



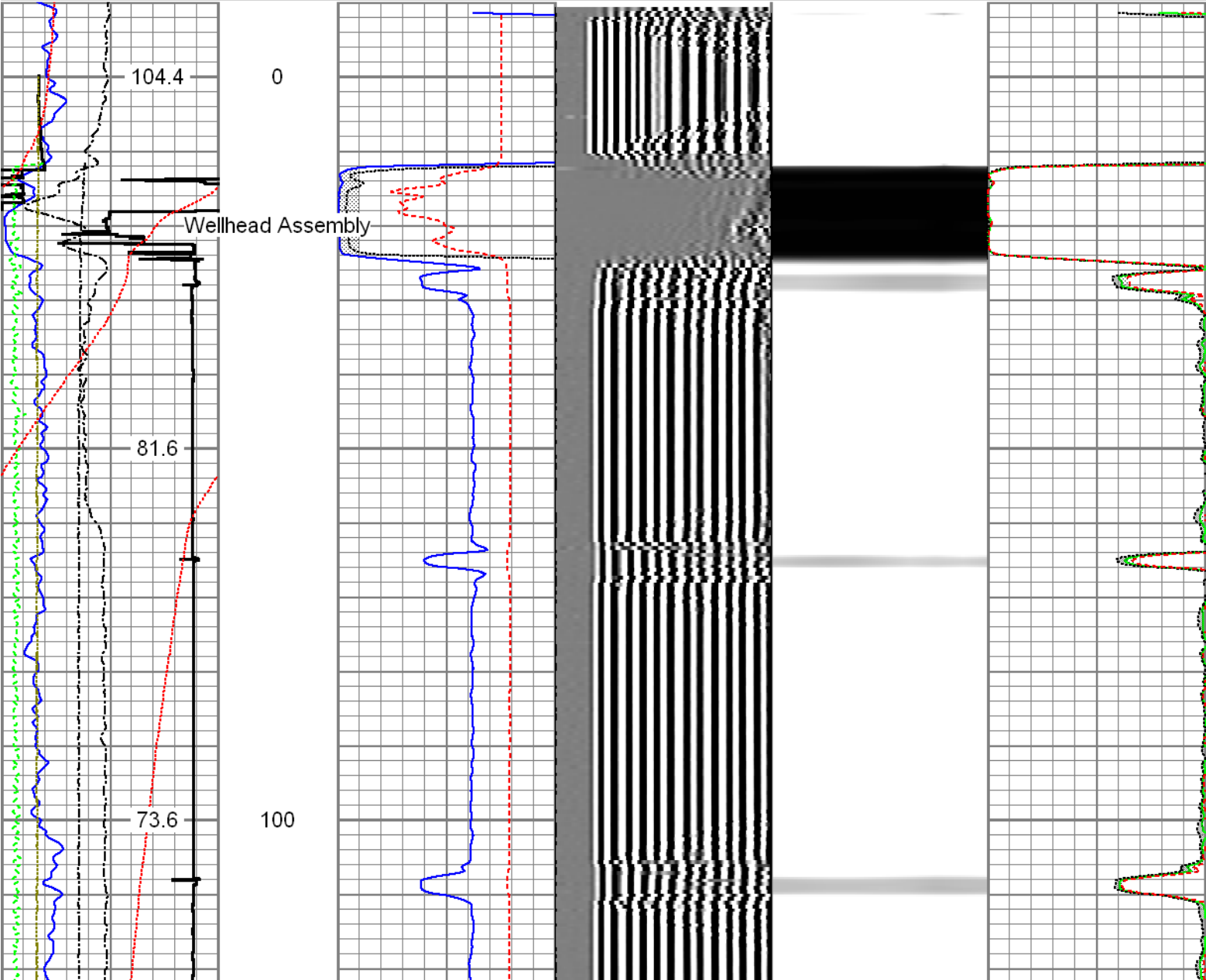
<<< Fold Here >>>
<p>All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible 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.</p>
Comments
<p>Log ran as per customer request</p> <p>Log ran from just above liner top to surface</p> <p>Recorded with 2500 PSI surface induced pressure</p> <p>Logging tools were clean and free of any debris upon completion of operations</p> <p>Thank you for choosing FMC Technologies Completion Services, Inc.!!</p>

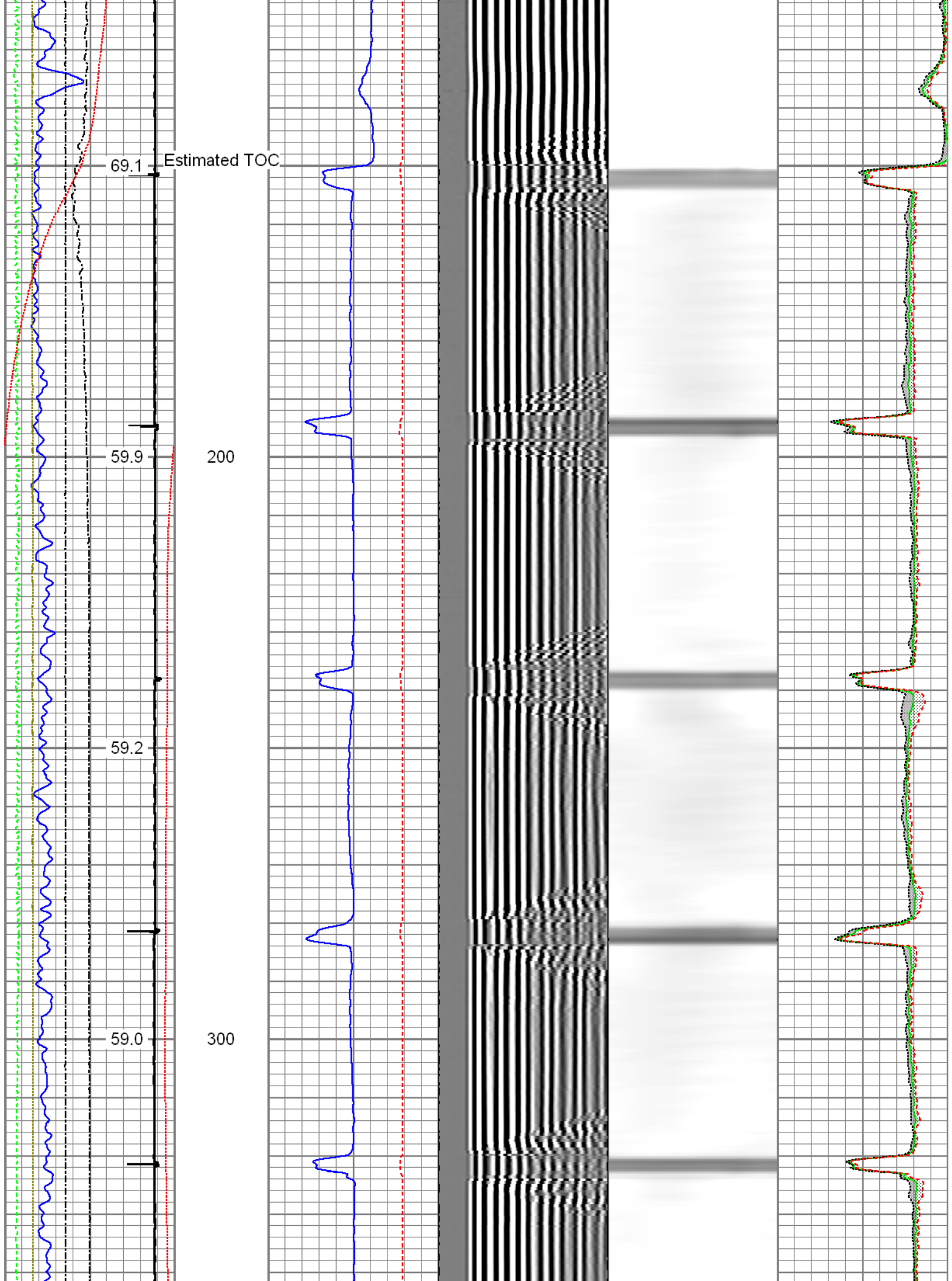


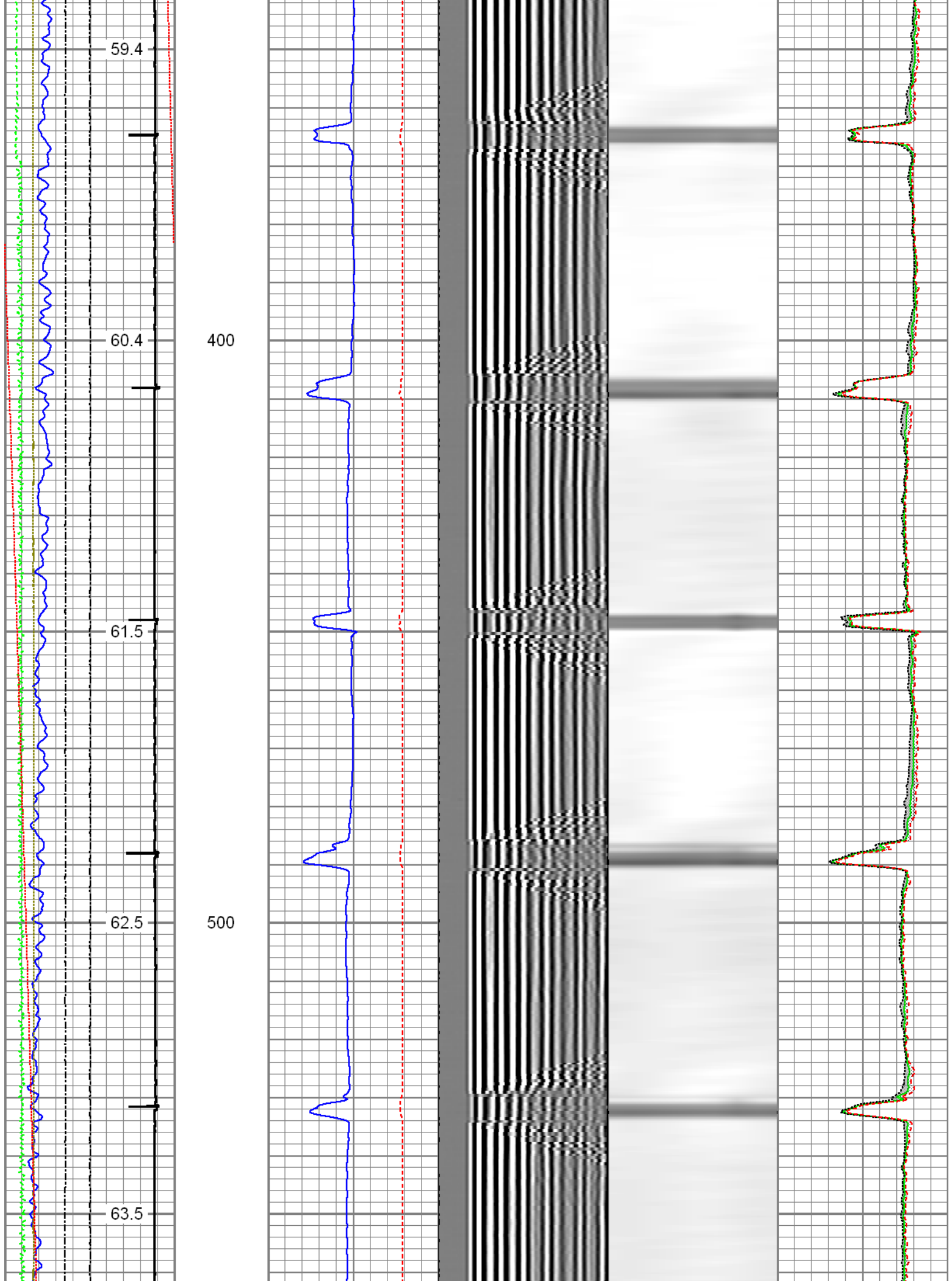
Recorded with 2500 PSI Surface Induced Pressure

Database File: 08-01-15\_noble energy\_70 ranch state bb18-611\_mit\_rbl\_cnl.db  
Dataset Pathname: pass5.2  
Presentation Format: rbt4\_mit  
Dataset Creation: Sun Aug 02 11:52:50 2015 by Calc 7.0 B1  
Charted by: Depth in Feet scaled 1:240

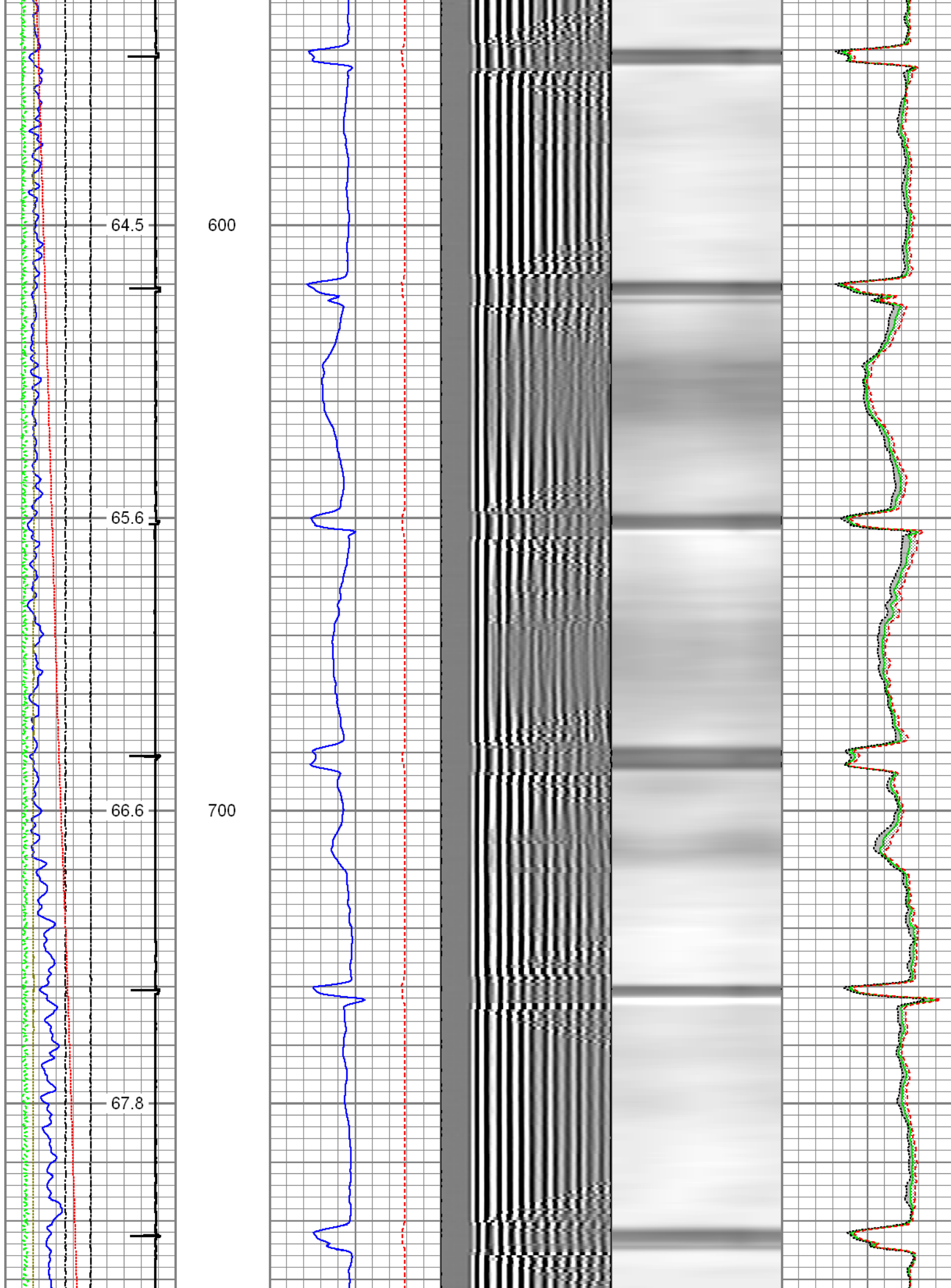
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

