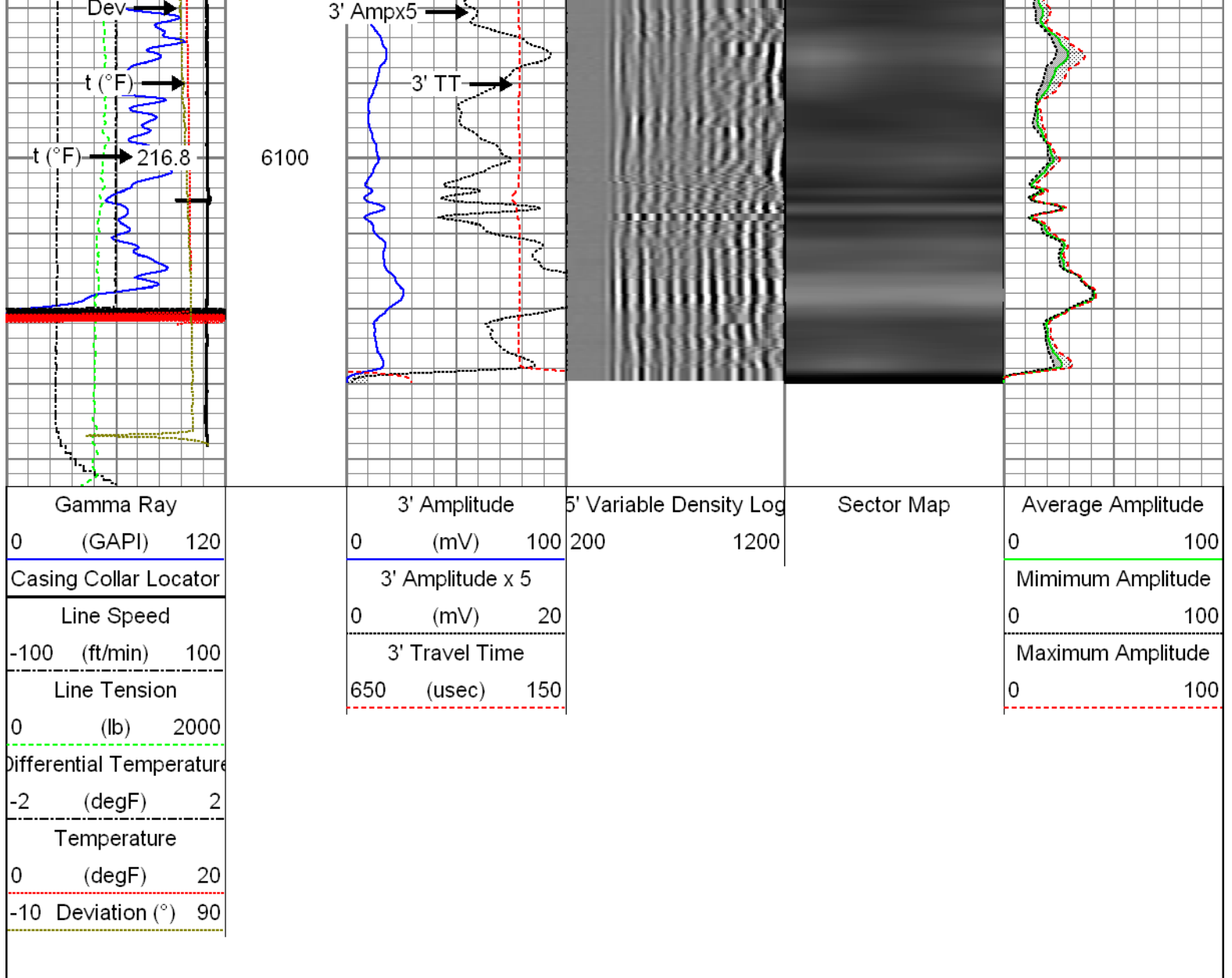
5500

5600





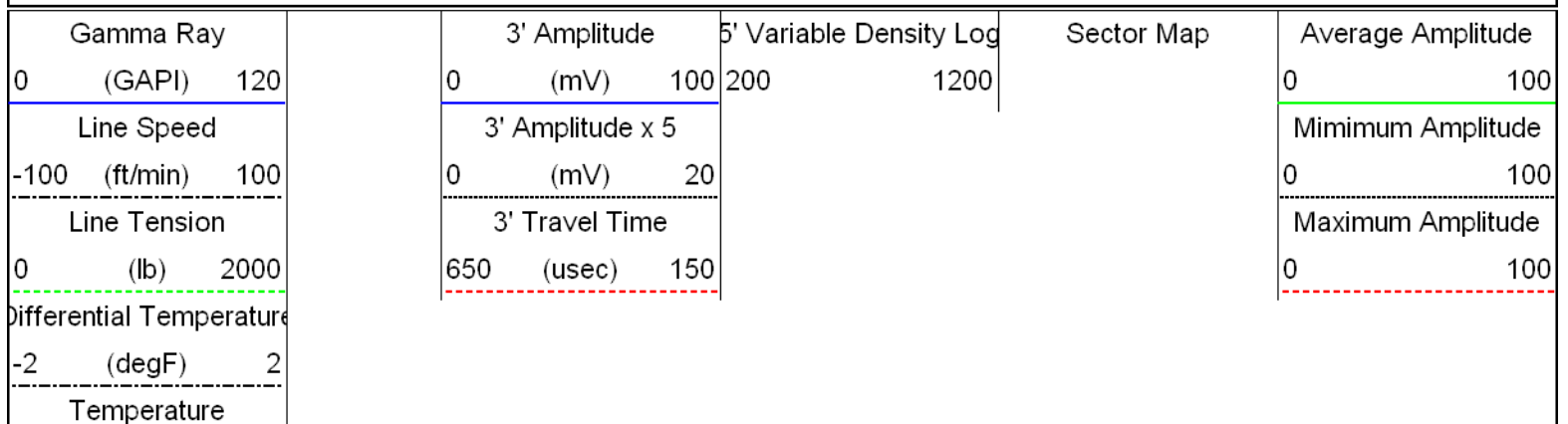




