



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.  
Well Cream State 28N-21HZ  
Field Wattenberg  
County Weld  
State Colorado

Company Kerr-McGee Oil & Gas Onshore, L.P.  
Well Cream State 28N-21HZ  
Field Wattenberg  
County Weld State Colorado

Location: API #: 05-123-40962  
SEC 28 TWP 3N RGE 65W  
Permanent Datum Ground Level Elevation 4828'  
Log Measured From Kelly Bushing 20 FT  
Drilling Measured From Kelly Bushing  
Other Services  
Gauge Ring  
MIT  
Elevation  
K.B. 4848'  
D.F. 4847'  
G.L. 4828'

Date 21-JUL-2015

Run Number One  
Depth Driller 12518.88 FT  
Depth Logger 7100.8 FT  
Bottom Logged Interval 7095.8 FT  
Top Log Interval Surface  
Open Hole Size 8.765"  
Type Fluid Water  
Density / Viscosity 8.34 lbm/gal  
Max. Recorded Temp. 249.9°F  
Estimated Cement Top Surface  
Time Well Ready ROA  
Time Logger on Bottom 10:30 AM  
Equipment Number HD-0324  
Location Fort Lupton, CO  
Recorded By R. Cameron  
Witnessed By Josh Gustafson  
S. Hopper

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 LTC	Surface	1217.93 FT		
Intermediate #1	7	26	HCP-110 LTC	Surface	7471.31 FT		
Intermediate #2							
Liner	4 1/2	11.6	HCP-110 LTC	6457 FT	12518.88 FT		

>>> Fold Here >>>

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 6457 FT  
Adjusted log -20 FT from KB zero to correlate with liner top  
Log ran with 2800 PSI surface induced pressure

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



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: 0512340962\_anadarko\_cream state 28n-21hz\_07-21-15\_mit\_rbl.db

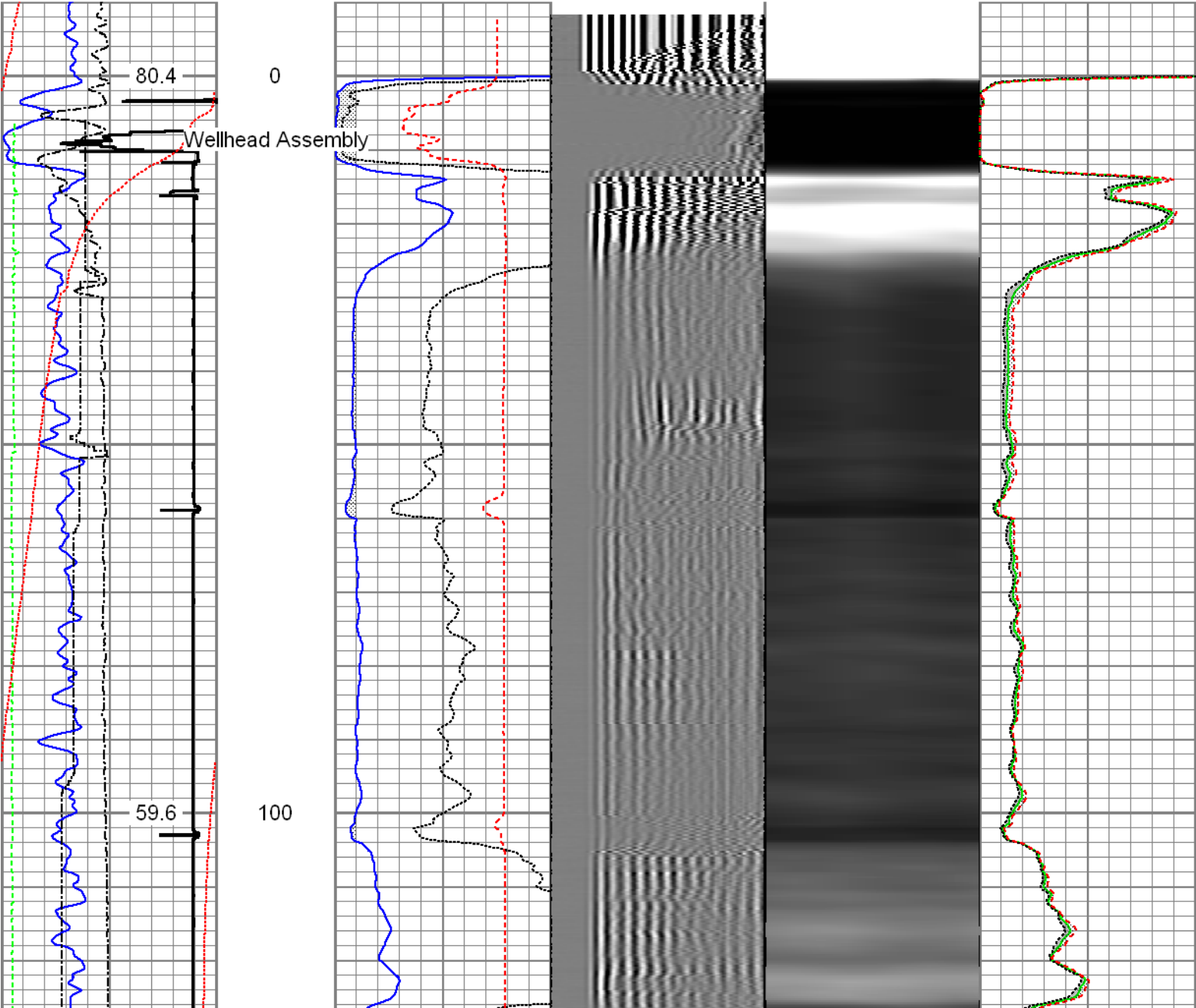
Dataset Pathname: pass3

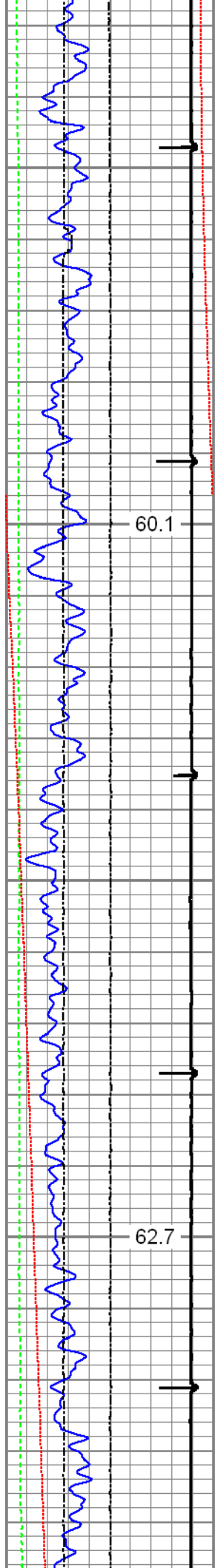
Presentation Format: rbt4\_mit

Dataset Creation: Tue Jul 21 10:18:38 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

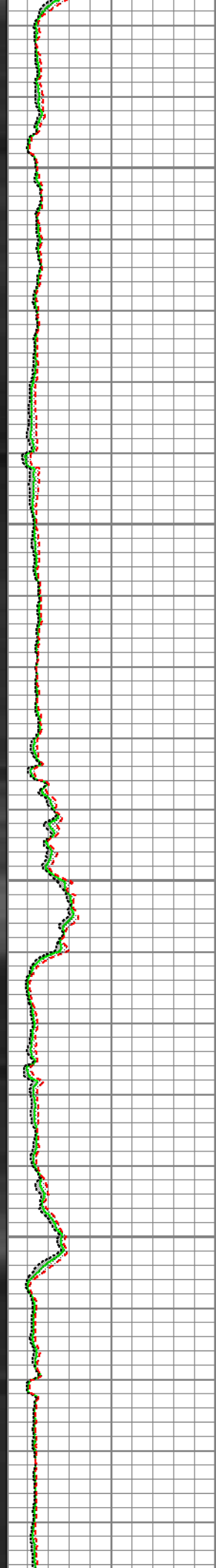
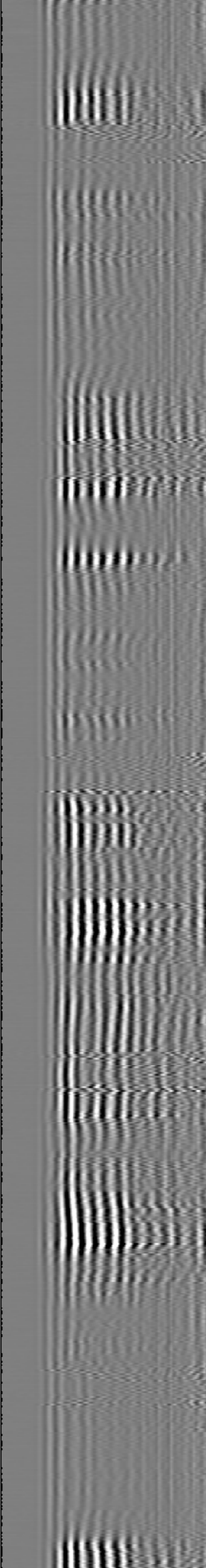
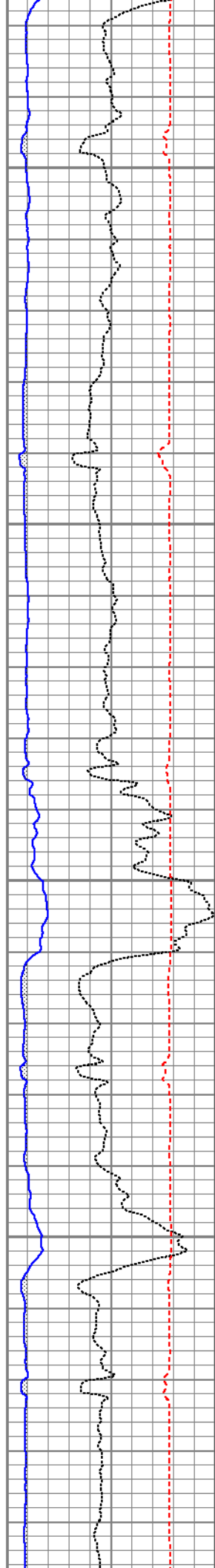
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