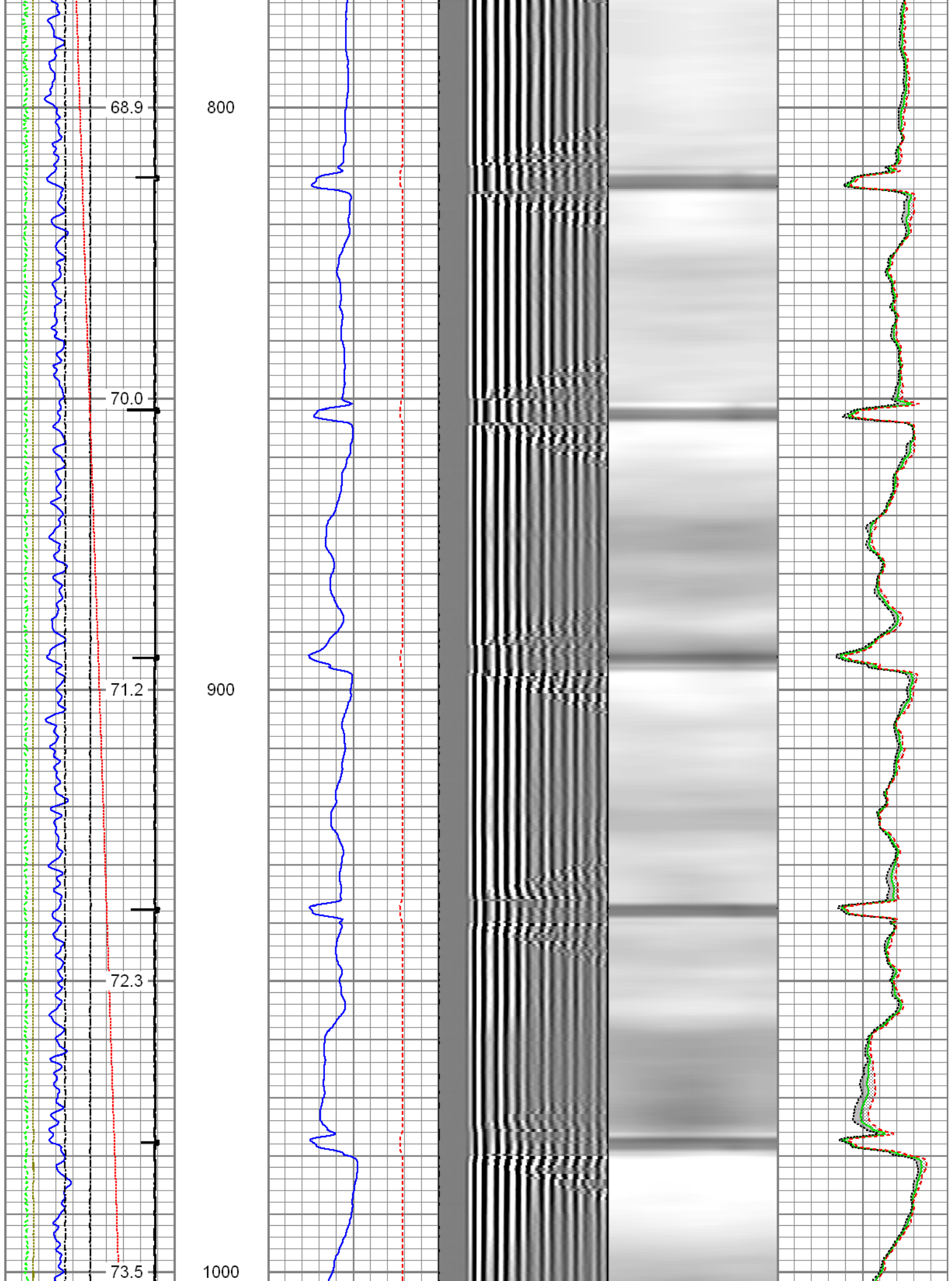


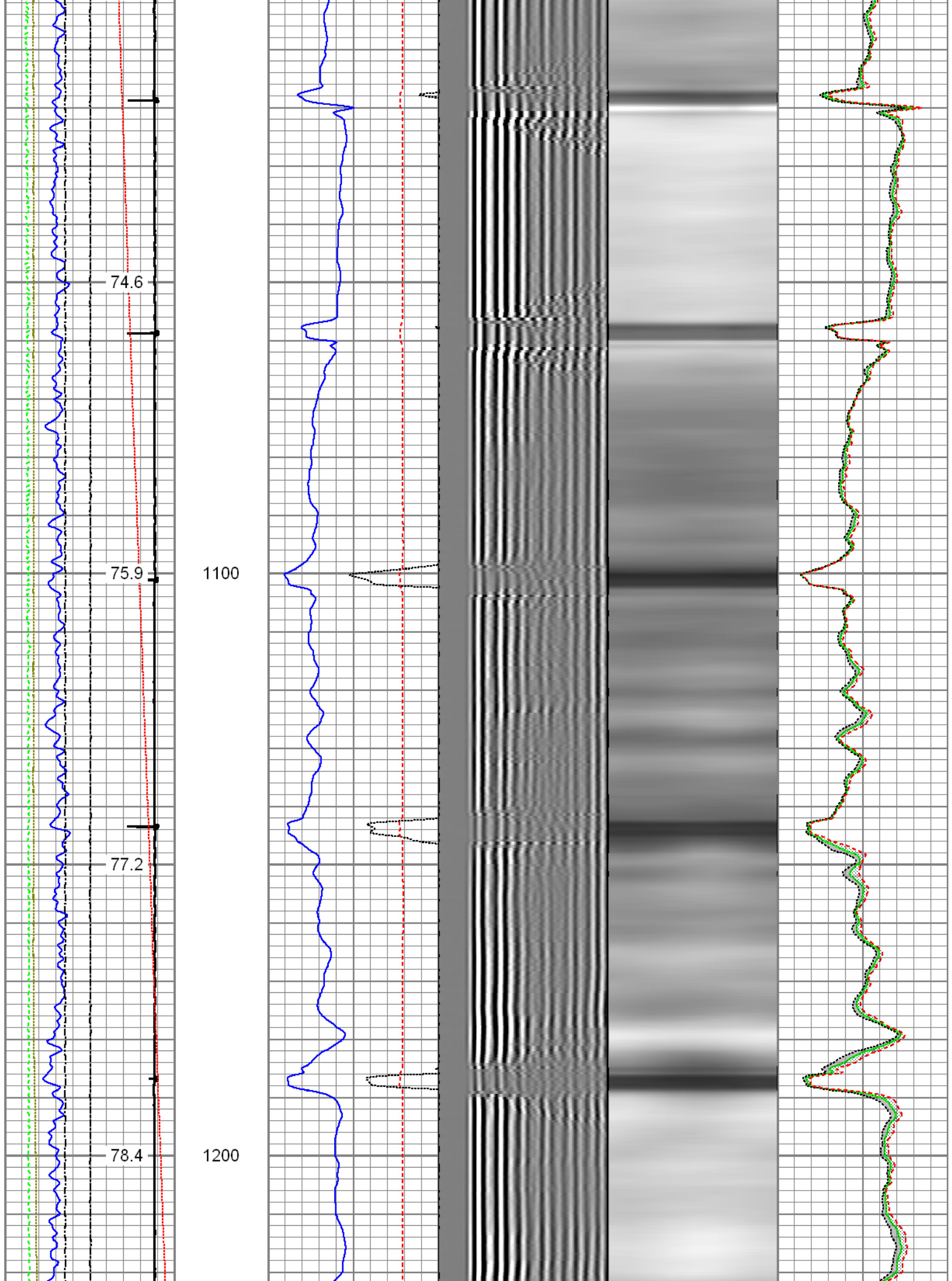


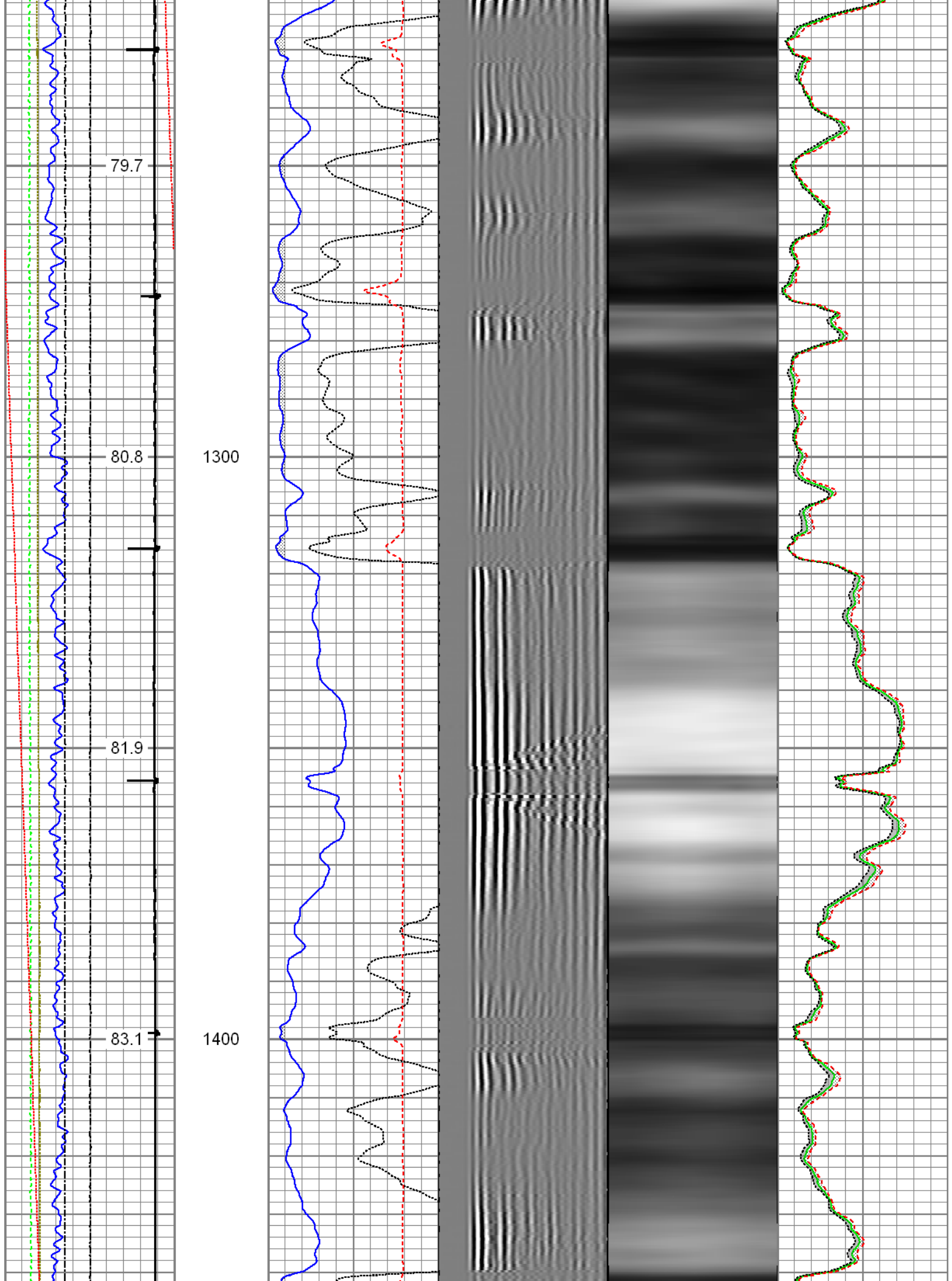


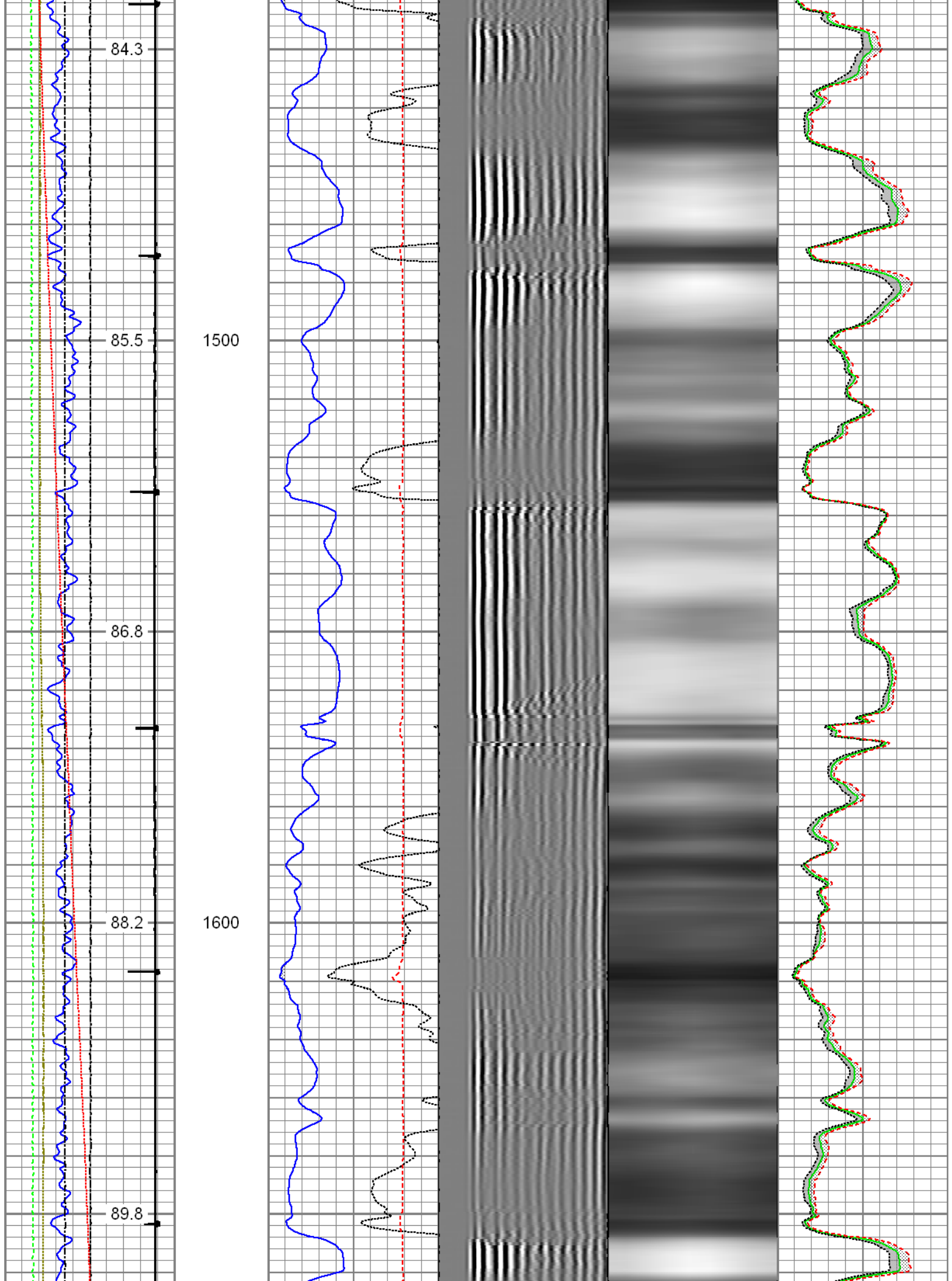




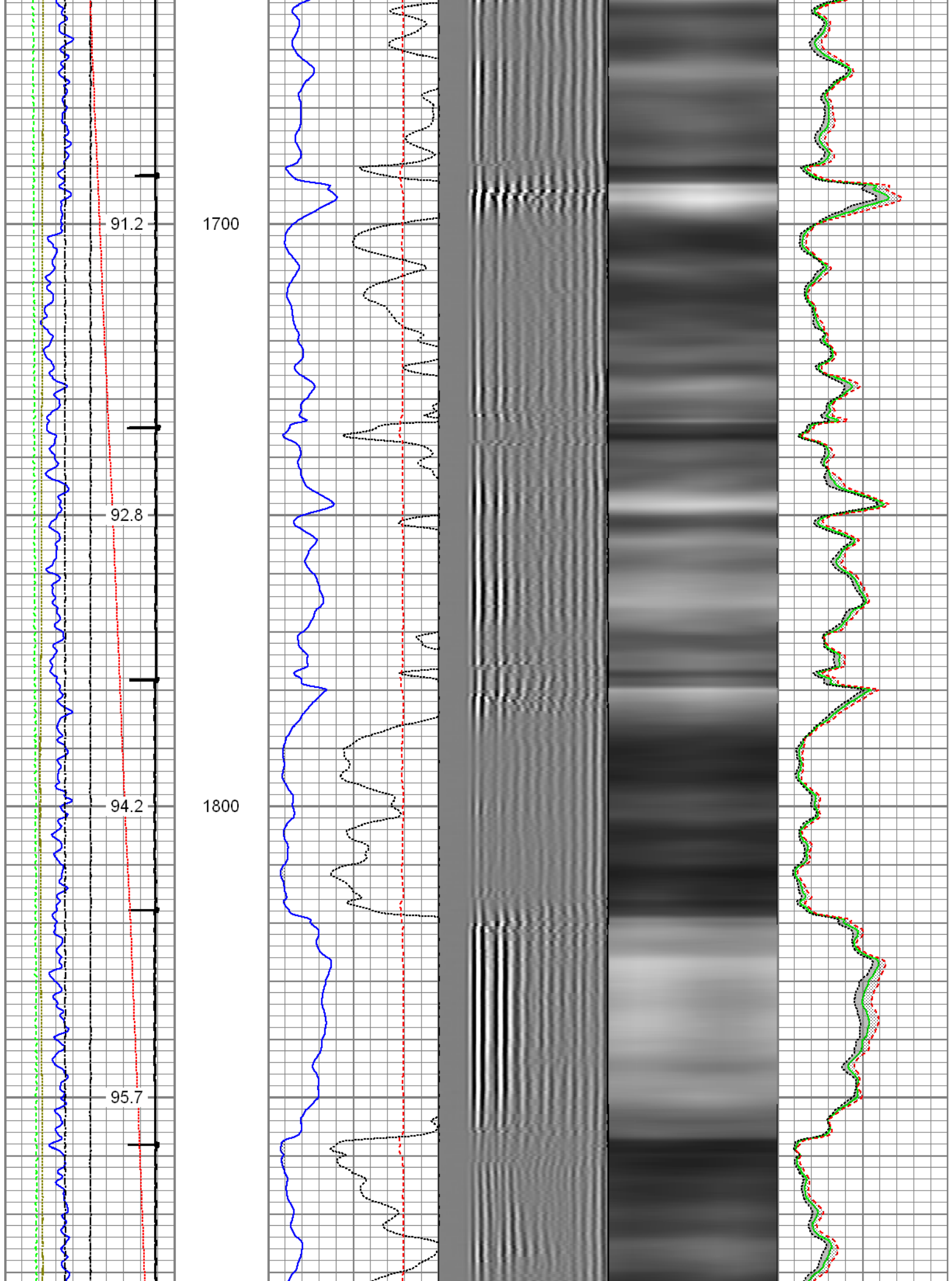




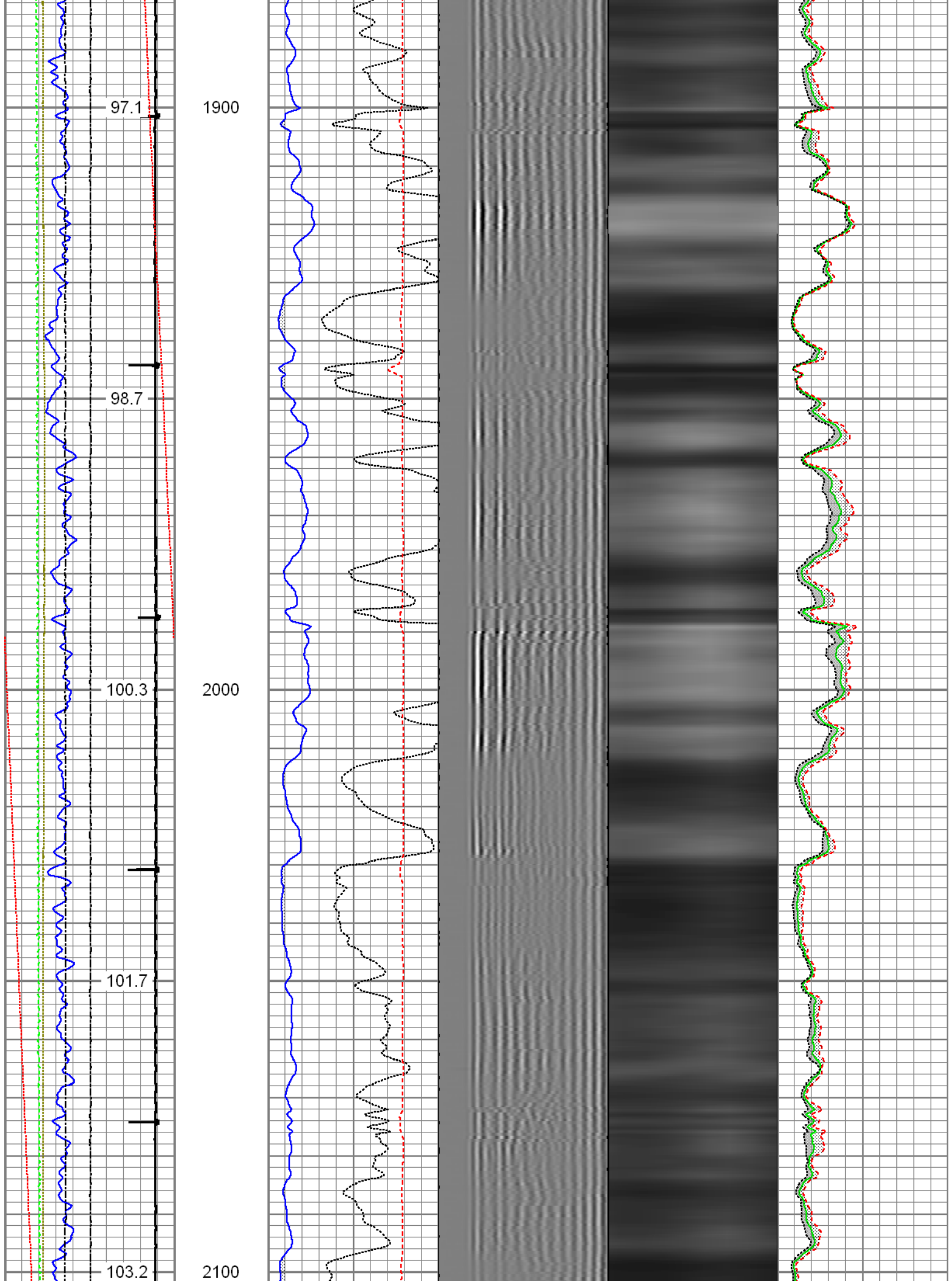


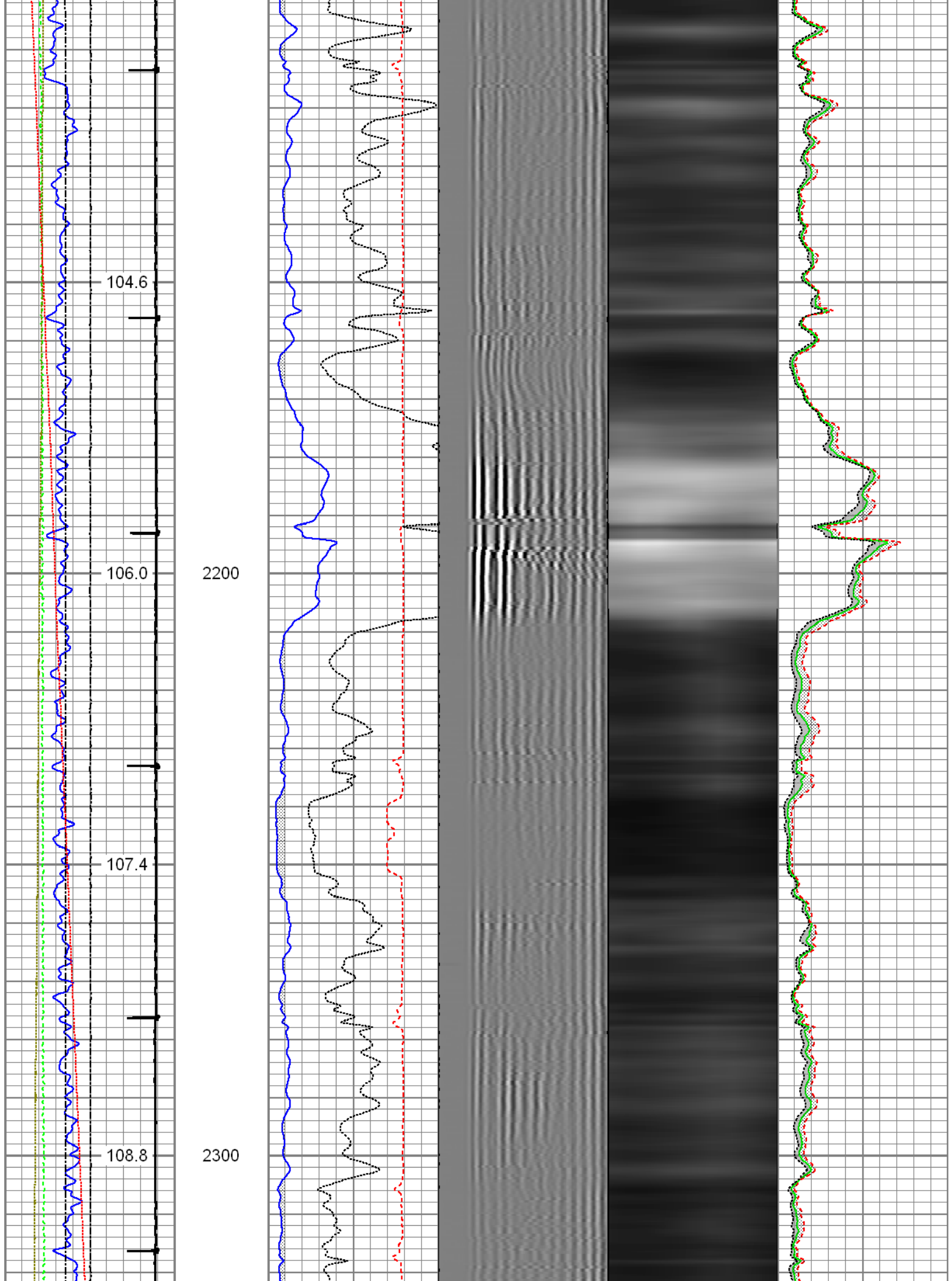


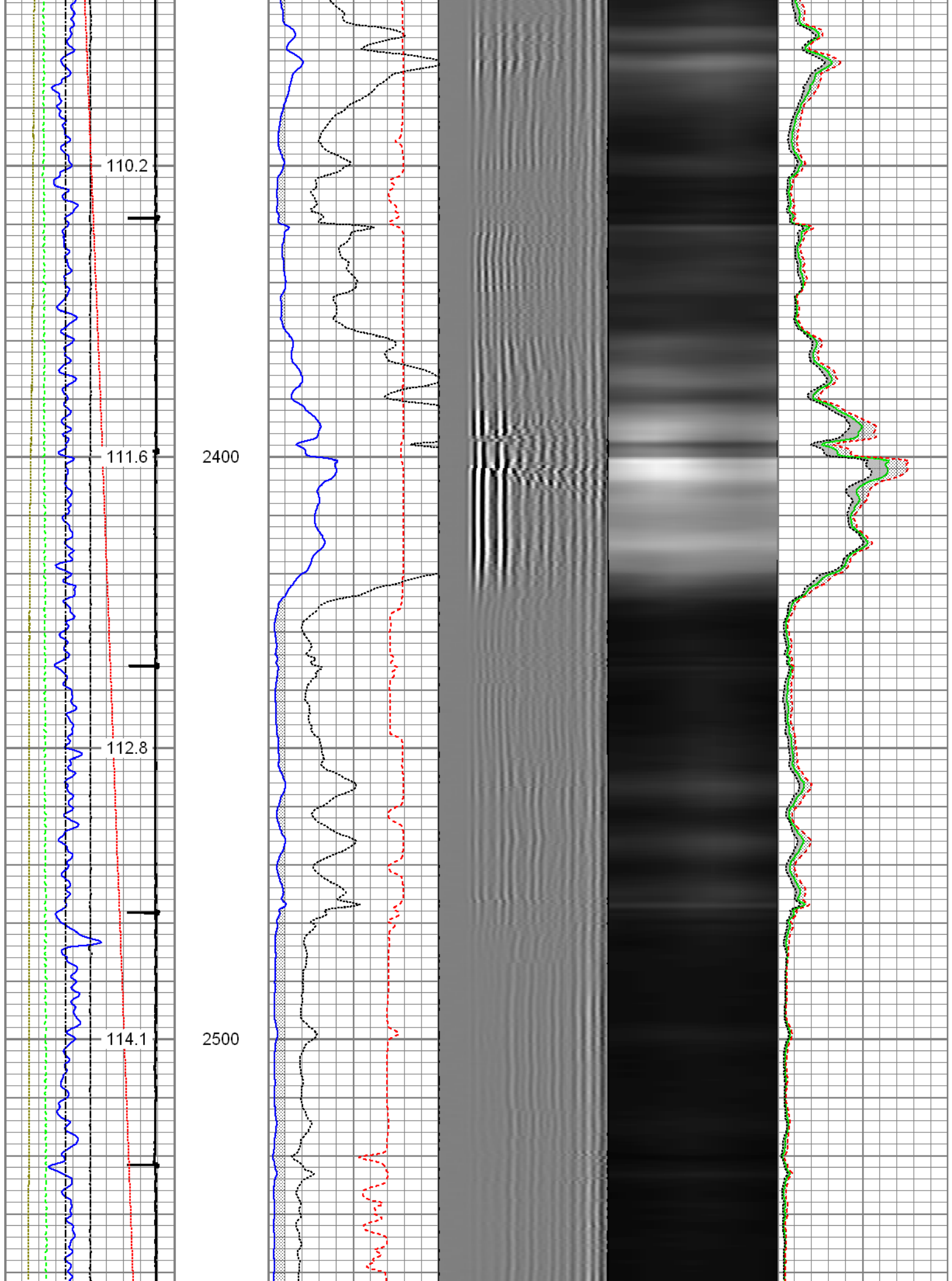