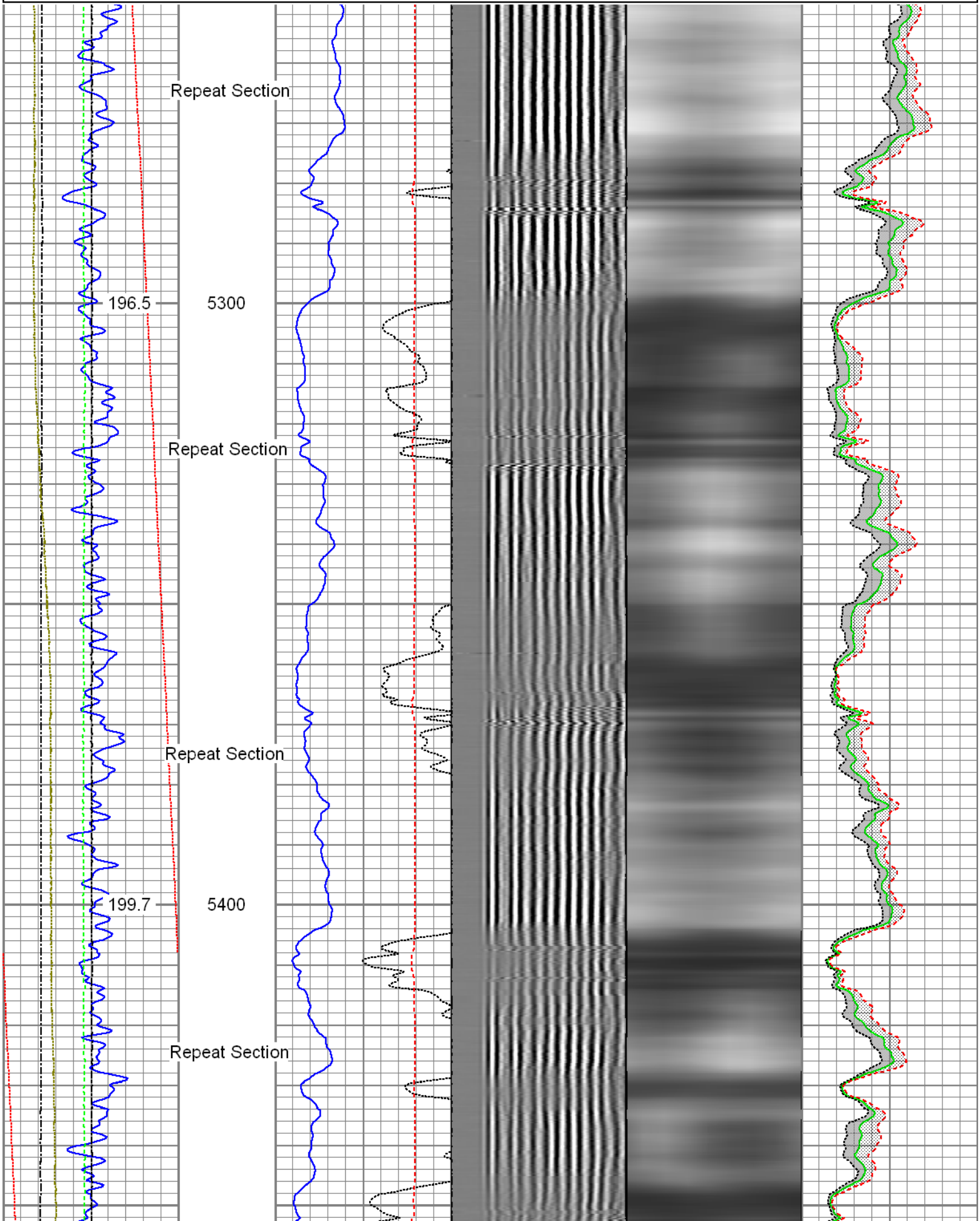
Repeat Pass

