



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr McGee Oil & Gas Onshore LP				Company Kerr McGee Oil & Gas Onshore LP			
Well Vollmar 4N-11HZ				Well Vollmar 4N-11HZ			
Field Wattenberg				Field Wattenberg			
County Weld				County Weld			
State Colorado				State Colorado			
Location:				API # : 05-123-40536			
SEC 14 TWP 2N RGE 67W				Other Services			
Permanent Datum Ground Level Elevation 4941'				JB/GR			
Log Measured From Kelly Bushing 16 FT				MIT			
Drilling Measured From Kelly Bushing				Elevation			
				K.B. 4957'			
				D.F. 4956'			
				G.L. 4941'			
Date	04-MAY-2015						
Run Number	Two						
Depth Driller	13131 FT						
Depth Logger	7500 FT						
Bottom Logged Interval	7499 FT						
Top Log Interval	Surface						
Open Hole Size	8.765"						
Type Fluid	Water						
Density / Viscosity	8.34 lb/gal						
Max. Recorded Temp.	219°F						
Estimated Cement Top	316 FT						
Time Well Ready	ROA						
Time Logger on Bottom	9:30 AM						
Equipment Number	HD-0340						
Location	Ft Lupton, CO						
Recorded By	B. Kalkwarf						
Witnessed By	Mario Torrez						
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	1216 FT		
Intermediate #1	7	26	P-110 LT&C	Surface	7785 FT		
Intermediate #2							
Liner	4 1/2	11.6	P-110 LT&C	6897 FT	12930 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 6897 FT.
Adjusted 1 FT to correlate with casing tally liner top.
Log ran from 7500 FT to surface.
Log ran with 2800 PSI surface induced pressure.

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



7" Main Pass

Recorded With 2800 PSI Surface Induced Pressure

Database File:0512340536_anadarko_vollmar 4n-11hz_05-04-15_mit_rbl.db

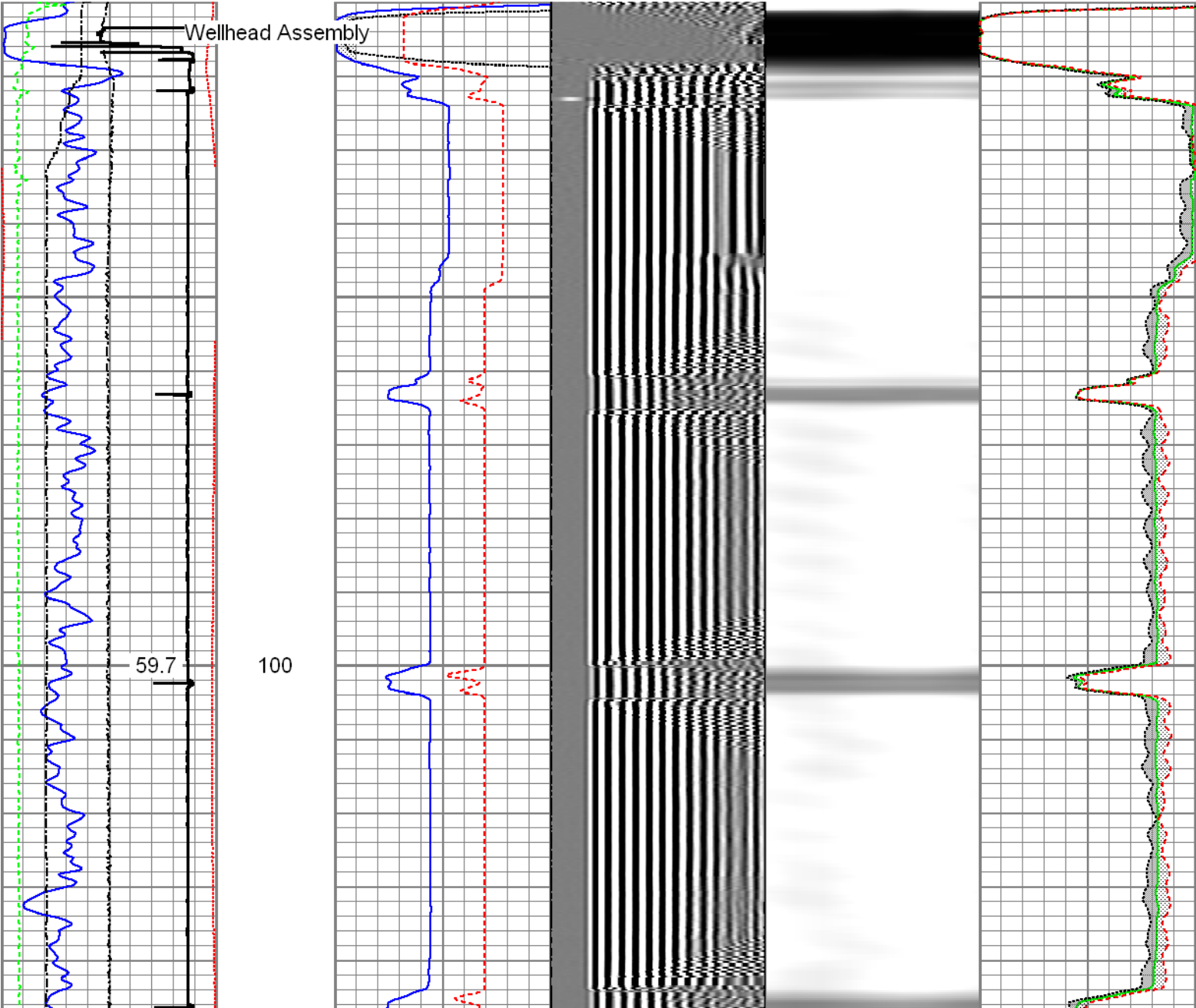
Dataset Pathname:pass6.2

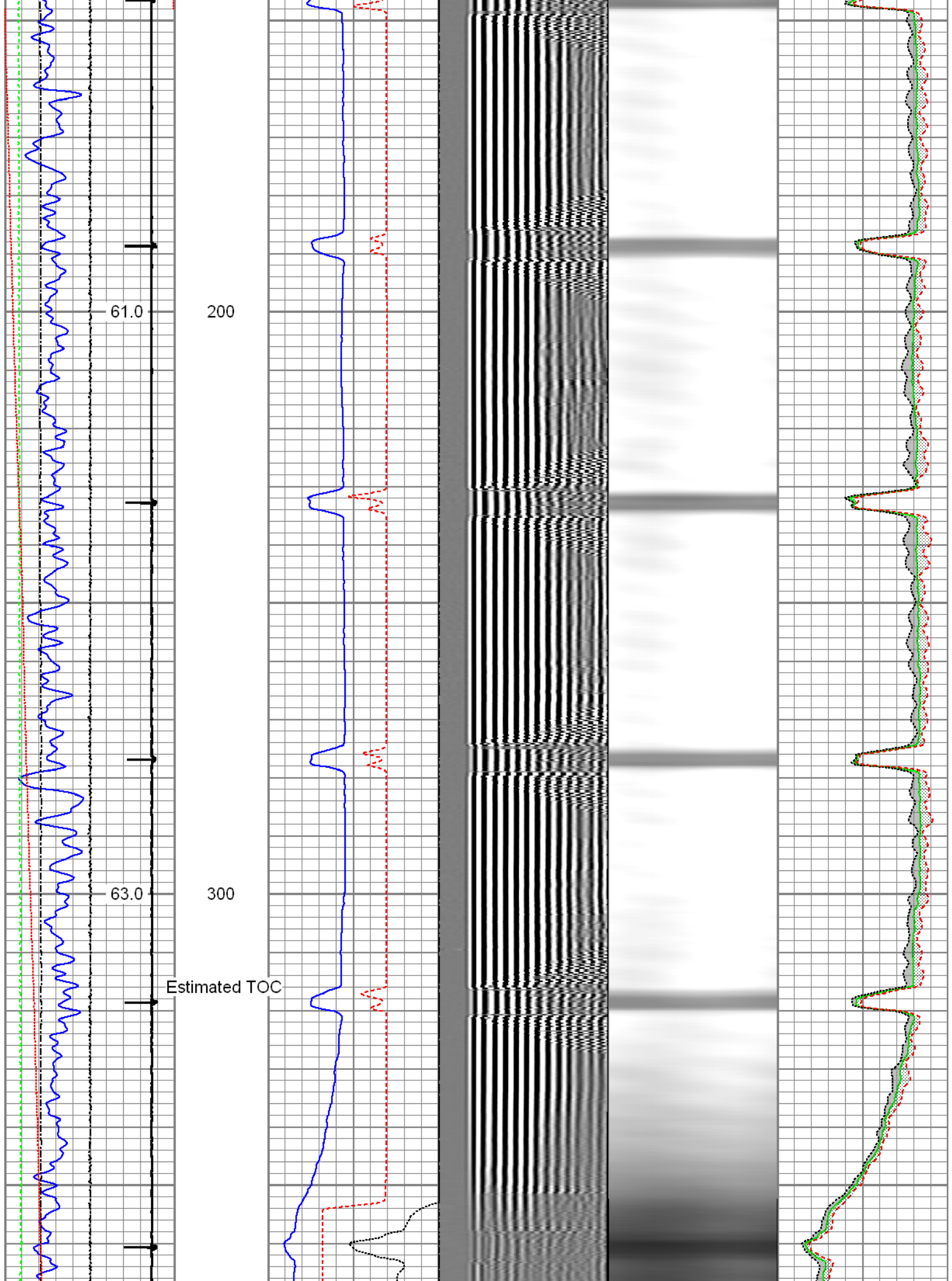
Presentation Format:rbt4_mit

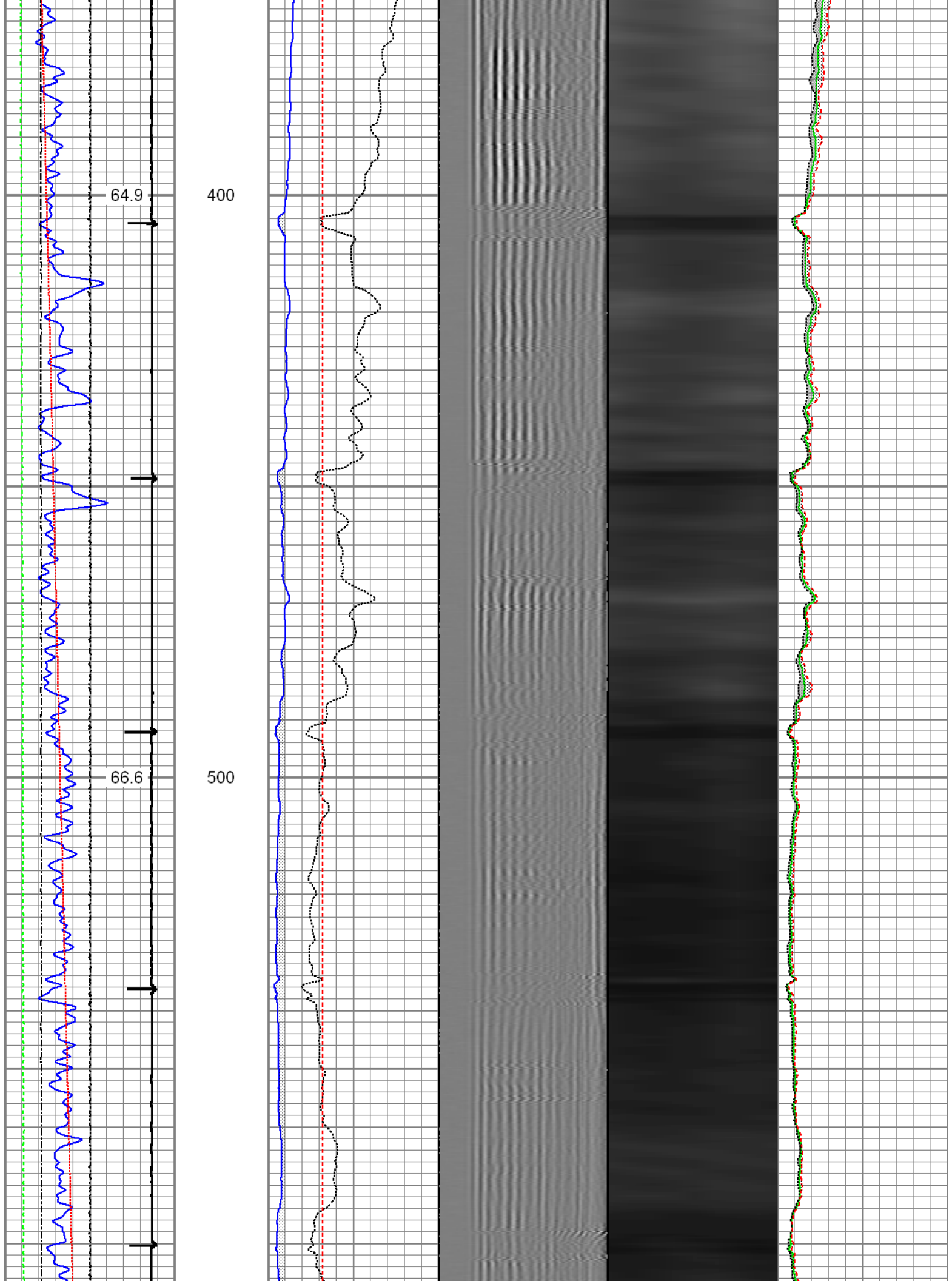
Dataset Creation:Wed May 06 15:44:04 2015 by Calc SCH 120430

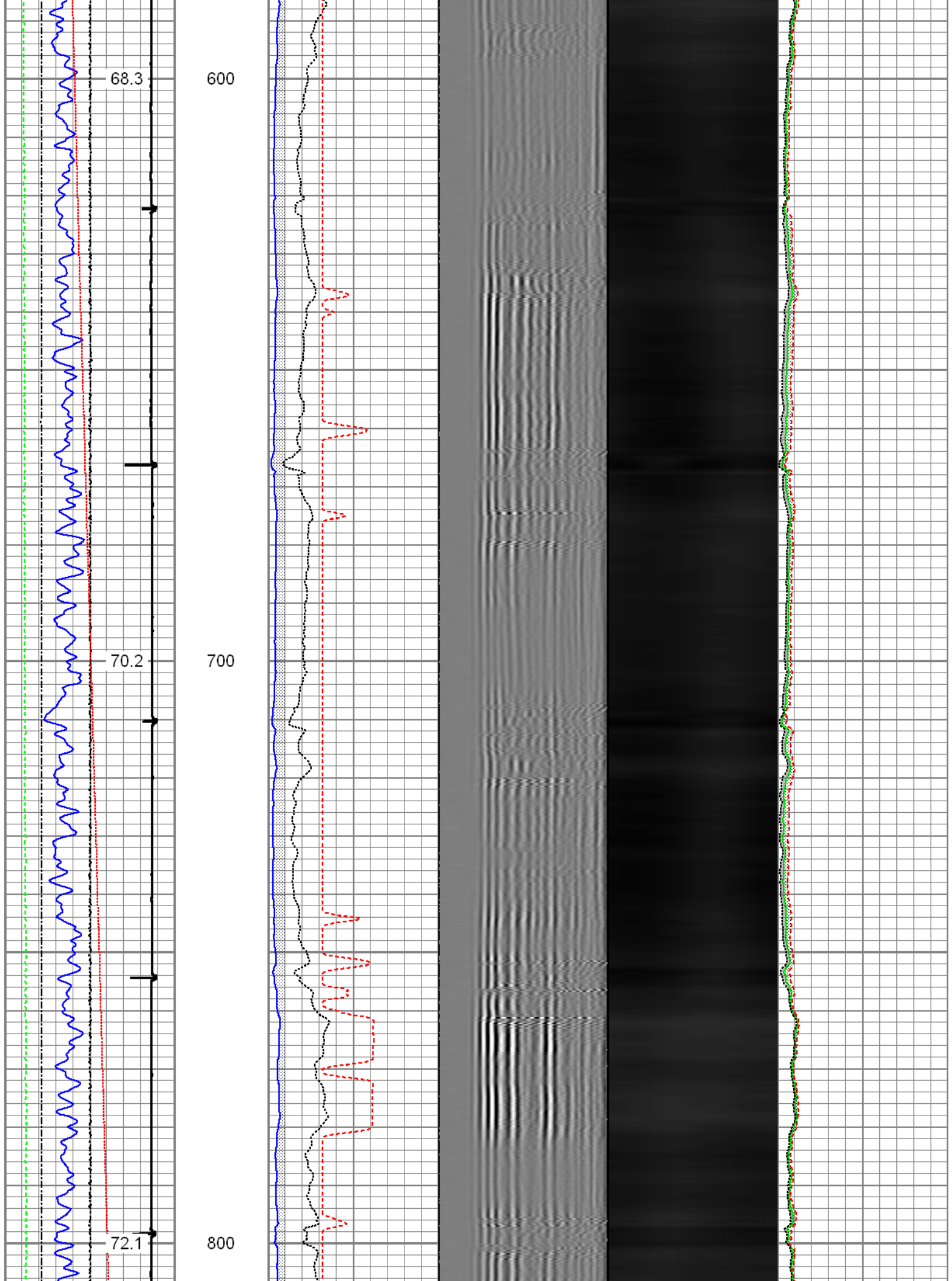
Charted by:Depth in Feet scaled 1:240

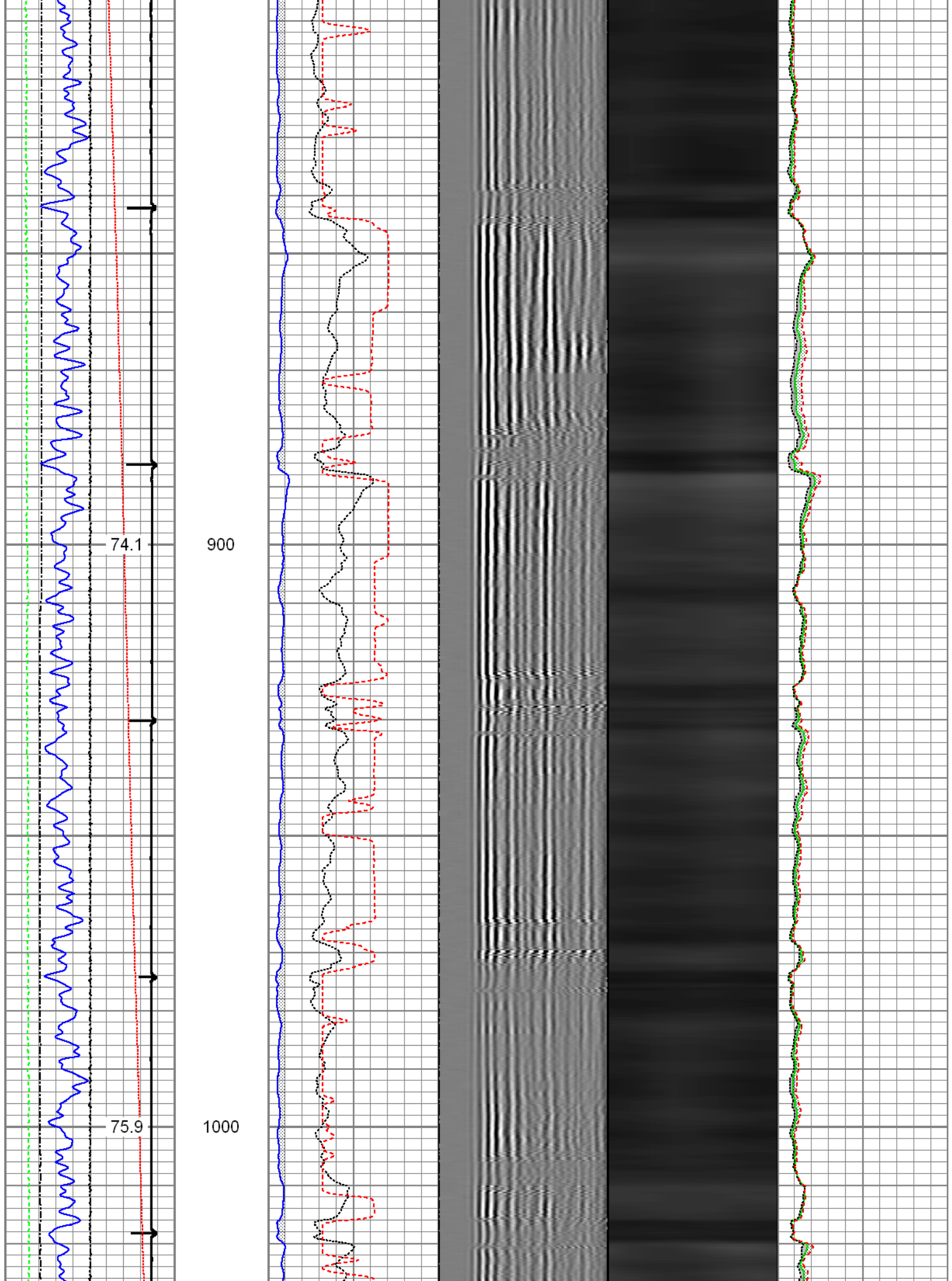
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