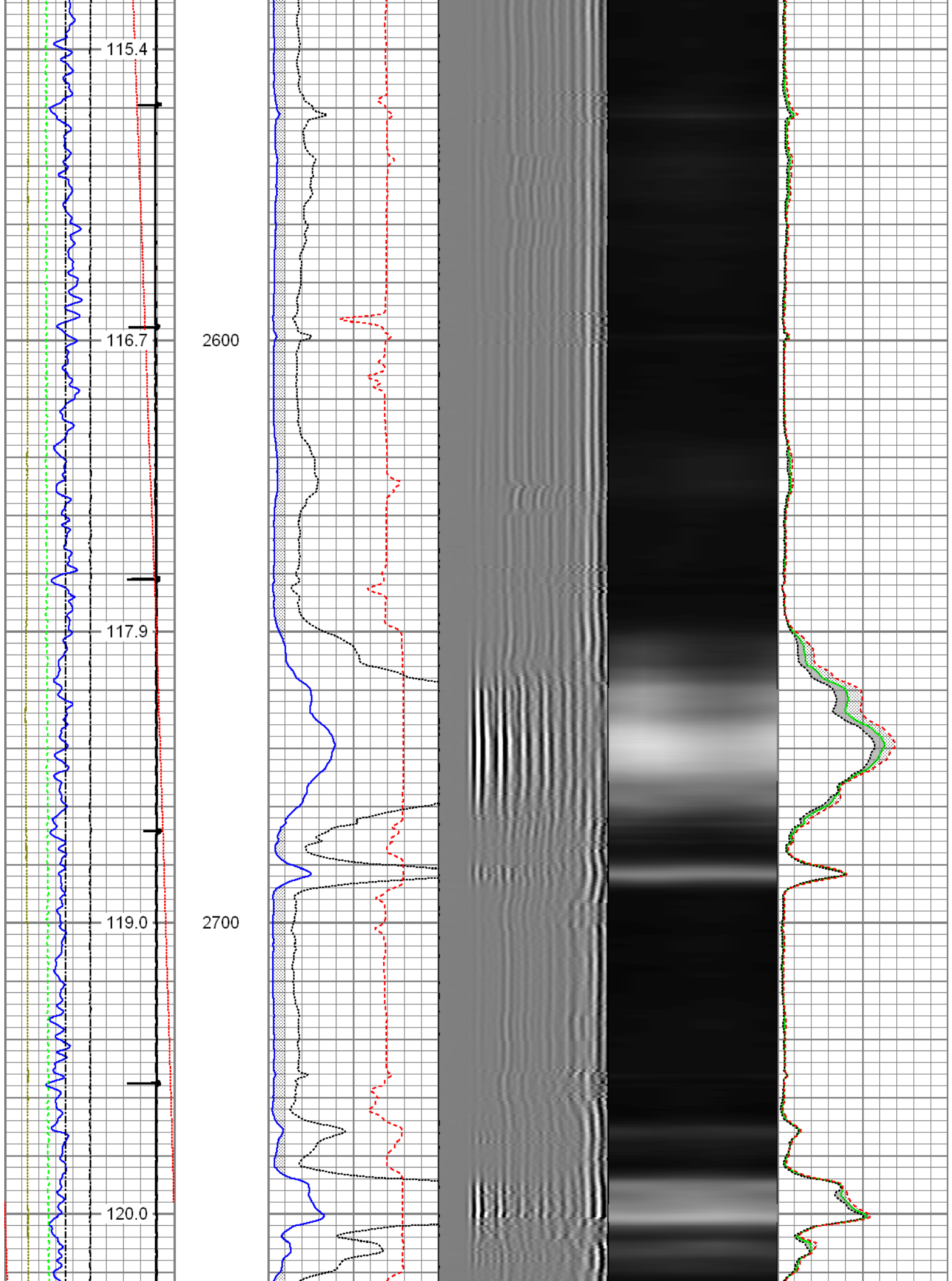


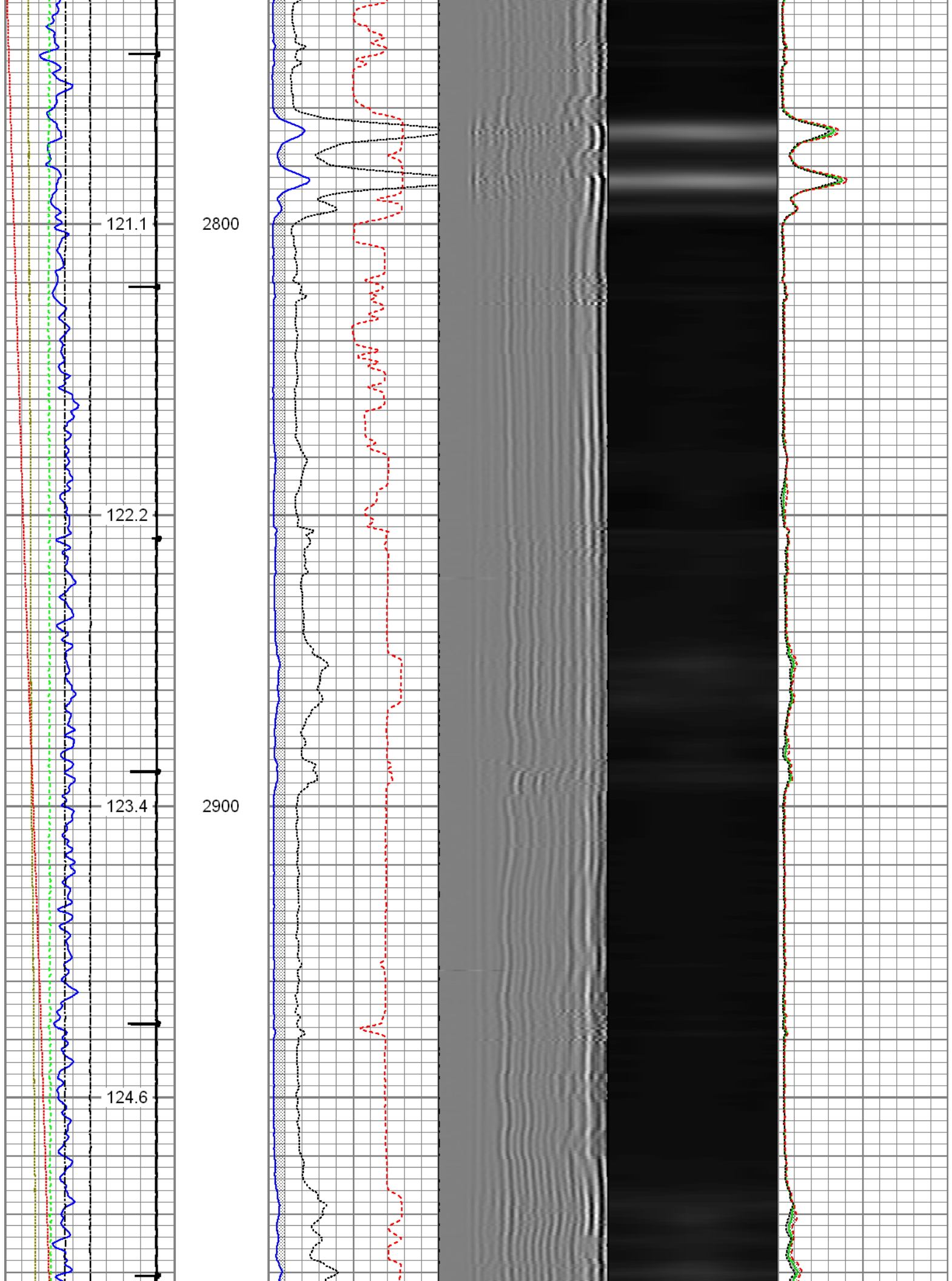




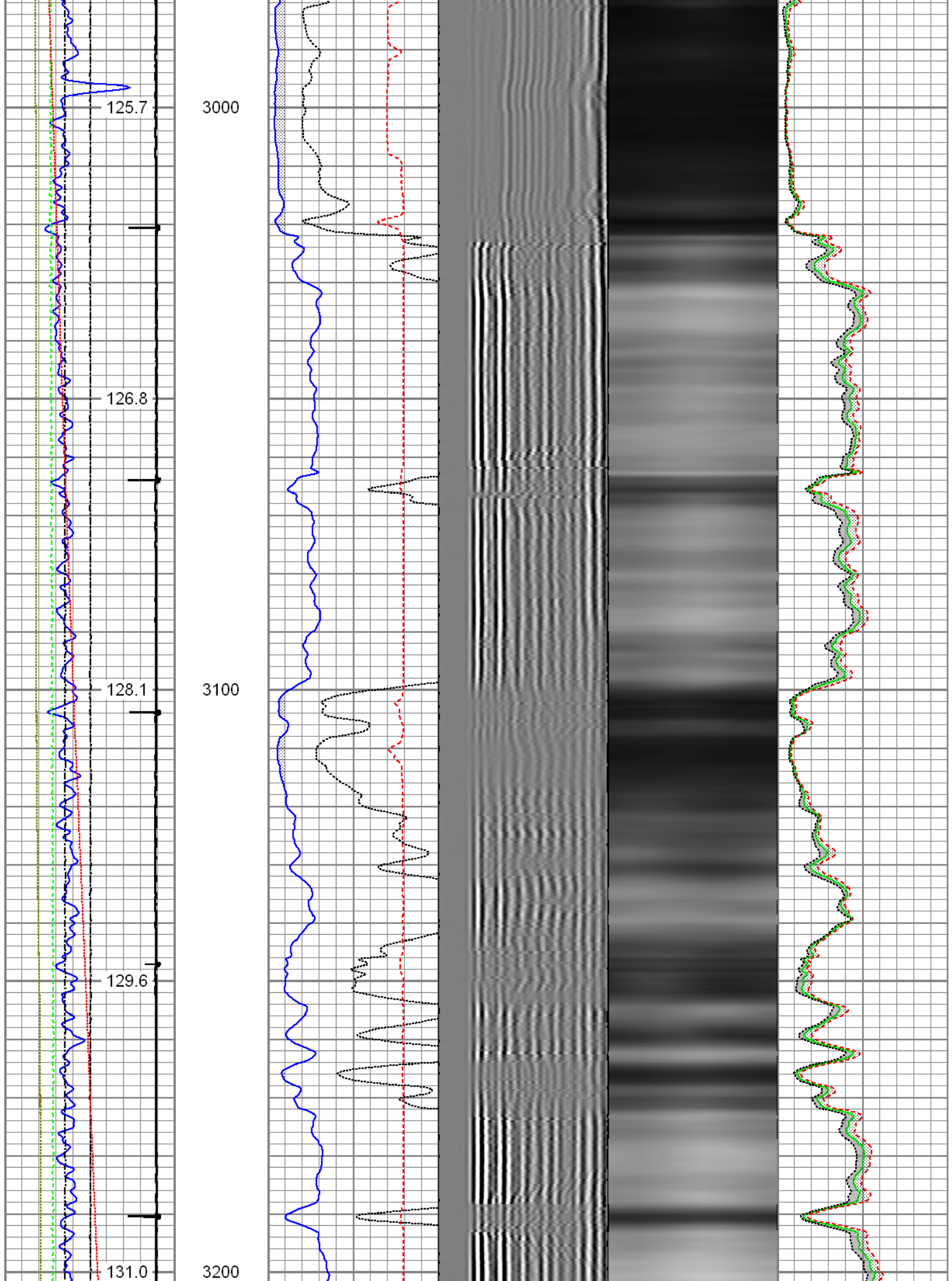




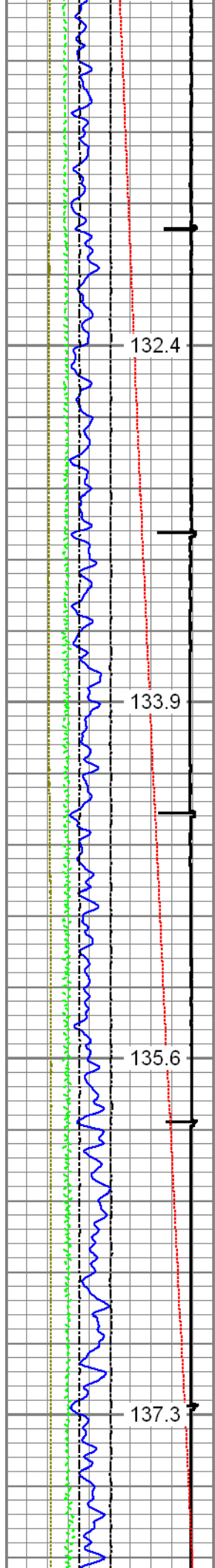






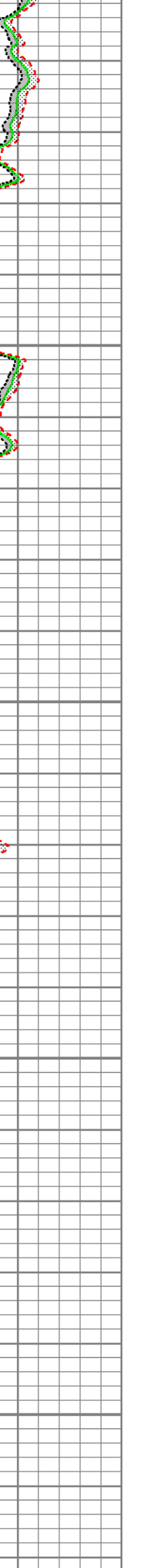
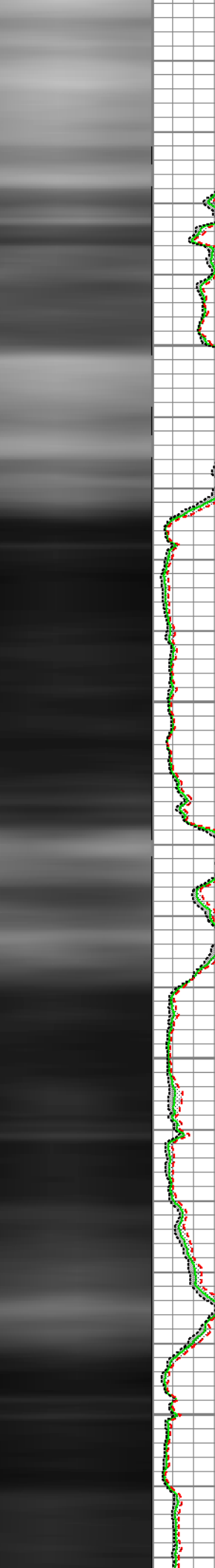
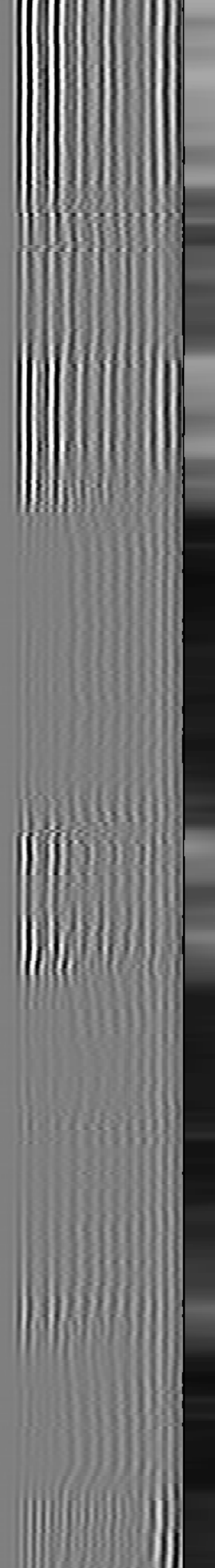
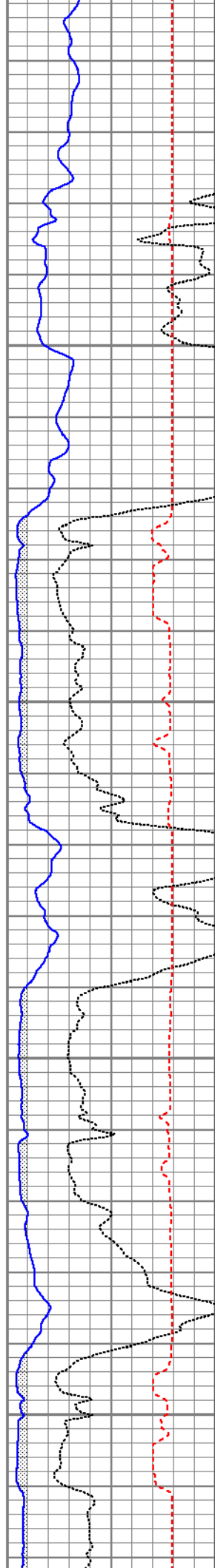