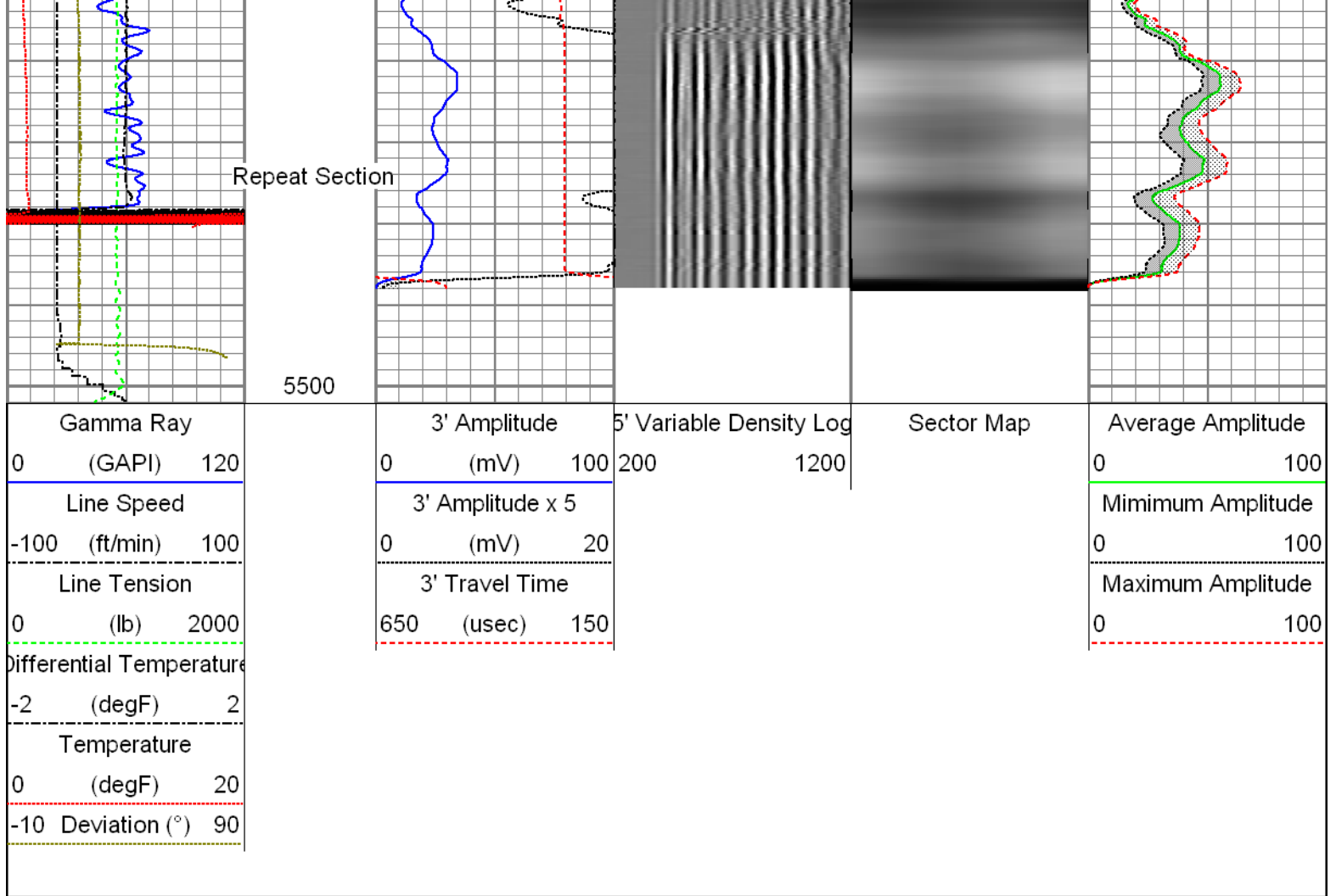
Logged With 2500 PSI Surface Induced Pressure