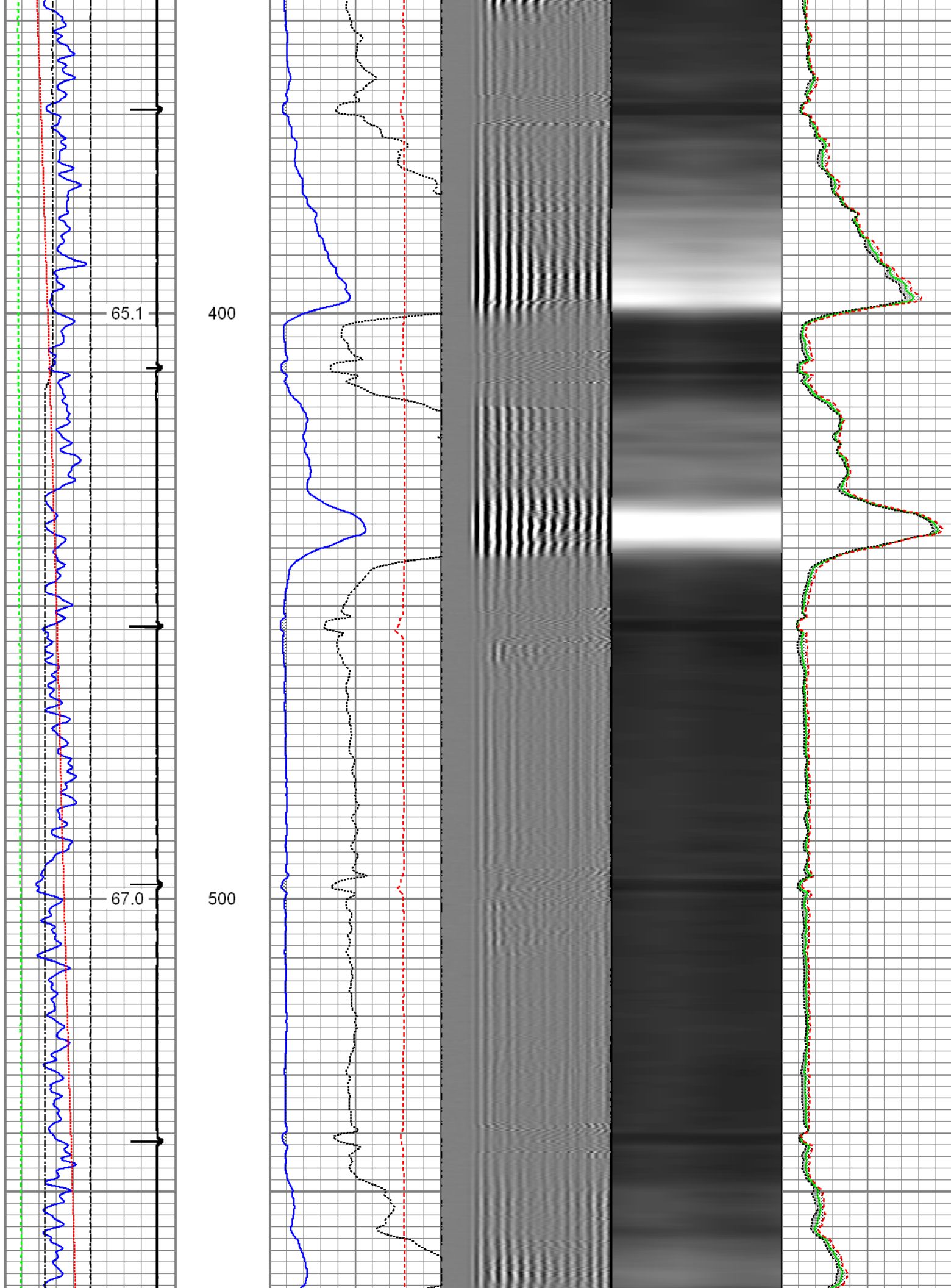




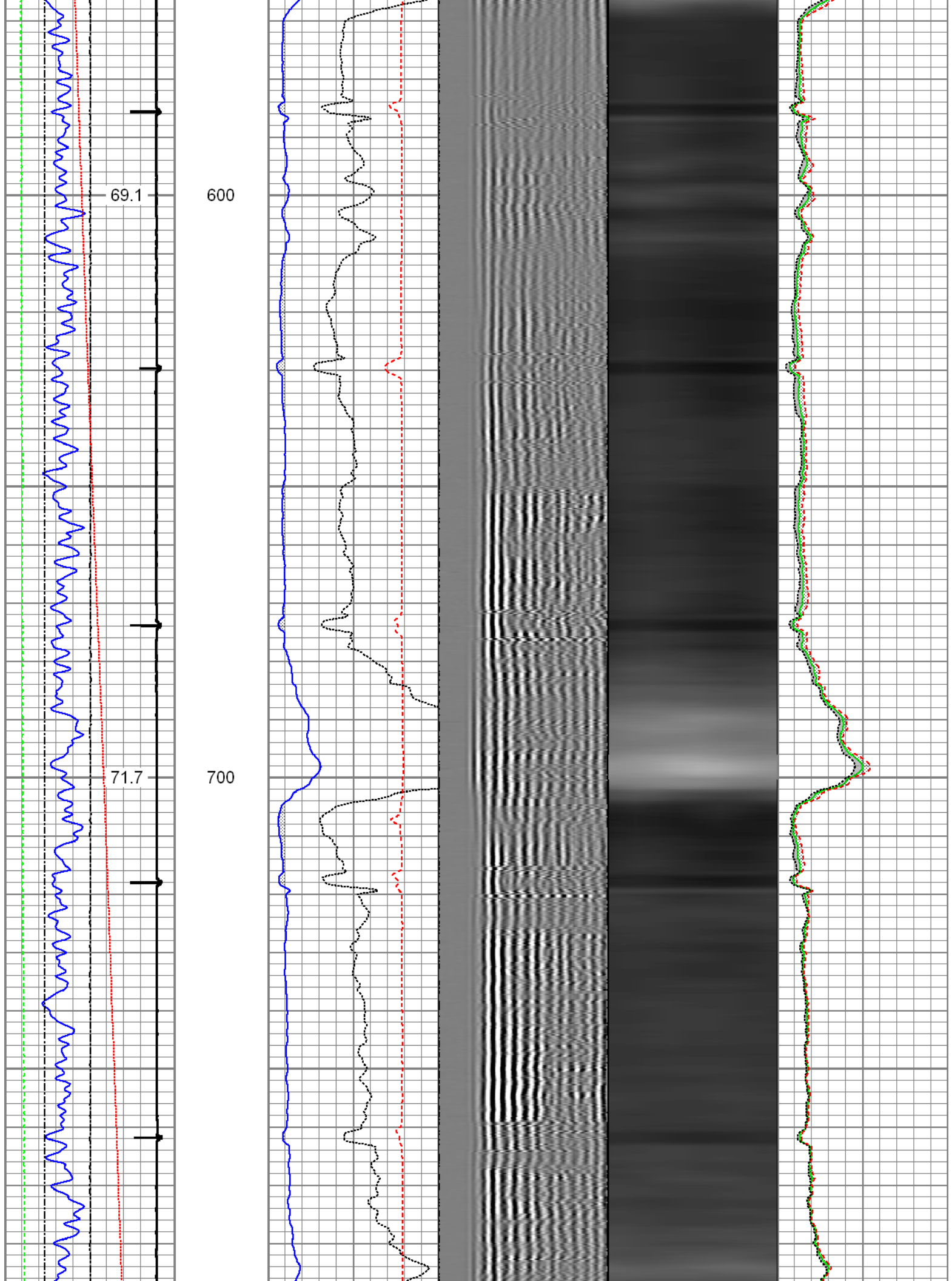
200

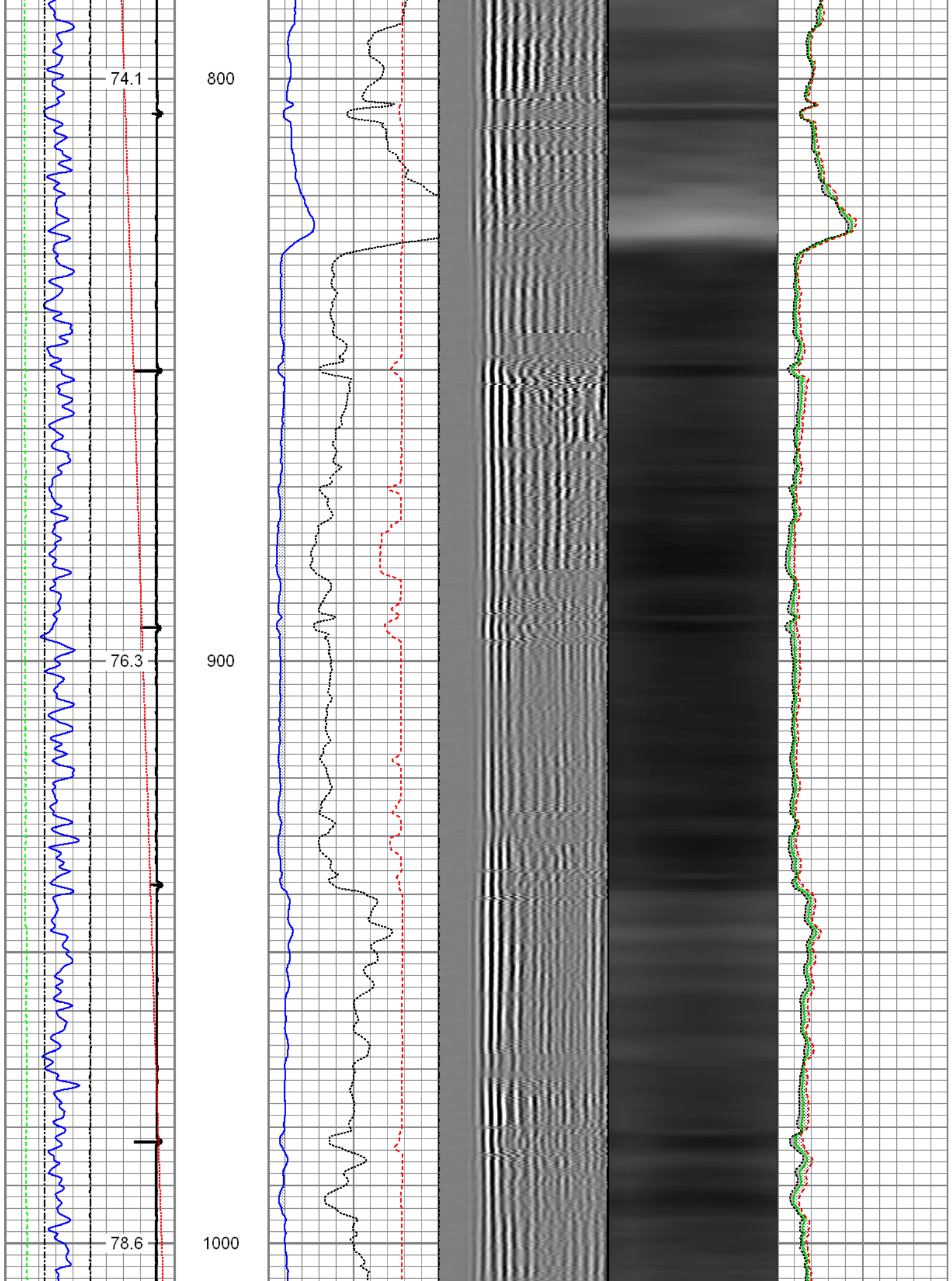
300

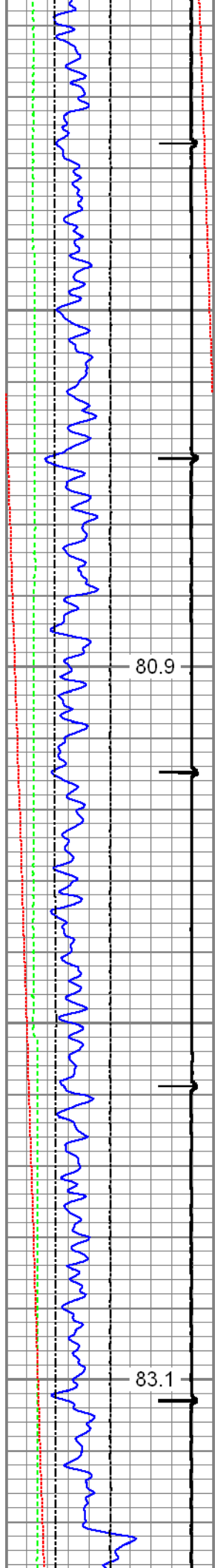






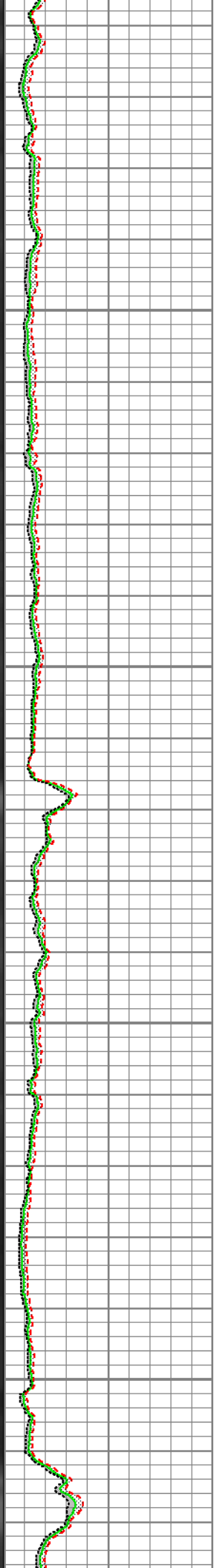
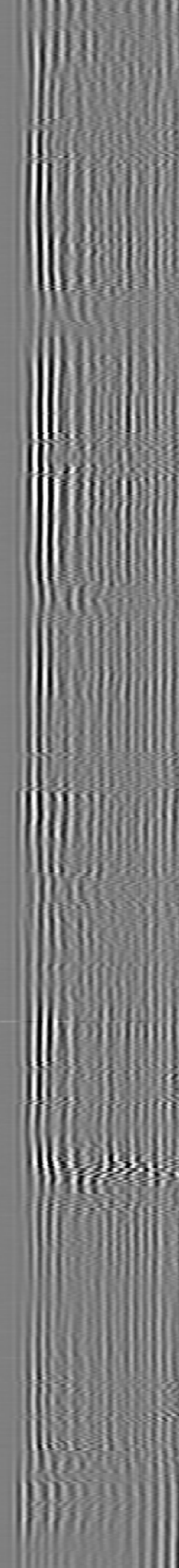
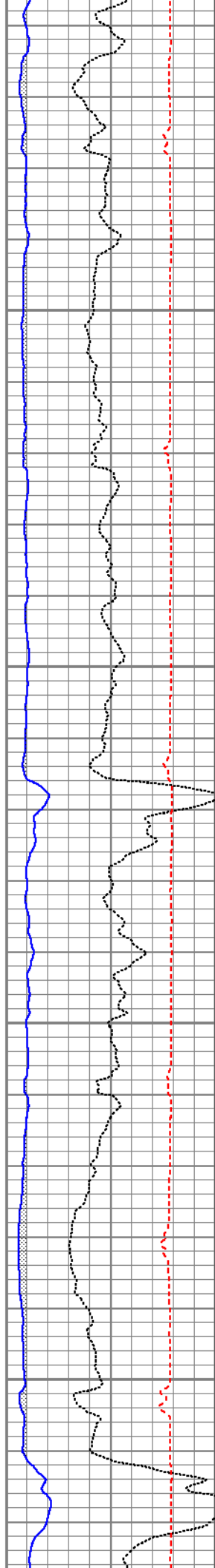