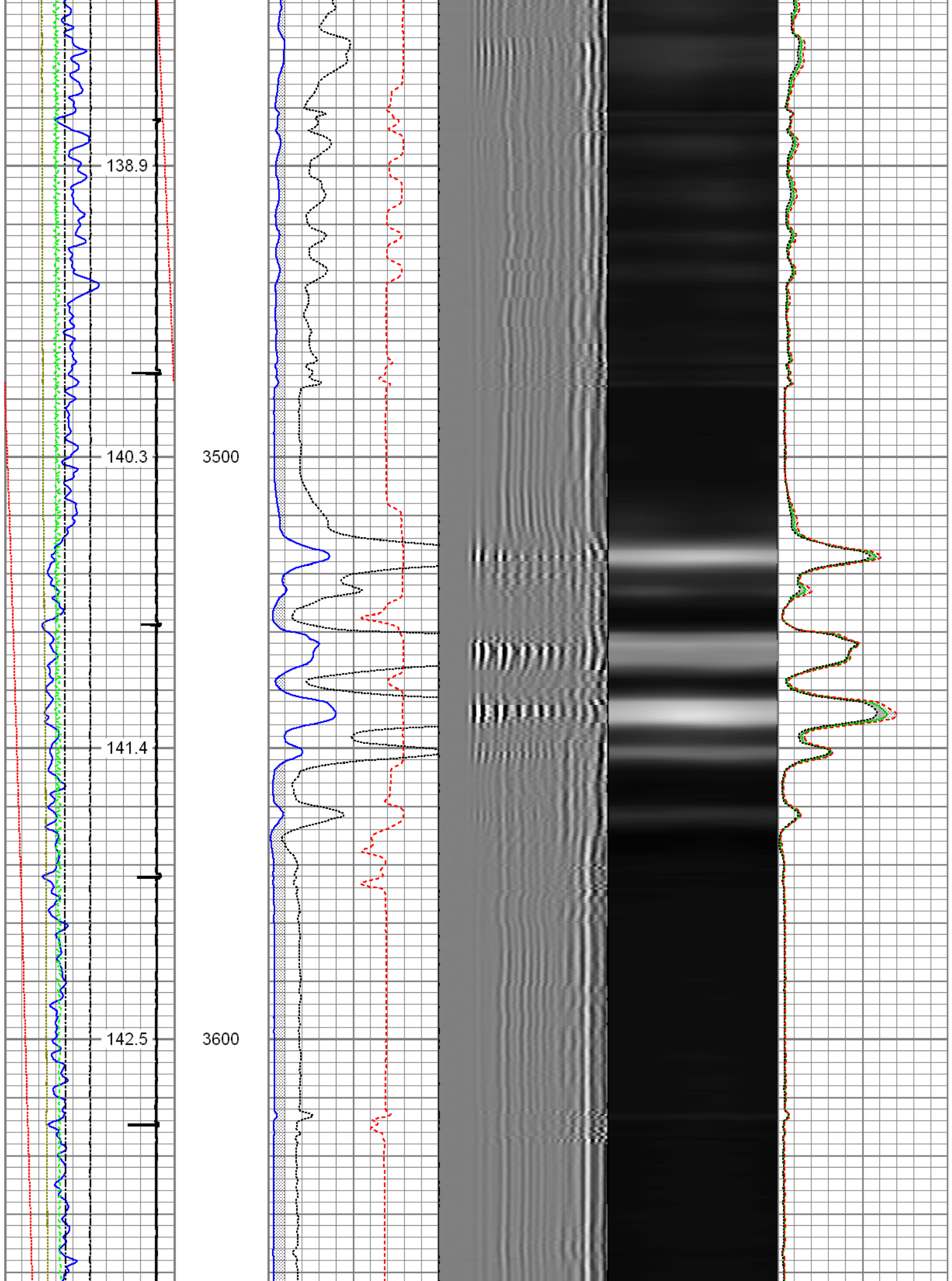


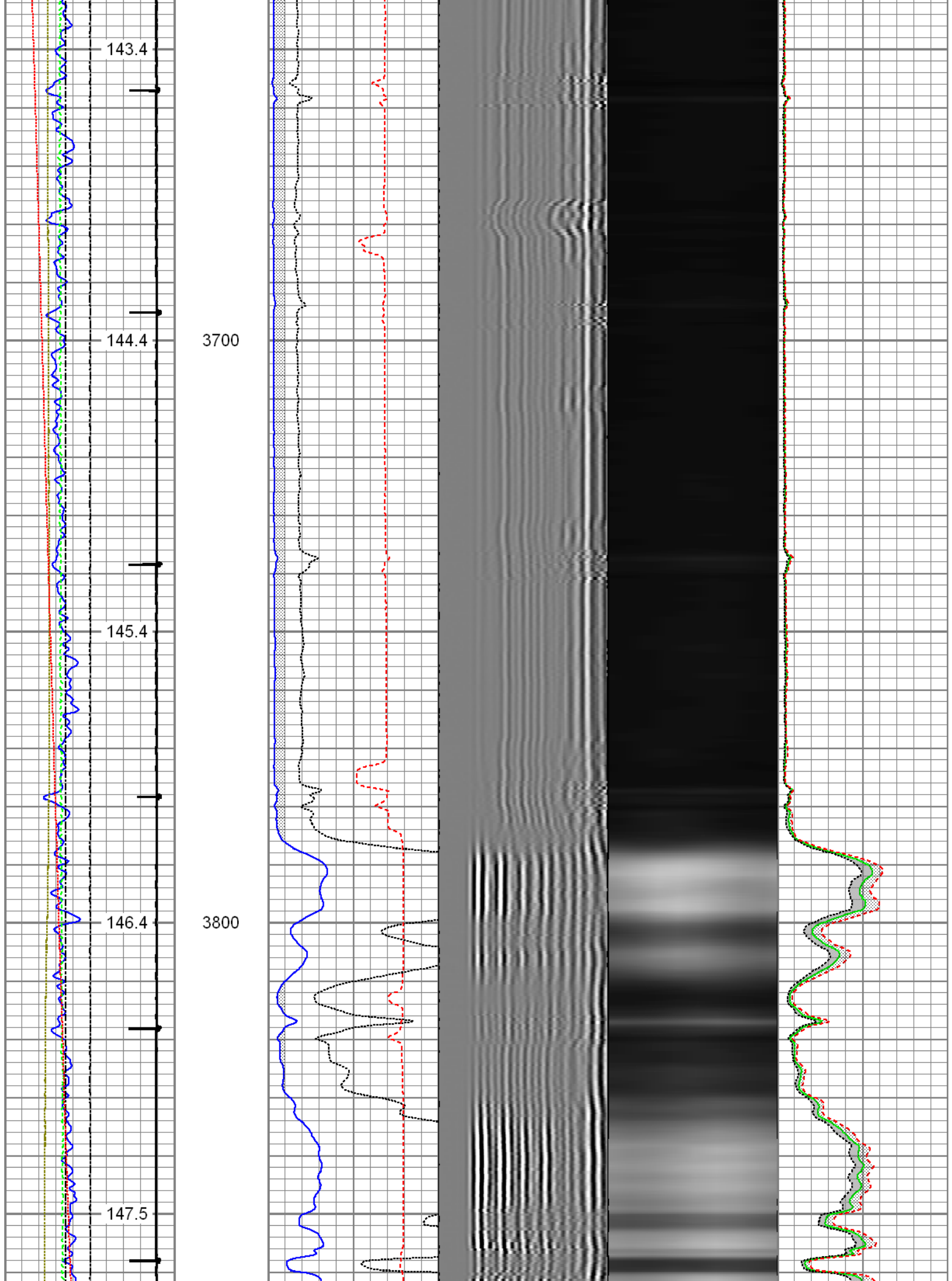


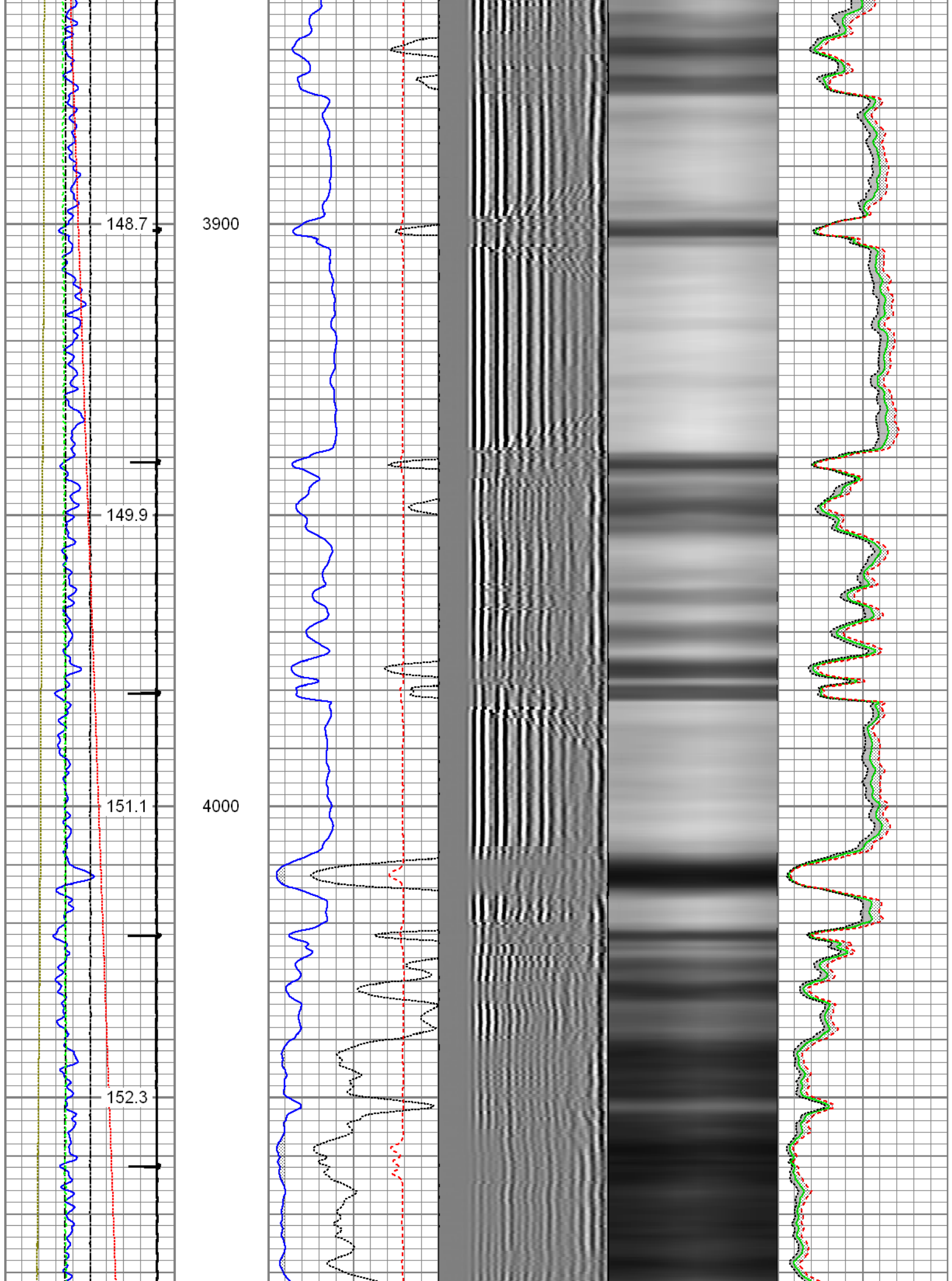
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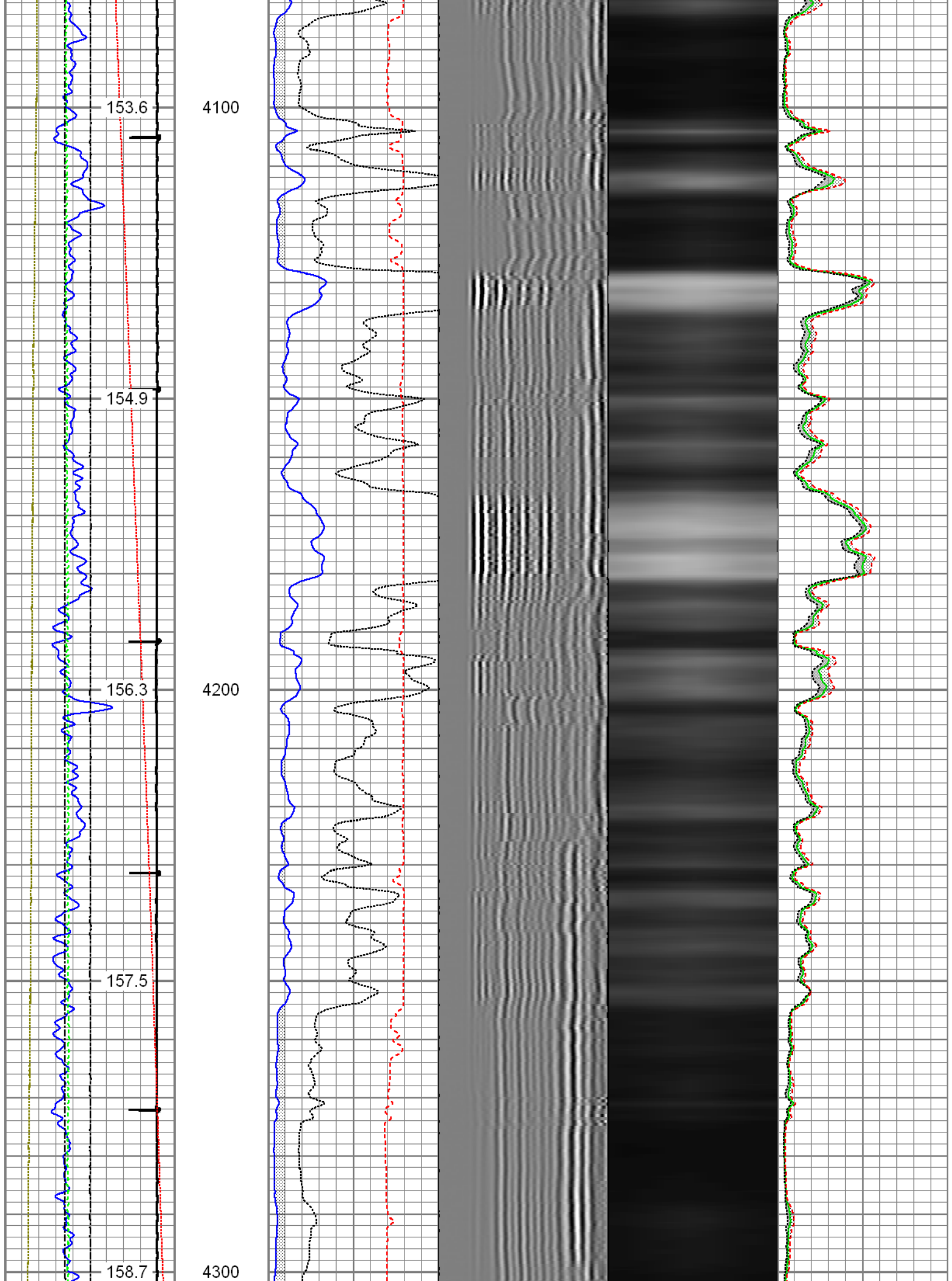
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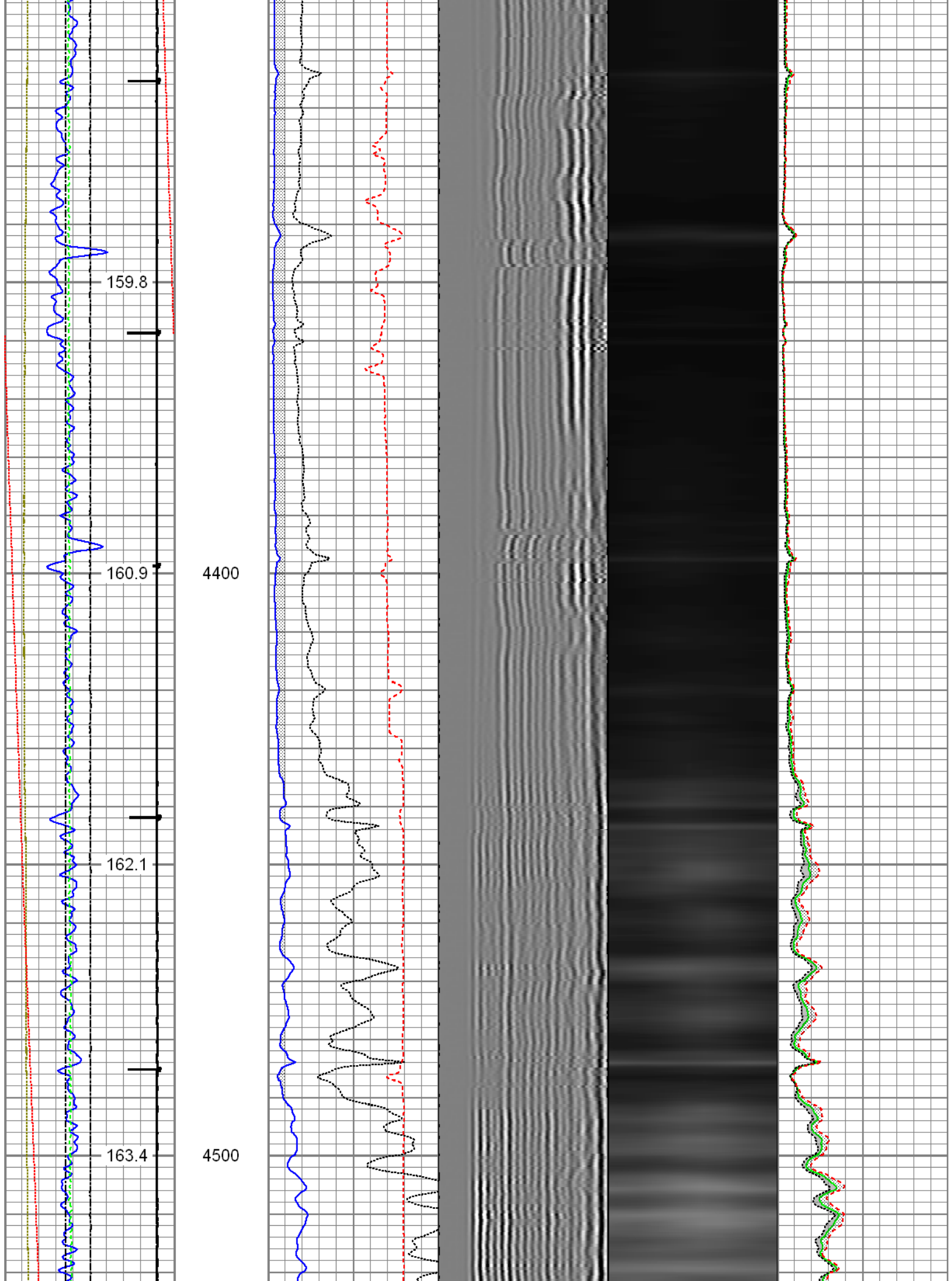