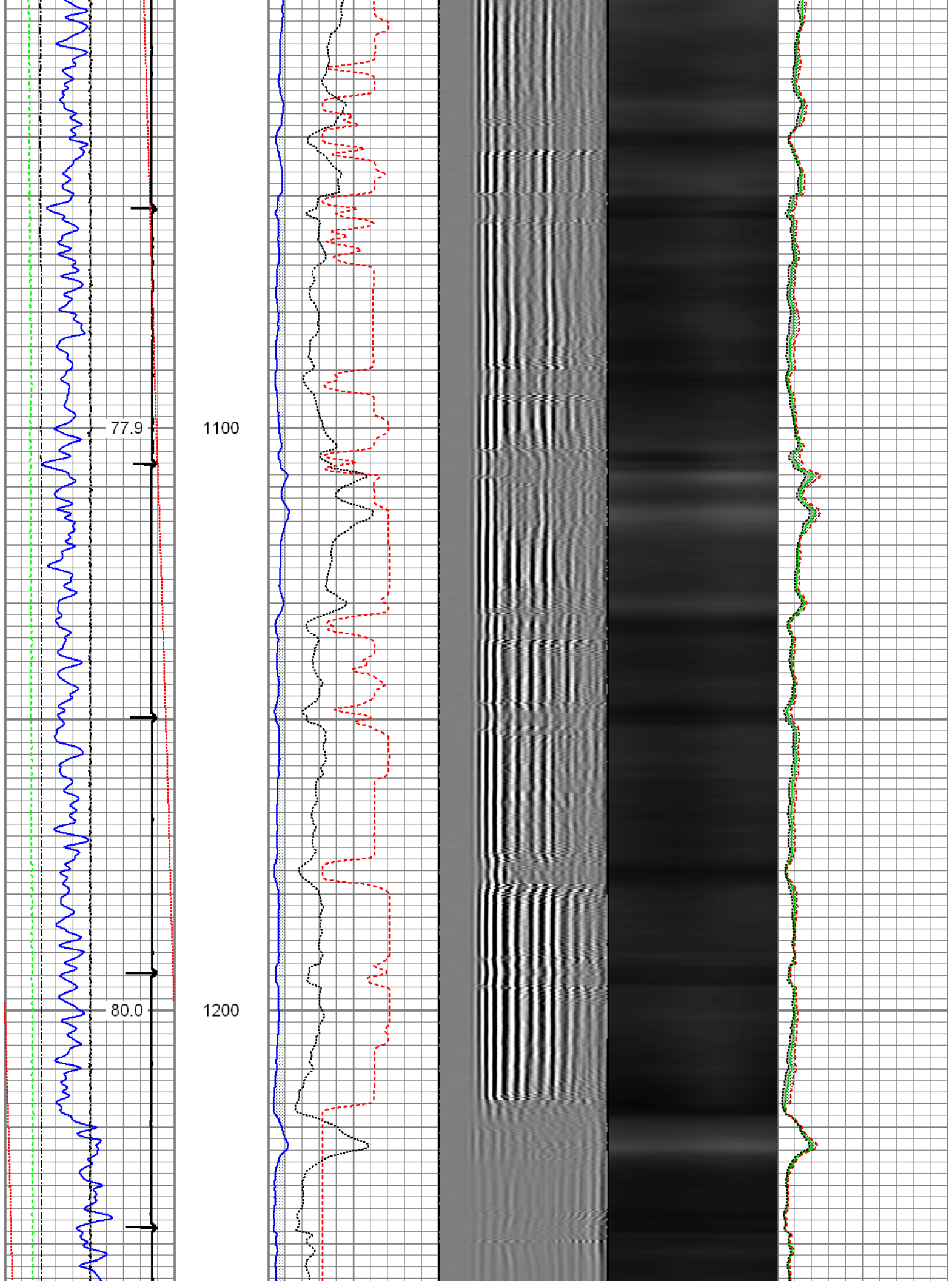


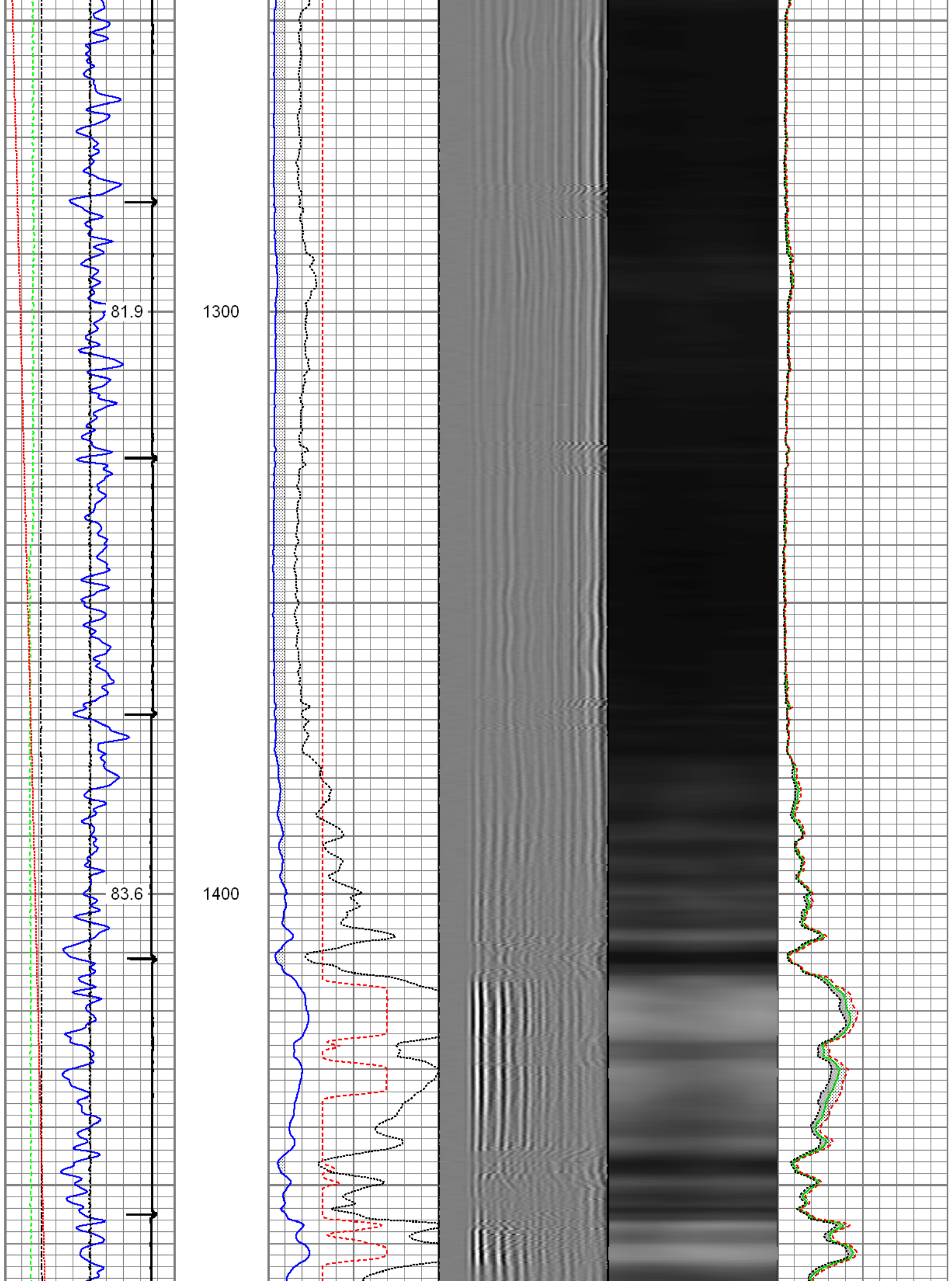


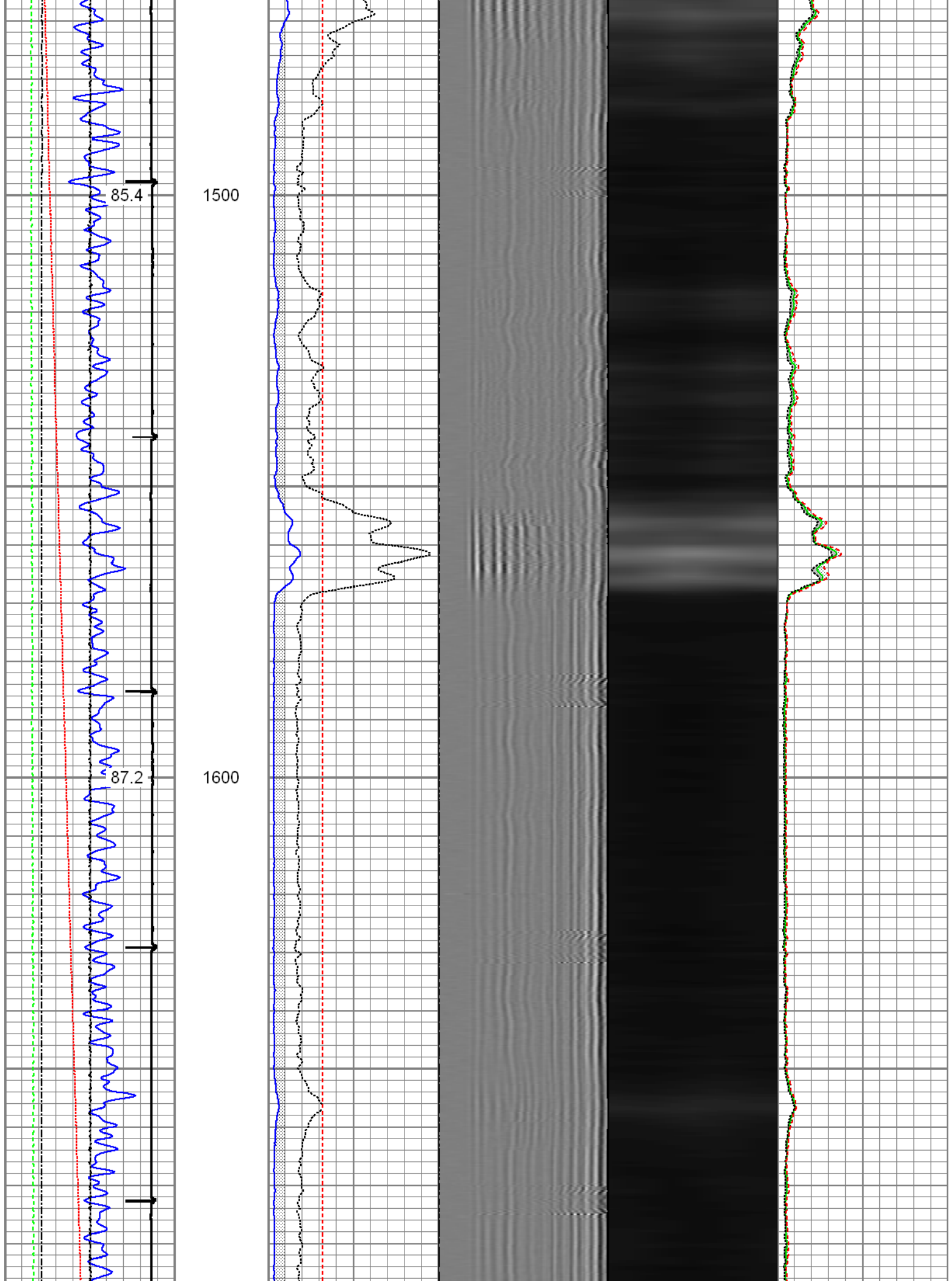


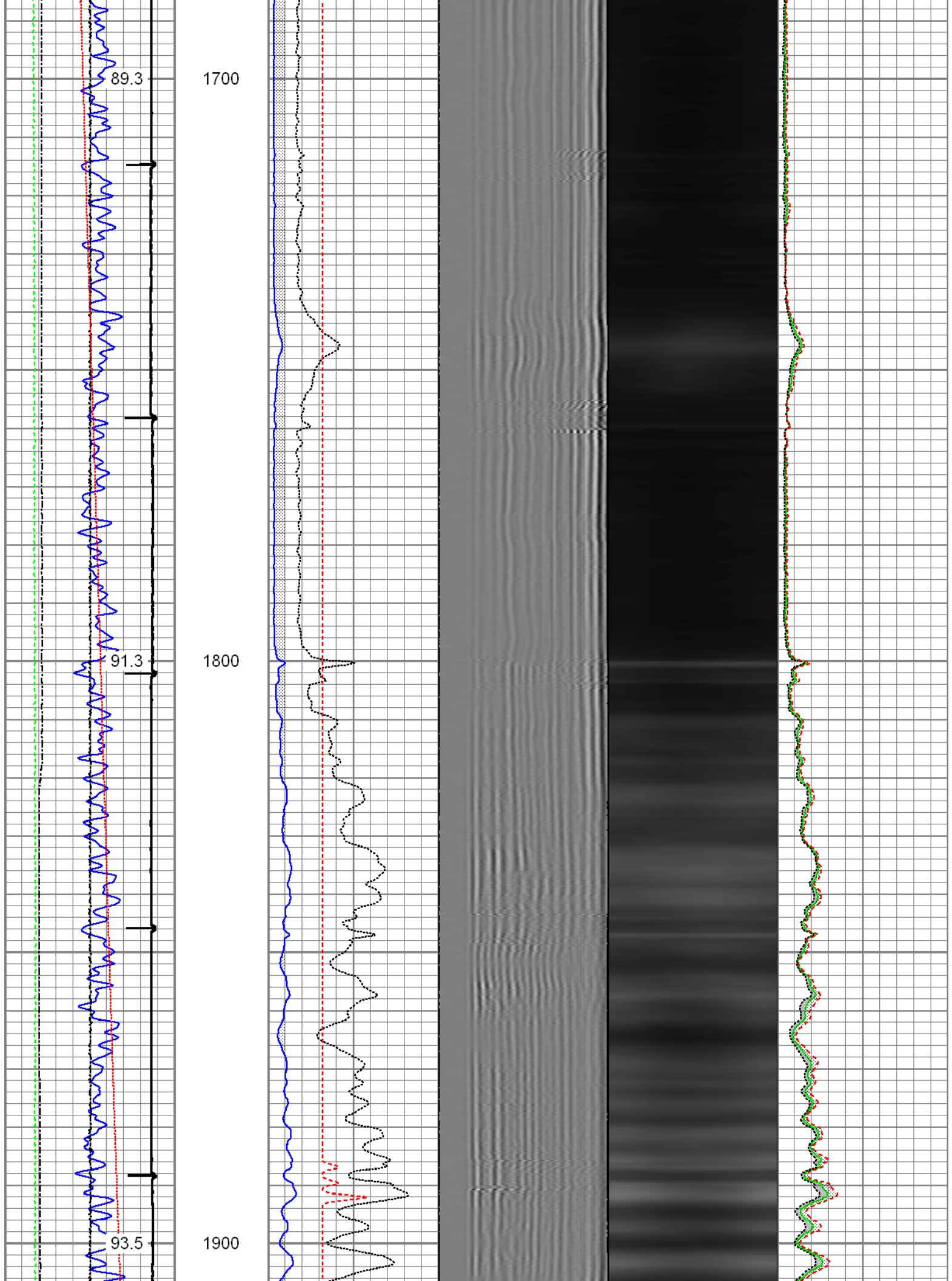


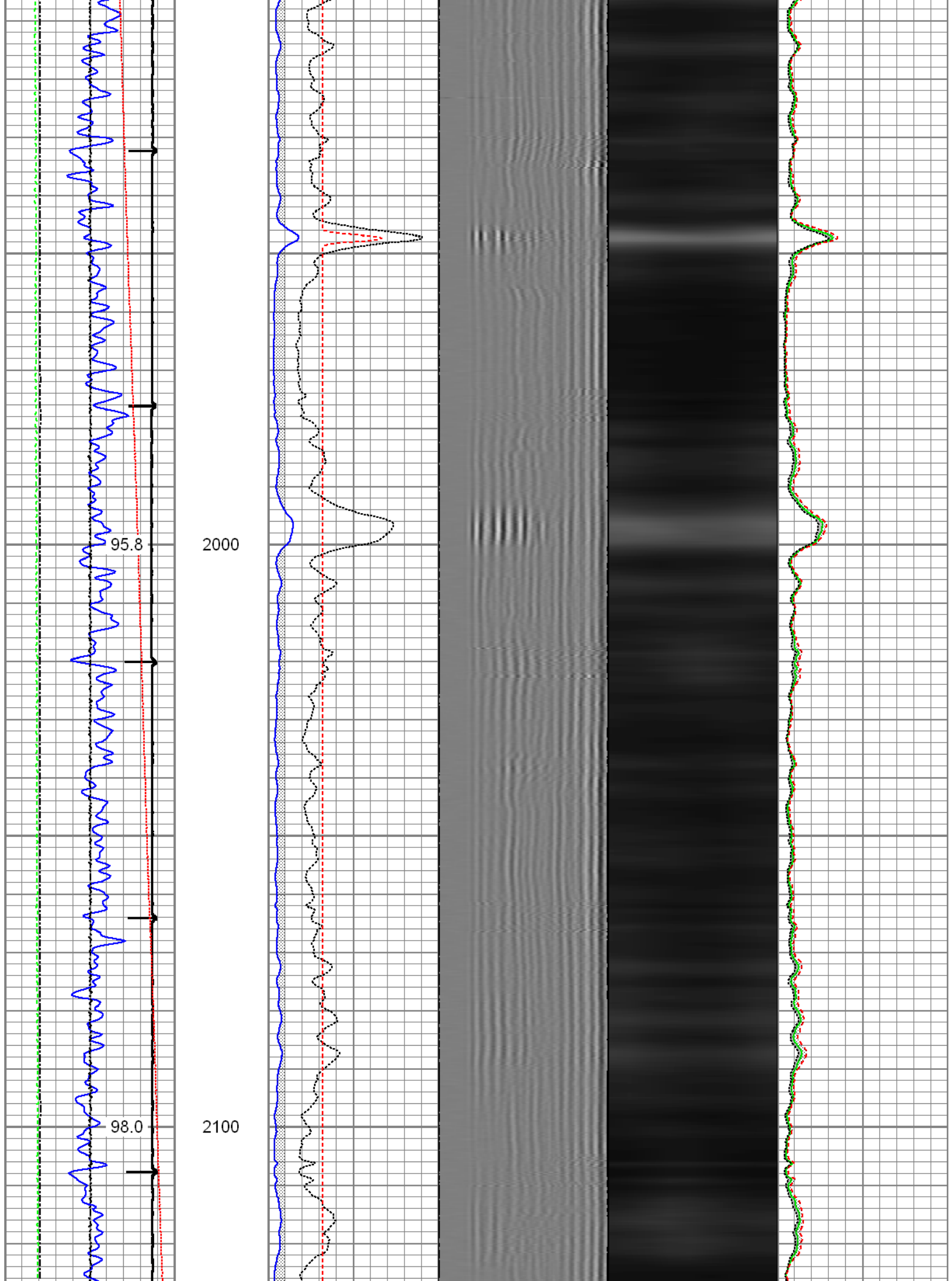


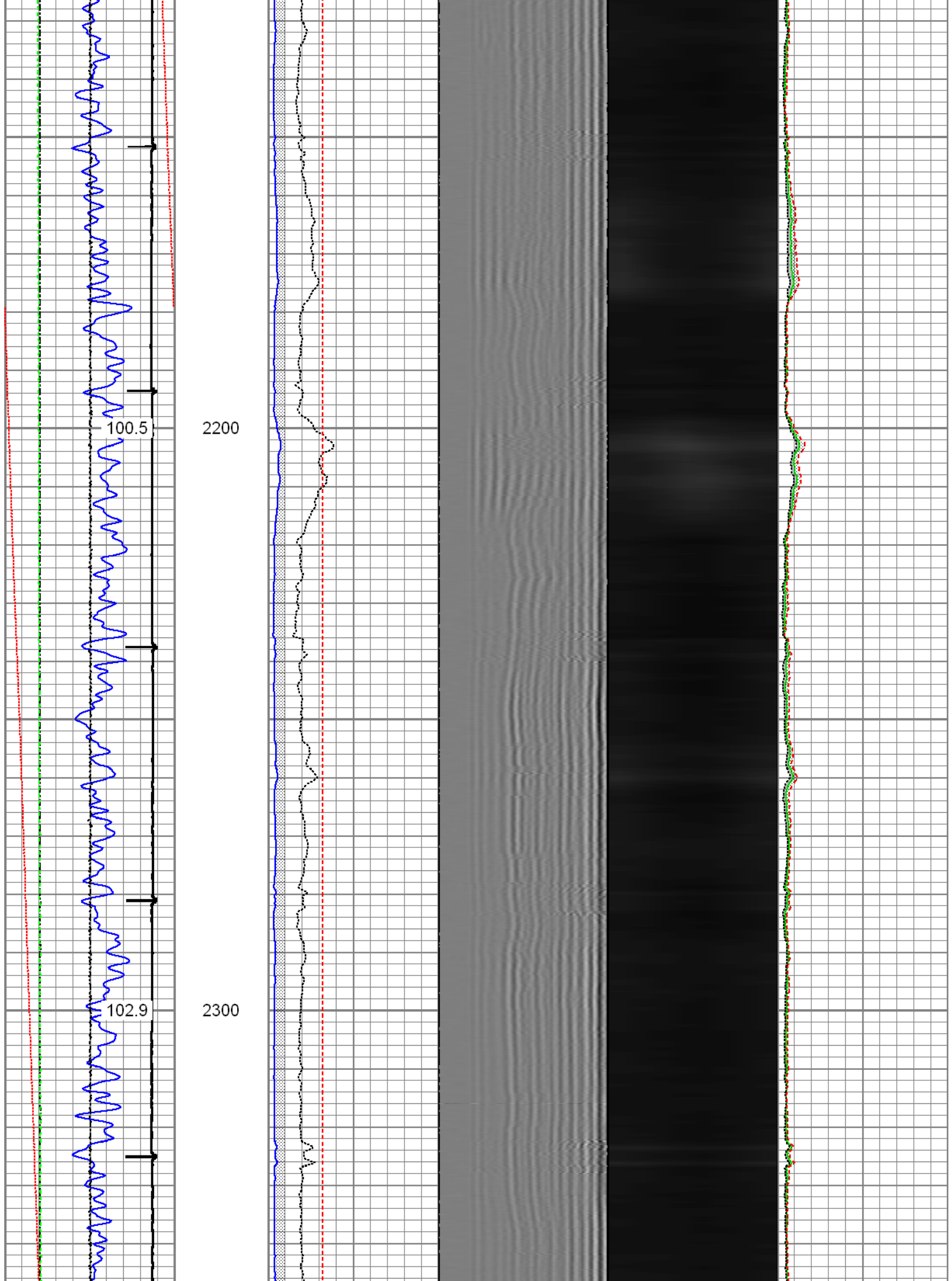