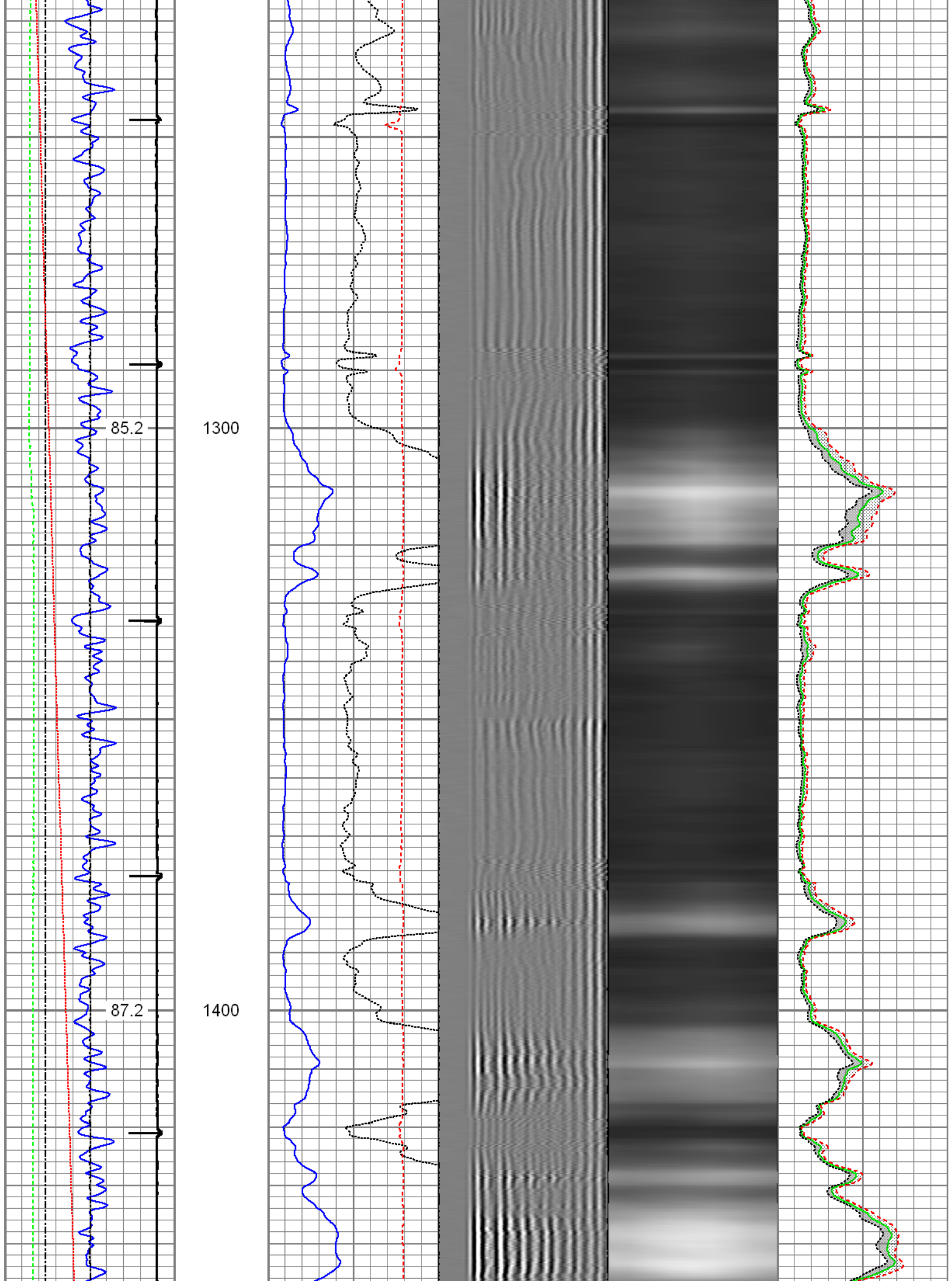
80.9

1100

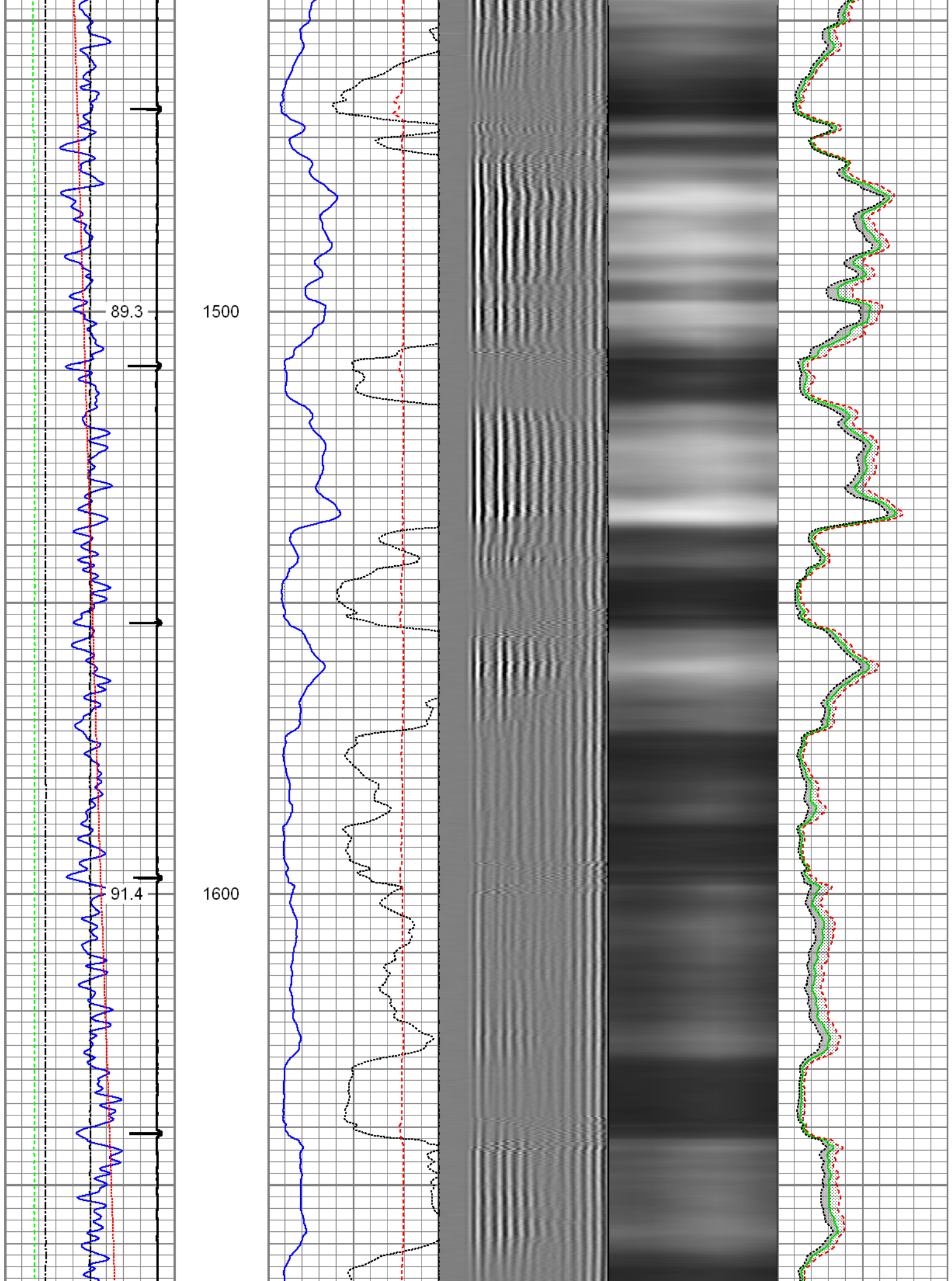


83.1

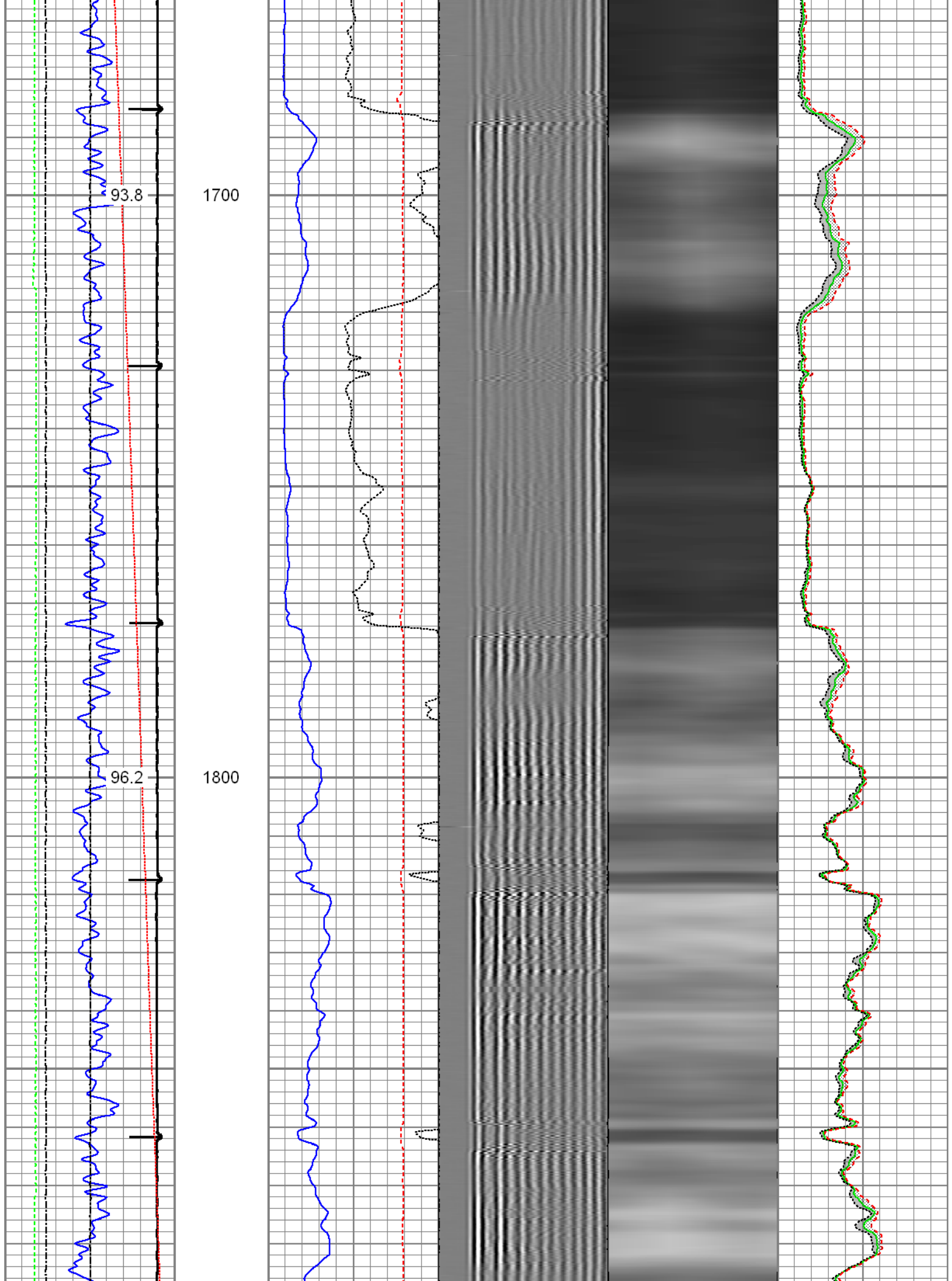
1200

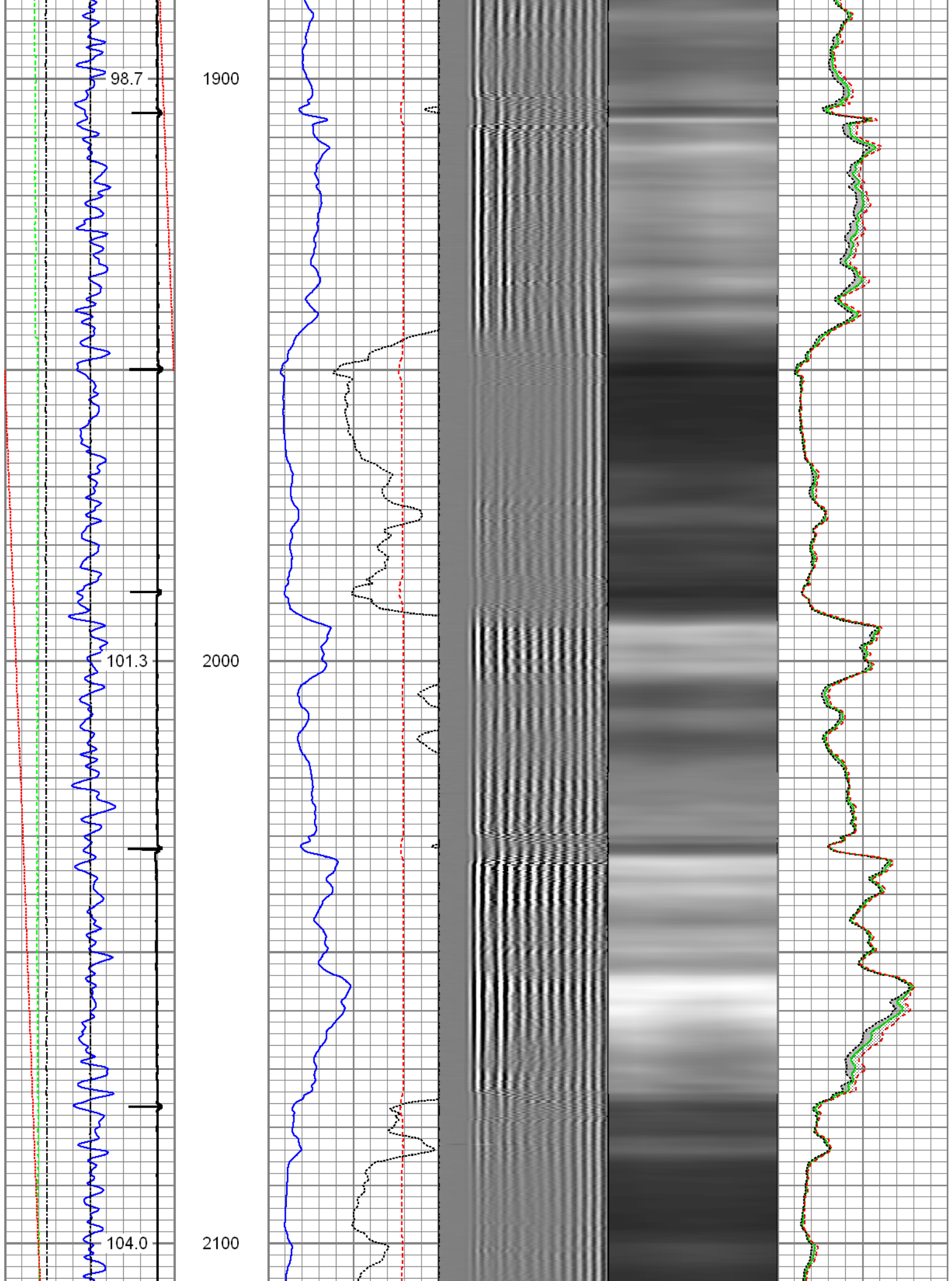


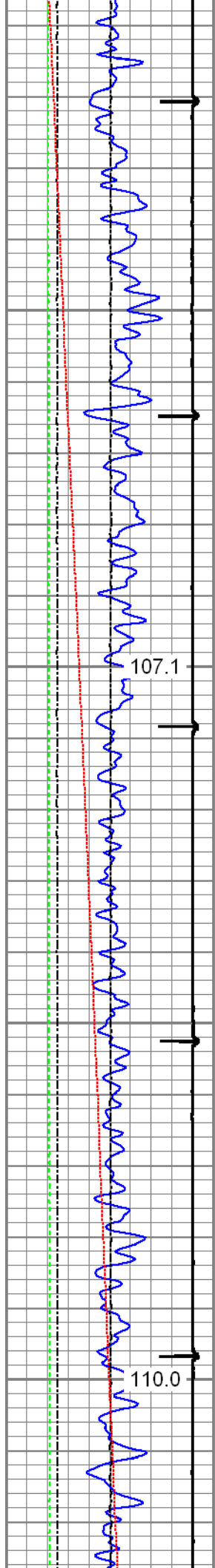






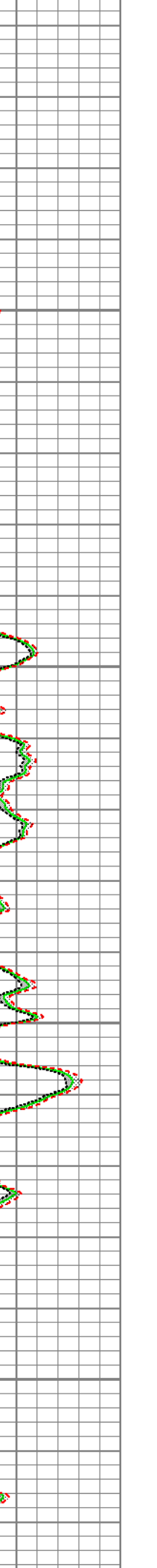
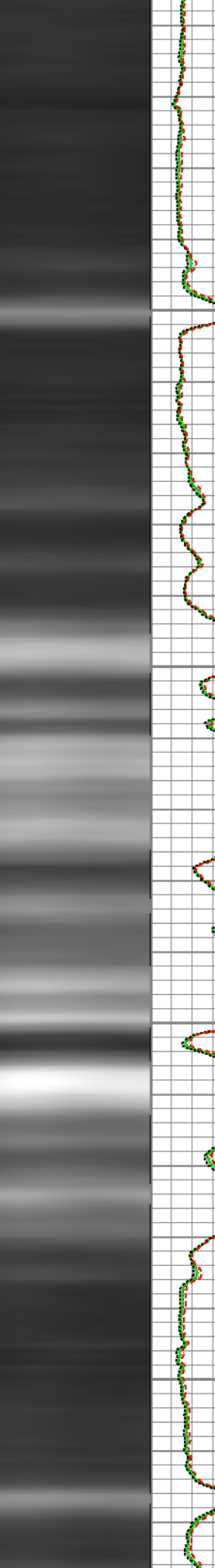
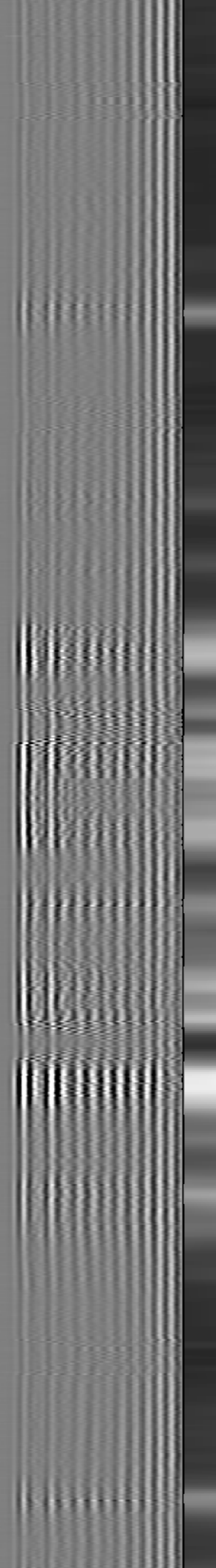
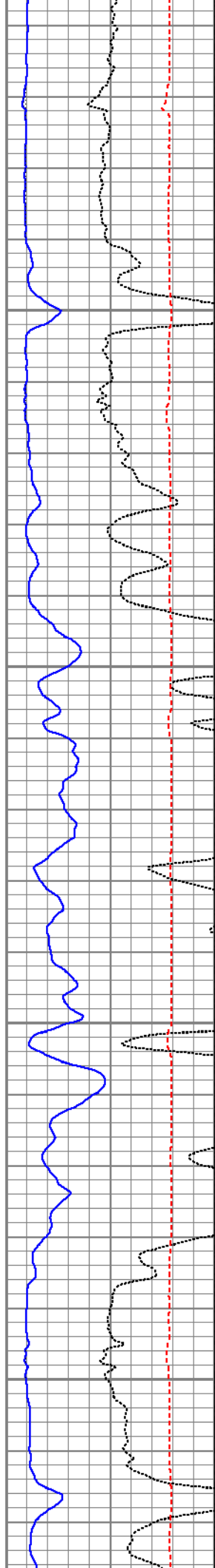


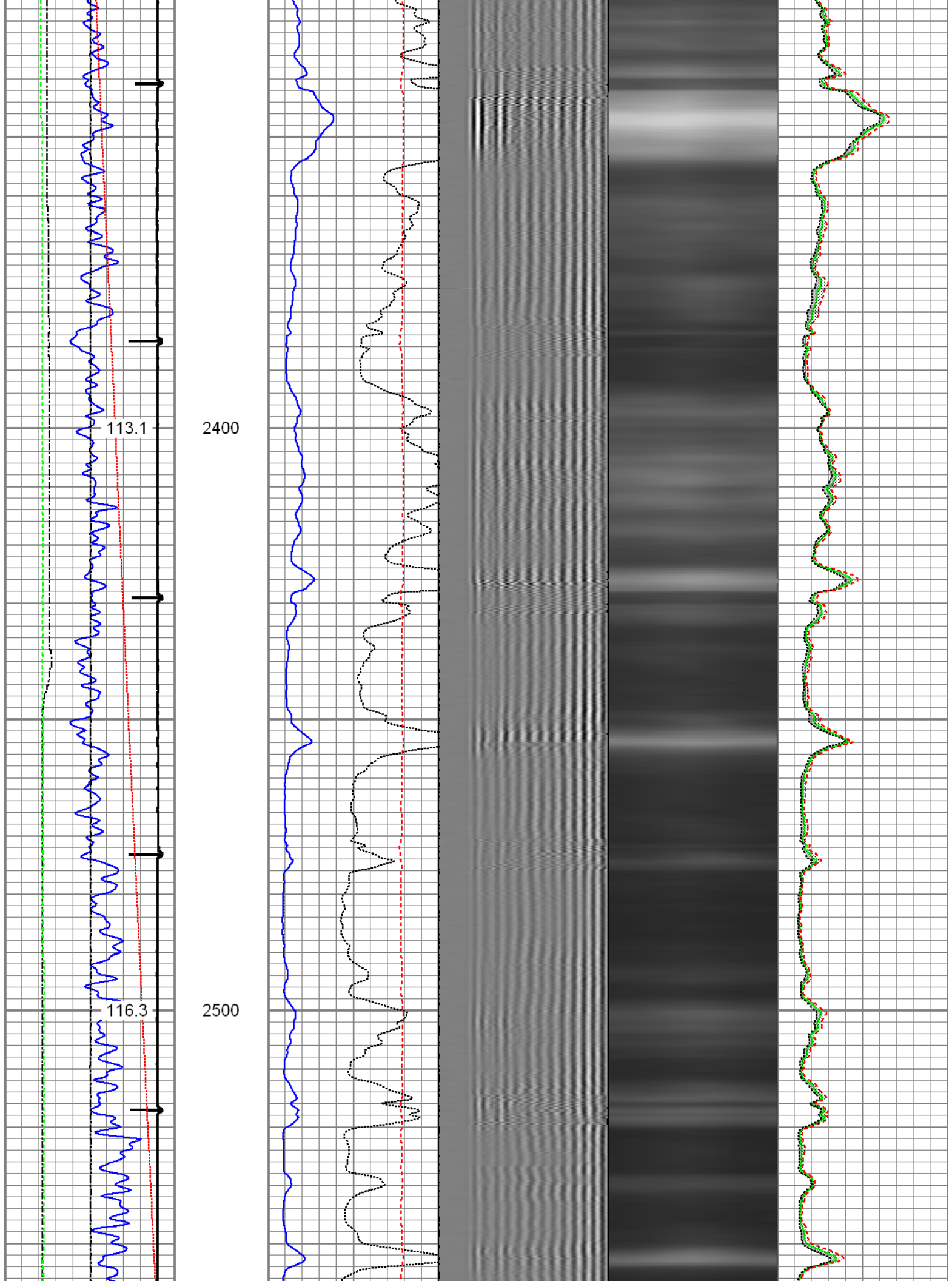




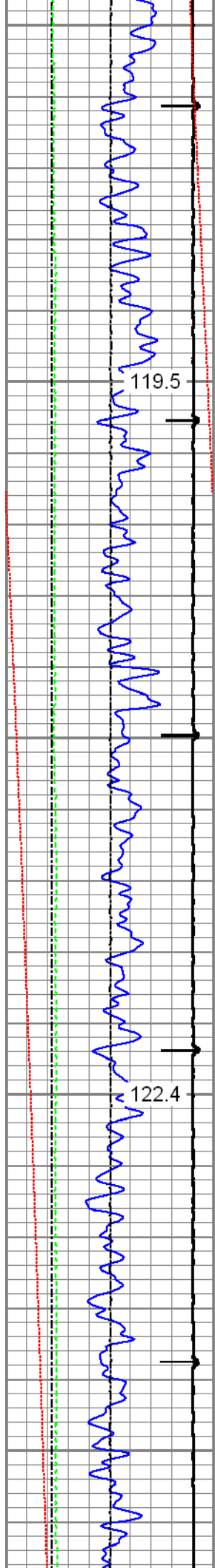
2200

2300







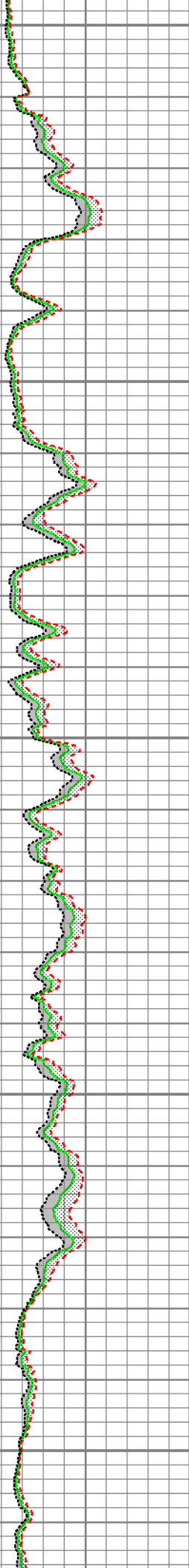
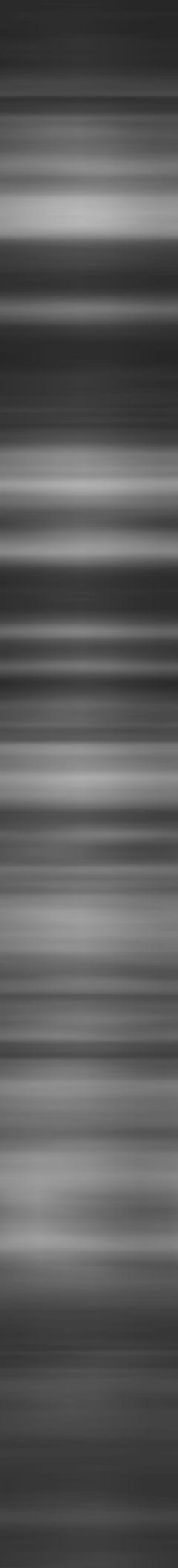
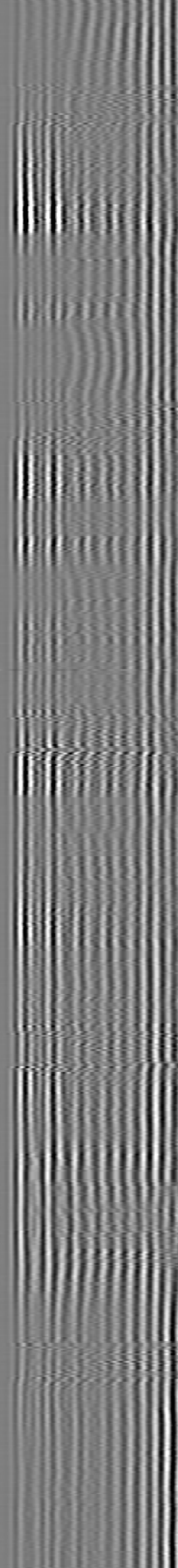
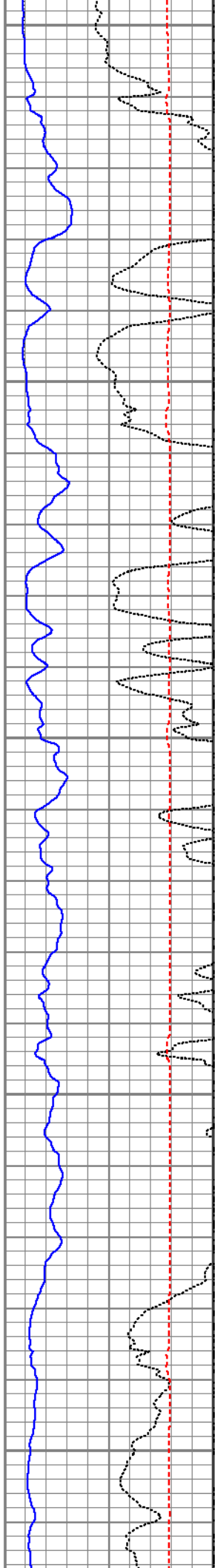