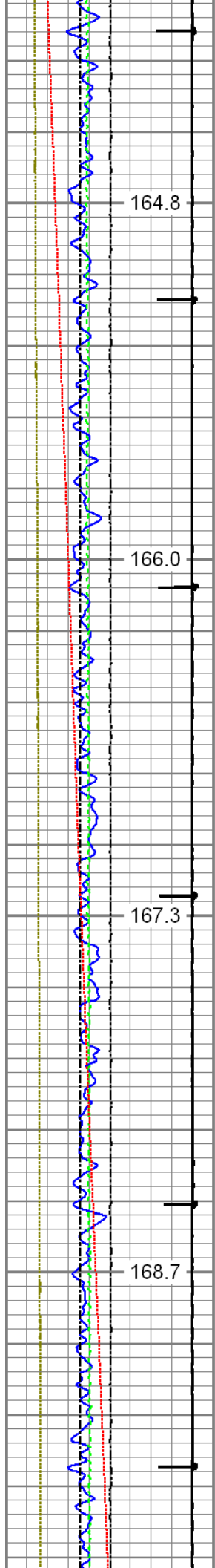






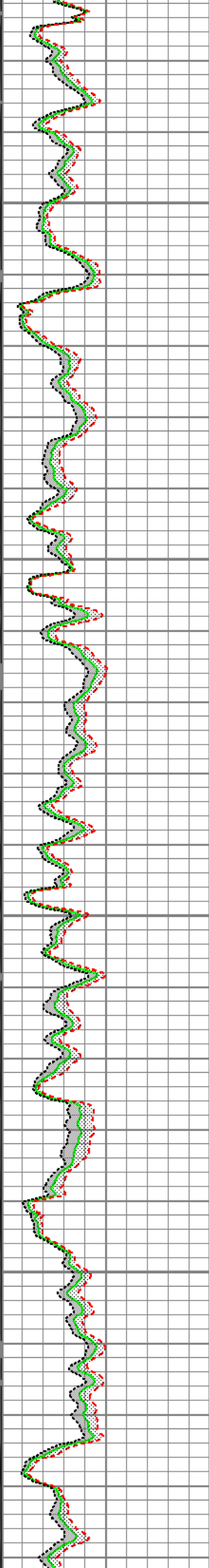
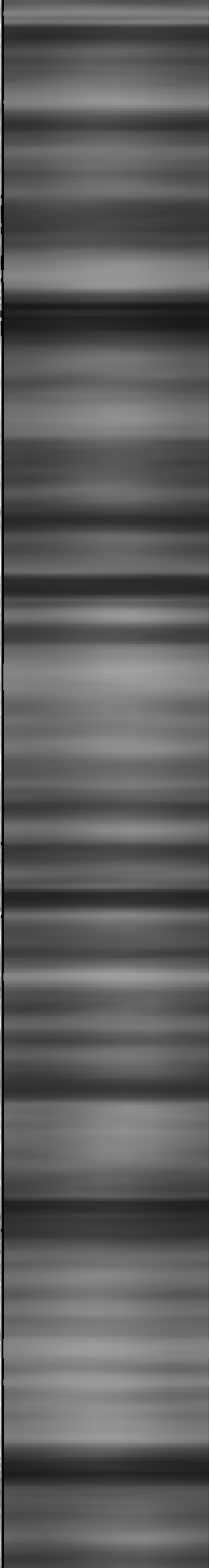
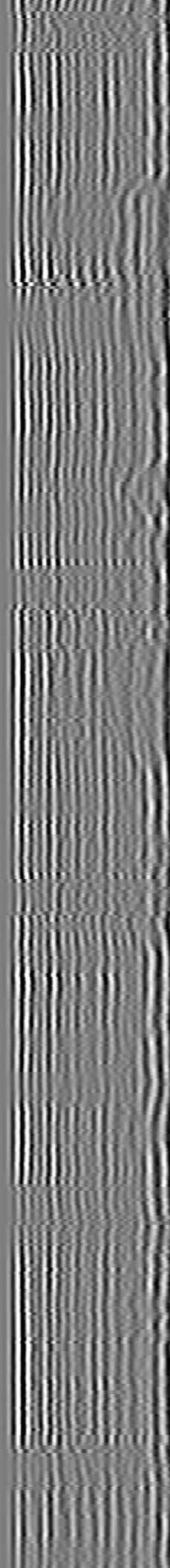
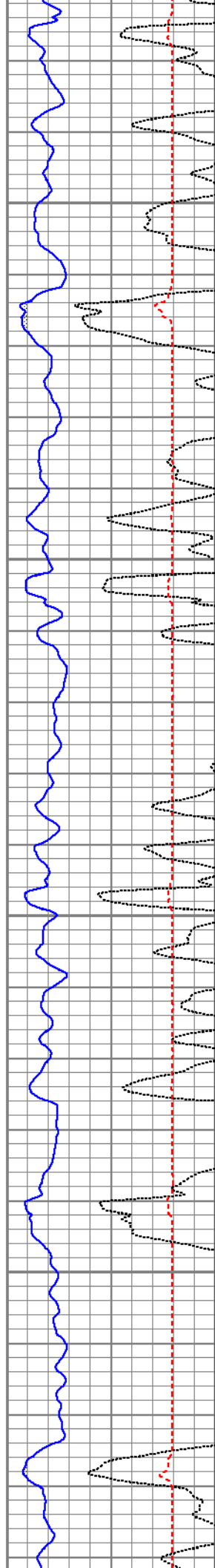