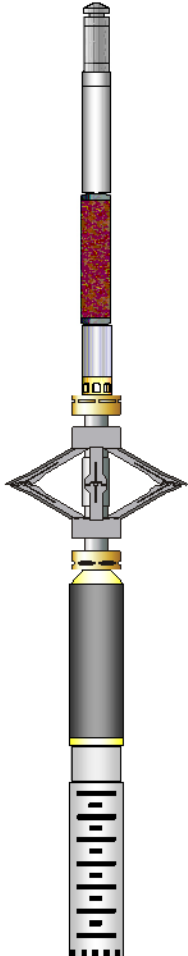
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 Dataset Pathname: pass7
 Presentation Format: rbt4_mit
 Dataset Creation: Sat Jan 16 10:01:31 2016 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

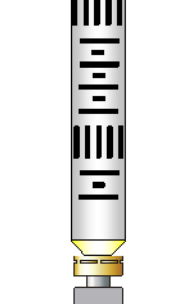
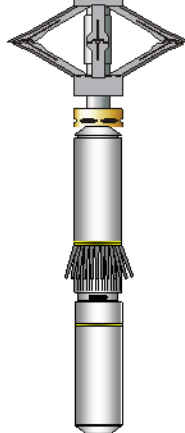
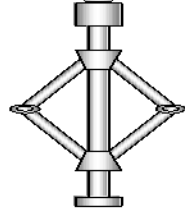


0	(degF)	20
-10	Deviation (°)	90





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.63		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 (211461) 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
			UW_PRT-UW_PRT_016 (10024052) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	22.23		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	15.20		UW_RBT-UW_RBT_004 (10022773) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.20					
WVFS2	15.20					

WVFS3	15.20		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVFS4	15.20					
WVFS5	15.20					
WVFS6	15.20					
WVFS7	15.20					
WVFS8	15.20					
CBLTEMP	15.20					
CBLROT	15.20					
WVF5FT	14.20		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
MIT						
			UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
TSTAMP						
		Dataset: 01-16-16_noble energy_douglas lc35-770_rbl.db: field/well/run1/pass11.1 Total Length: 27.87 ft Total Weight: 323.30 lb O.D.: 3.13 in				

Calibration Report			
Database File:	01-16-16_noble energy_douglas lc35-770_rbl.db		
Dataset Pathname:	pass11.1		
Dataset Creation:	Tue Jan 19 08:45:04 2016 by Calc SCH 120430		
Multi-finger Imaging Tool Calibration Report			
Serial Number:	10014703		
Number of Fingers:	40		
Tool Model:	UW_MIT40_042		
Inclinometer Calibration Report			
Performed:	Fri Sep 20 11:47:48 2013		
Calibration Angle:	45		
	Inc X	Inc Y	
Vertical:	1963	1960	
Finger 1 up:	1748	1727	
Finger 31 up:	2195	1742	
Finger 21 up:	2178	2188	
Finger 11 up:	1727	2173	
Sensitivity ratio:	1.00706		
X-axis angle:	132.825		
Deviation const.:	317.775		
Finger Calibration Report			
Performed:	Sat Jan 16 09:01:01 2016		
Ring size:	4	5	6
			7