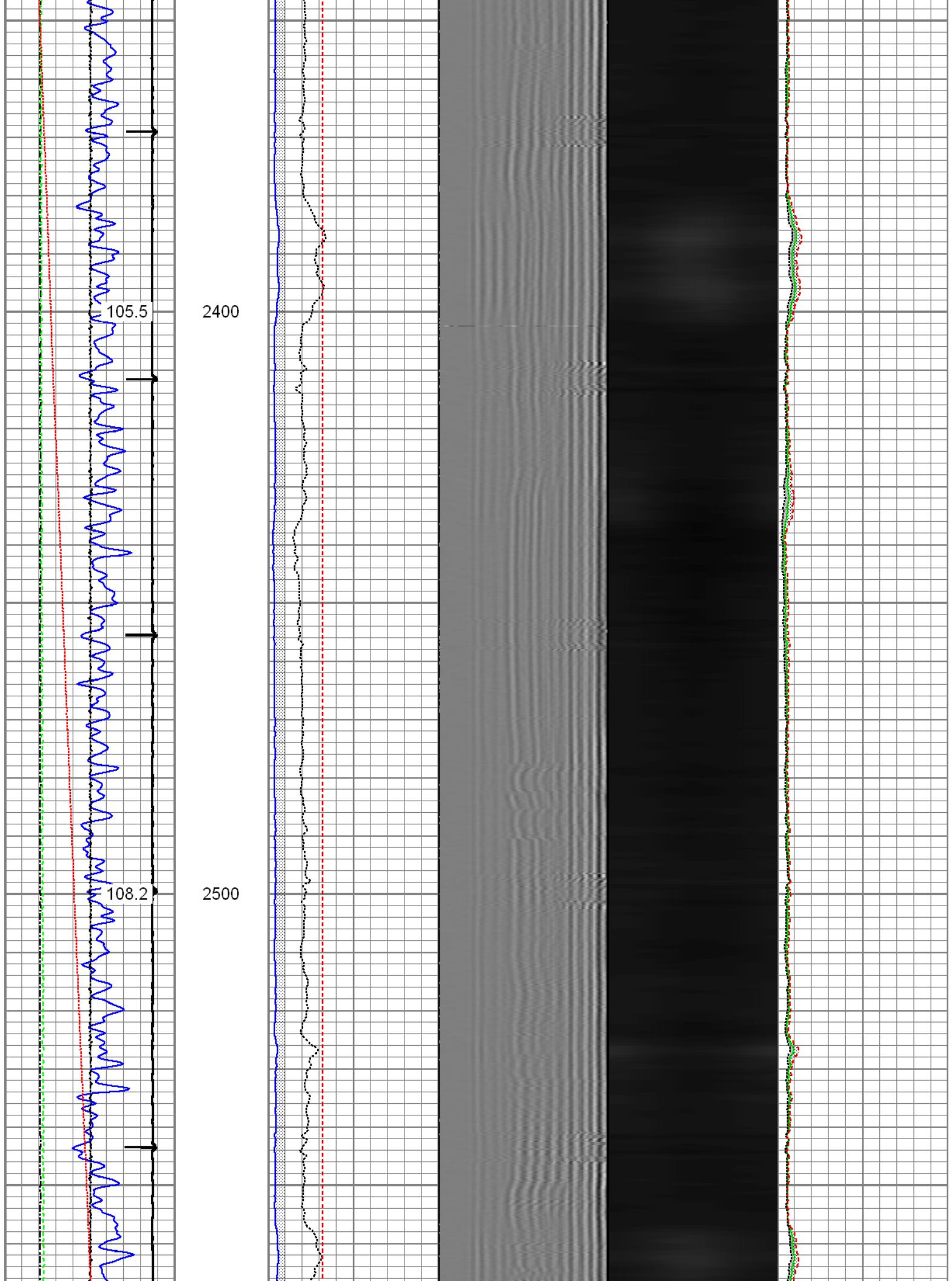


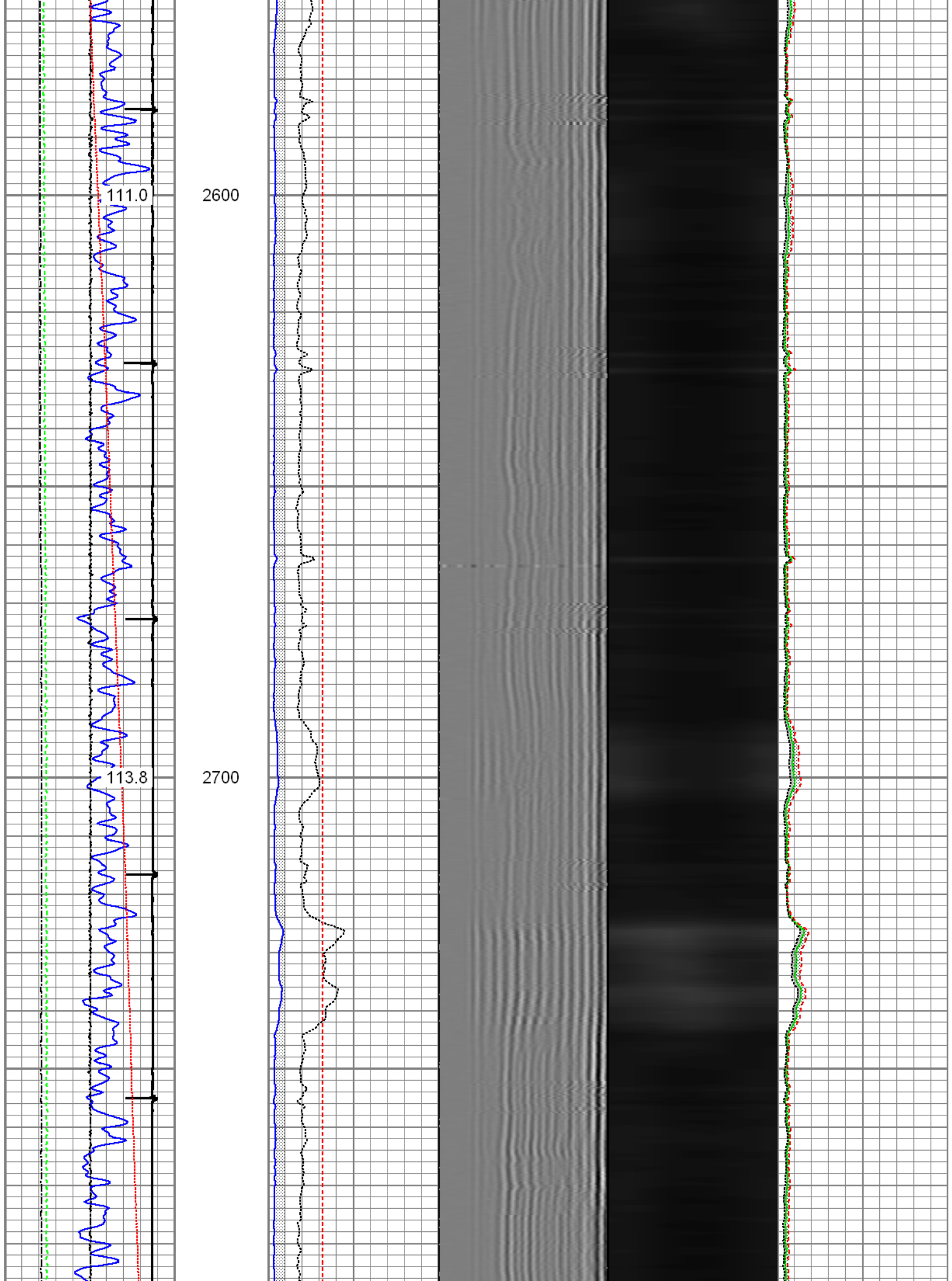


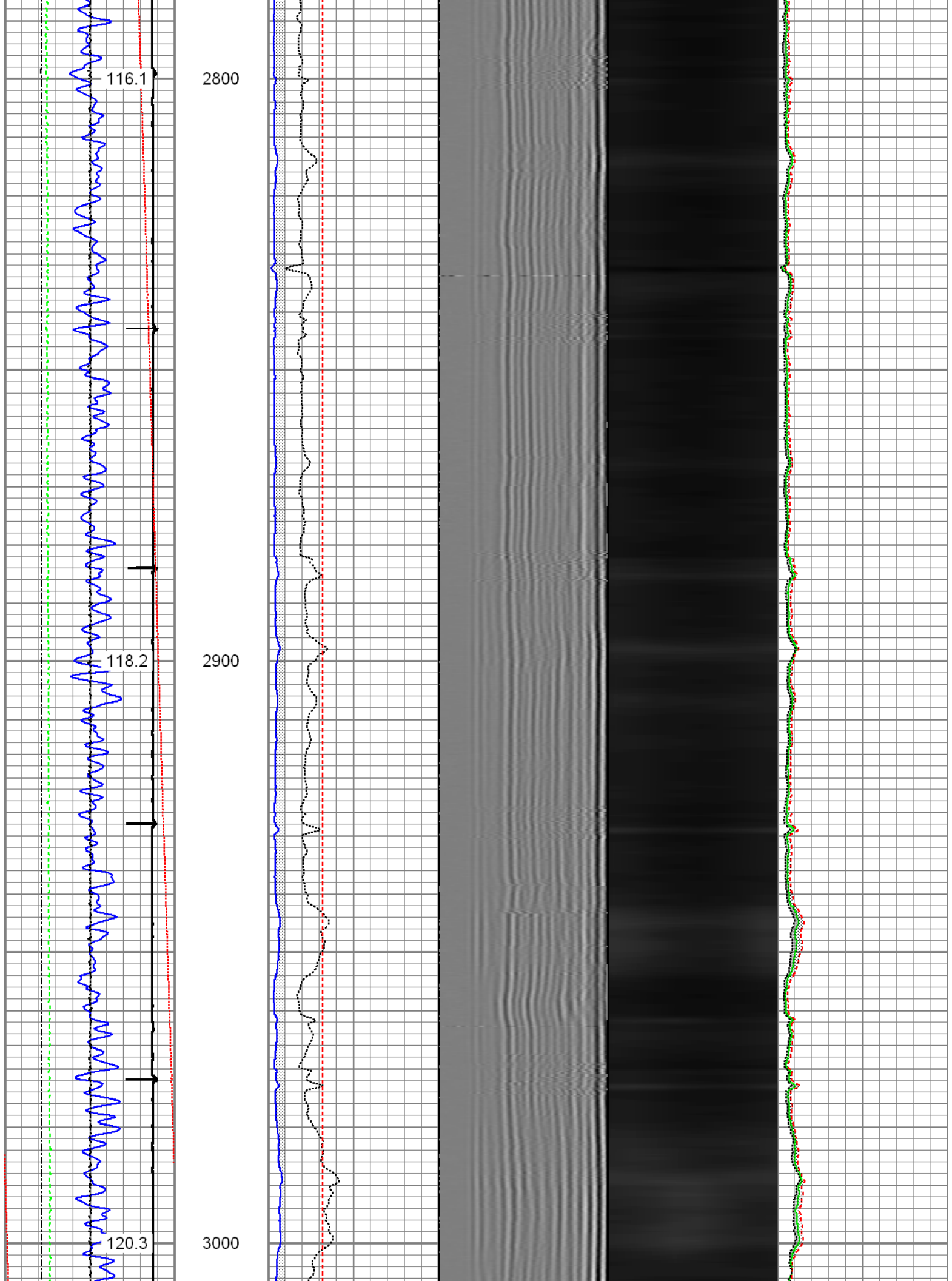


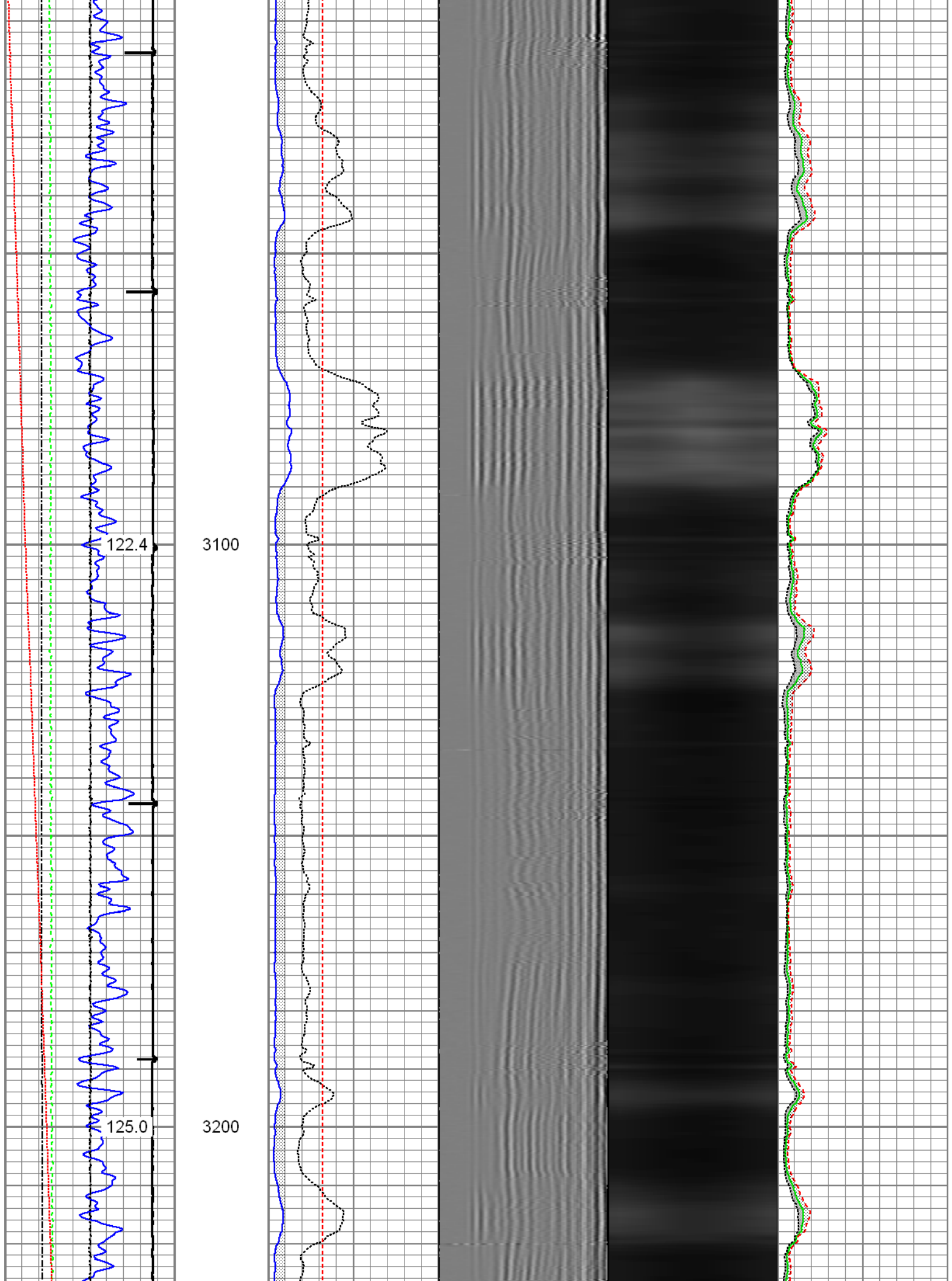


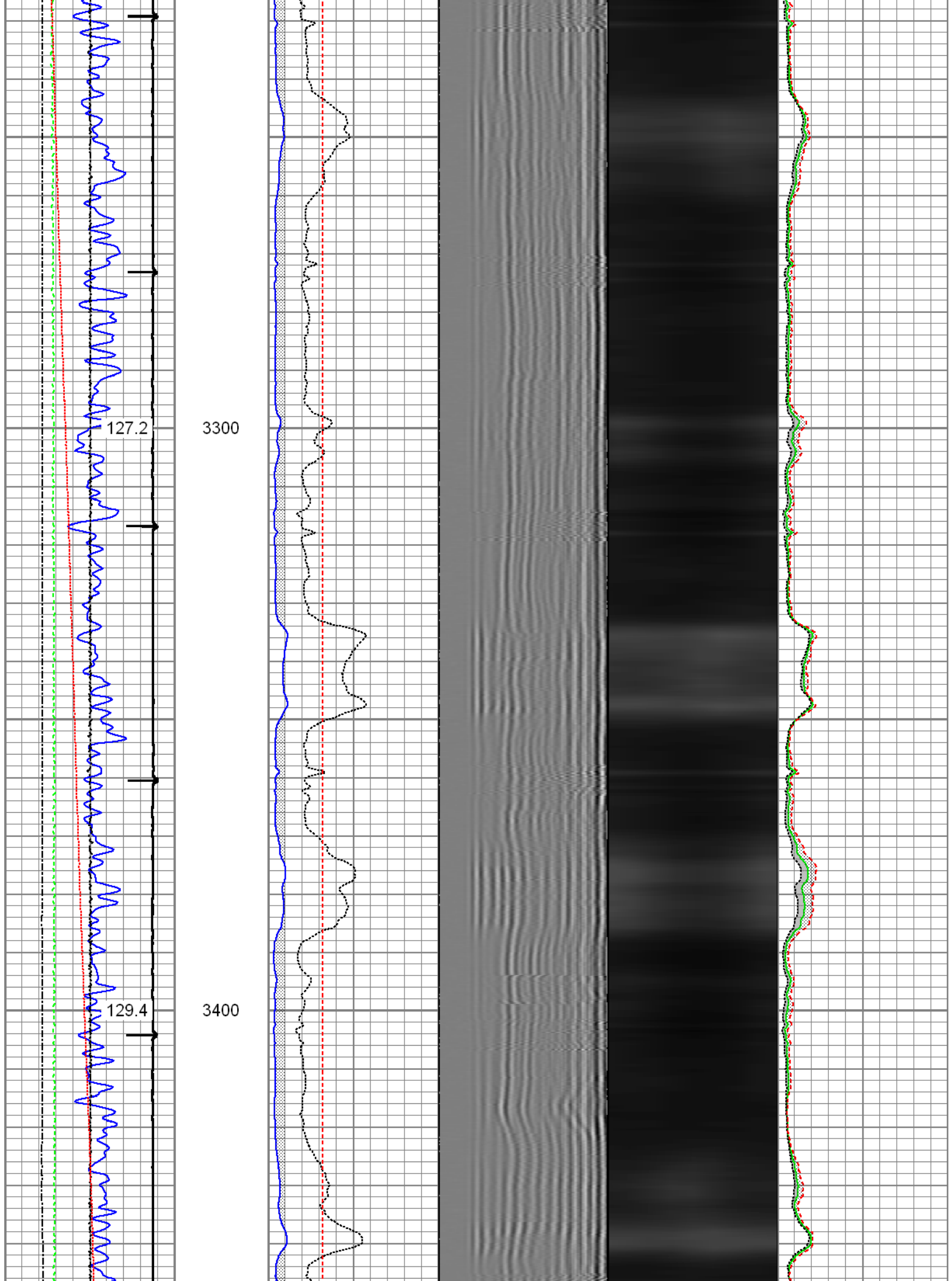


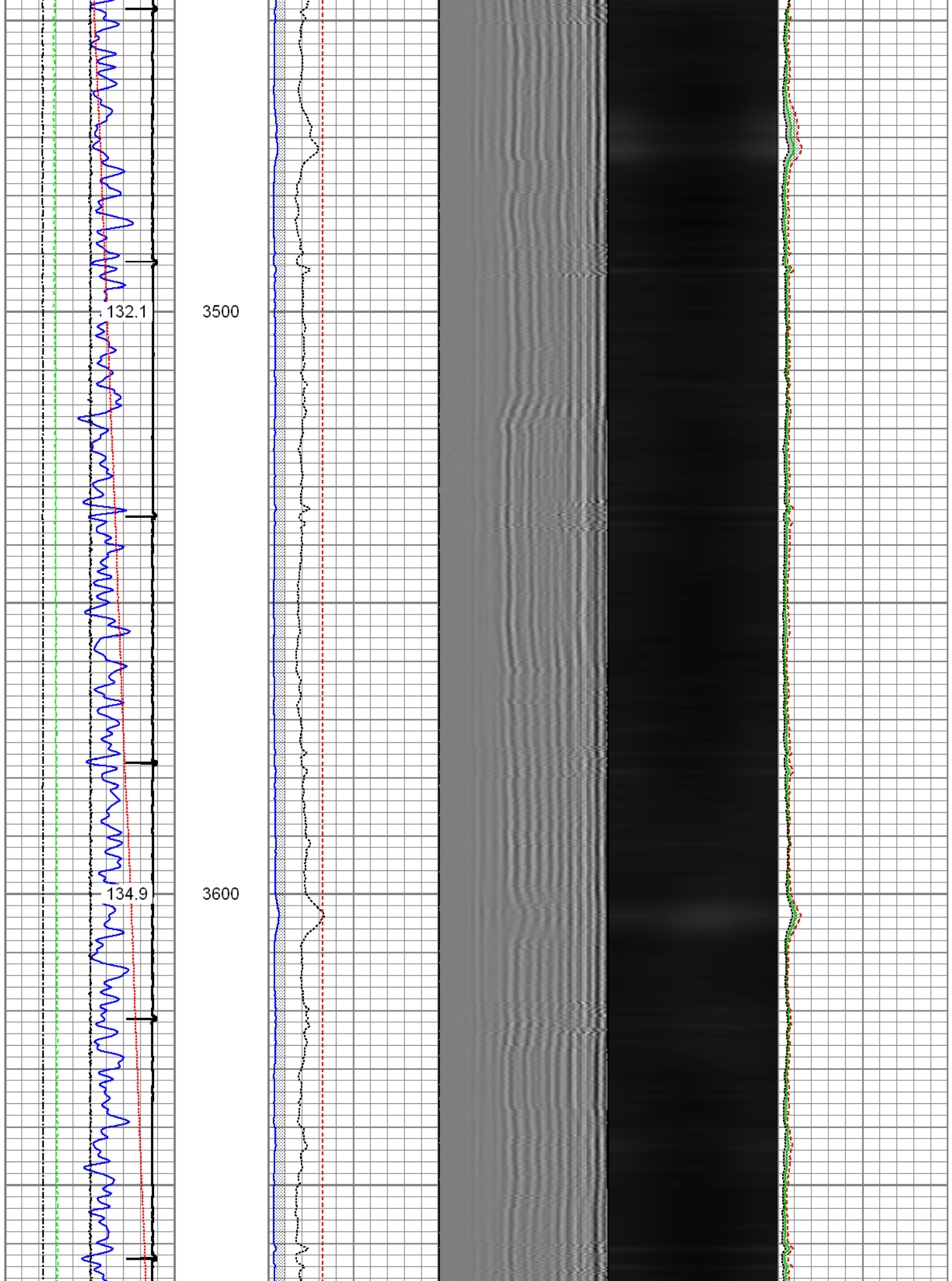


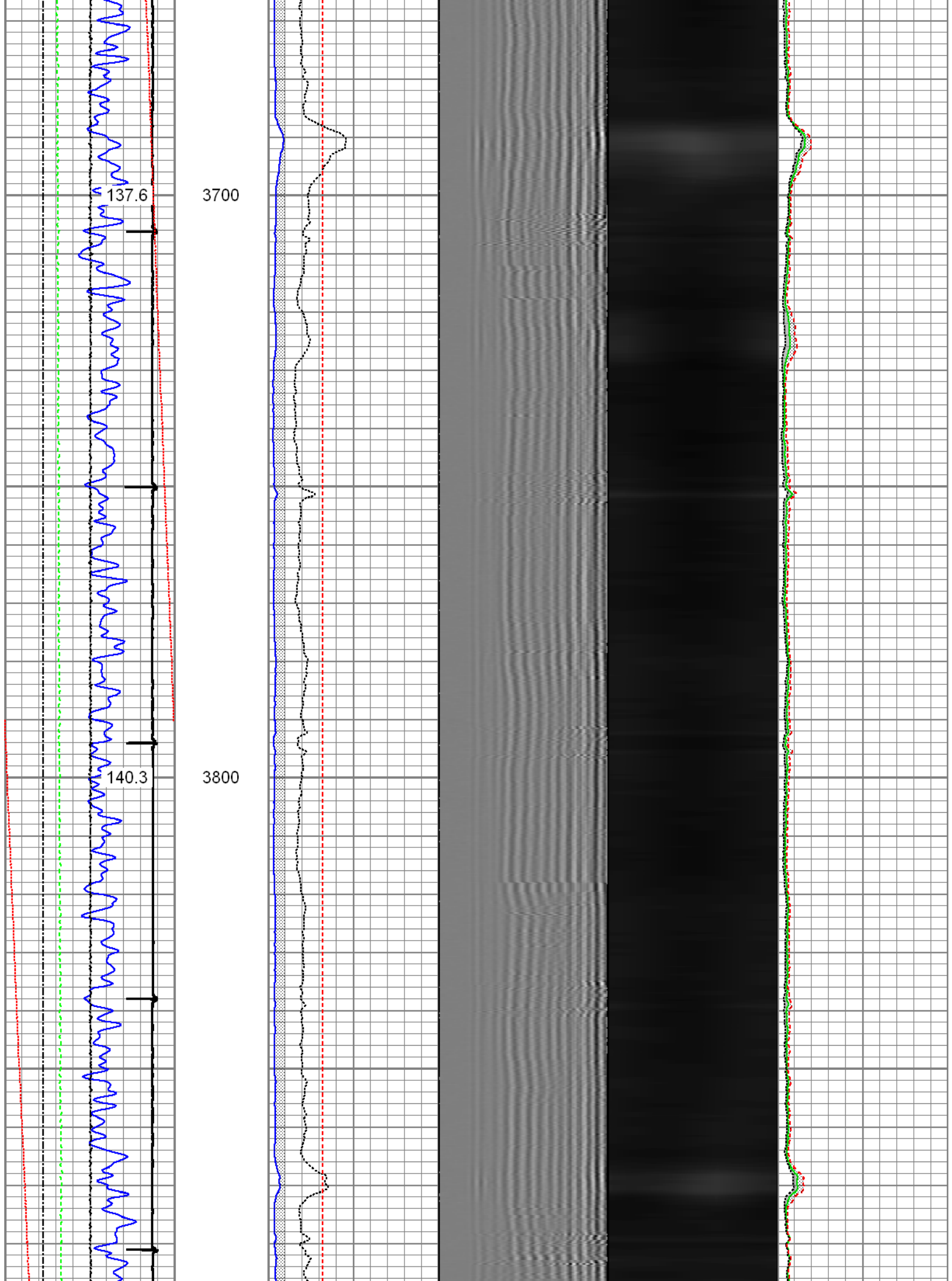