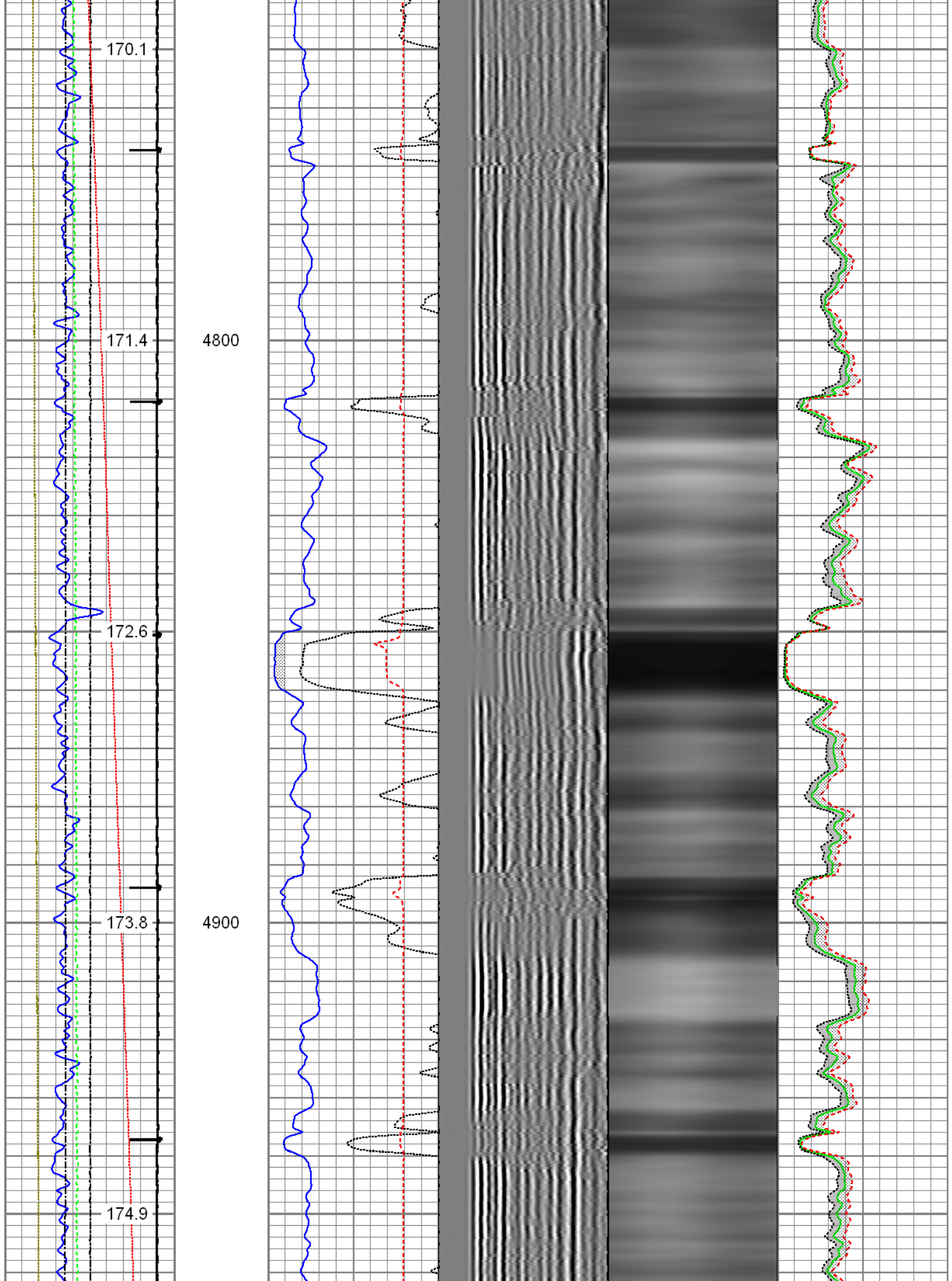


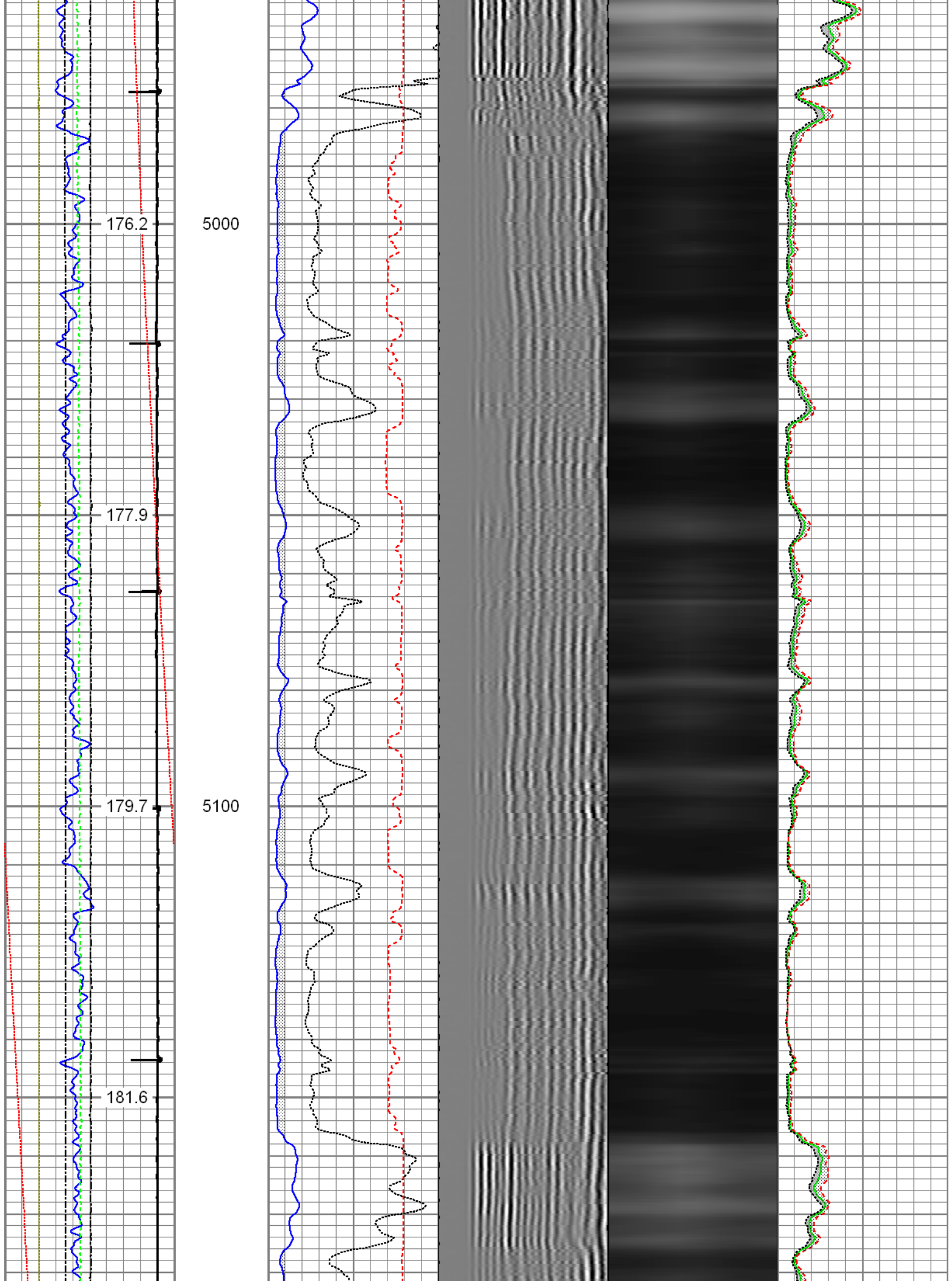


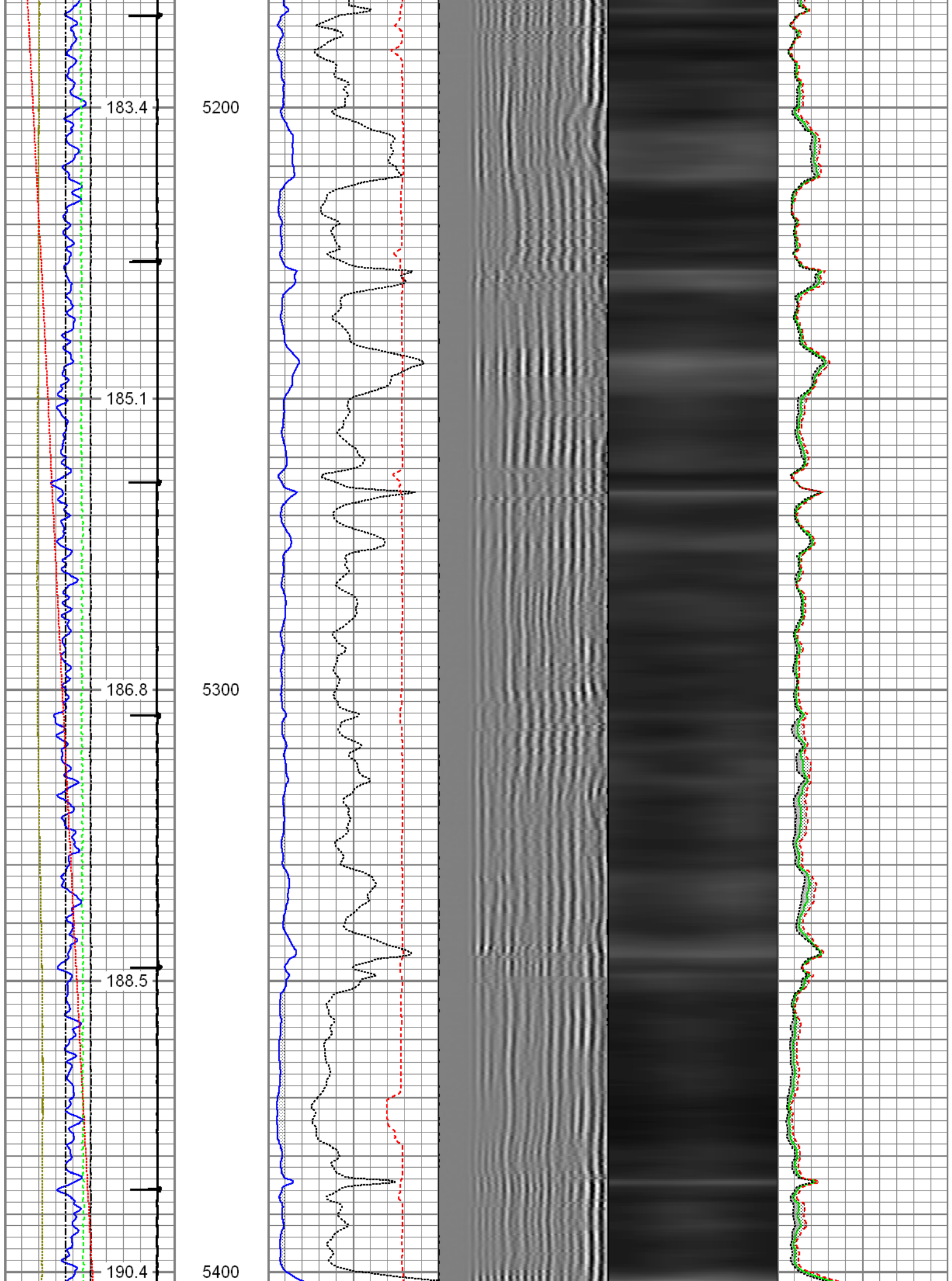
4600

4700

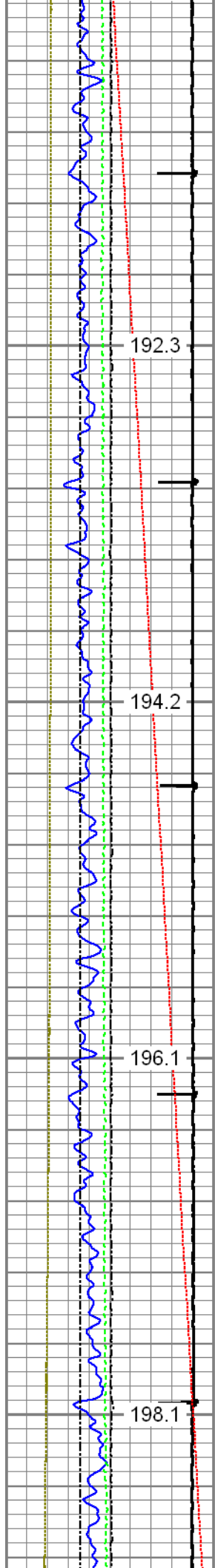






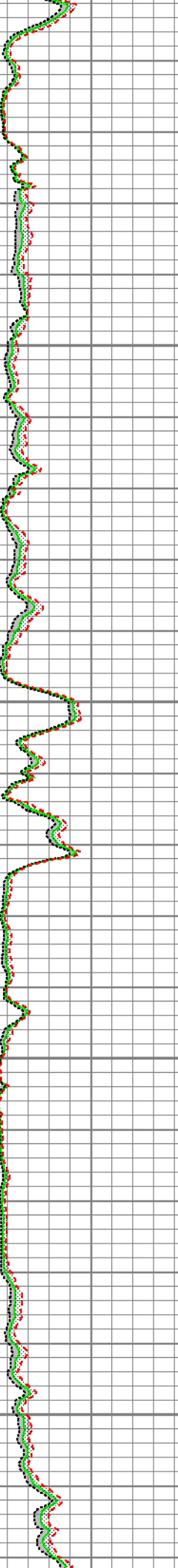
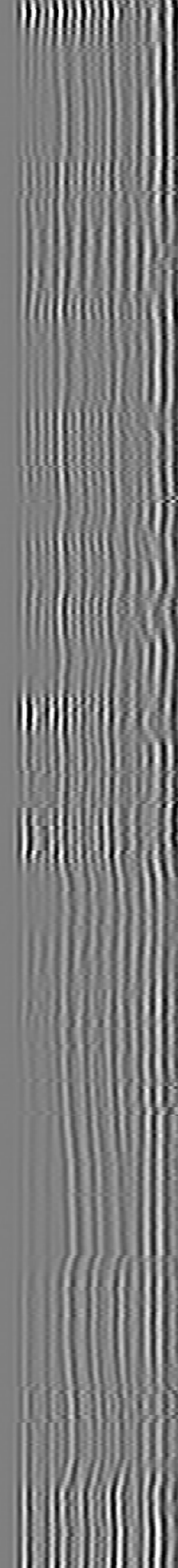
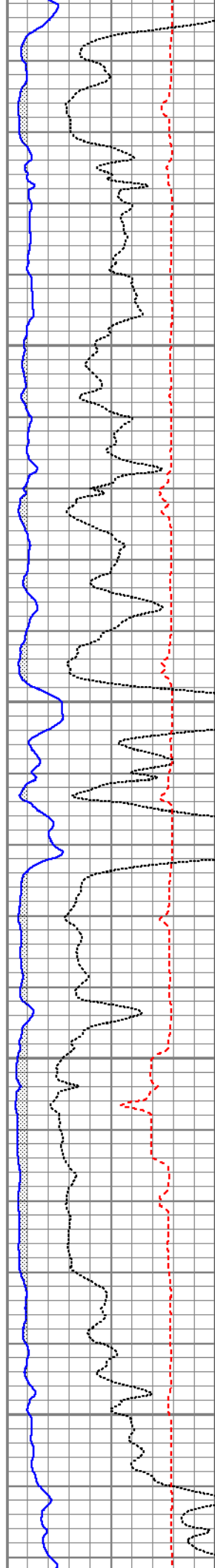