119.5

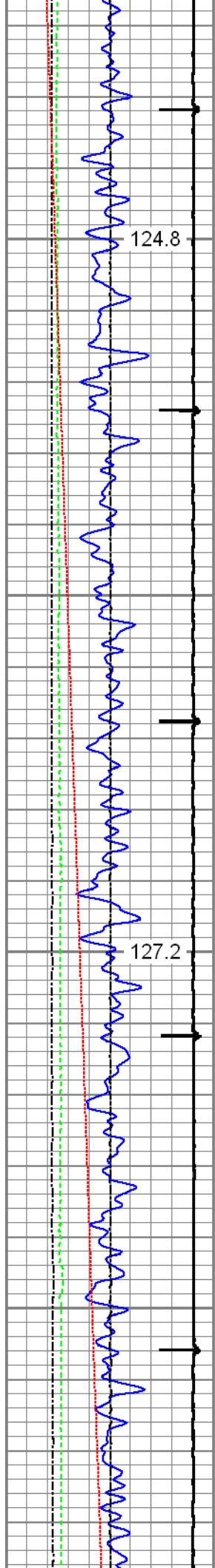
2600

122.4

2700

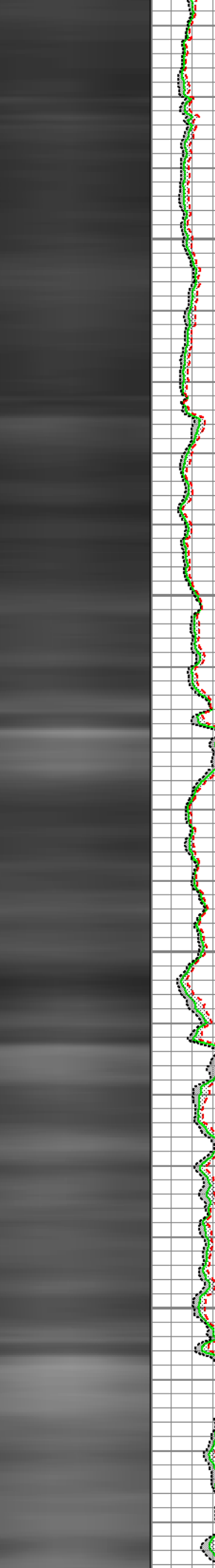
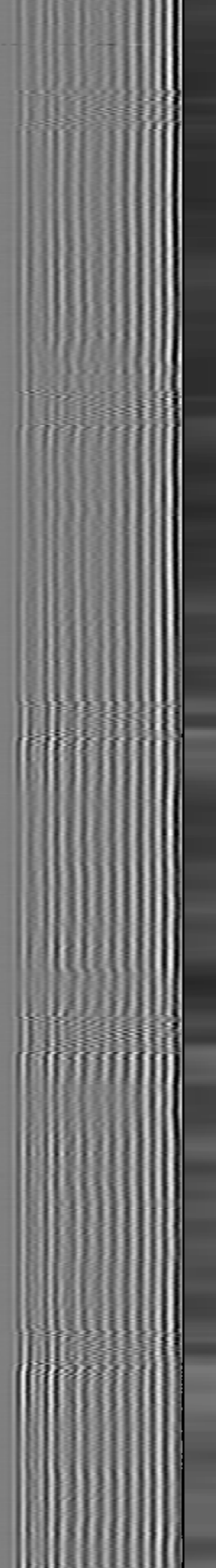
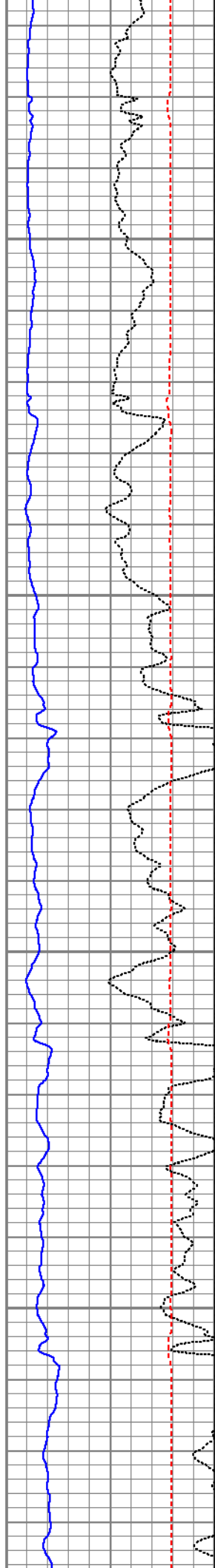


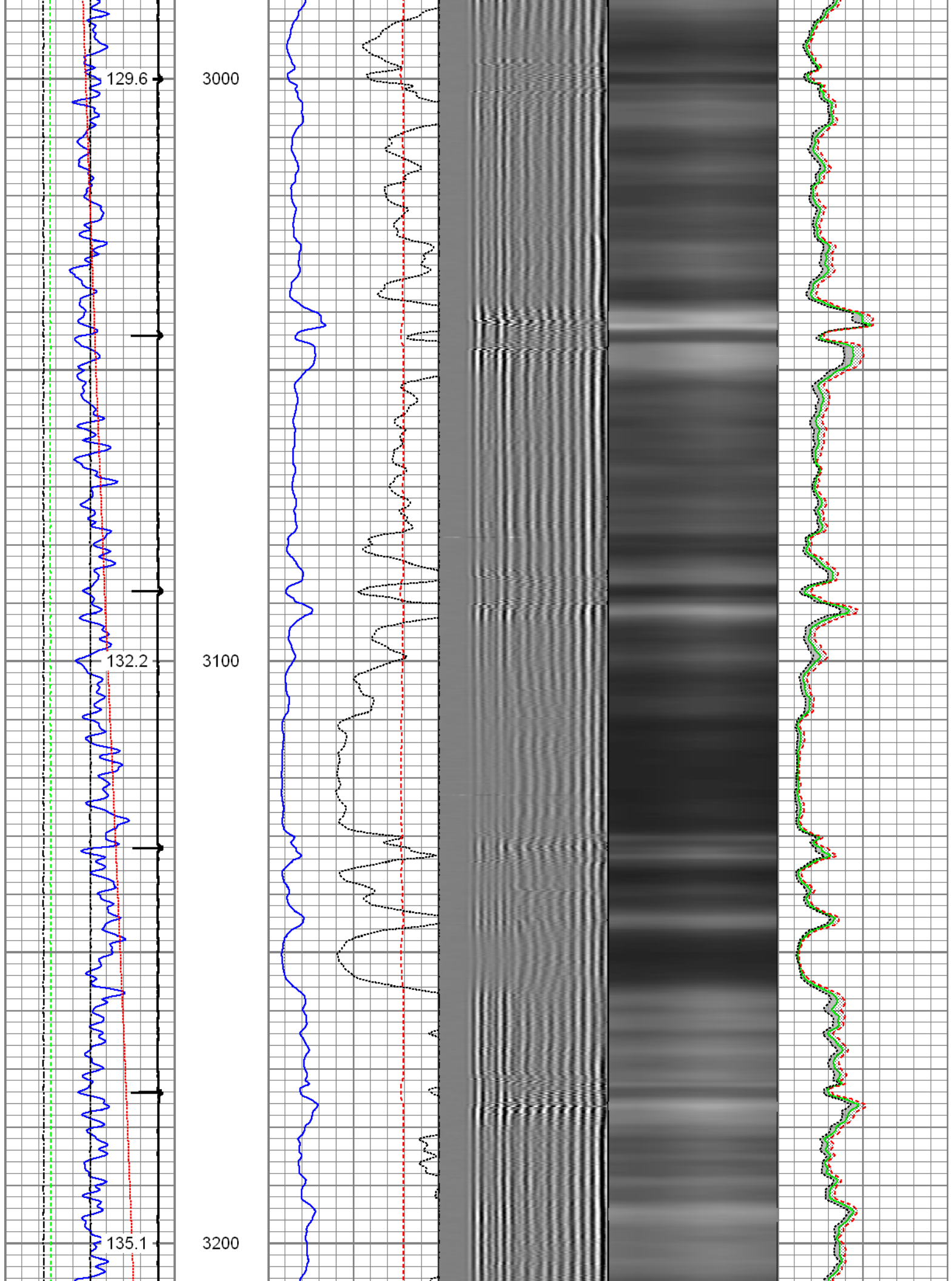


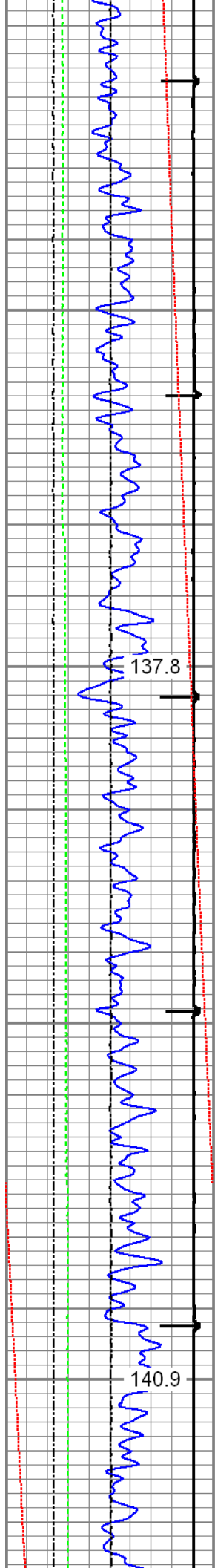


2800

2900





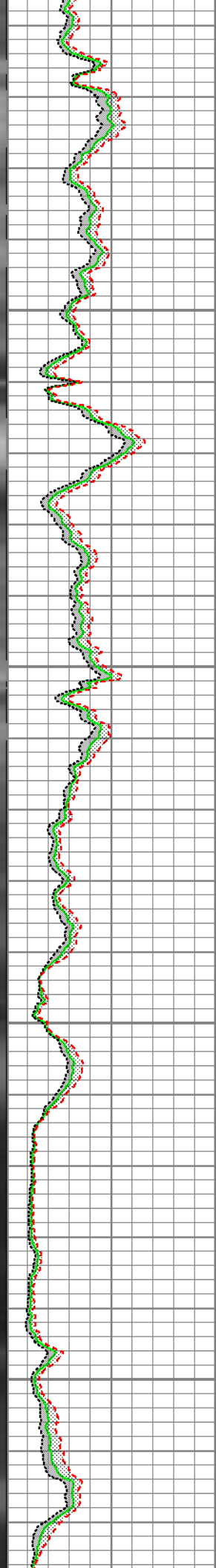
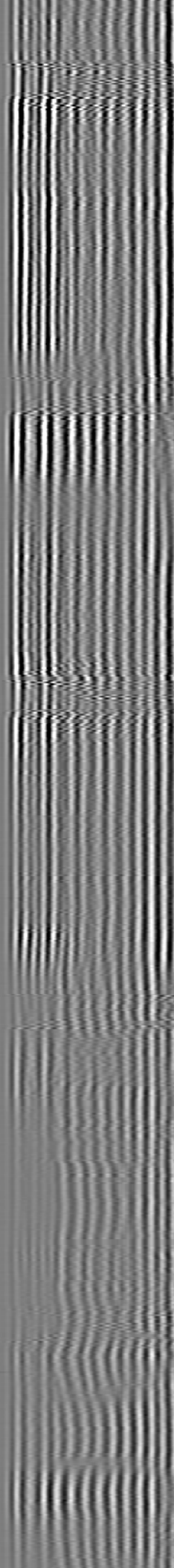
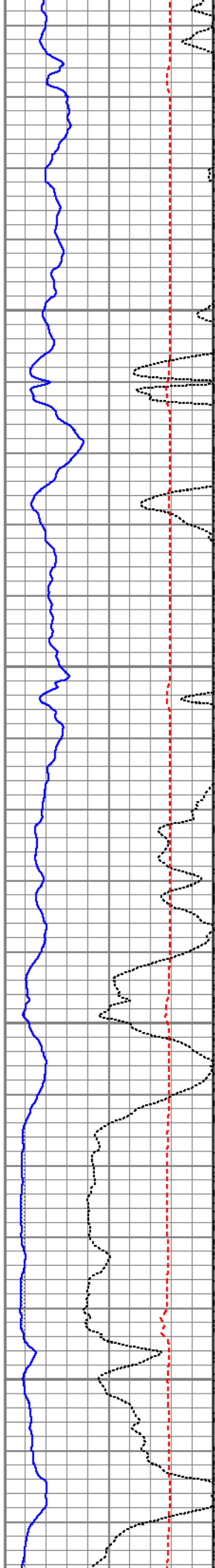