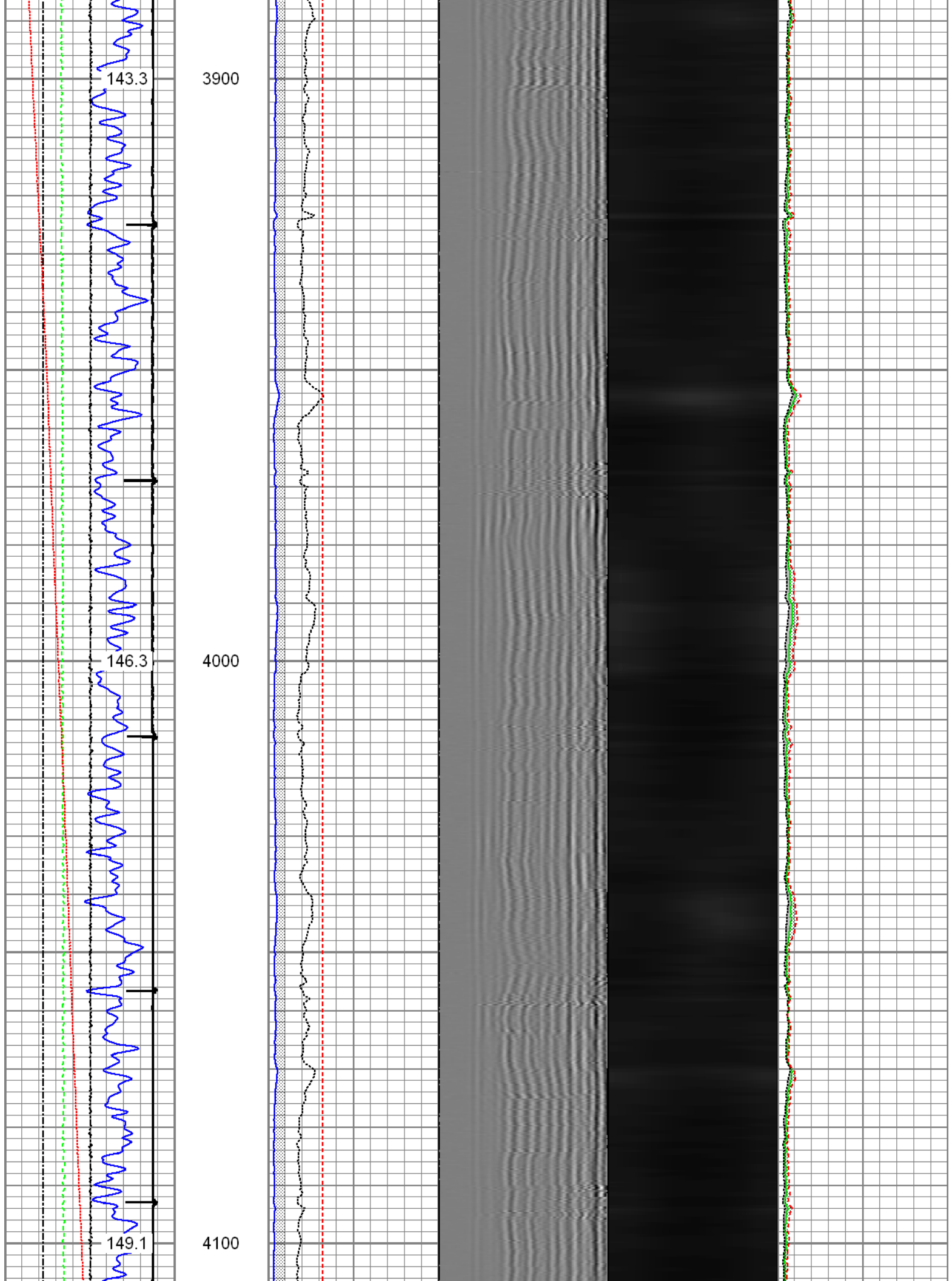


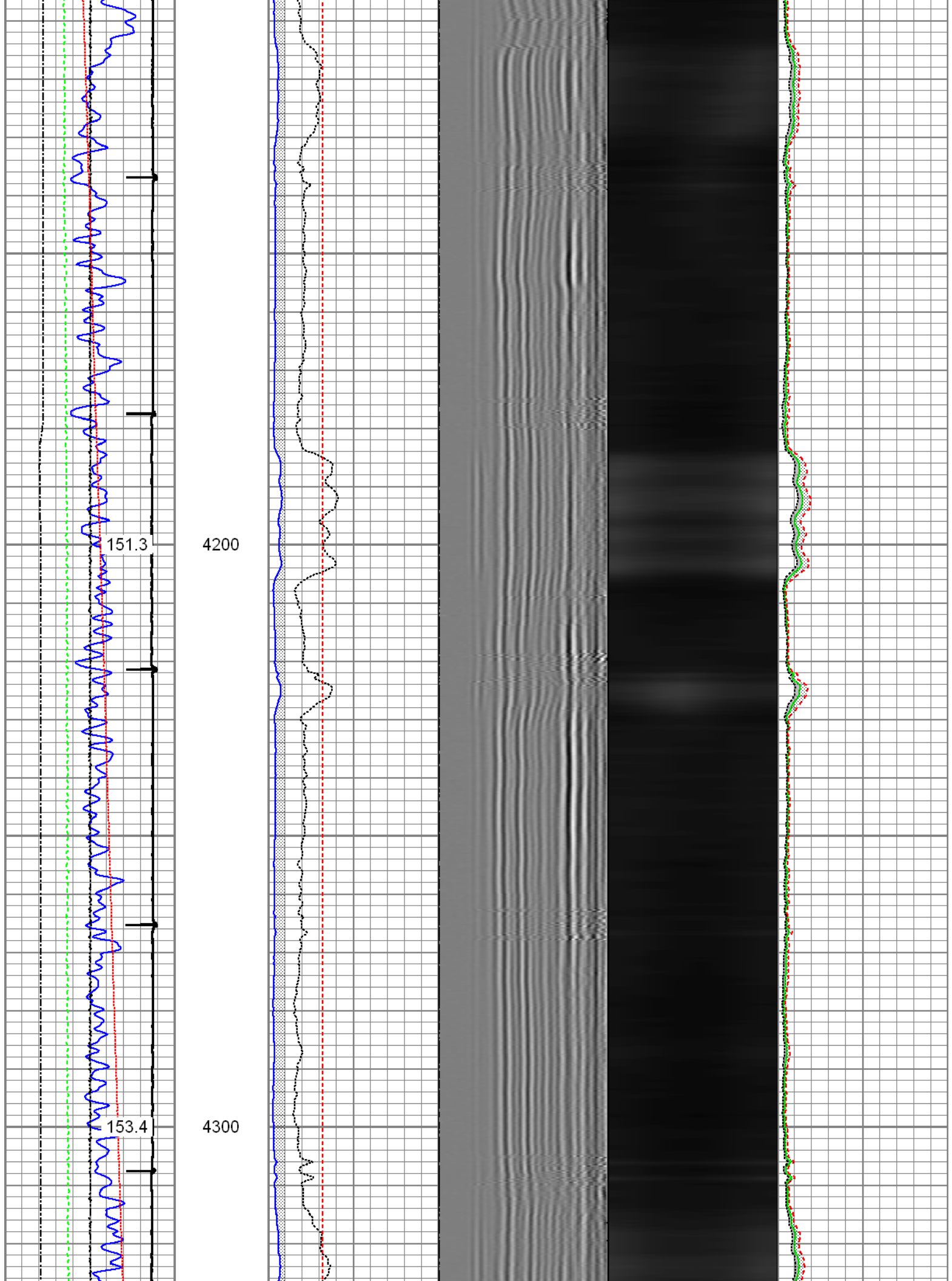


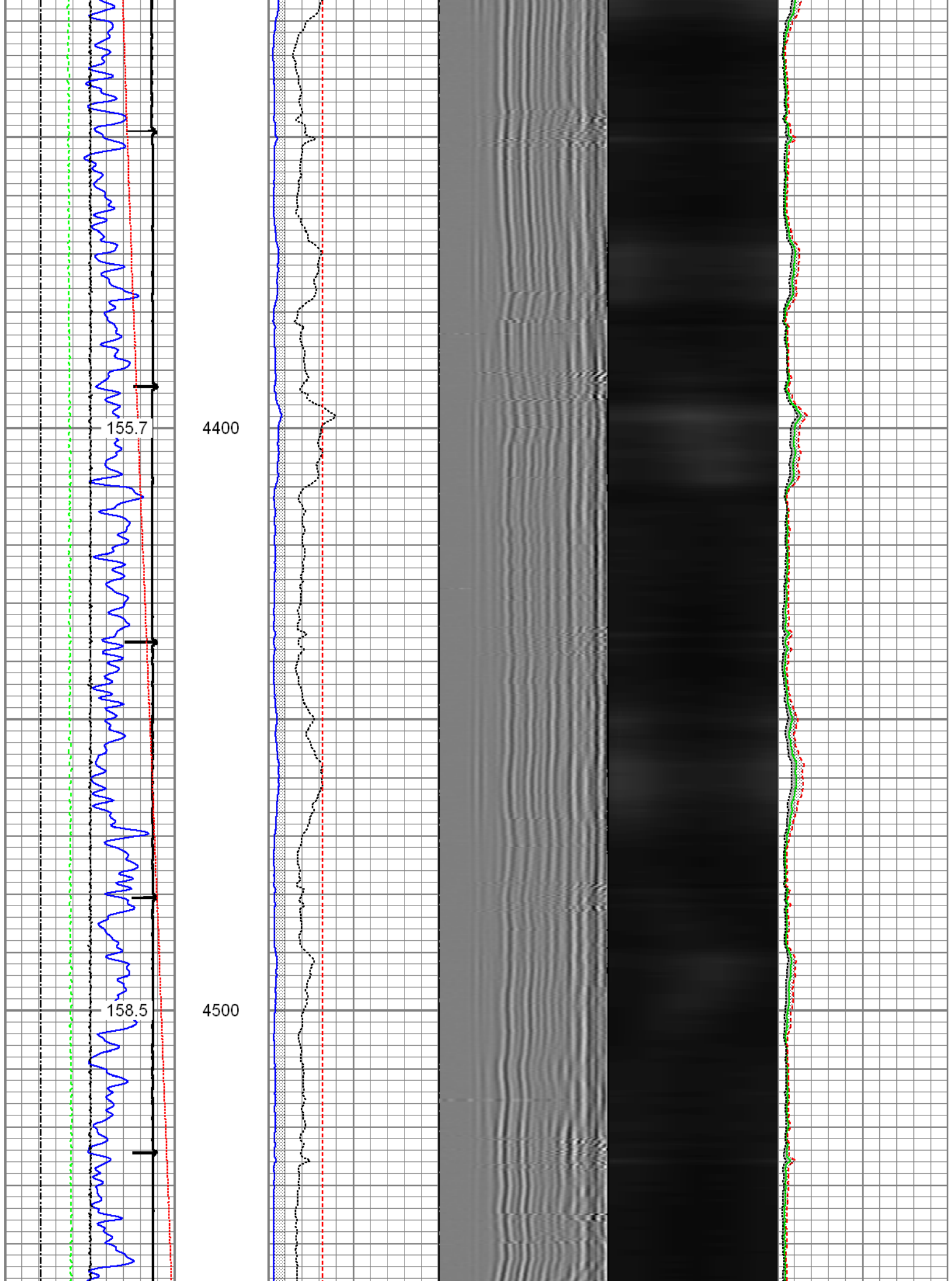


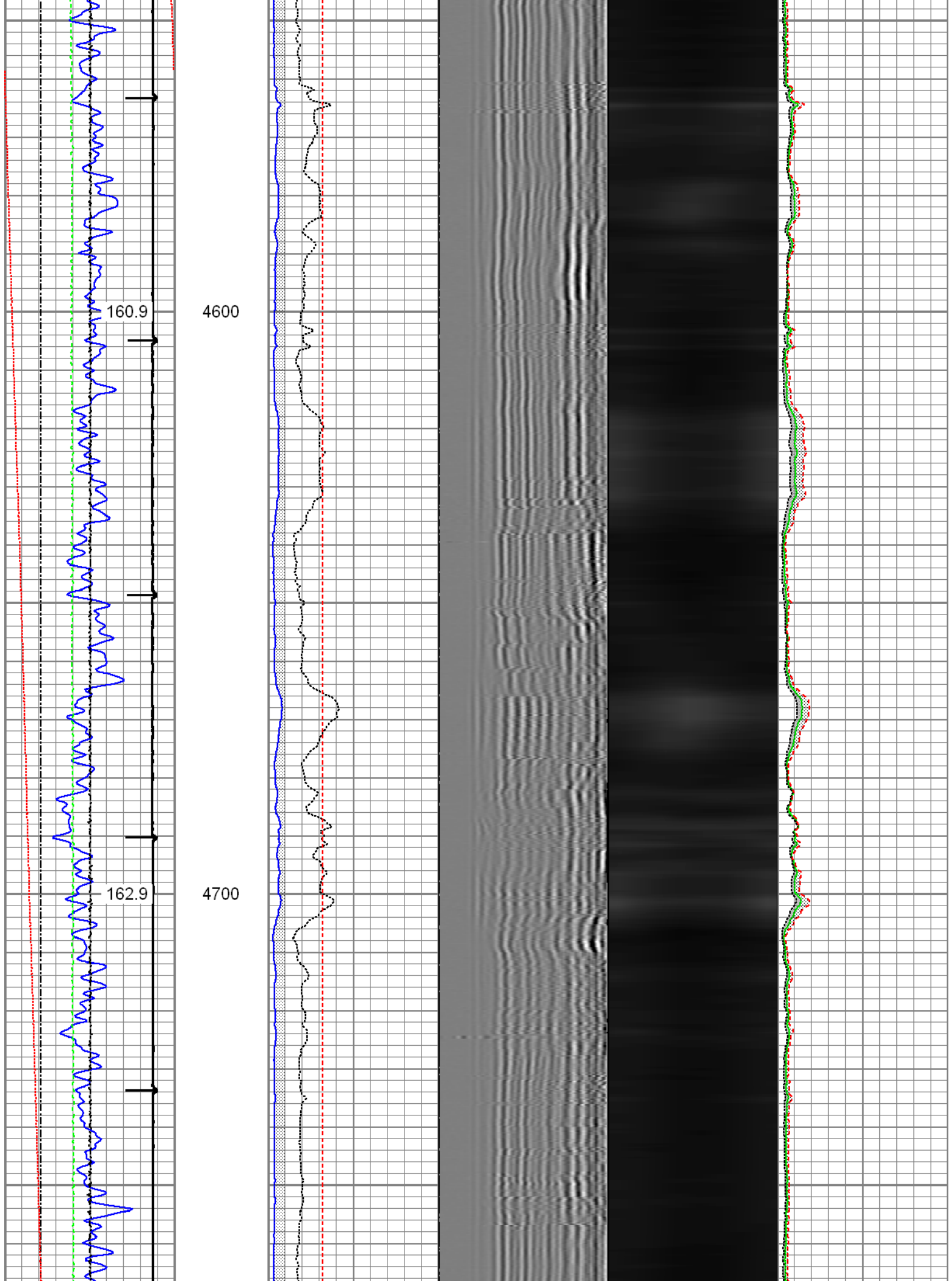


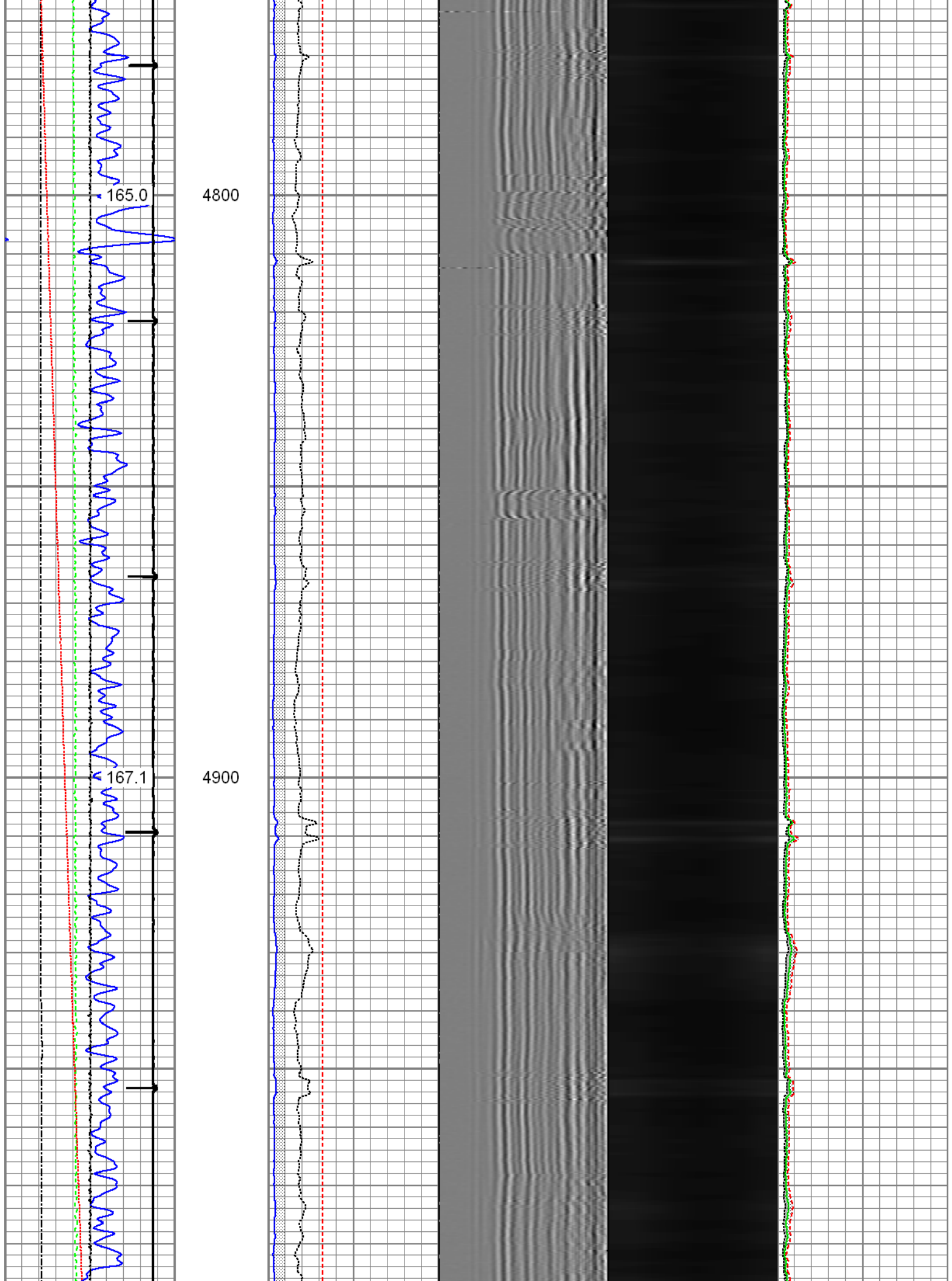


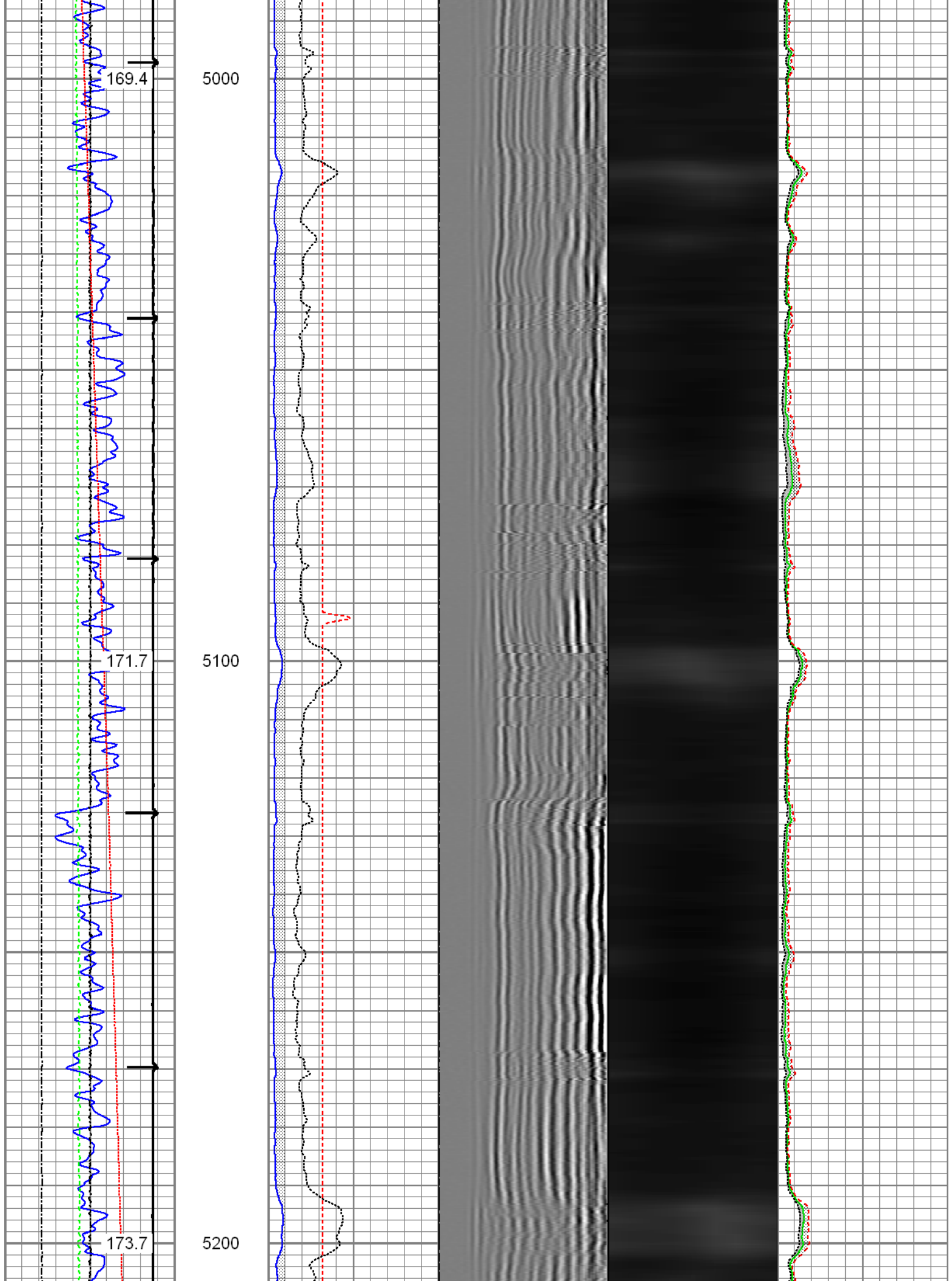