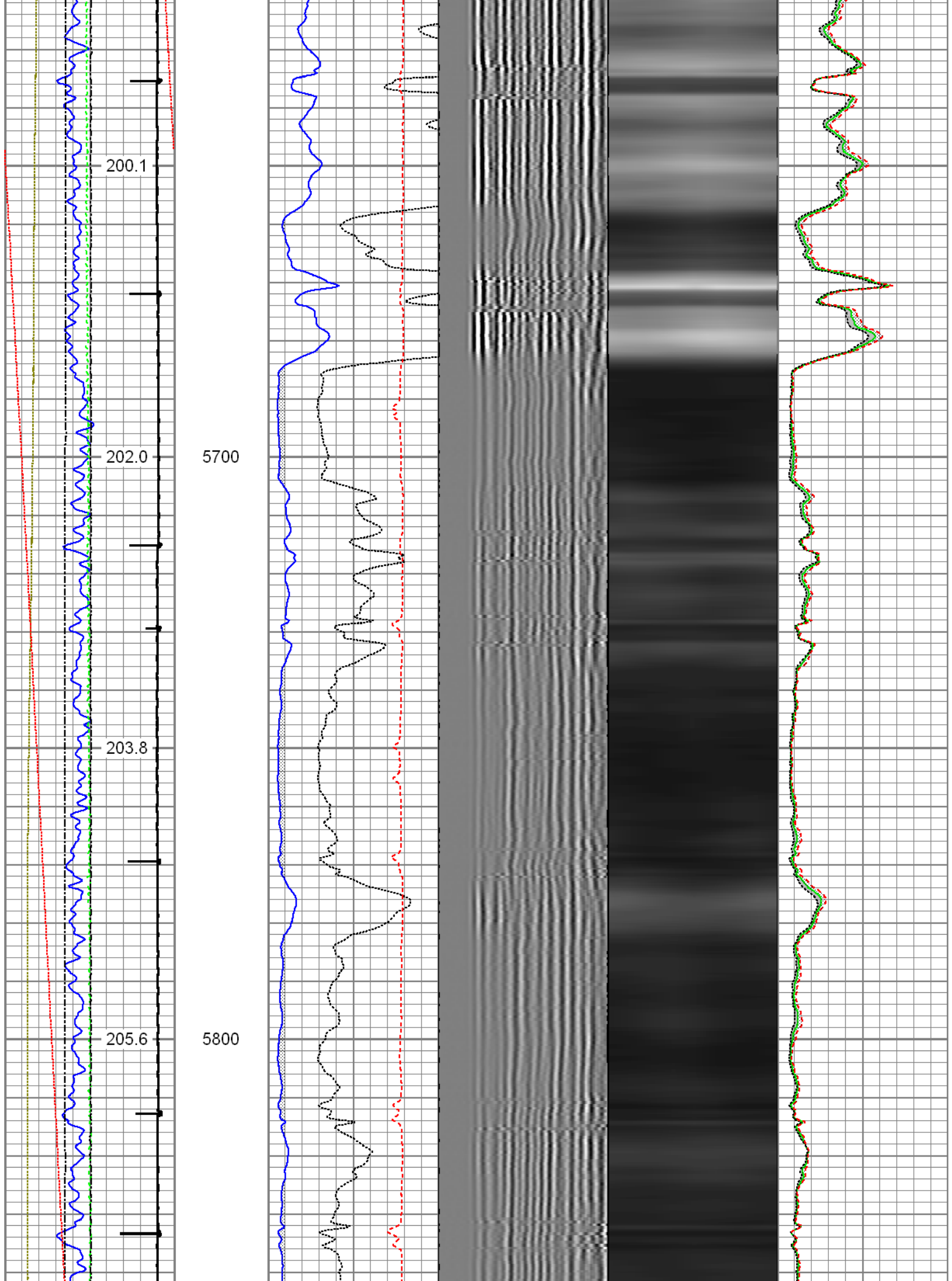




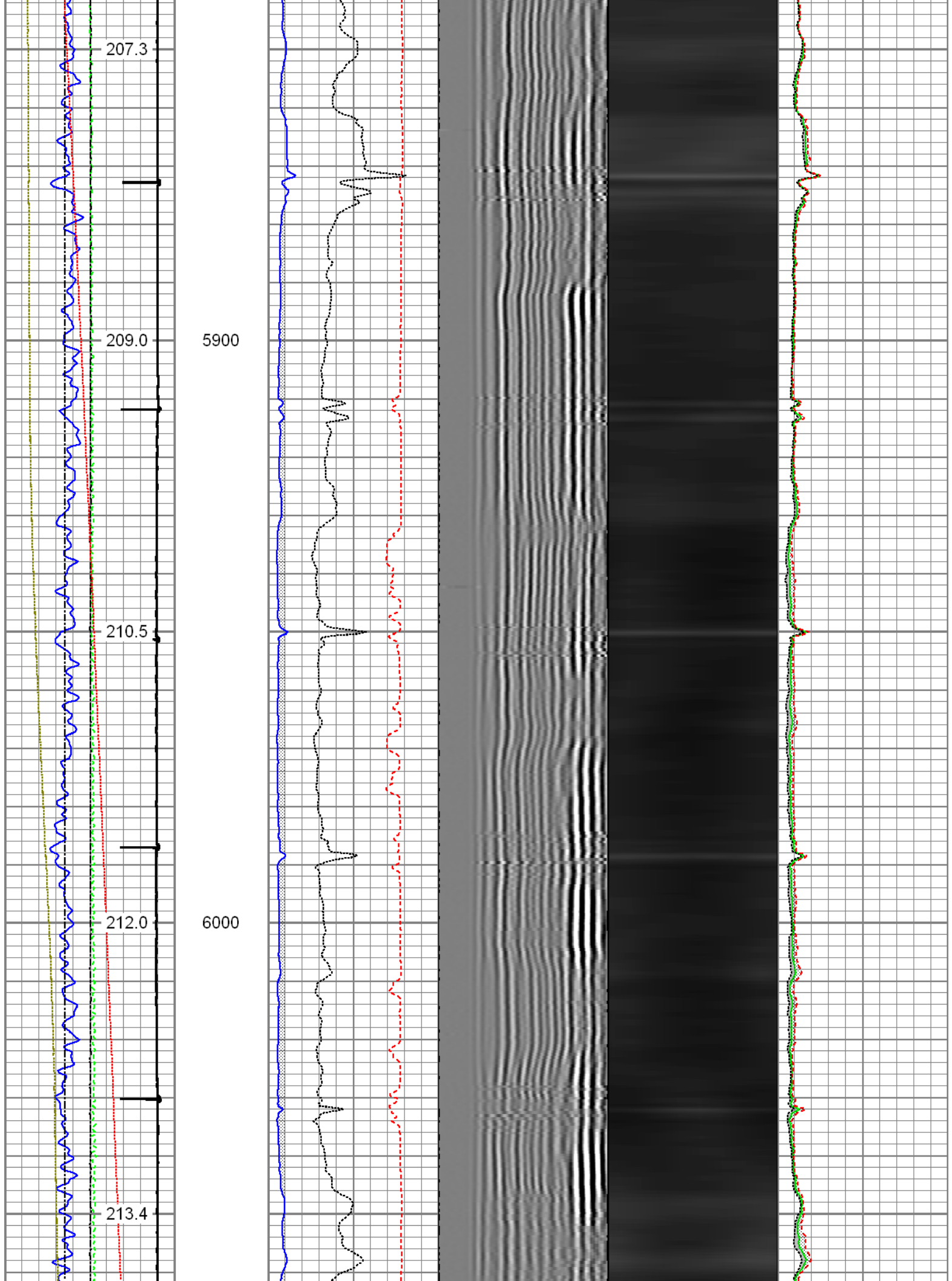
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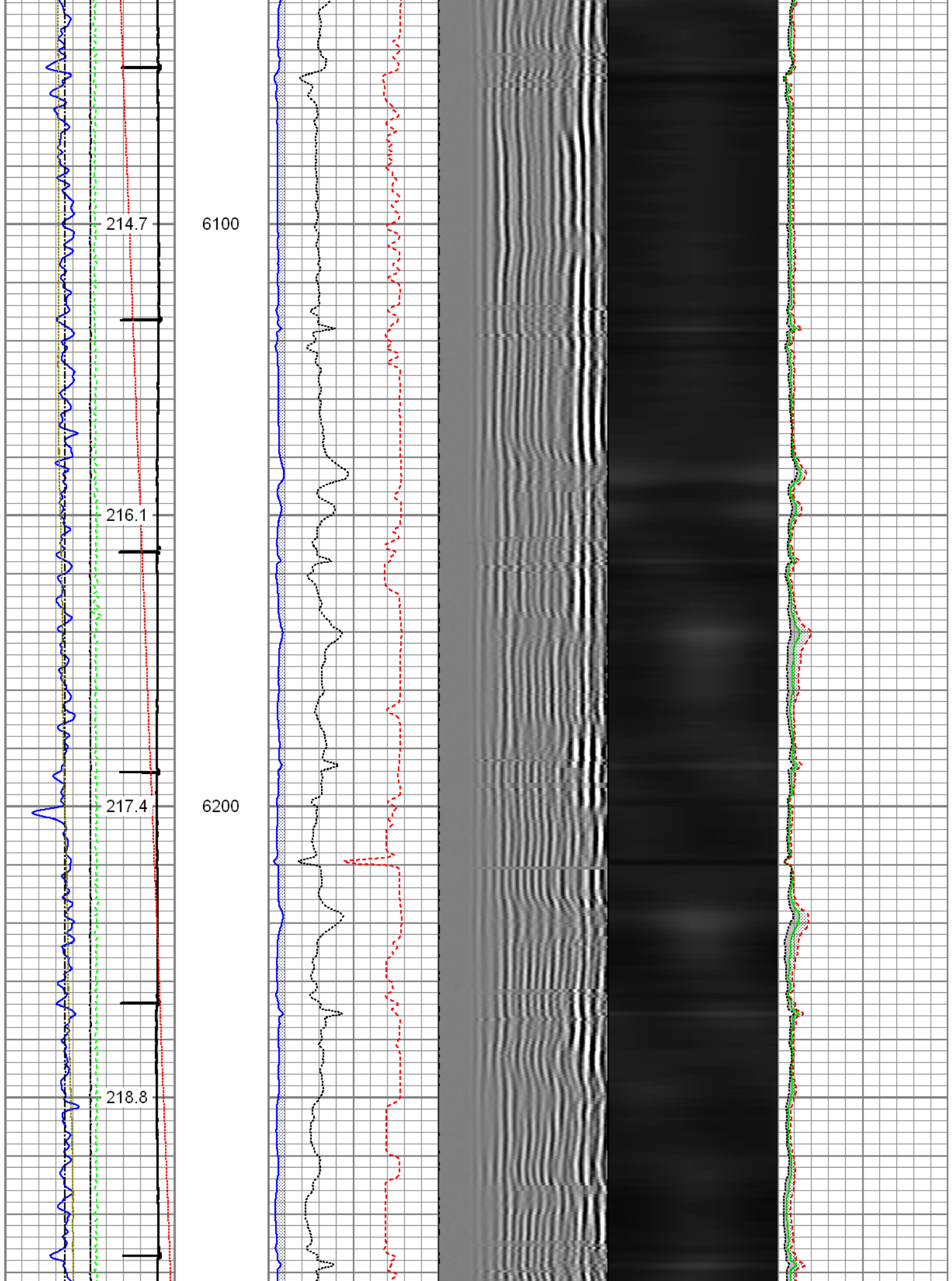
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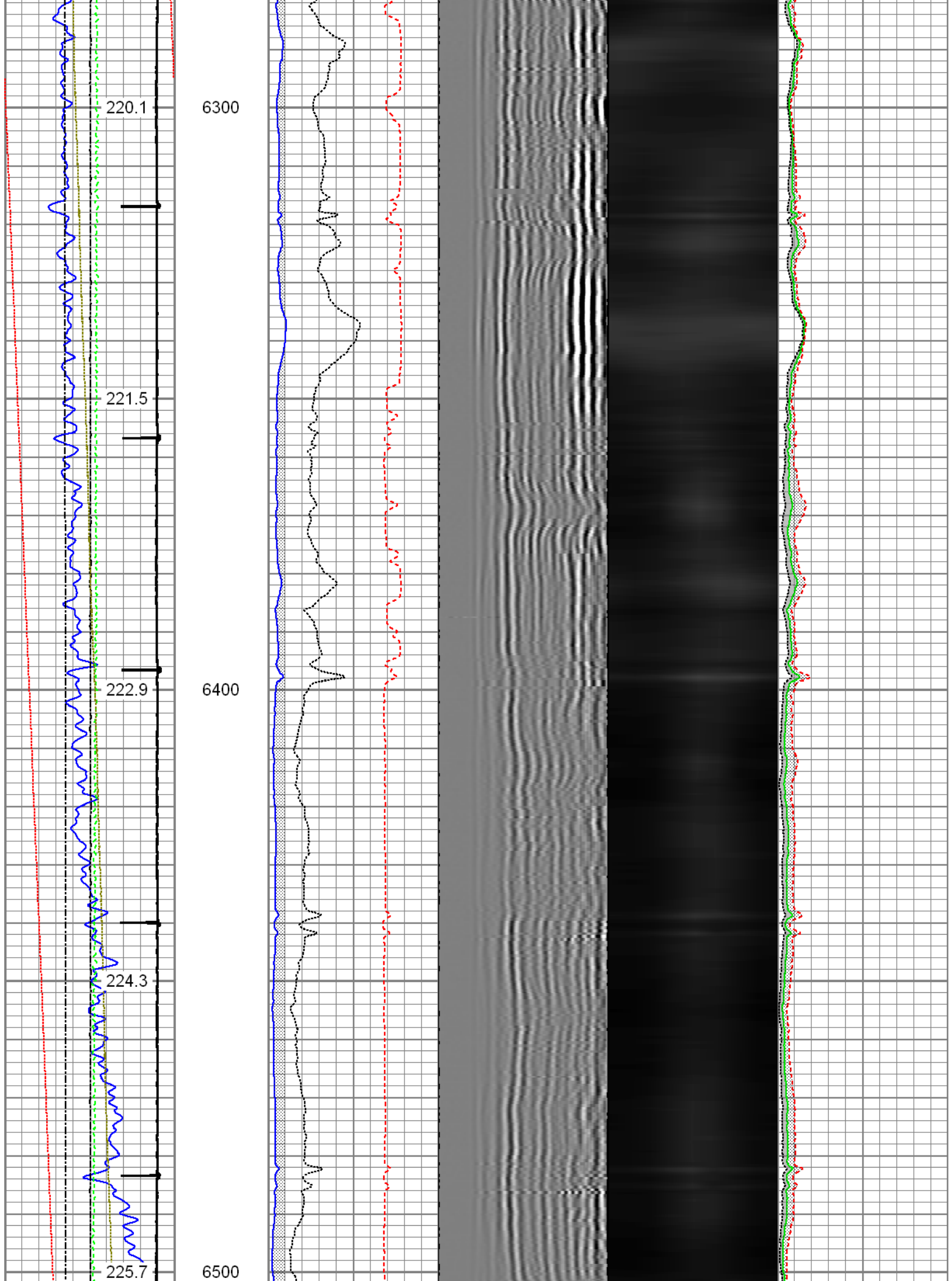