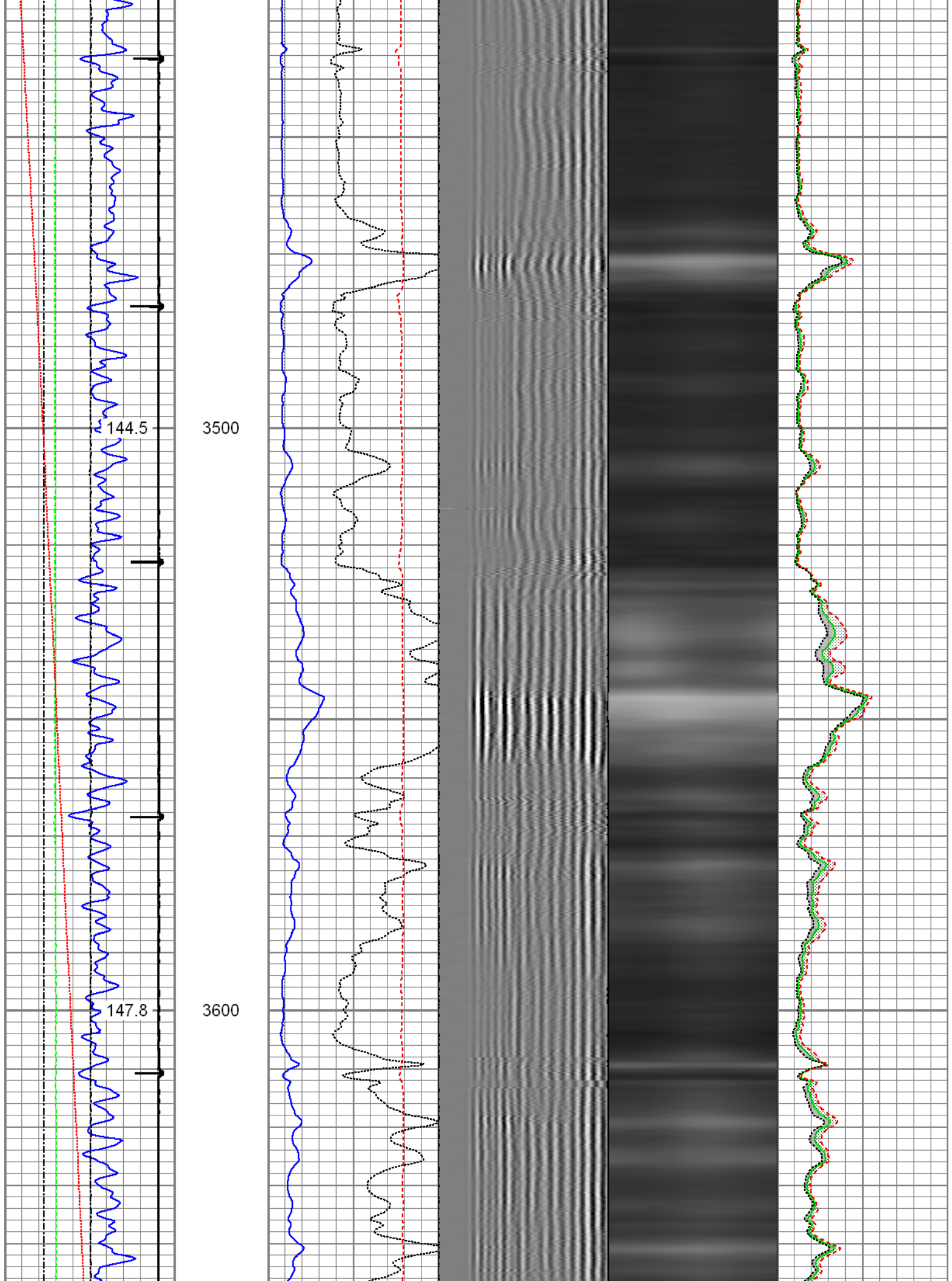
137.8

3300

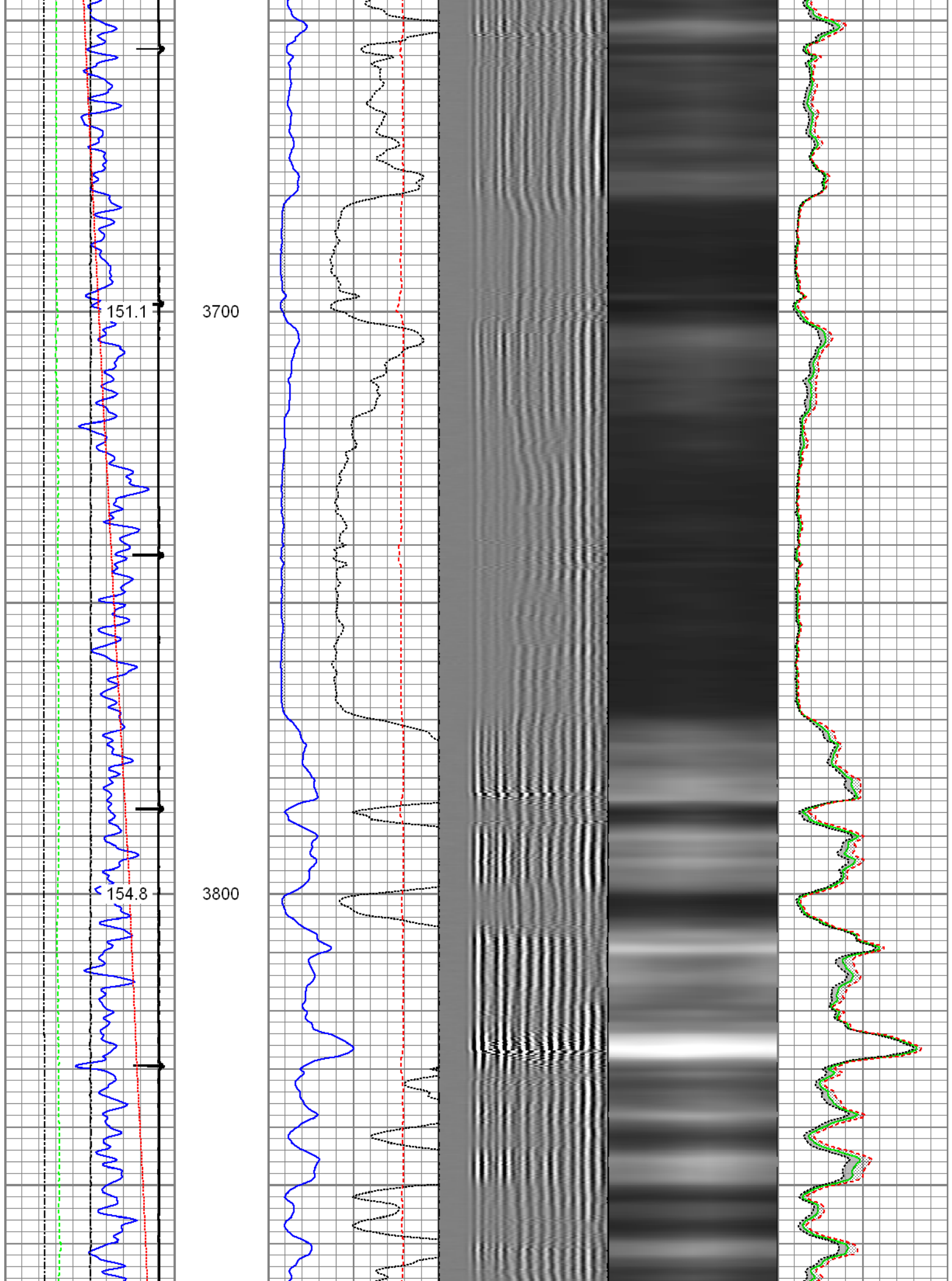
140.9

3400

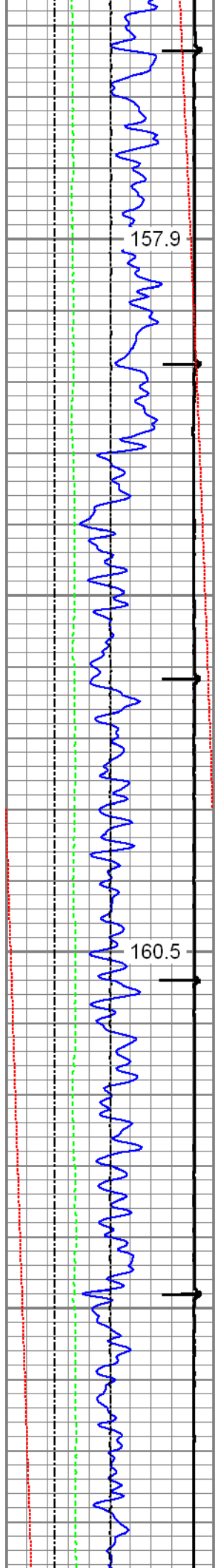






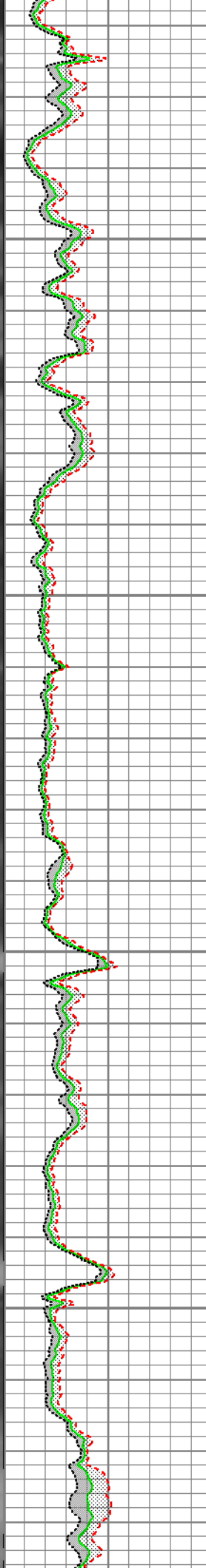
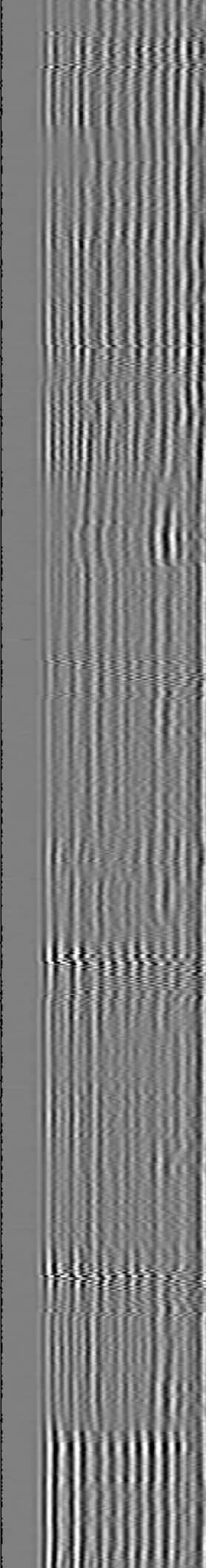
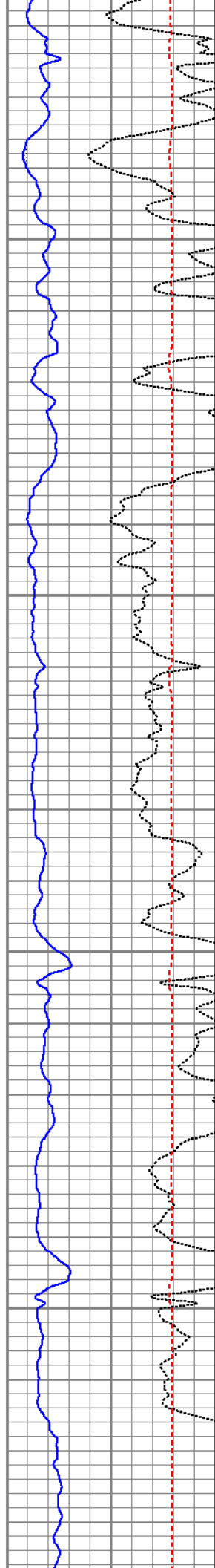


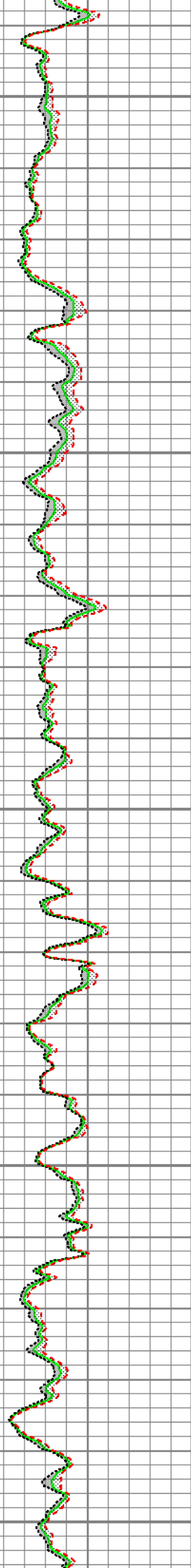
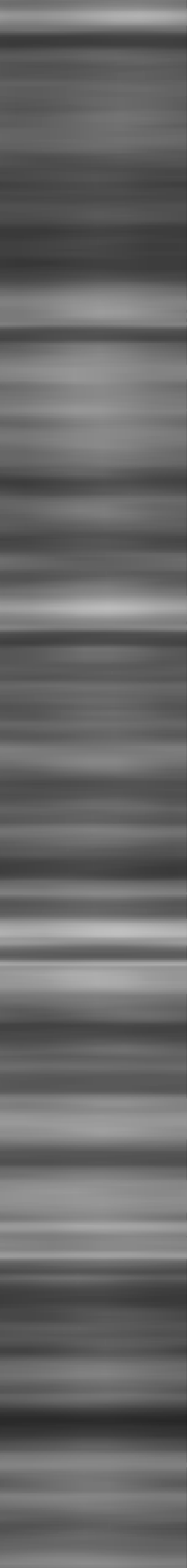
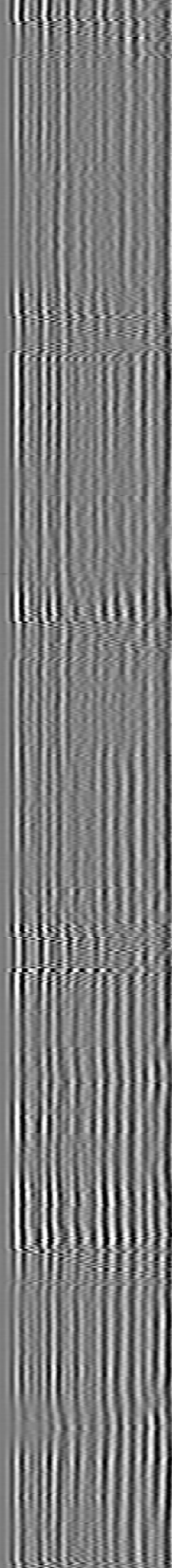
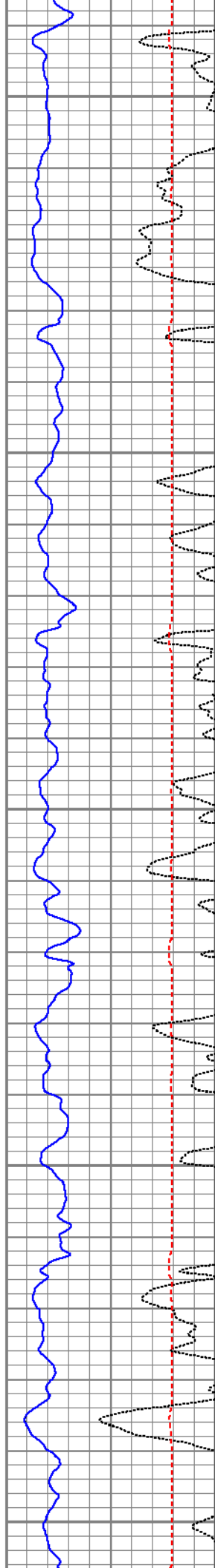
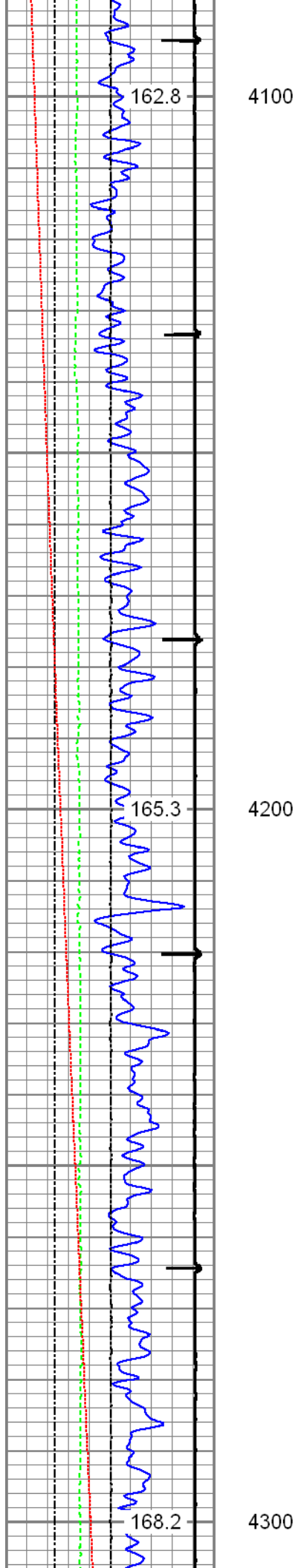


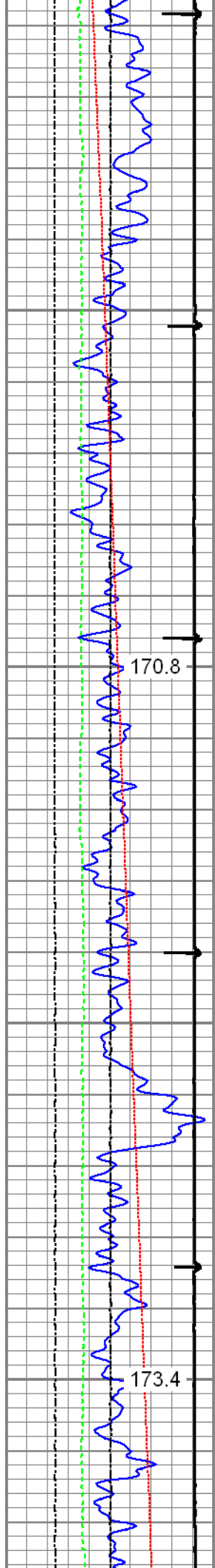


3900

4000

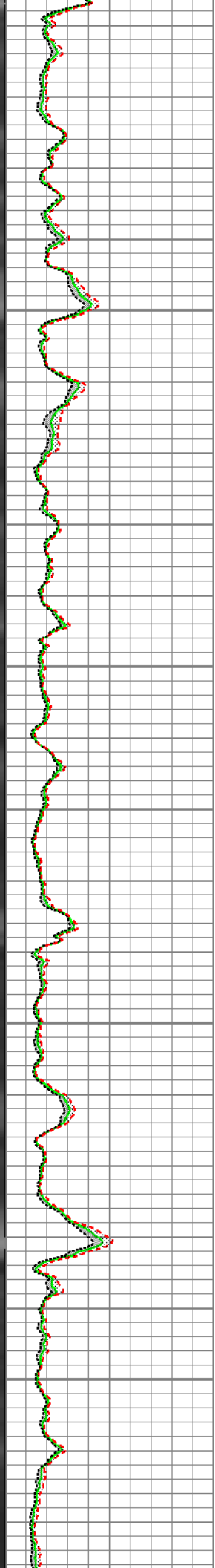
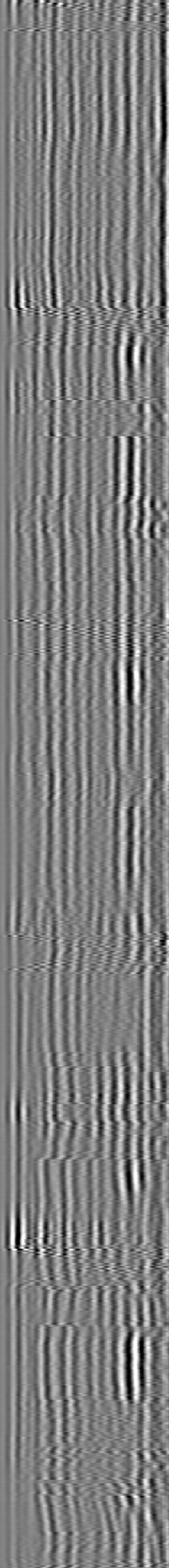
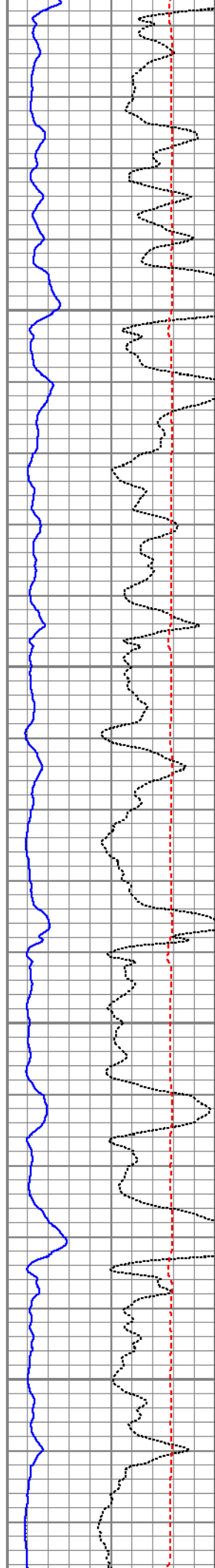