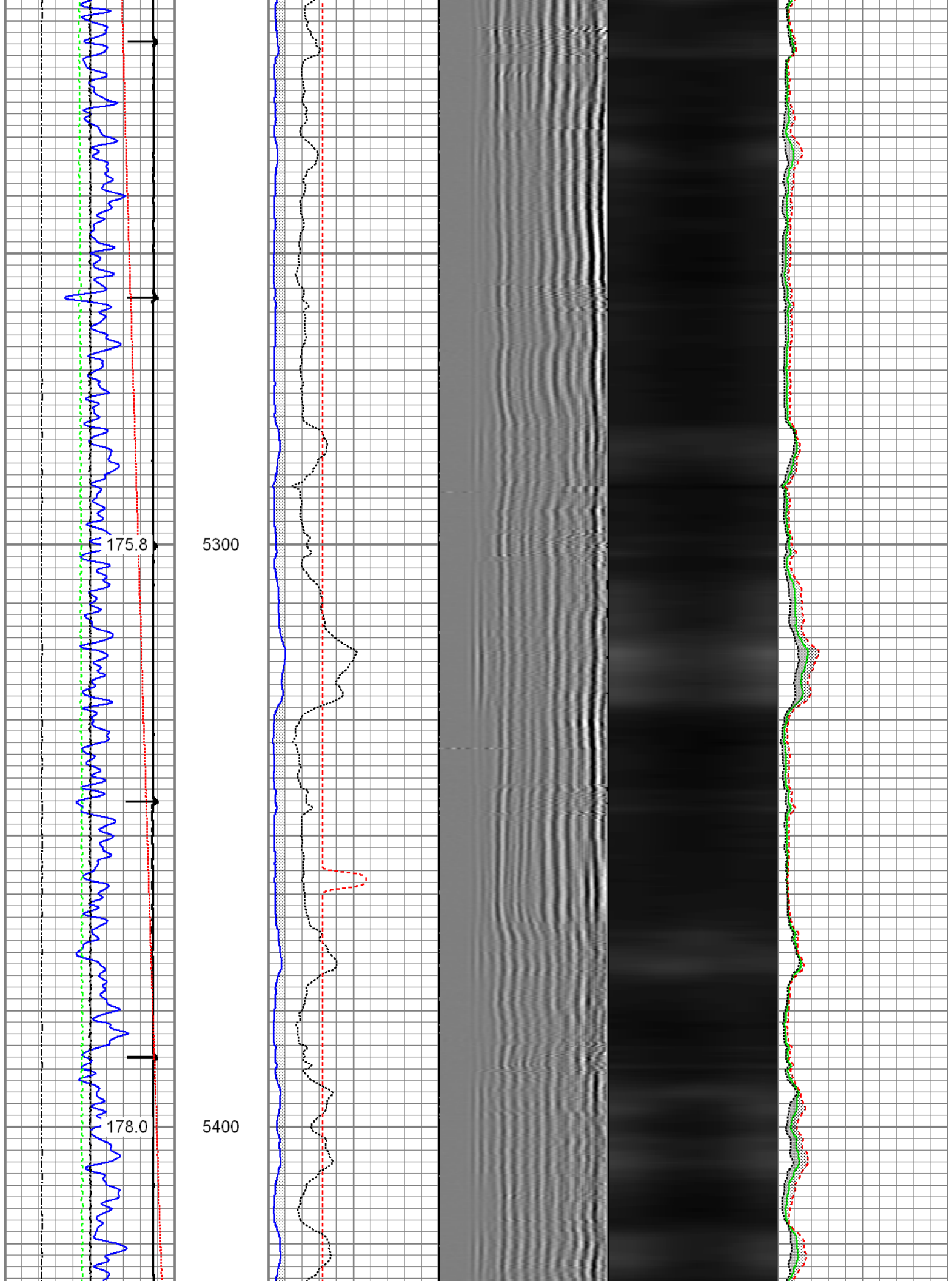


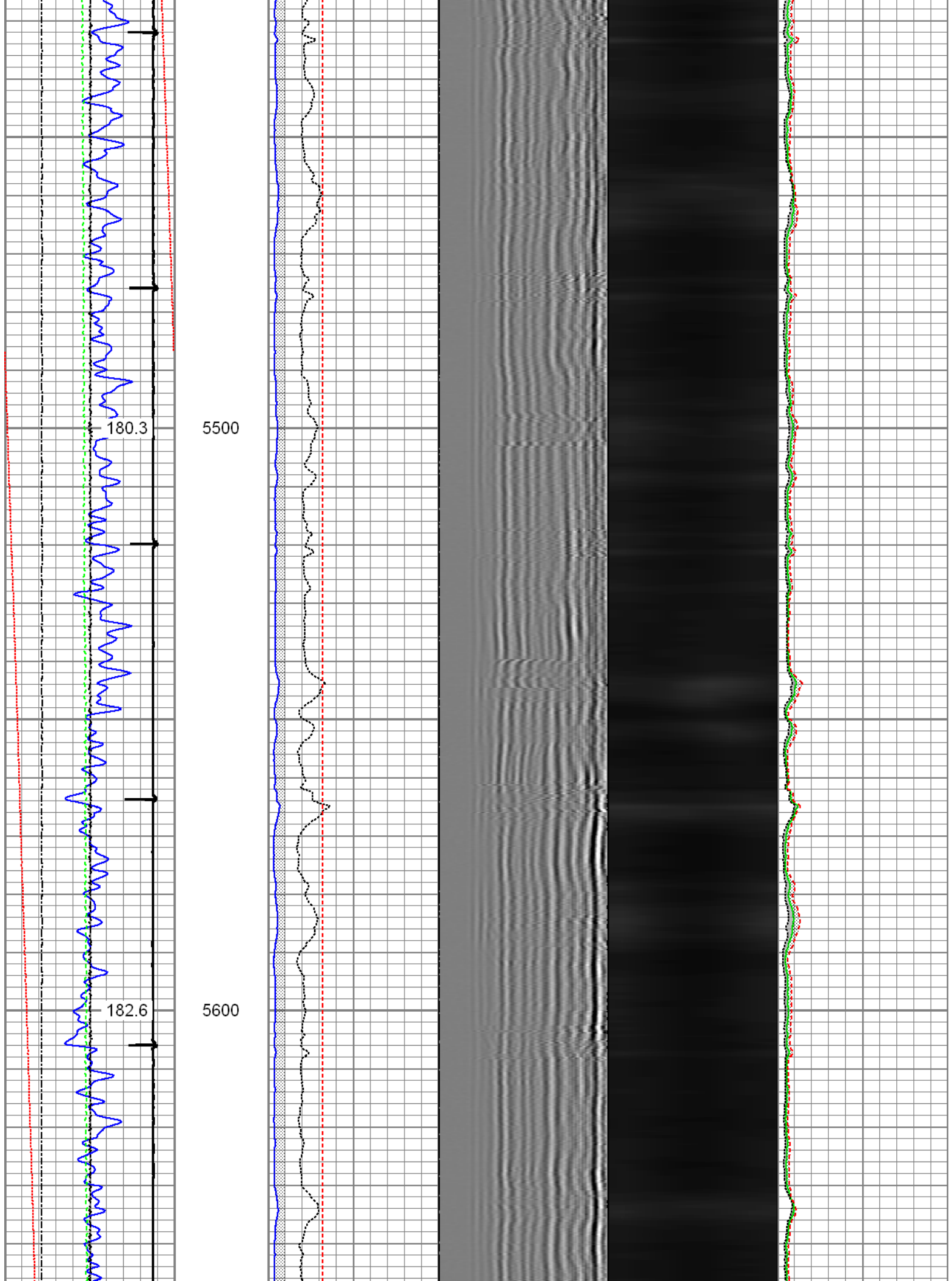


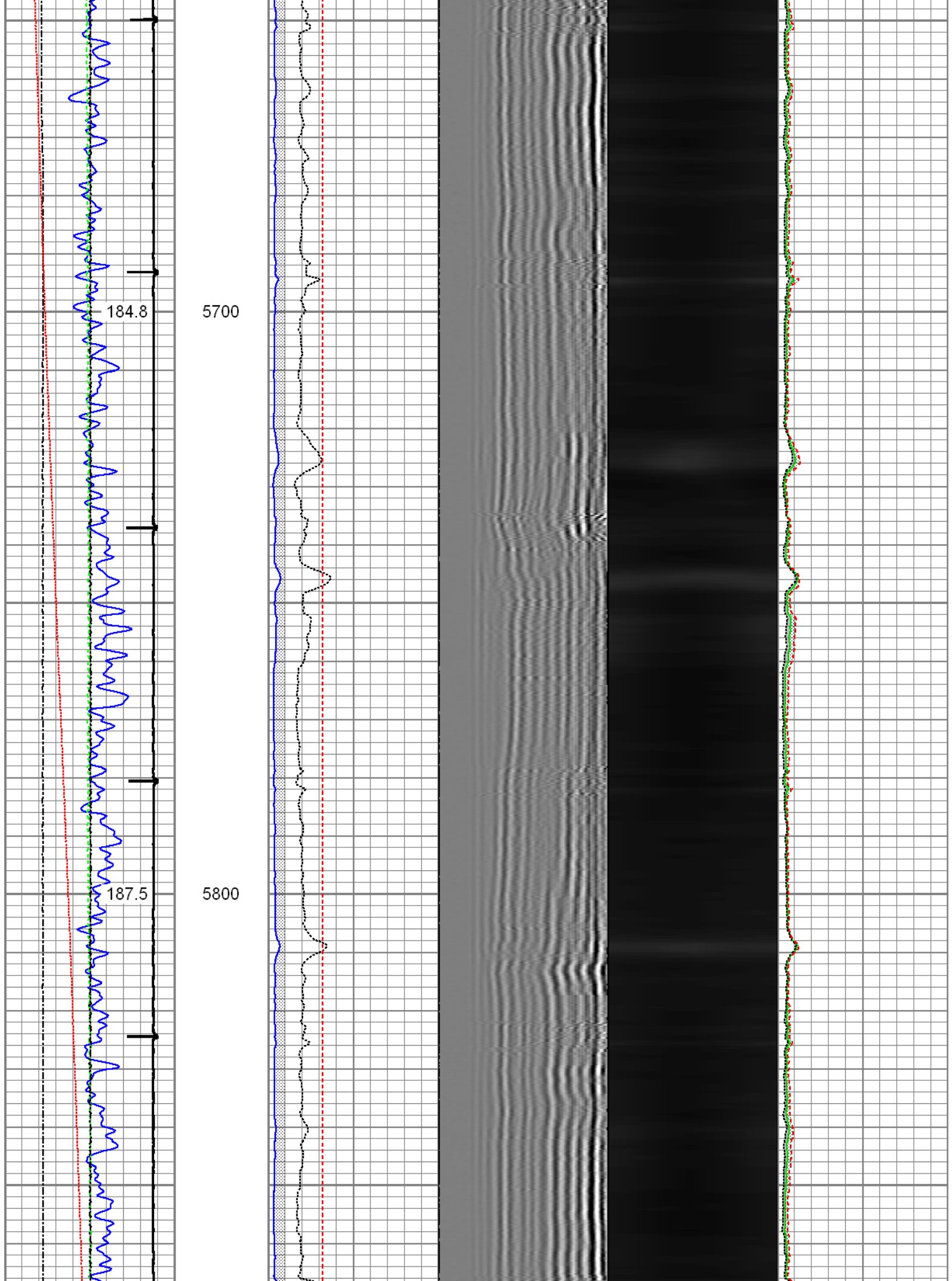


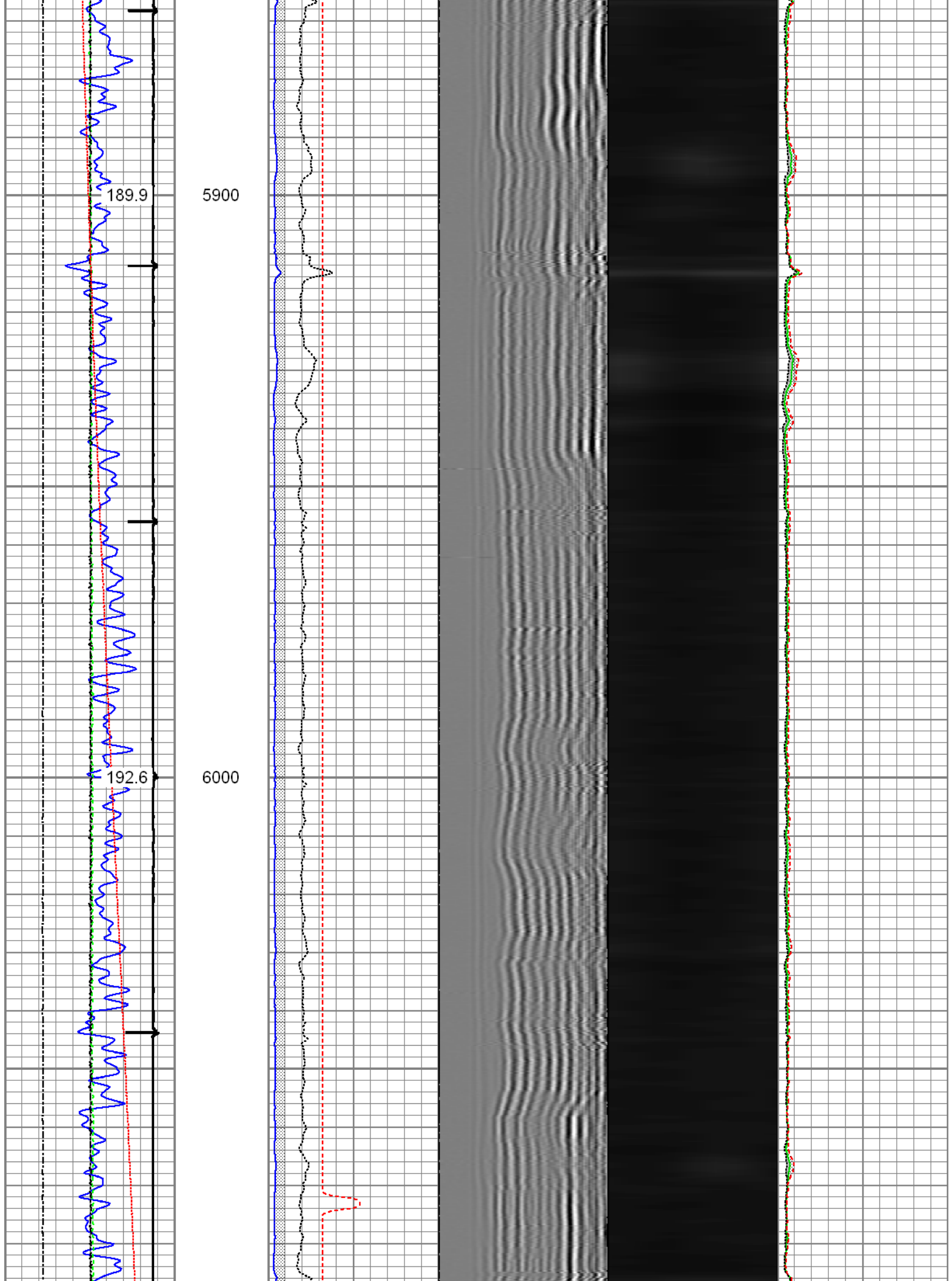


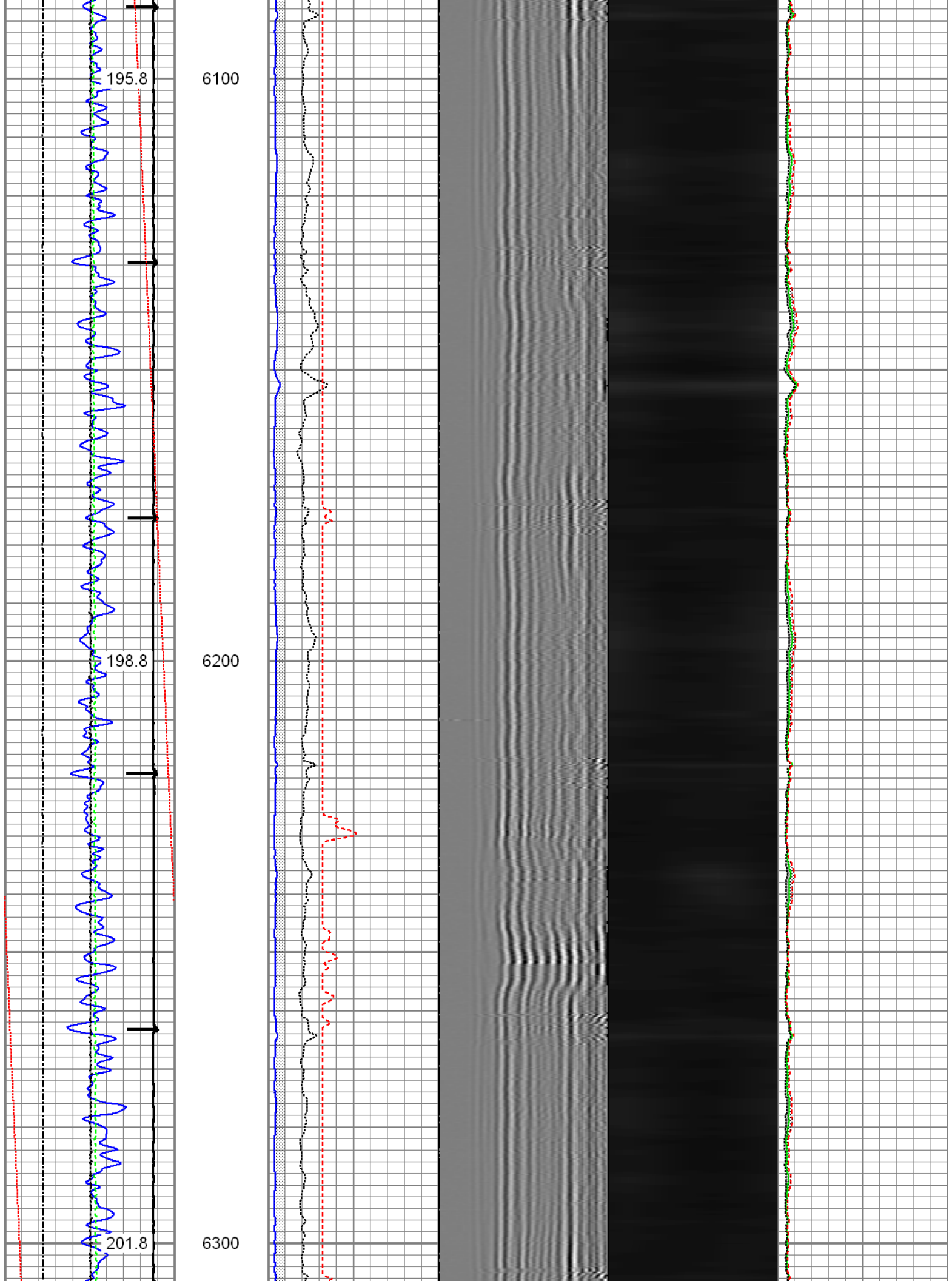


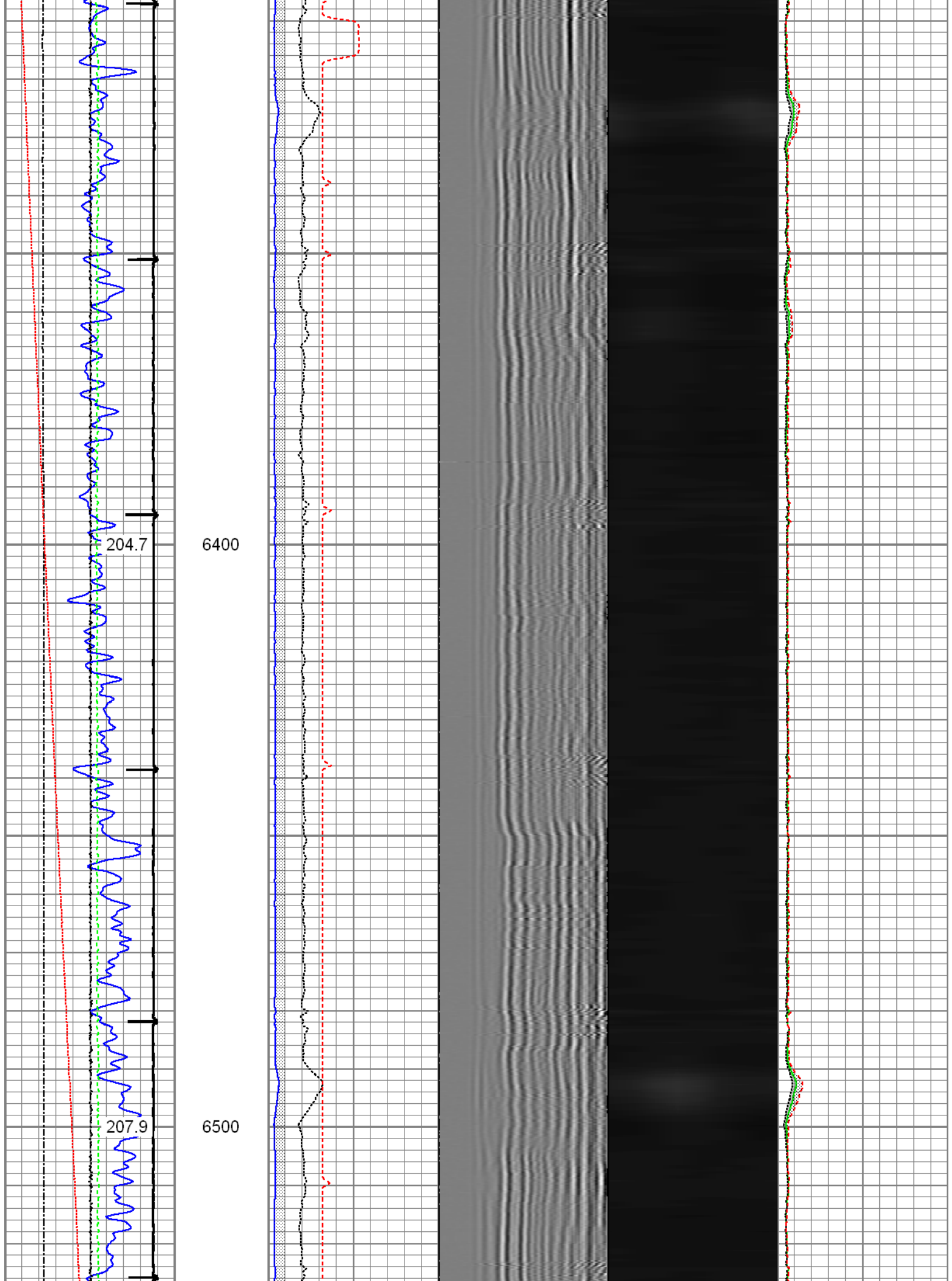


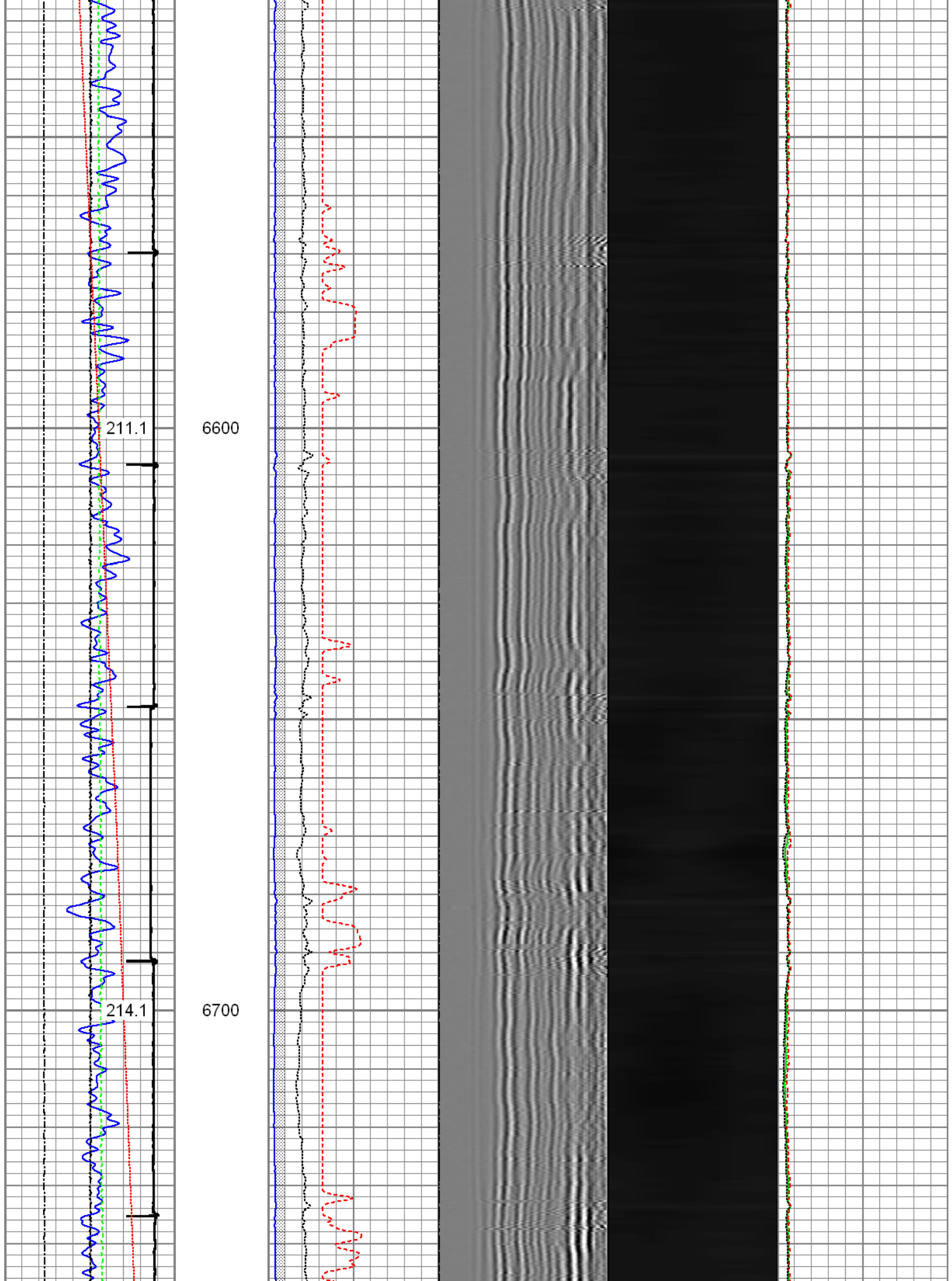