(in)		Sens		Sens		Sens	
Finger 01:	1092	373.0	1465	385.0	1850	399.0	2249
Finger 02:	1044	379.0	1423	400.0	1823	423.0	2246
Finger 03:	1033	362.0	1395	386.0	1781	410.0	2191
Finger 04:	1000	379.0	1379	410.0	1789	437.0	2226
Finger 05:	1012	357.0	1369	382.0	1751	404.0	2155
Finger 06:	1018	373.0	1391	397.0	1788	422.0	2210
Finger 07:	1021	369.0	1390	389.0	1779	412.0	2191
Finger 08:	994	371.0	1365	403.0	1768	429.0	2197
Finger 09:	1060	373.0	1433	389.0	1822	404.0	2226
Finger 10:	1028	370.0	1398	392.0	1790	409.0	2199
Finger 11:	998	363.0	1361	392.0	1753	419.0	2172
Finger 12:	1095	364.0	1459	372.0	1831	381.0	2212
Finger 13:	1028	356.0	1384	388.0	1772	414.0	2186
Finger 14:	1009	373.0	1382	405.0	1787	430.0	2217
Finger 15:	975	368.0	1343	404.0	1747	432.0	2179
Finger 16:	1032	364.0	1396	394.0	1790	420.0	2210
Finger 17:	1068	356.0	1424	380.0	1804	399.0	2203
Finger 18:	1102	360.0	1462	381.0	1843	402.0	2245
Finger 19:	1056	364.0	1420	391.0	1811	411.0	2222
Finger 20:	979	360.0	1339	400.0	1739	430.0	2169
Finger 21:	1059	355.0	1414	386.0	1800	409.0	2209
Finger 22:	1062	360.0	1422	394.0	1816	413.0	2229
Finger 23:	1084	362.0	1446	394.0	1840	410.0	2250
Finger 24:	1075	331.0	1406	363.0	1769	384.0	2153
Finger 25:	1086	364.0	1450	399.0	1849	415.0	2264
Finger 26:	1034	349.0	1383	387.0	1770	413.0	2183
Finger 27:	1205	374.0	1579	395.0	1974	403.0	2377
Finger 28:	1066	340.0	1406	376.0	1782	405.0	2187
Finger 29:	1038	356.0	1394	394.0	1788	418.0	2206
Finger 30:	1018	357.0	1375	399.0	1774	425.0	2199
Finger 31:	1247	387.0	1634	408.0	2042	421.0	2463
Finger 32:	1009	355.0	1364	383.0	1747	399.0	2146
Finger 33:	1103	381.0	1484	413.0	1897	429.0	2326
Finger 34:	981	354.0	1335	389.0	1724	415.0	2139
Finger 35:	1138	383.0	1521	410.0	1931	426.0	2357
Finger 36:	1056	348.0	1404	372.0	1776	393.0	2169
Finger 37:	1135	389.0	1524	407.0	1931	423.0	2354
Finger 38:	1095	363.0	1458	382.0	1840	400.0	2240
Finger 39:	1086	354.0	1440	369.0	1809	390.0	2199
Finger 40:	986	380.0	1366	412.0	1778	441.0	2219

Segmented Cement Bond Log Calibration Report							
Serial Number:				10022773			
Tool Model:				UW_RBT_004			
Calibration Casing Diameter:				7.000	in		
Calibration Depth:				54.133	ft		

Master Calibration, performed Tue Jan 19 08:45:02 2016:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3FT	0.003	0.755	0.800	62.165	81.535	0.586	
5FT	0.001	0.770	0.800	62.165	79.771	0.756	
S1	0.004	0.727	0.000	100.000	138.288	-0.511	
S2	0.002	0.743	0.000	100.000	134.958	-0.244	
S3	0.002	0.730	0.000	100.000	137.360	-0.311	
S4	0.001	0.723	0.000	100.000	138.541	-0.207	
S5	0.003	0.743	0.000	100.000	134.980	-0.354	
S6	0.002	0.741	0.000	100.000	135.256	-0.284	
S7	0.002	0.745	0.000	100.000	134.663	-0.315	

Temperature Calibration Report

Serial Number: 10024052
 Tool Model: UW_PRT_016
 Performed: Wed Feb 11 16:41:28 2015

Point #	Reading		Reference	
1	12242.00	cps	68.00	degF
2	18329.00	cps	104.00	degF
3	29563.00	cps	176.00	degF
4	41222.00	cps	248.00	degF
5	52988.00	cps	320.00	degF
6	58824.00	cps	356.00	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 Noble Energy Inc
 Well Douglas LC35-770
 Field Wildcat
 County Weld
 State Colorado