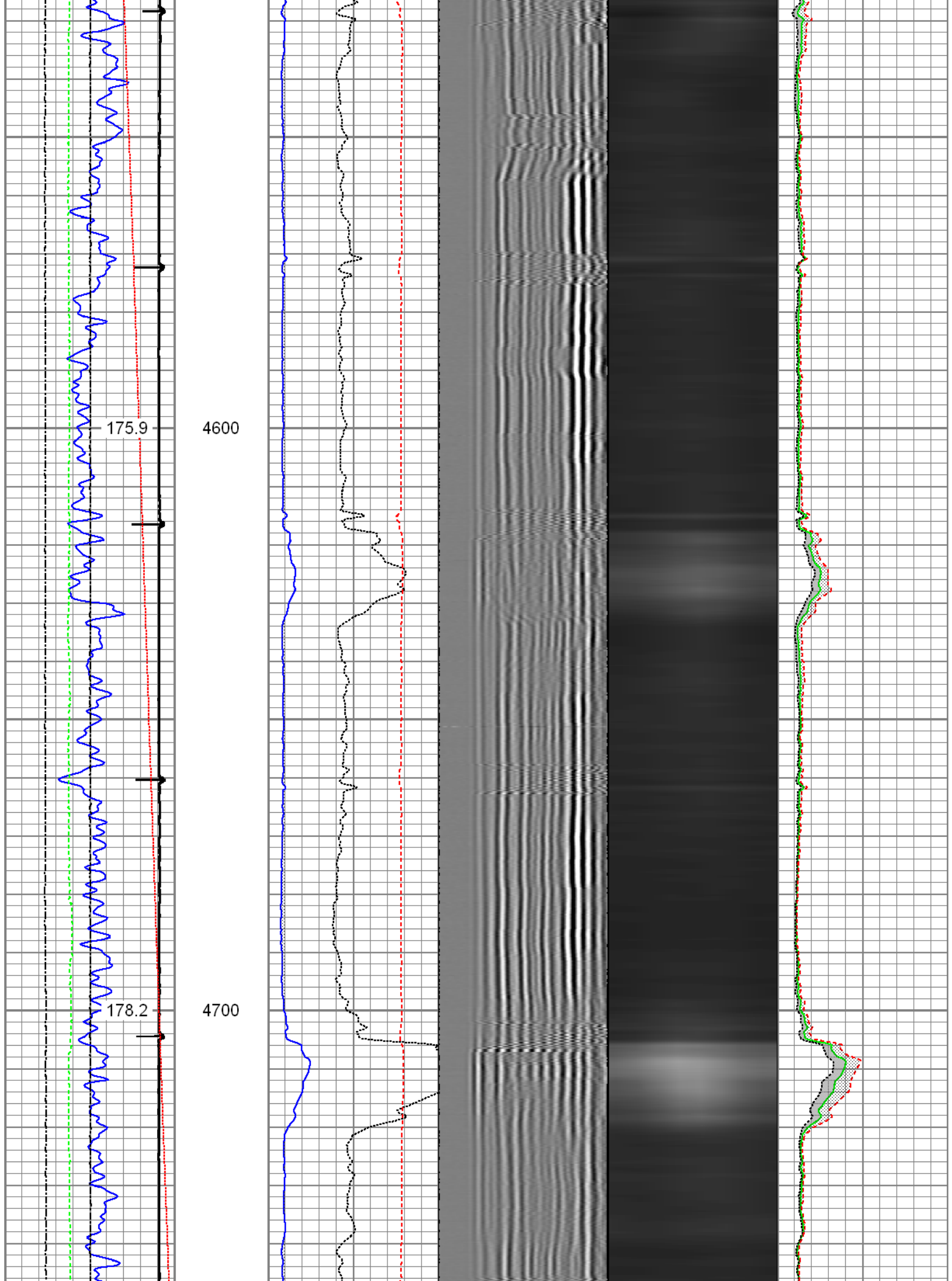




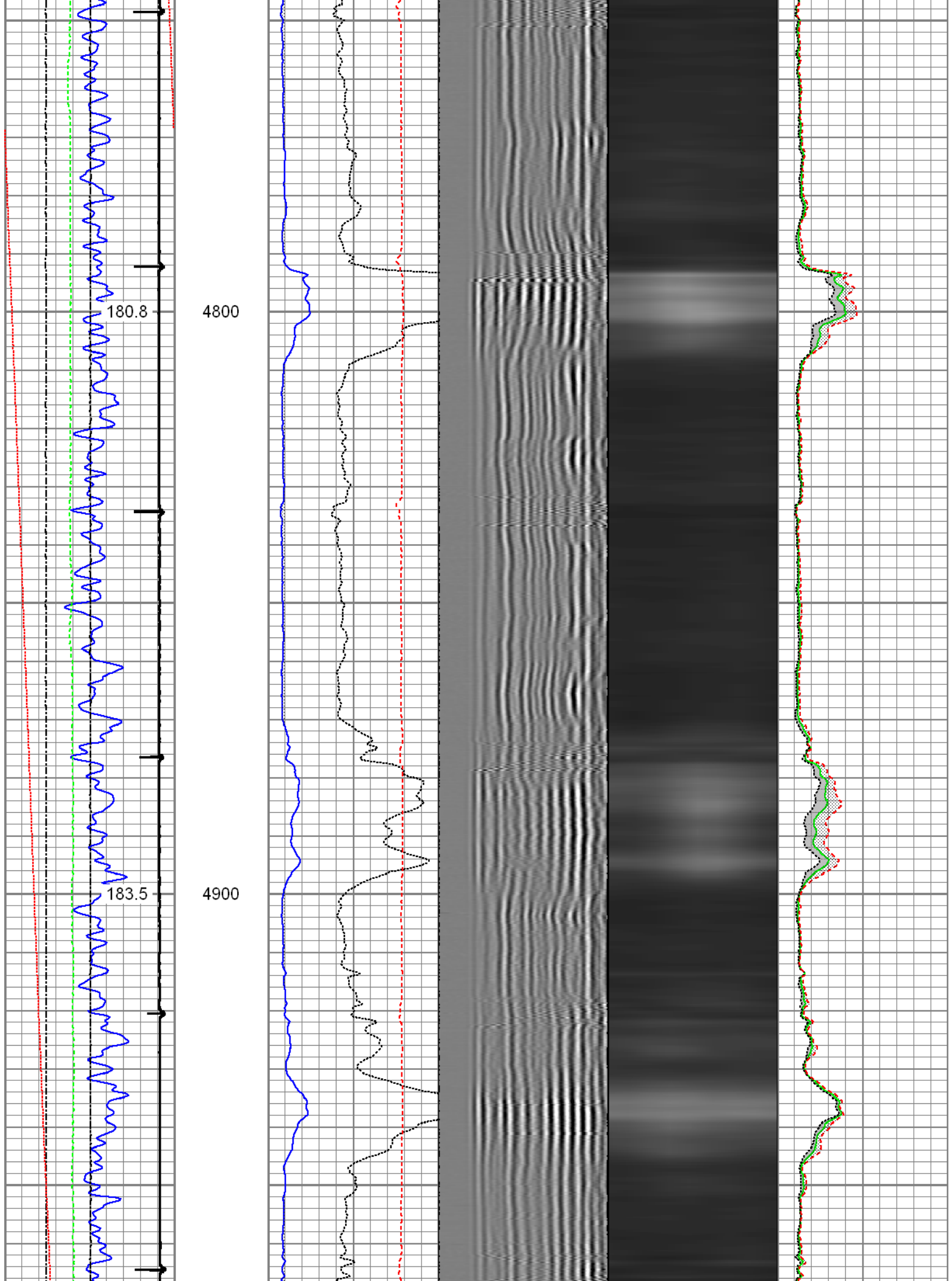
4400

4500

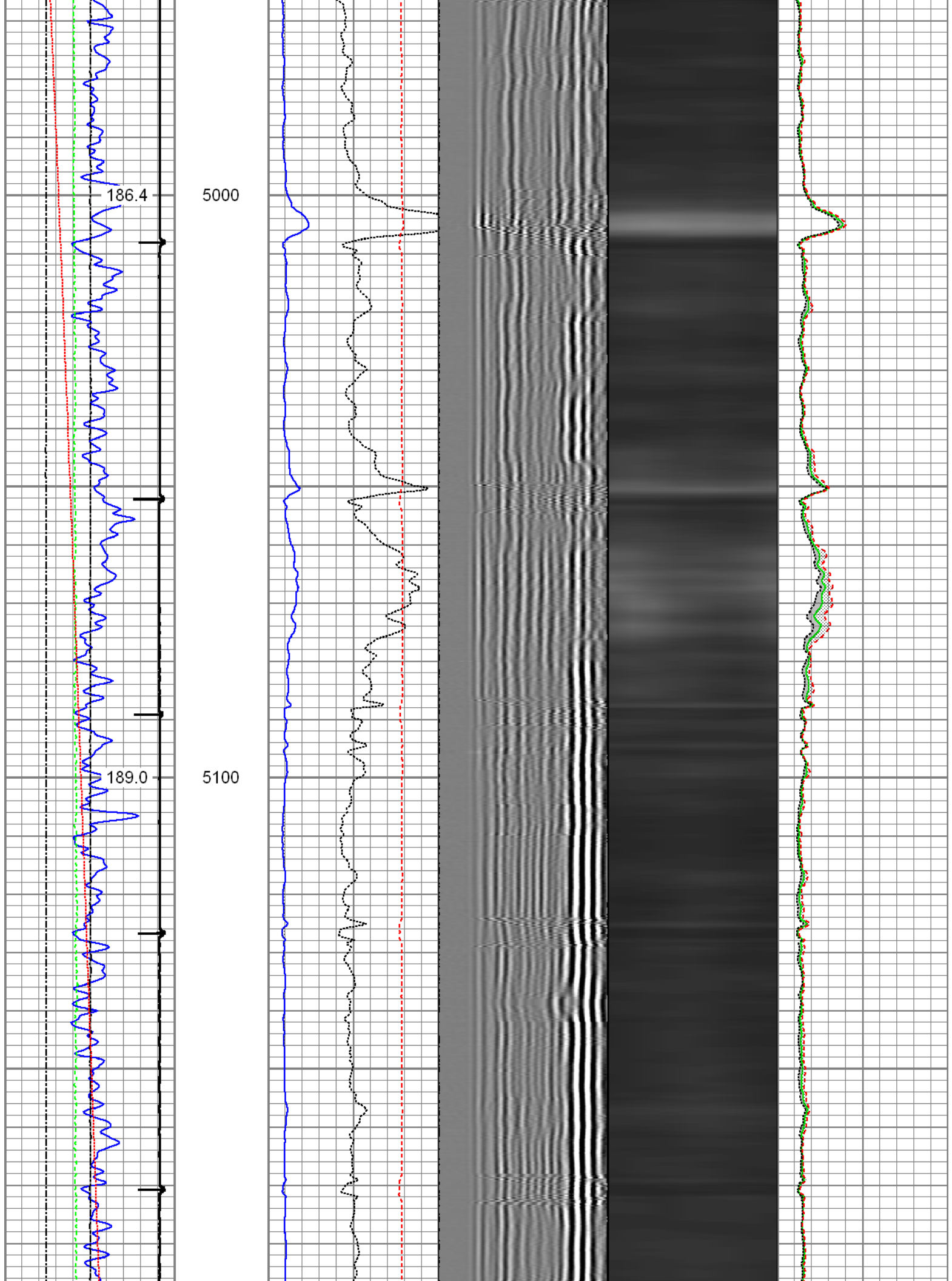


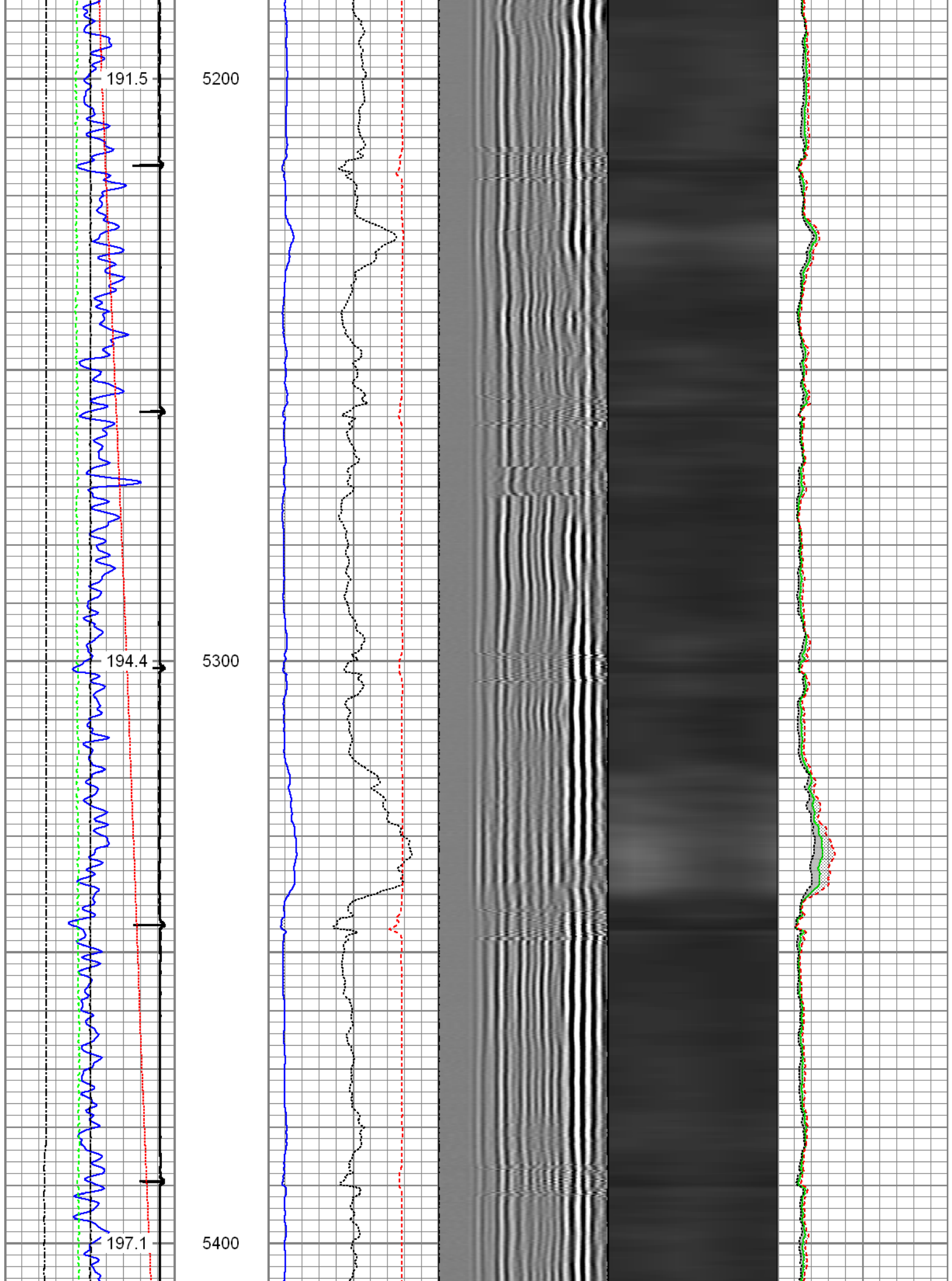


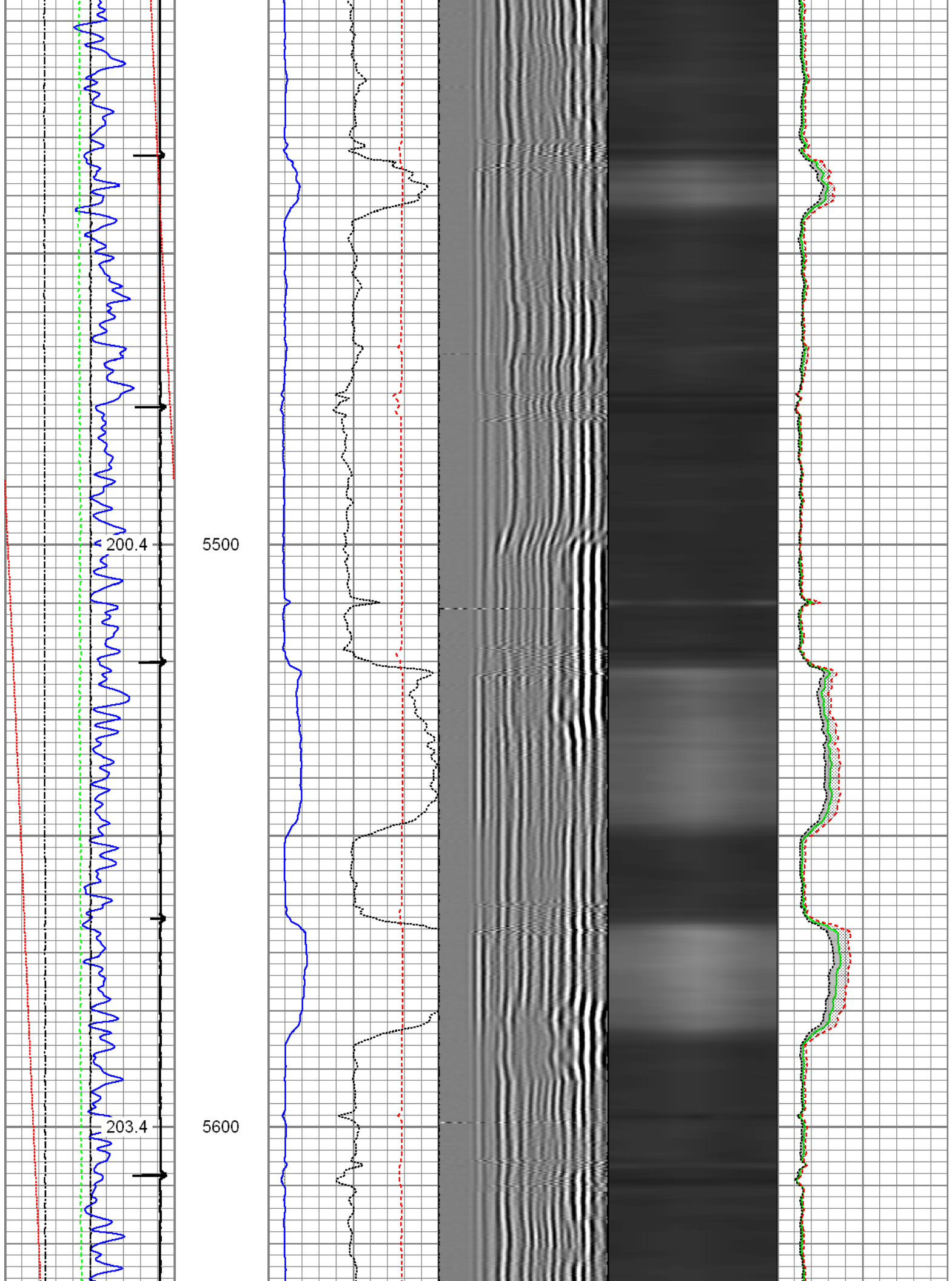


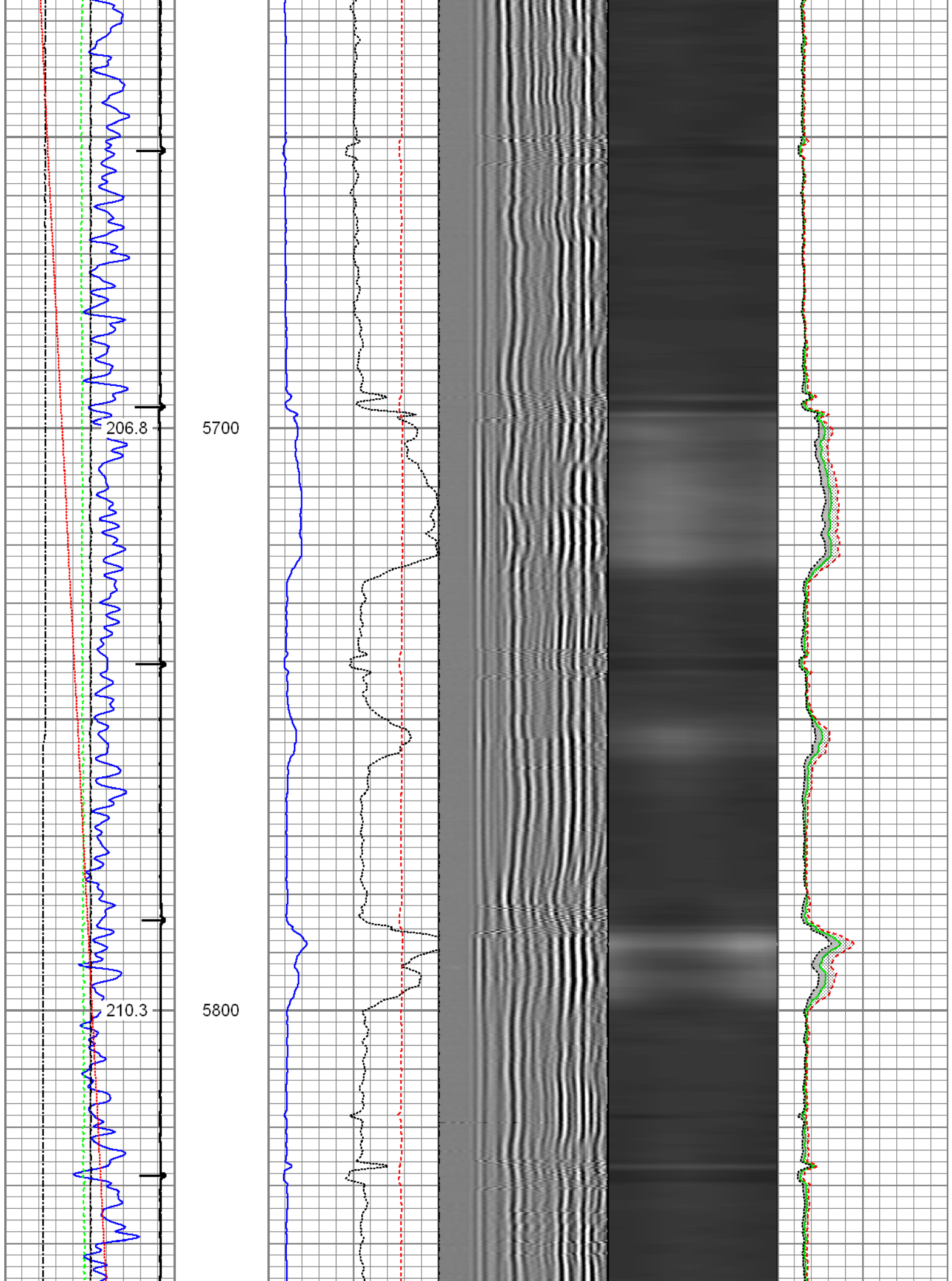




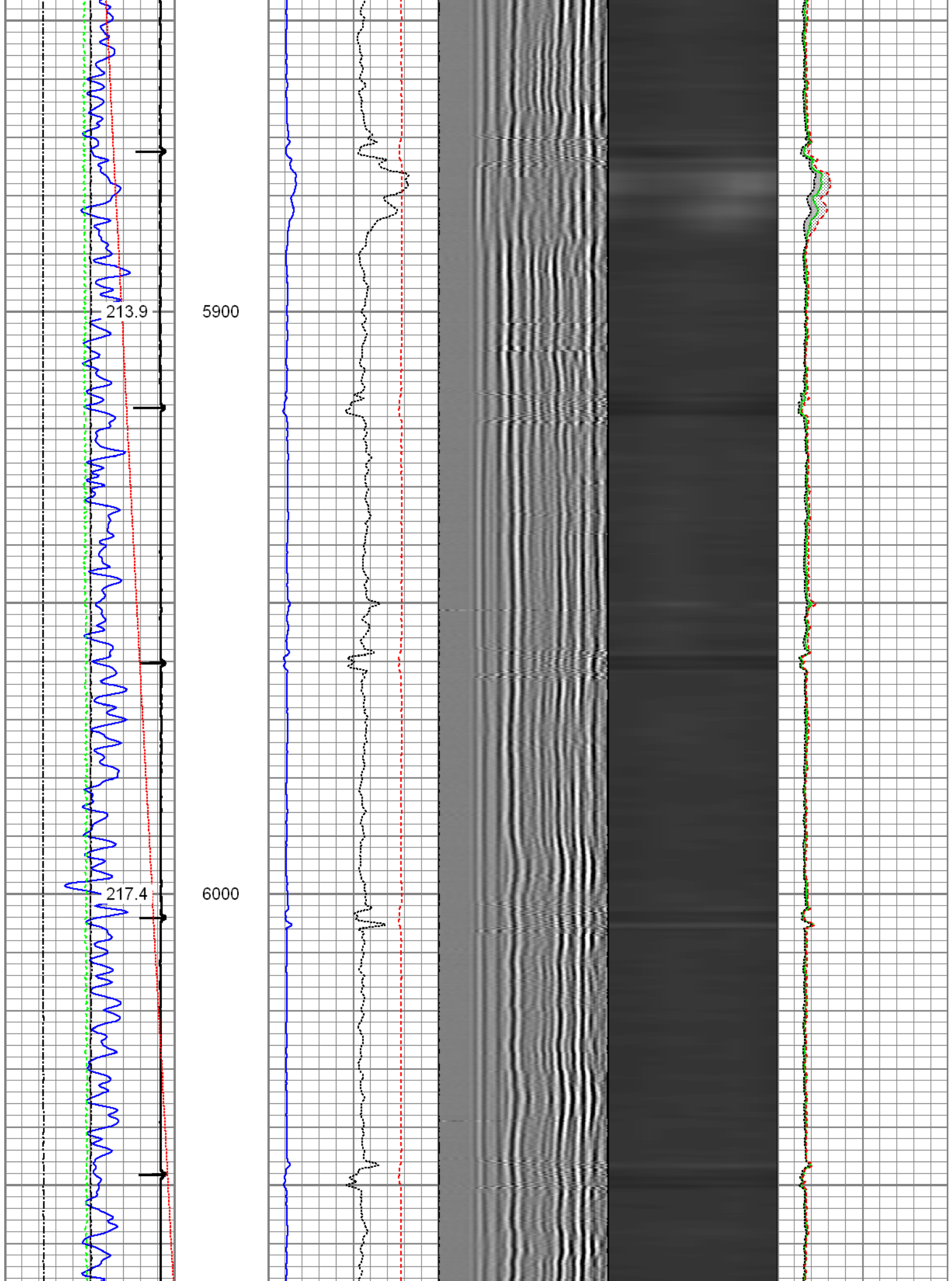


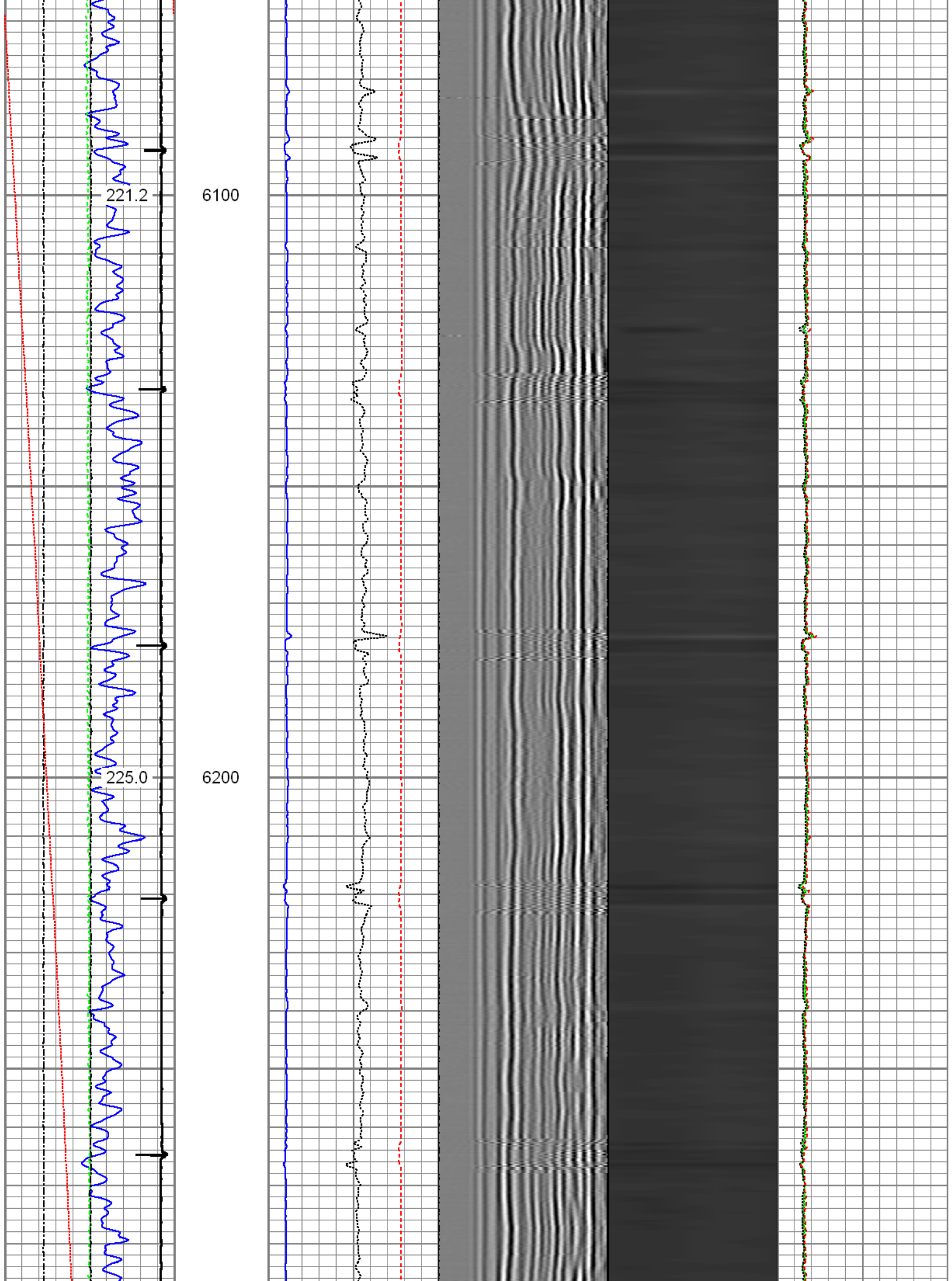


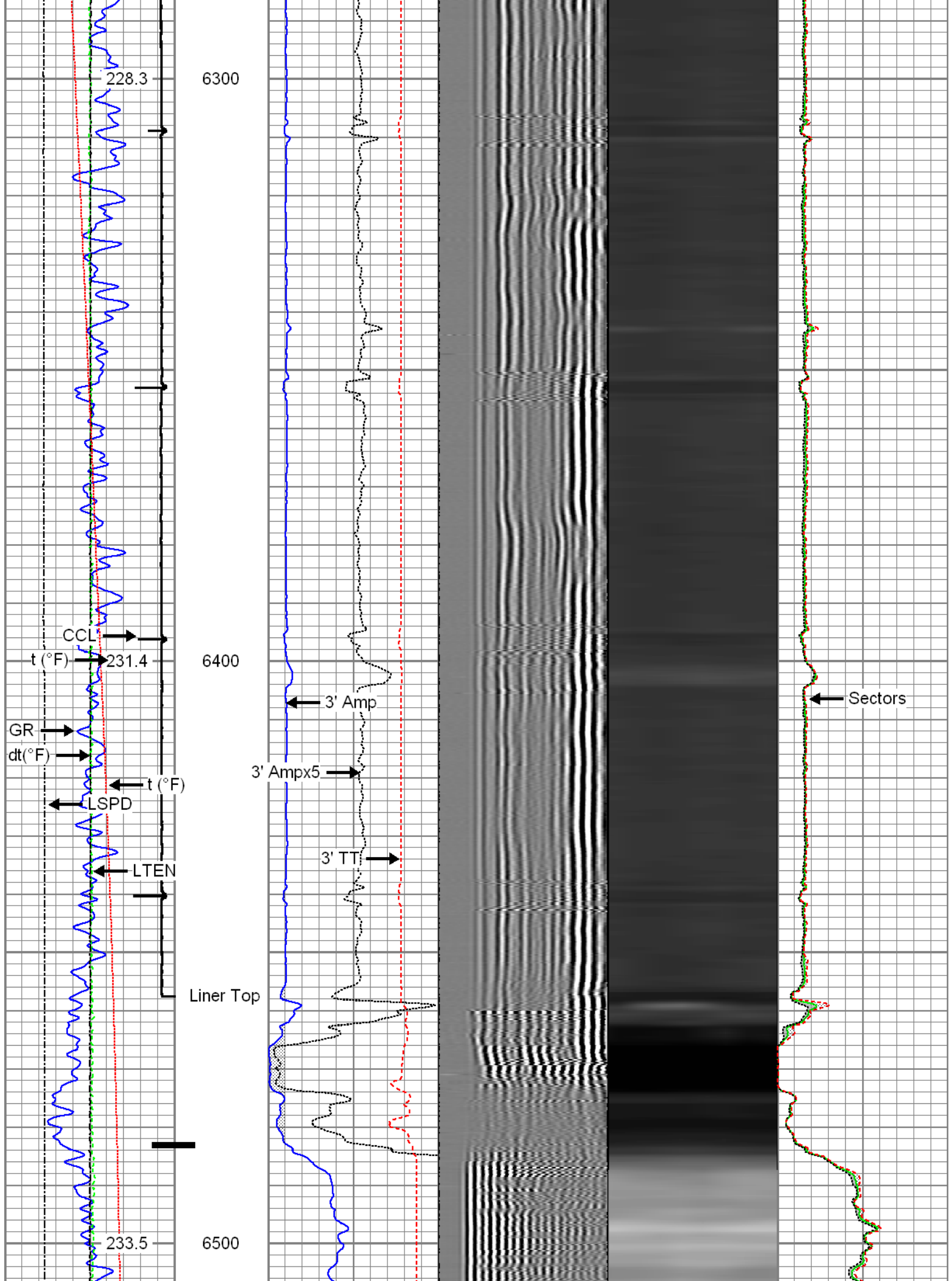


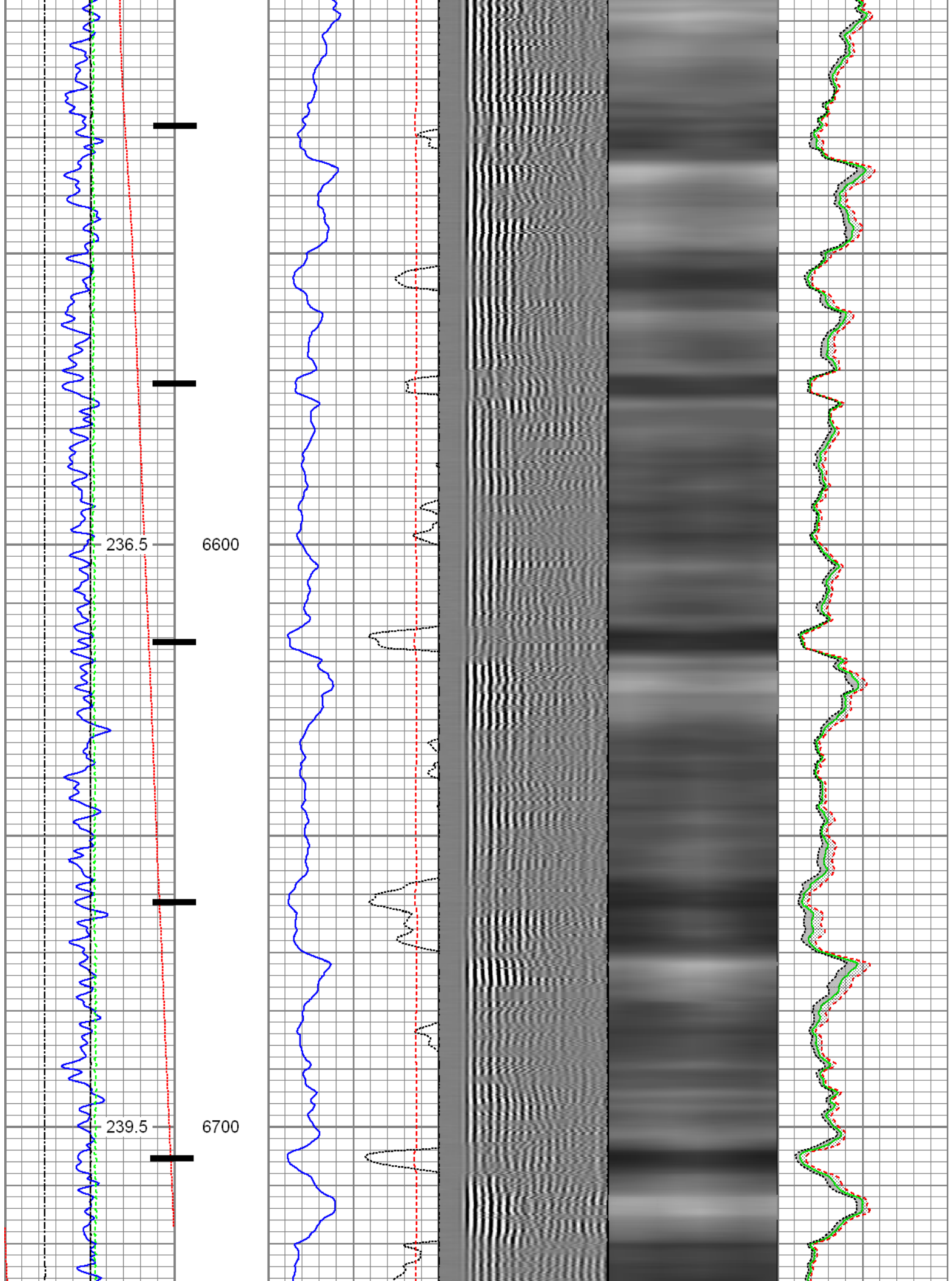




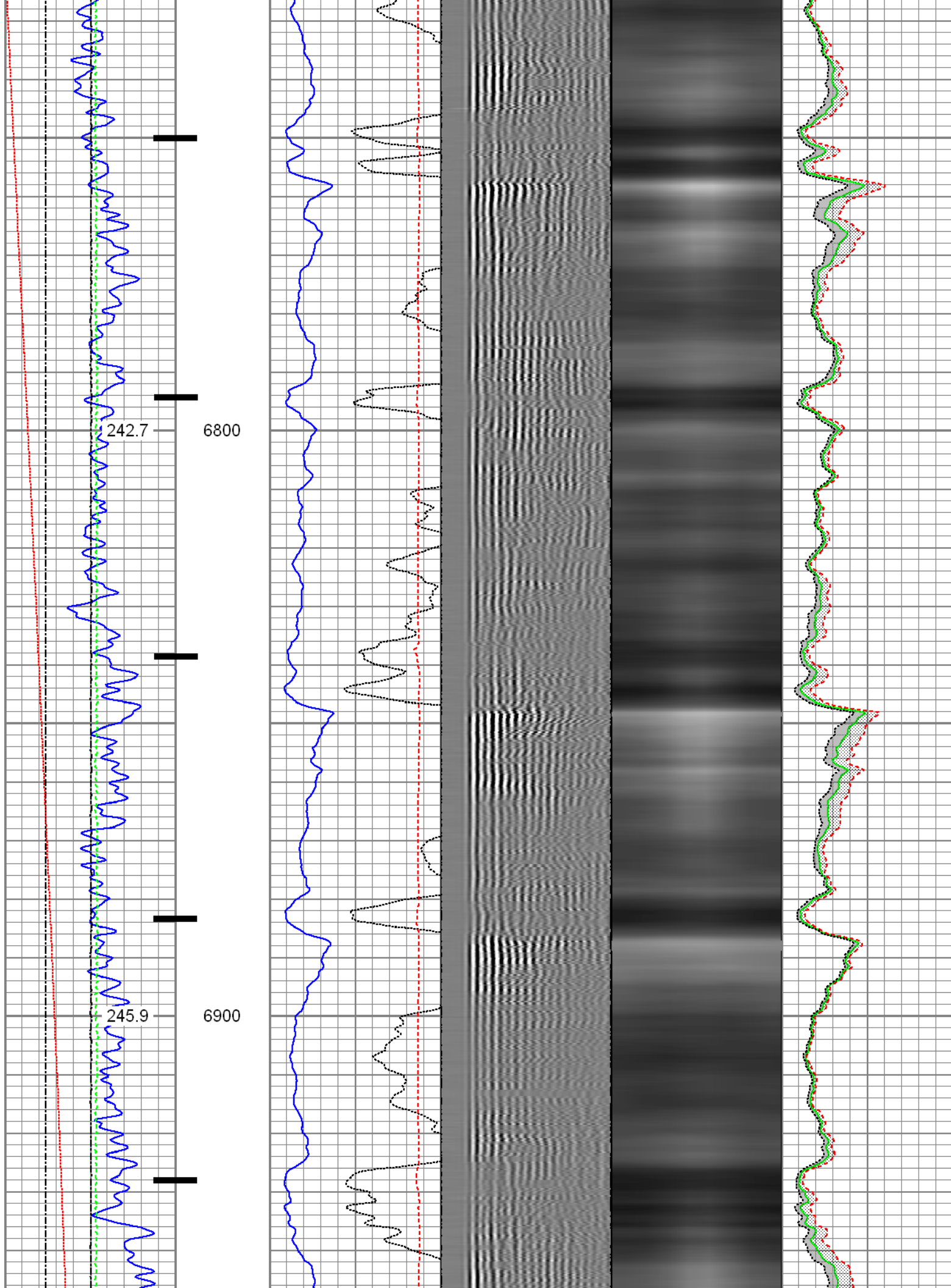


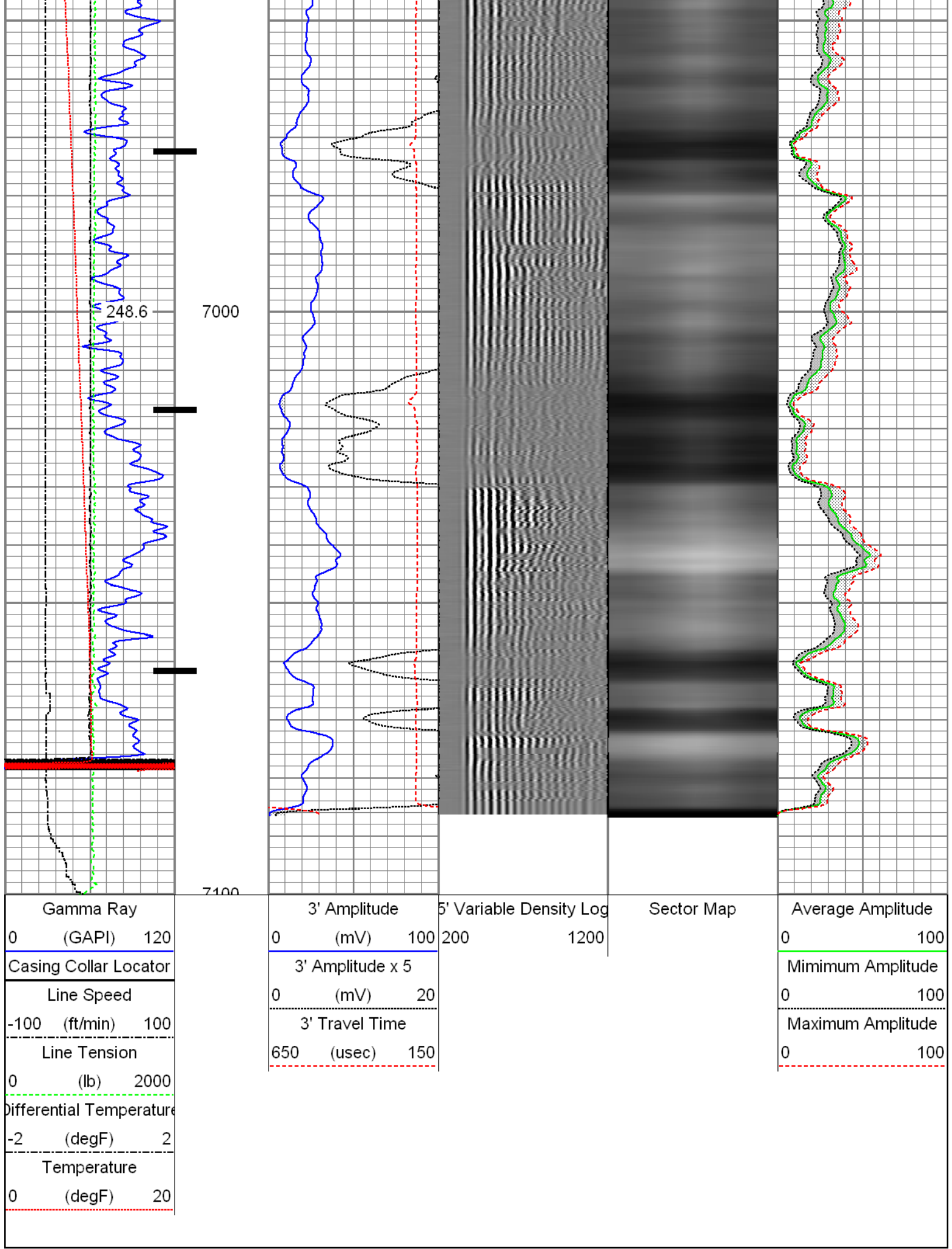






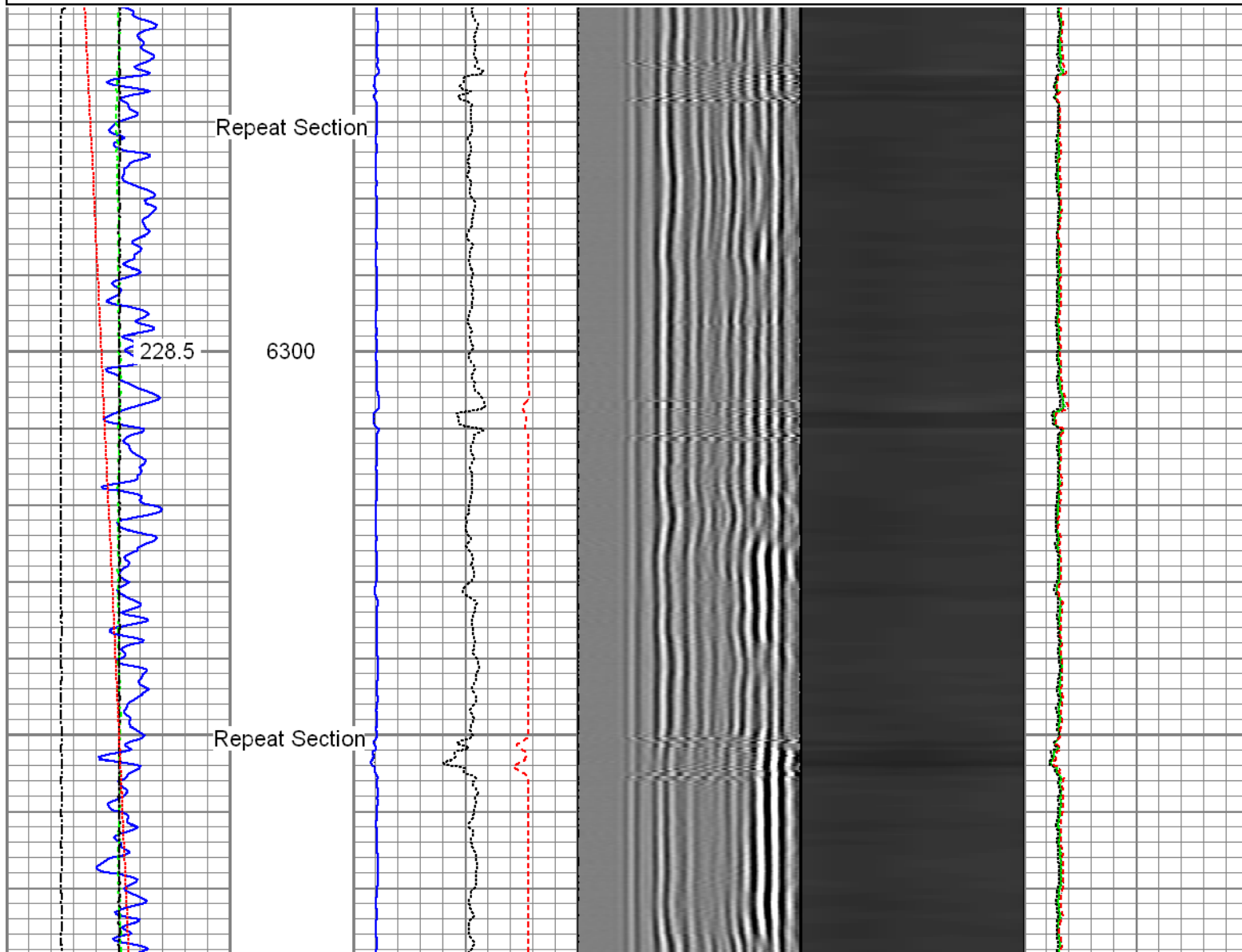


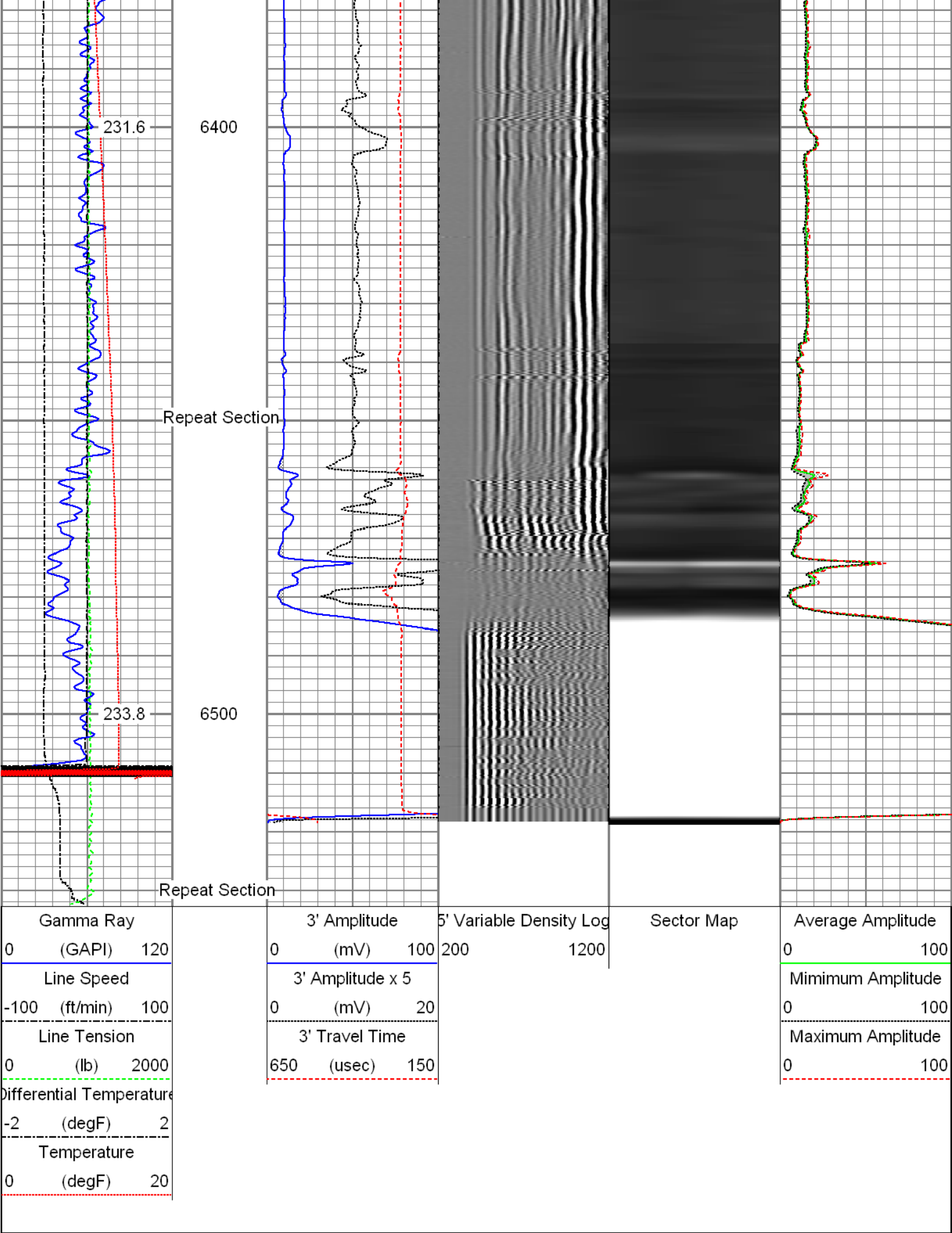




Database File: 0512340962\_anadarko\_cream state 28n-21hz\_07-21-15\_mit\_rbl.db  
 Dataset Pathname: pass1  
 Presentation Format: rbt4\_mit  
 Dataset Creation: Tue Jul 21 10:02:35 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

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				





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
--------	-------------	-----------	-------------	----------	---------	---------





# Calibration Report

Database File: 0512340962\_Anadarko\_Cream State 28N-21HZ\_07-21-15\_MIT\_RBL.db  
 Dataset Pathname: pass4  
 Dataset Creation: Tue Jul 21 13:08:04 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 Jul 21 09:04:53 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1000	395.0	1395	389.0	1784	403.0	2187
Finger 02:	1139	411.0	1550	389.0	1939	397.0	2336
Finger 03:	1052	420.0	1472	409.0	1881	423.0	2304
Finger 04:	1048	402.0	1450	396.0	1846	412.0	2258
Finger 05:	1053	405.0	1458	398.0	1856	413.0	2269
Finger 06:	1050	417.0	1467	399.0	1866	410.0	2276
Finger 07:	1034	416.0	1450	403.0	1853	415.0	2268
Finger 08:	1064	406.0	1470	397.0	1867	410.0	2277
Finger 09:	1051	413.0	1464	396.0	1860	408.0	2268
Finger 10:	1060	409.0	1469	394.0	1863	410.0	2273
Finger 11:	1061	410.0	1471	391.0	1862	405.0	2267
Finger 12:	1063	410.0	1473	393.0	1866	410.0	2276
Finger 13:	1069	406.0	1475	385.0	1860	400.0	2260
Finger 14:	1054	417.0	1471	394.0	1865	411.0	2276
Finger 15:	1004	419.0	1423	403.0	1826	426.0	2252
Finger 16:	1023	415.0	1438	402.0	1840	425.0	2265
Finger 17:	939	393.0	1332	387.0	1719	421.0	2140
Finger 18:	1075	405.0	1480	385.0	1865	408.0	2273
Finger 19:	1036	406.0	1442	393.0	1835	414.0	2249
Finger 20:	1019	413.0	1432	400.0	1832	430.0	2262