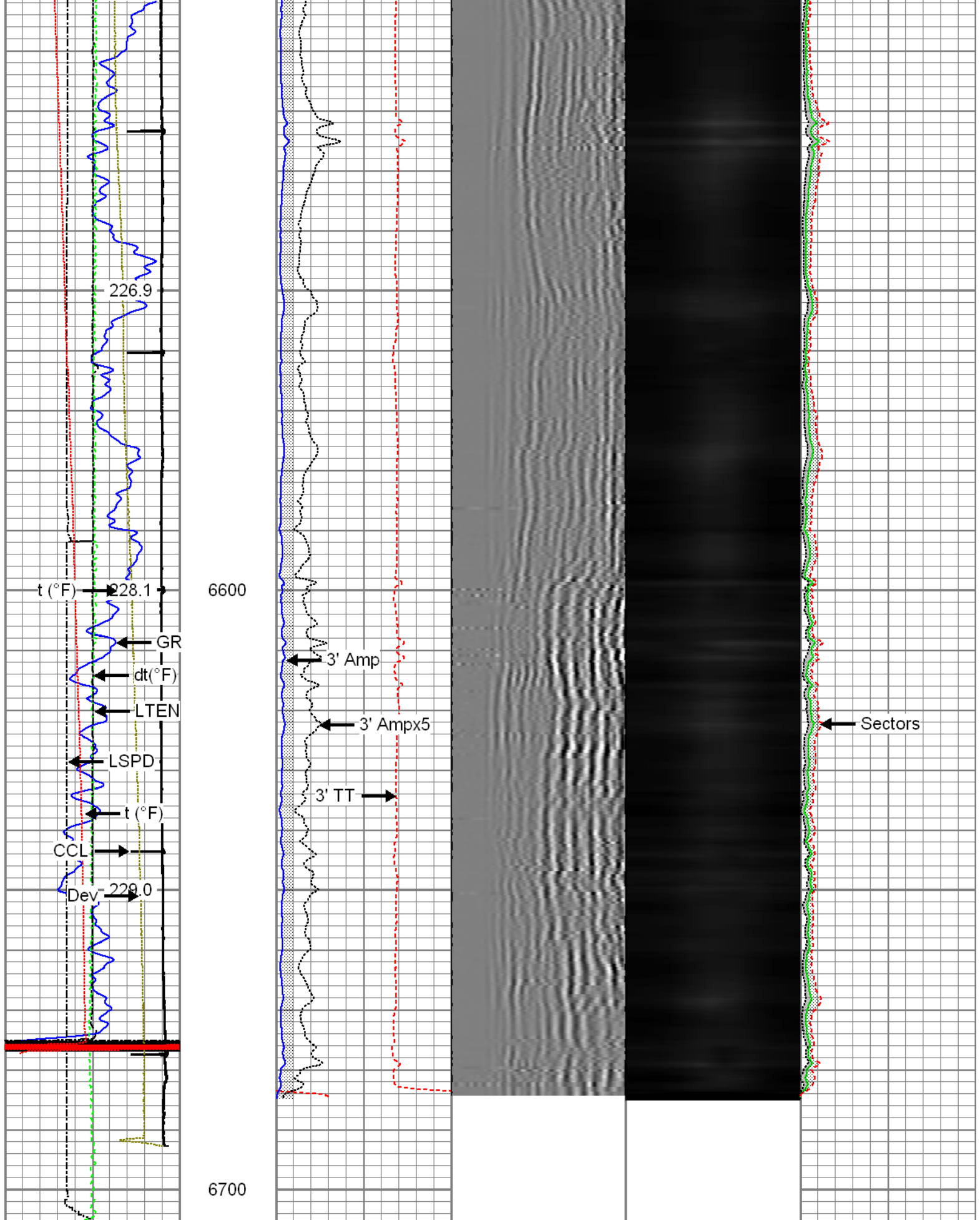








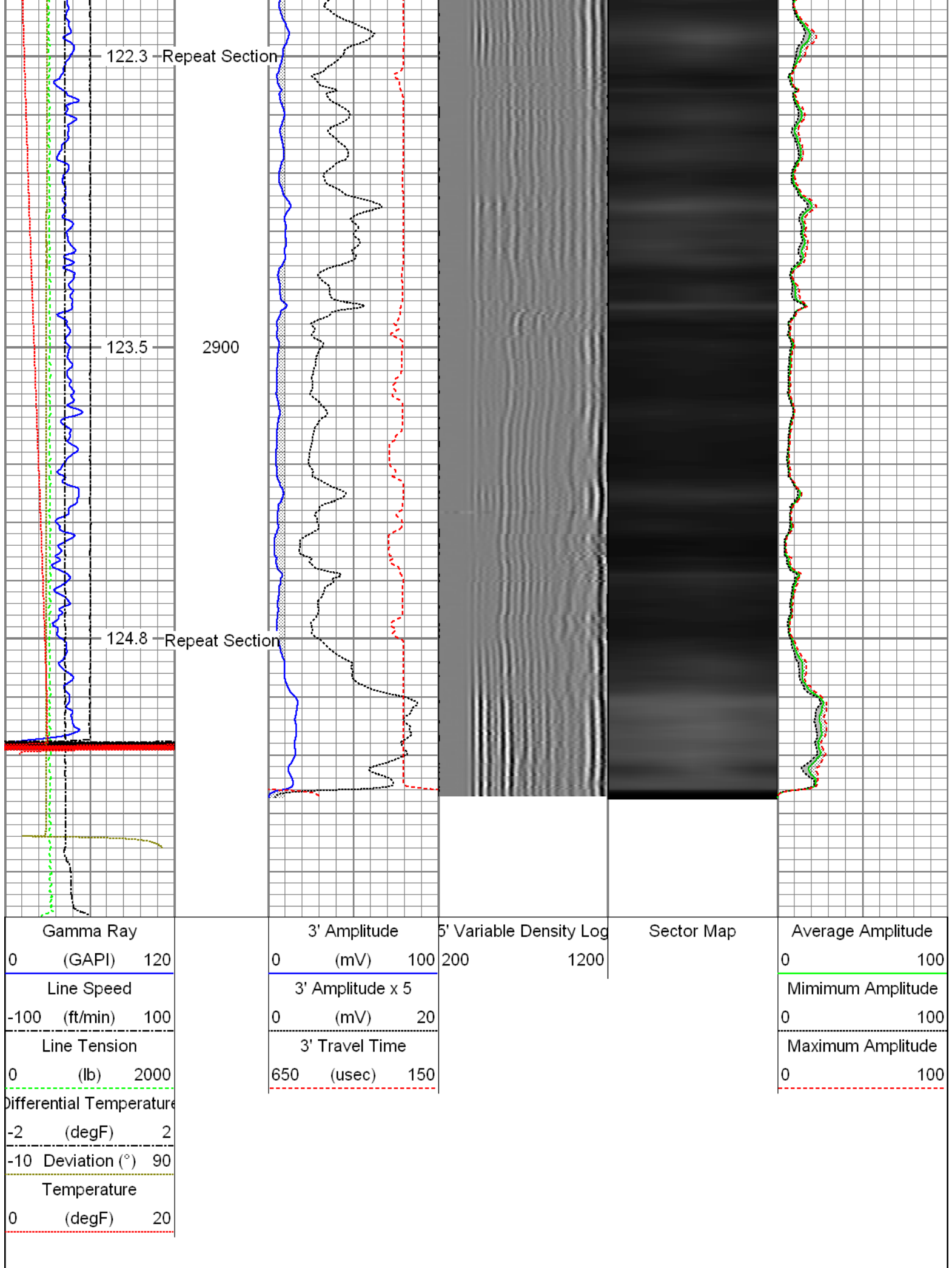


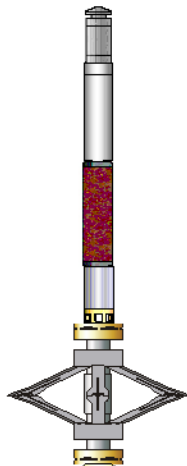
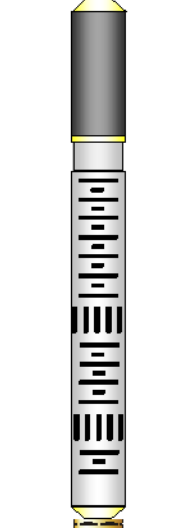
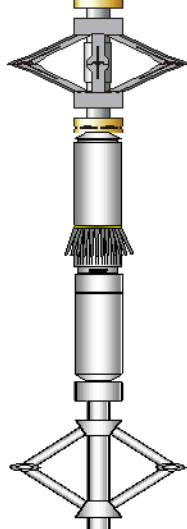
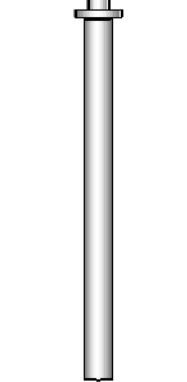



Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude







Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	30.24		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 (211727) Production Gamma Ray	1.93	1.69	9.50
TEMP	28.84		UW_PRT-UW_PRT_016 (10025095) Platinum Resistance Thermometer	1.04	1.69	5.20
			UW_PRC #3 -DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVFS3FT	21.81		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	21.81					
WVFS2	21.81					
WVFS3	21.81					
WVFS4	21.81					
WVFS5	21.81					
WVFS6	21.81					
WVFS7	21.81					
WVFS8	21.81					
CBLTEMP	21.81		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CBLROT	21.81					
WVFS5FT	20.81					
MIT	11.80		UW_MIT-UW_MIT40_042 (10020664) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			CNL-007 (1004) Compensated Neutron Logging Tool	6.61	1.69	30.00
CNLSC	1.53					
CNSSC	1.12					
TSTAMP	0.00					

Dataset: 08-01-15\_Noble Energy\_70 Ranch State BB18-611\_MIT\_RBL\_CNL.db: field/well/run1/pass5.2  
 Total Length: 34.48 ft  
 Total Weight: 353.30 lb

## Calibration Report

Database File: 08-01-15\_noble energy\_70 ranch state bb18-611\_mit\_rbl\_cnl.db  
 Dataset Pathname: pass5.2  
 Dataset Creation: Sun Aug 02 11:52:50 2015 by Calc 7.0 B1

## Compensated Neutron Calibration Report

Serial Number: 1004  
 Tool Model: 007

Master Calibration Tue Jun 03 14:35:57 2014

Detector Readings

Short Space 241.46 cps  
 Long Space 300.95 cps

Ratio Measured Reference  
 CNRAT Gain K 0.8150 Sleeve: 1.0000  
 1.0158

Before Survey

Detector Readings

Short Space cps  
 Long Space cps

Ratio Measured Reference

After Survey

Detector Readings

Short Space cps  
 Long Space cps

Ratio Measured Reference

## 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: Sat Aug 01 10:34:35 2015

Ring size: (in)	4		5		6		7
		Sens		Sens		Sens	
Finger 01:	1174	350.0	1524	372.0	1896	390.0	2286
Finger 02:	1188	357.0	1545	380.0	1925	394.0	2319
Finger 03:	1138	348.0	1486	377.0	1863	395.0	2258
Finger 04:	1148	364.0	1512	395.0	1907	413.0	2320
Finger 05:	1134	357.0	1491	389.0	1880	407.0	2287
Finger 06:	1166	356.0	1522	382.0	1904	390.0	2294
Finger 07:	1077	372.0	1449	404.0	1853	427.0	2280
Finger 08:	1134	357.0	1491	388.0	1879	411.0	2290
Finger 09:	1101	364.0	1465	395.0	1860	417.0	2277
Finger 10:	1019	368.0	1387	410.0	1797	443.0	2240
Finger 11:	1107	355.0	1462	380.0	1842	398.0	2240
Finger 12:	1084	362.0	1446	393.0	1839	414.0	2253
Finger 13:	1057	354.0	1411	385.0	1796	408.0	2204
Finger 14:	1031	356.0	1387	386.0	1773	412.0	2185
Finger 15:	1098	354.0	1452	368.0	1820	388.0	2208
Finger 16:	1047	359.0	1406	380.0	1786	402.0	2188
Finger 17:	1050	364.0	1414	386.0	1800	403.0	2203
Finger 18:	999	359.0	1358	389.0	1747	419.0	2166
Finger 19:	1002	357.0	1359	388.0	1747	412.0	2159
Finger 20:	1037	367.0	1404	388.0	1792	408.0	2200
Finger 21:	1053	356.0	1409	379.0	1788	401.0	2189
Finger 22:	1057	363.0	1420	385.0	1805	404.0	2209
Finger 23:	1164	349.0	1513	351.0	1864	369.0	2233
Finger 24:	1021	359.0	1380	389.0	1769	411.0	2180
Finger 25:	1000	358.0	1358	389.0	1747	416.0	2163
Finger 26:	1072	361.0	1433	380.0	1813	404.0	2217
Finger 27:	1101	362.0	1463	389.0	1852	407.0	2259
Finger 28:	1085	360.0	1445	386.0	1831	410.0	2241
Finger 29:	1028	362.0	1390	394.0	1784	414.0	2198
Finger 30:	1131	356.0	1487	379.0	1866	398.0	2264
Finger 31:	1131	360.0	1491	380.0	1871	397.0	2268
Finger 32:	1170	351.0	1521	369.0	1890	388.0	2278
Finger 33:	1198	365.0	1563	381.0	1944	391.0	2335
Finger 34:	1137	365.0	1502	389.0	1891	407.0	2298
Finger 35:	1163	363.0	1526	386.0	1912	406.0	2318
Finger 36:	1206	356.0	1562	373.0	1935	394.0	2329
Finger 37:	1136	367.0	1503	394.0	1897	415.0	2312
Finger 38:	1099	374.0	1473	407.0	1880	426.0	2306
Finger 39:	1127	363.0	1490	389.0	1879	414.0	2293
Finger 40:	1162	360.0	1522	384.0	1906	402.0	2308

Segmented Cement Bond Log Calibration Report							
Serial Number:				10013454			
Tool Model:				UW_RBT_004			
Calibration Casing Diameter:				7.000	in		
Calibration Depth:				107.867	ft		

Master Calibration, performed Sun Aug 02 11:52:36 2015:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3FT	-0.001	0.699	0.800	62.165	87.702	0.885	
5FT	-0.003	0.779	0.800	62.165	78.478	1.015	
S1	-0.000	0.627	0.000	100.000	159.322	0.069	
S2	-0.002	0.668	0.000	100.000	149.167	0.325	
S3	-0.002	0.727	0.000	100.000	137.142	0.284	
S4	-0.002	0.779	0.000	100.000	128.018	0.271	
S5	-0.001	0.781	0.000	100.000	127.952	0.101	

S5	-0.001	0.736	0.000	100.000	127.002	0.181
S6	-0.002	0.736	0.000	100.000	135.470	0.280
S7	-0.001	0.665	0.000	100.000	150.092	0.144
S8	-0.001	0.627	0.000	100.000	159.301	0.181

### 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	cps	degF
8	cps	degF
9	cps	degF
10	cps	degF

### Gamma Ray Calibration Report

Serial Number: 211727  
 Tool Model: UW\_PGR\_020  
 Performed: Fri Jul 31 10:08:21 2015

Calibrator Value: 1.0 GAPI  
 Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps  
 Sensitivity: 0.6500 GAPI/cps



Company: Noble Energy Inc.  
 Well: 70 Ranch State BB18-611  
 Field: Wattenberg  
 County: Weld  
 State: Colorado