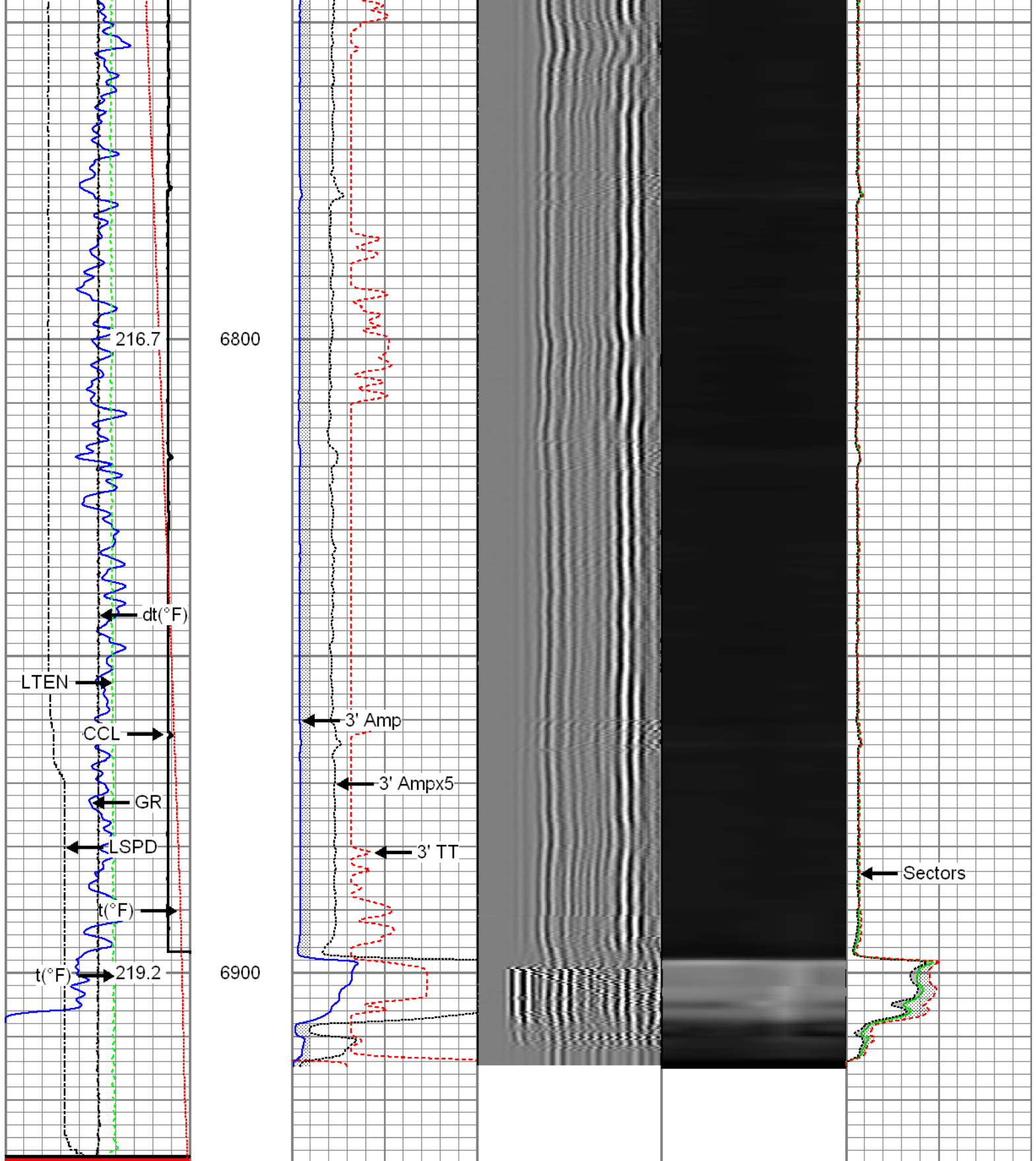













Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Casing Collar Locator	3' Amplitude x 5 0 (mV) 20			Minimum Amplitude 0 100
Line Speed -100 (ft/min) 100	3' Travel Time 650 (usec) 150			Maximum Amplitude 0 100