Finger 21:	1036	420.0	1456	399.0	1855	412.0	2267
Finger 22:	1001	415.0	1416	401.0	1817	429.0	2246
Finger 23:	963	416.0	1379	408.0	1787	441.0	2228
Finger 24:	1028	414.0	1442	387.0	1829	403.0	2232
Finger 25:	970	413.0	1383	405.0	1788	437.0	2225
Finger 26:	1105	408.0	1513	376.0	1889	397.0	2286
Finger 27:	1035	415.0	1450	395.0	1845	418.0	2263
Finger 28:	1055	408.0	1463	383.0	1846	408.0	2254
Finger 29:	989	413.0	1402	402.0	1804	430.0	2234
Finger 30:	1042	416.0	1458	396.0	1854	419.0	2273
Finger 31:	1046	406.0	1452	388.0	1840	413.0	2253
Finger 32:	1015	419.0	1434	400.0	1834	428.0	2262
Finger 33:	1104	409.0	1513	378.0	1891	389.0	2280
Finger 34:	1065	402.0	1467	389.0	1856	409.0	2265
Finger 35:	999	418.0	1417	412.0	1829	436.0	2265

Finger 36:	1015	410.0	1425	400.0	1825	423.0	2248
Finger 37:	1071	408.0	1479	392.0	1871	406.0	2277
Finger 38:	1097	408.0	1505	387.0	1892	395.0	2287
Finger 39:	1095	400.0	1495	383.0	1878	397.0	2275
Finger 40:	1039	408.0	1447	401.0	1848	412.0	2260

Post Survey Calibration Check								
Performed:					Tue Jul 21 13:06:54 2015			
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.055	0.027	4.975	-0.013	5.986	-0.007	6.988	-0.006
Finger 02:	4.057	0.028	4.971	-0.014	5.983	-0.009	6.988	-0.006
Finger 03:	4.043	0.021	4.962	-0.019	5.980	-0.010	6.981	-0.010
Finger 04:	4.054	0.027	4.970	-0.015	5.982	-0.009	6.990	-0.005
Finger 05:	4.035	0.017	4.966	-0.017	5.983	-0.009	6.985	-0.007
Finger 06:	4.045	0.022	4.963	-0.019	5.979	-0.011	6.985	-0.008
Finger 07:	4.062	0.031	4.972	-0.014	5.982	-0.009	6.980	-0.010
Finger 08:	4.056	0.028	4.976	-0.012	5.978	-0.011	6.990	-0.005
Finger 09:	4.056	0.028	4.970	-0.015	5.982	-0.009	6.991	-0.005
Finger 10:	4.046	0.023	4.971	-0.015	5.980	-0.010	6.989	-0.005
Finger 11:	4.056	0.028	4.969	-0.016	5.979	-0.011	6.986	-0.007
Finger 12:	4.048	0.024	4.969	-0.015	5.980	-0.010	6.986	-0.007
Finger 13:	4.054	0.027	4.970	-0.015	5.979	-0.010	6.985	-0.008
Finger 14:	4.064	0.032	4.975	-0.013	5.983	-0.009	6.994	-0.003
Finger 15:	4.051	0.026	4.964	-0.018	5.984	-0.008	6.985	-0.008
Finger 16:	4.047	0.024	4.968	-0.016	5.986	-0.007	6.988	-0.006
Finger 17:	4.039	0.020	4.958	-0.021	5.979	-0.010	6.981	-0.009
Finger 18:	4.053	0.026	4.973	-0.014	5.988	-0.006	6.989	-0.006
Finger 19:	4.045	0.023	4.968	-0.016	5.977	-0.012	6.981	-0.009