Line Tension 0 (lb) 2000				

Differential Temperature		
-2	(degF)	2
Temperature		
0	(degF)	20

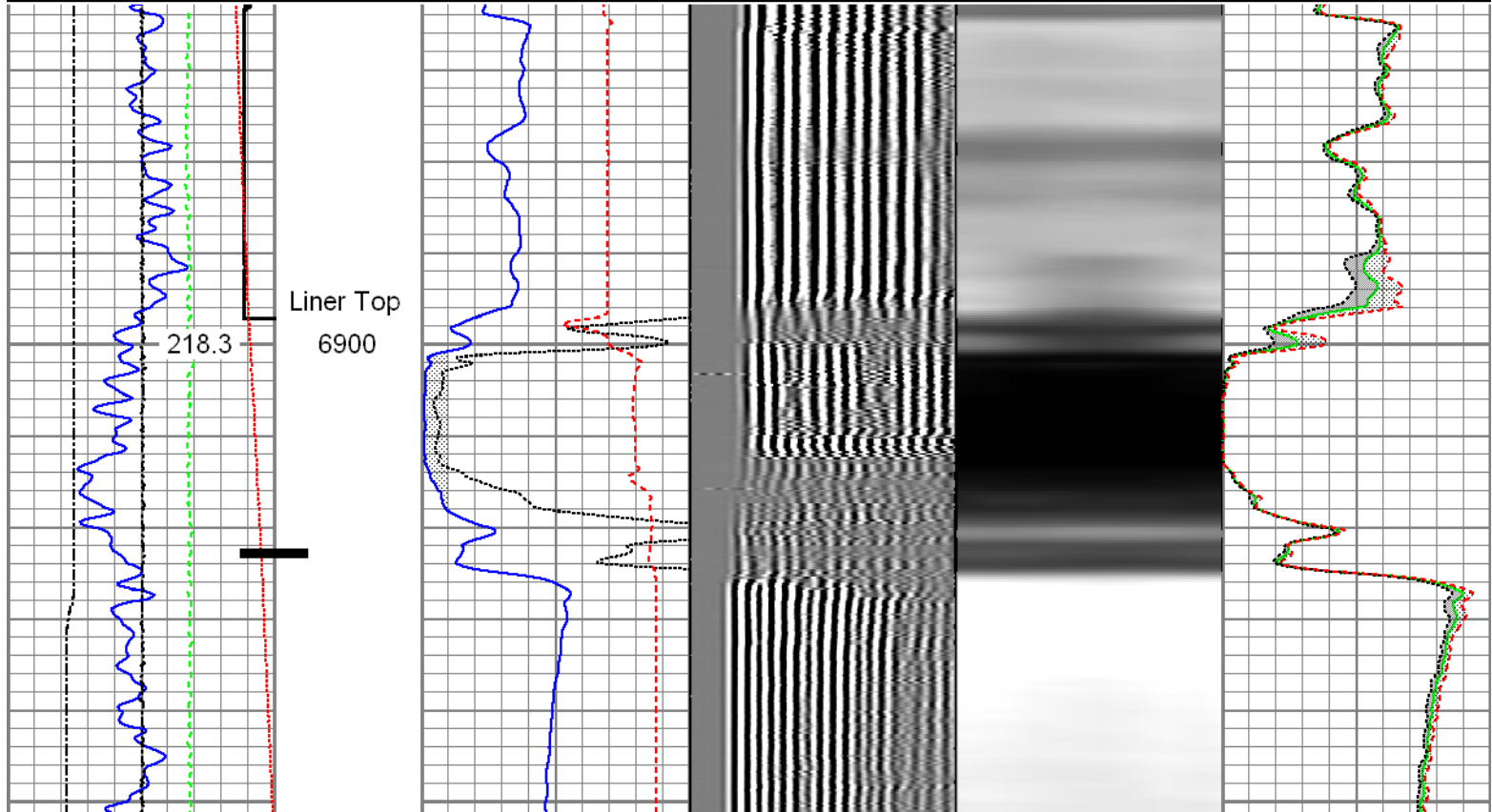


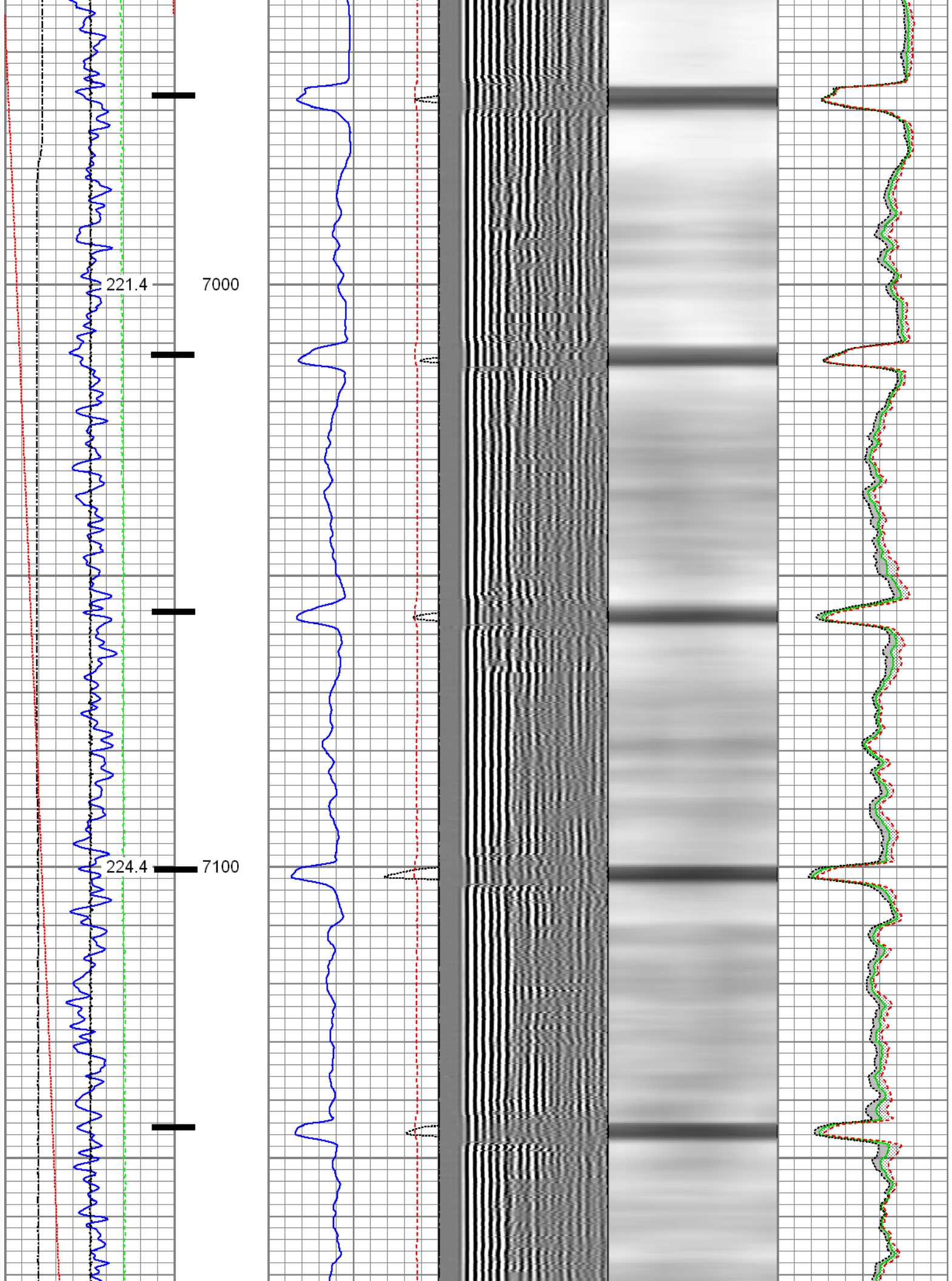
4.5" Main Pass

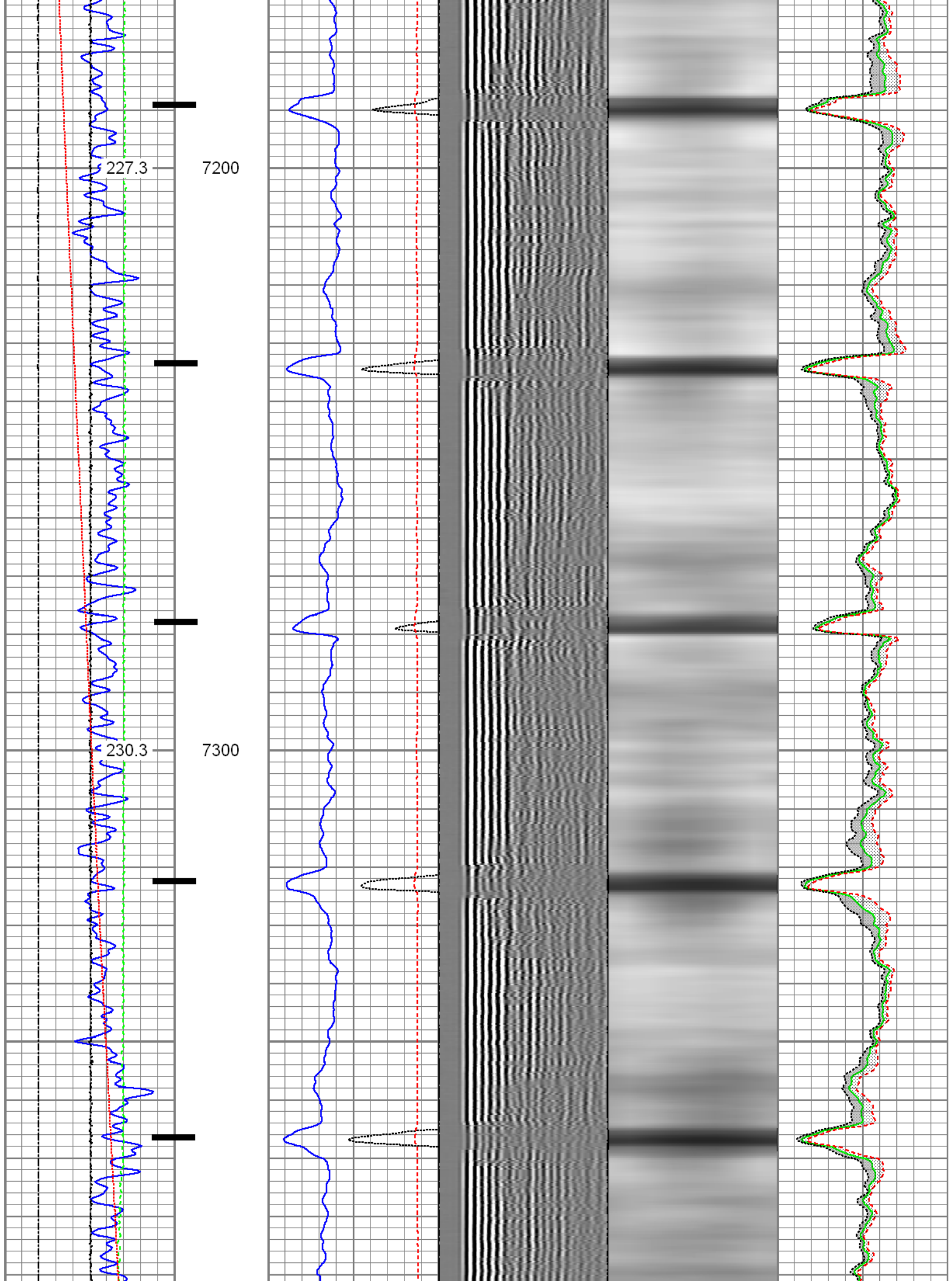
Recorded With 2800 PSI Surface Induced Pressure