Finger 20:	4.051	0.026	4.972	-0.014	5.992	-0.004	6.993	-0.003
Finger 21:	4.054	0.027	4.975	-0.012	5.982	-0.009	6.992	-0.004
Finger 22:	4.050	0.025	4.971	-0.014	5.982	-0.009	6.984	-0.008
Finger 23:	4.051	0.025	4.967	-0.016	5.979	-0.010	6.872	-0.064
Finger 24:	4.055	0.027	4.966	-0.017	5.981	-0.010	6.991	-0.004
Finger 25:	4.046	0.023	4.970	-0.015	5.978	-0.011	6.977	-0.012
Finger 26:	4.050	0.025	4.970	-0.015	5.984	-0.008	6.991	-0.004
Finger 27:	4.057	0.028	4.968	-0.016	5.984	-0.008	6.989	-0.005
Finger 28:	4.055	0.027	4.971	-0.015	5.978	-0.011	6.986	-0.007
Finger 29:	4.051	0.026	4.970	-0.015	5.980	-0.010	6.986	-0.007
Finger 30:	4.053	0.027	4.969	-0.016	5.976	-0.012	6.993	-0.004
Finger 31:	4.055	0.028	4.975	-0.012	5.985	-0.008	6.993	-0.004
Finger 32:	4.056	0.028	4.962	-0.019	5.977	-0.012	6.982	-0.009
Finger 33:	4.047	0.023	4.963	-0.019	5.981	-0.010	6.991	-0.004
Finger 34:	4.040	0.020	4.972	-0.014	5.978	-0.011	6.980	-0.010
Finger 35:	4.047	0.024	4.964	-0.018	5.983	-0.008	6.985	-0.008
Finger 36:	4.053	0.026	4.977	-0.011	5.986	-0.007	6.990	-0.005
Finger 37:	4.056	0.028	4.975	-0.013	5.993	-0.004	6.997	-0.001
Finger 38:	4.050	0.025	4.965	-0.018	5.977	-0.011	6.984	-0.008
Finger 39:	4.052	0.026	4.964	-0.018	5.982	-0.009	6.985	-0.007
Finger 40:	4.054	0.027	4.974	-0.013	5.983	-0.009	6.989	-0.006
Average:	4.051	0.026	4.969	-0.015	5.982	-0.009	6.984	-0.008

Segmented Cement Bond Log Calibration Report								
Serial Number:					10013454			
Tool Model:					UW_RBT_004			
Calibration Casing Diameter:					7.000	in		
Calibration Depth:					180.743	ft		

Master Calibration, performed Tue Jul 21 09:18:40 2015:								
Raw (v)			Calibrated (mv)			Results		

	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.001	0.644	0.800	62.165	95.123	0.916
5FT	-0.004	0.363	0.800	62.165	167.568	1.414
S1	-0.001	0.645	0.000	100.000	154.753	0.189
S2	-0.004	0.661	0.000	100.000	150.406	0.529
S3	-0.002	0.656	0.000	100.000	151.848	0.371
S4	-0.004	0.650	0.000	100.000	153.002	0.560
S5	-0.001	0.632	0.000	100.000	157.885	0.216
S6	-0.004	0.616	0.000	100.000	161.508	0.591
S7	-0.002	0.611	0.000	100.000	162.993	0.398
S8	-0.002	0.627	0.000	100.000	158.970	0.390

#### 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: 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: Cream State 28N-21HZ  
 Field: Wattenberg  
 County: Weld  
 State: Colorado