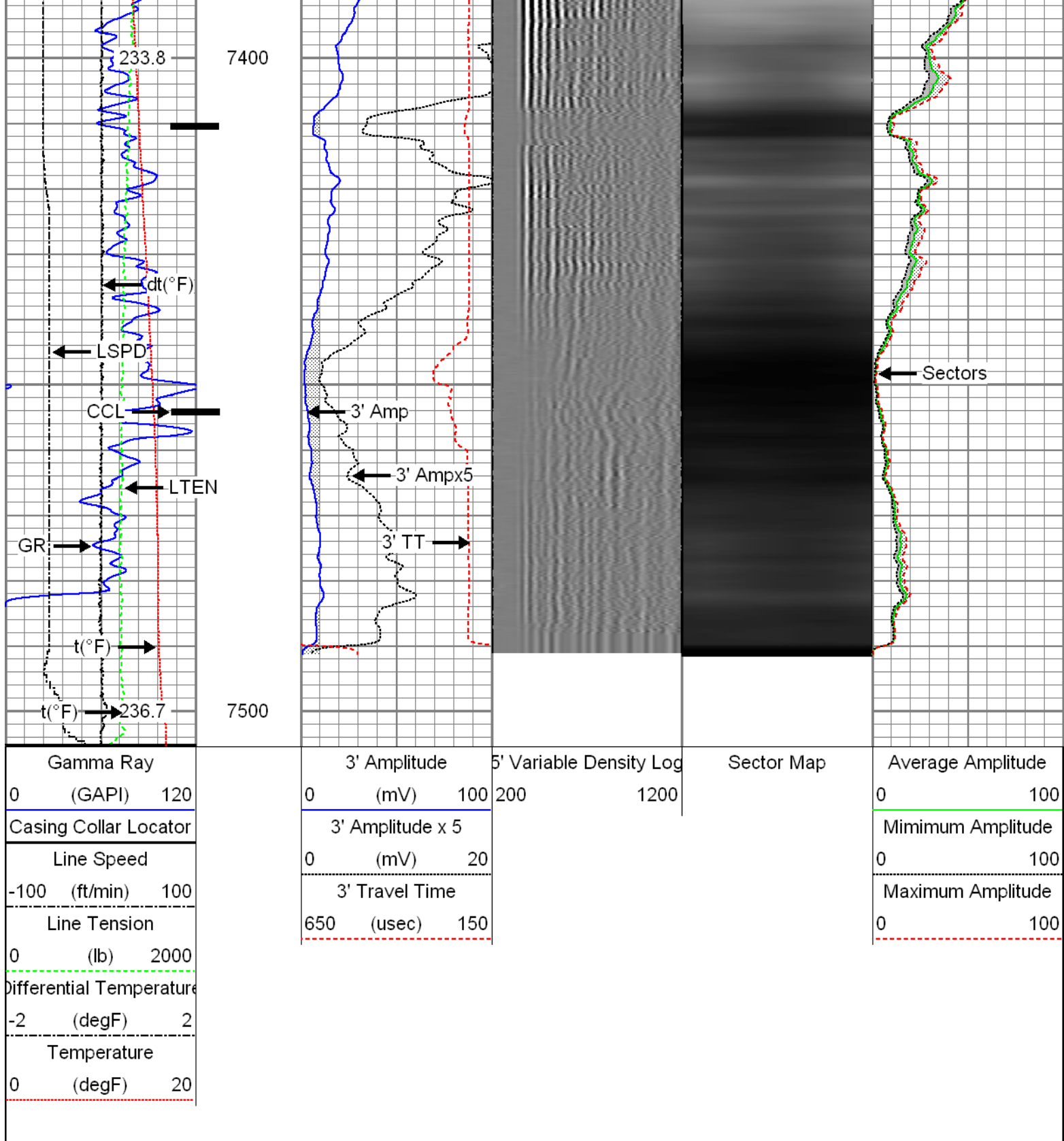
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 Dataset Pathname: pass3
 Presentation Format: rbt4_mit
 Dataset Creation: Mon May 04 09:27:41 2015 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

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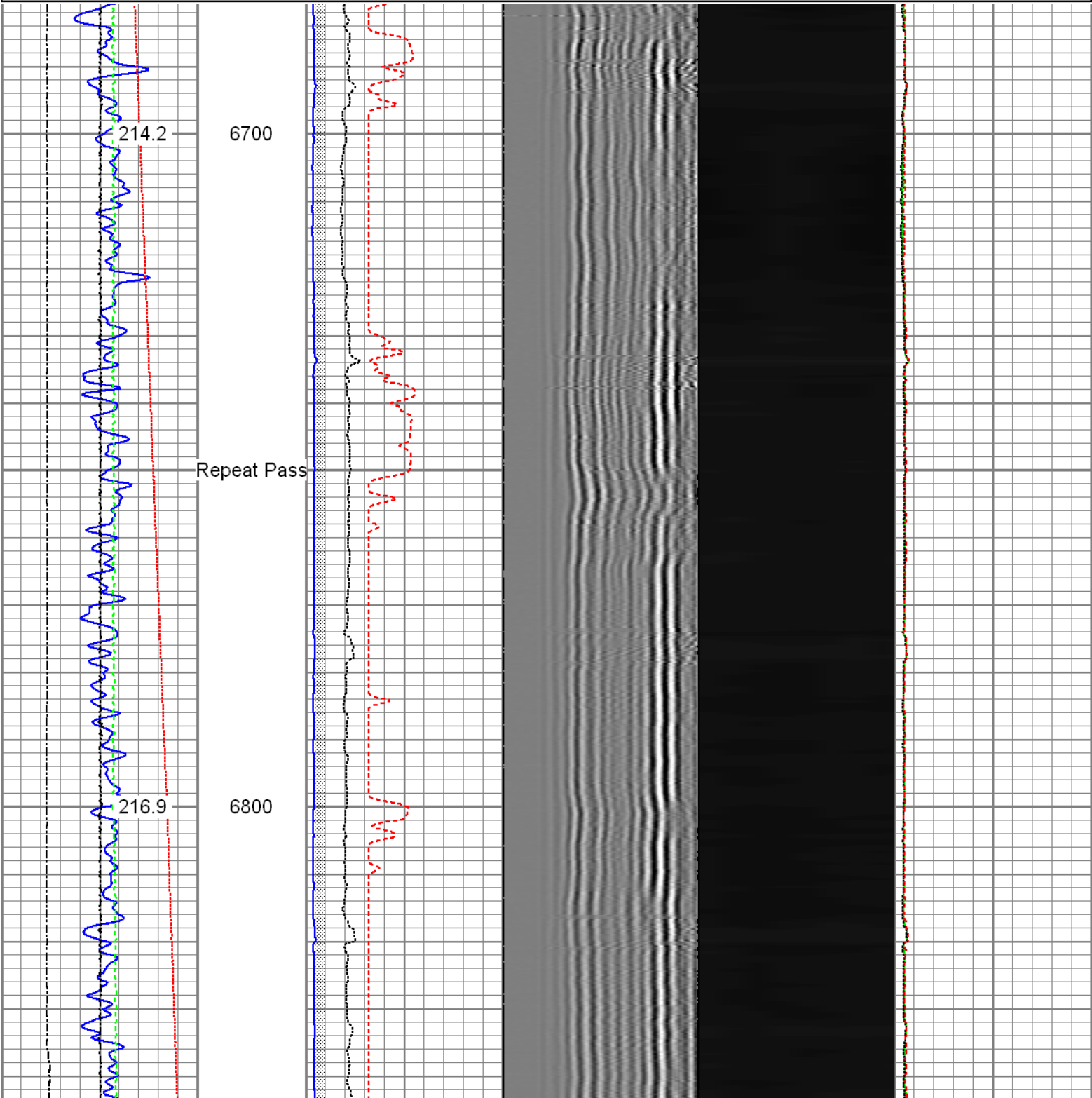


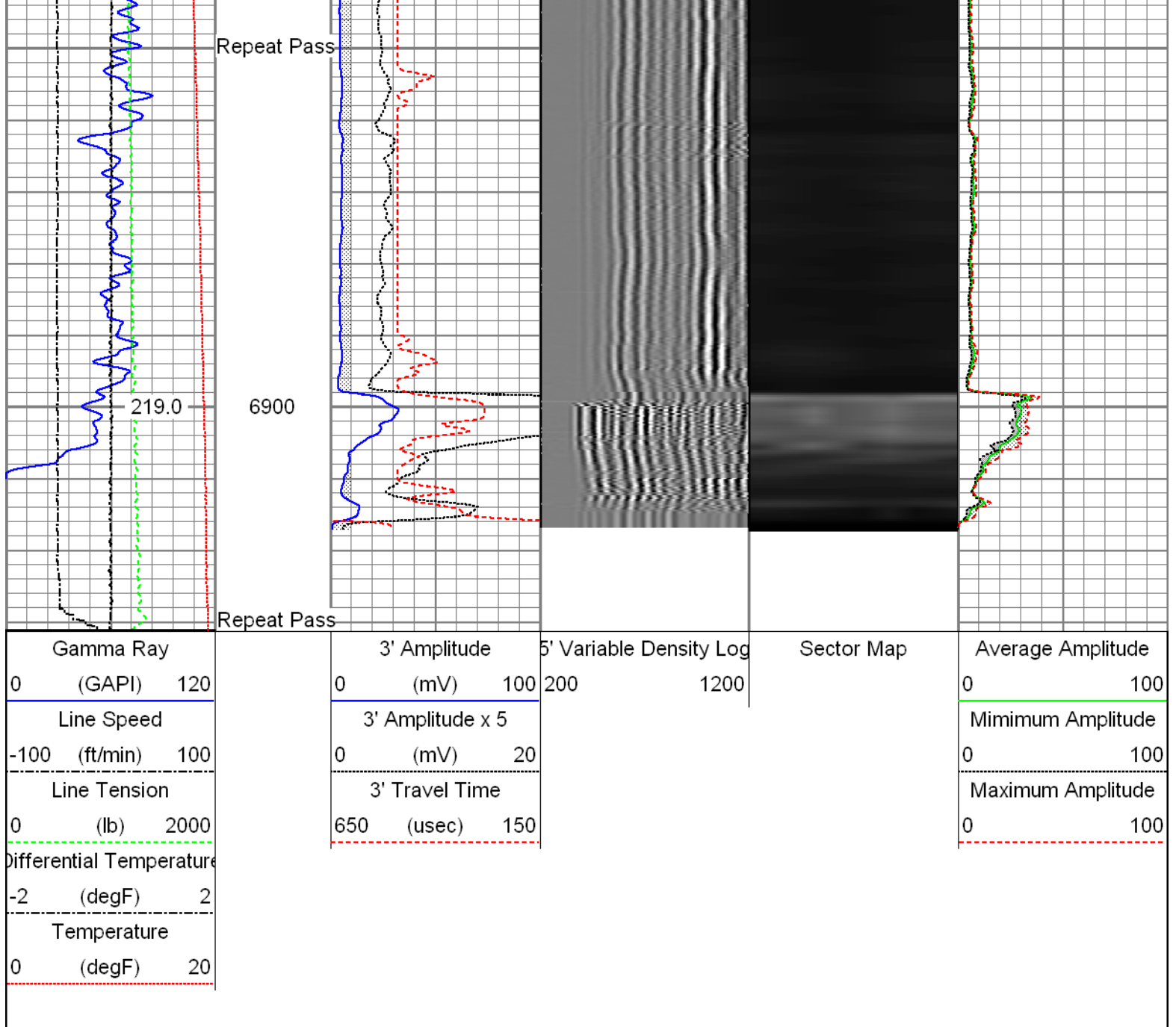
Repeat Pass

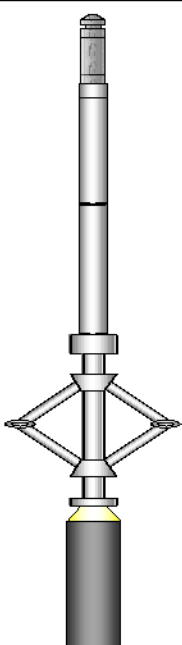
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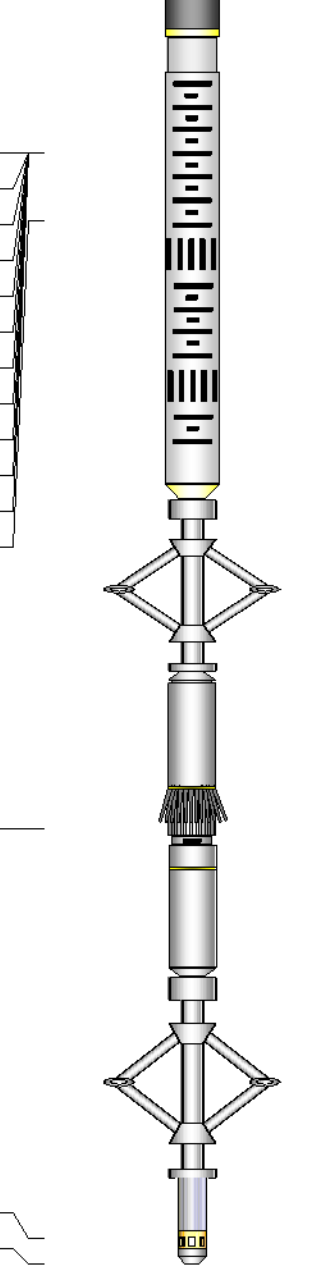
Database File: 0512340536_anadarko_vollmar 4n-11hz_05-04-15_mit_rbl.db
 Dataset Pathname: pass4
 Presentation Format: rbt4_mit
 Dataset Creation: Mon May 04 09:41:28 2015 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

Gamma Ray			3' Amplitude		5' Variable Density Log	Sector Map	Average Amplitude		
0	(GAPI)	120	0	(mV)			100	200	1200
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)
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 (211461) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10024770) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC #4 -DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

WVF3FT	16.46		UW_RBT-UW_RBT_004 (1063) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	16.46					
WVFS2	16.46					
WVFS3	16.46					
WVFS4	16.46					
WVFS5	16.46					
WVFS6	16.46					
WVFS7	16.46					
WVFS8	16.46					
CBLTEMP	16.46					
CBLROT	16.46					
WVF5FT	15.46					
			UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	6.45		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #3 -UW_PRC_057 (1038) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_PRT-UW_PRT_016 (10024052) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	0.37		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 0512340536_anadarko_vollmar 4n-11hz_05-04-15_mit_rbl.db: field/well/run1/pass6.2 Total Length: 28.09 ft Total Weight: 324.50 lb O.D.: 3.13 in						

Calibration Report					
Database File:	0512340536_anadarko_vollmar 4n-11hz_05-04-15_mit_rbl.db				
Dataset Pathname:	pass6.2				
Dataset Creation:	Wed May 06 15:44:04 2015 by Calc SCH 120430				
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

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:		Mon May 04 08:50:32 2015			
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens				
Finger 01:	1107	367.0	1474	386.0	1860	388.0	2248
Finger 02:	1054	376.0	1430	399.0	1829	406.0	2235
Finger 03:	1147	367.0	1514	386.0	1900	388.0	2288
Finger 04:	1025	382.0	1407	408.0	1815	417.0	2232
Finger 05:	1070	368.0	1438	381.0	1819	385.0	2204
Finger 06:	1013	377.0	1390	394.0	1784	401.0	2185
Finger 07:	1038	377.0	1415	386.0	1801	396.0	2197
Finger 08:	1031	381.0	1412	400.0	1812	418.0	2230
Finger 09:	1080	384.0	1464	385.0	1849	392.0	2241
Finger 10:	1072	383.0	1455	391.0	1846	404.0	2250
Finger 11:	1033	377.0	1410	396.0	1806	416.0	2222
Finger 12:	1120	374.0	1494	372.0	1866	377.0	2243
Finger 13:	1047	368.0	1415	387.0	1802	412.0	2214
Finger 14:	1029	379.0	1408	404.0	1812	429.0	2241
Finger 15:	1007	379.0	1386	405.0	1791	438.0	2229
Finger 16:	1004	364.0	1368	392.0	1760	426.0	2186
Finger 17:	1093	363.0	1456	381.0	1837	410.0	2247
Finger 18:	1086	353.0	1439	375.0	1814	409.0	2223
Finger 19:	1056	363.0	1419	390.0	1809	426.0	2235
Finger 20:	998	362.0	1360	403.0	1763	446.0	2209
Finger 21:	1076	354.0	1430	386.0	1816	427.0	2243
Finger 22:	1030	354.0	1384	388.0	1772	435.0	2207
Finger 23:	1098	358.0	1456	393.0	1849	430.0	2279
Finger 24:	1088	329.0	1417	363.0	1780	401.0	2181
Finger 25:	1081	357.0	1438	399.0	1837	432.0	2269
Finger 26:	1119	343.0	1462	390.0	1852	429.0	2281
Finger 27:	1208	365.0	1573	398.0	1971	422.0	2393
Finger 28:	1078	334.0	1412	382.0	1794	418.0	2212
Finger 29:	1044	347.0	1391	396.0	1787	430.0	2217
Finger 30:	1021	339.0	1360	400.0	1760	433.0	2193
Finger 31:	1230	371.0	1601	409.0	2010	426.0	2436
Finger 32:	1003	338.0	1341	384.0	1725	407.0	2132
Finger 33:	1098	367.0	1465	410.0	1875	435.0	2310
Finger 34:	997	346.0	1343	391.0	1734	413.0	2147
Finger 35:	1152	374.0	1526	410.0	1936	418.0	2354
Finger 36:	1058	342.0	1400	374.0	1774	388.0	2162

Finger 37:	1149	380.0	1529	408.0	1937	413.0	2350
Finger 38:	1091	355.0	1446	383.0	1829	390.0	2219
Finger 39:	1061	342.0	1403	370.0	1773	379.0	2152
Finger 40:	966	365.0	1331	408.0	1739	422.0	2161

Segmented Cement Bond Log Calibration Report

Serial Number:

1063

Tool Model:

UW_RBT_004

Calibration Casing Diameter:

5.500

in

Calibration Depth:

-3.873

ft

Master Calibration, performed Wed May 06 15:44:01 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.780	1.000	62.125	78.347	0.988
5FT	0.006	0.795	1.000	62.125	77.477	0.535
S1	-0.001	0.753	0.000	100.000	132.585	0.128
S2	-0.000	0.750	0.000	100.000	133.244	0.038
S3	0.001	0.754	0.000	100.000	132.743	-0.130
S4	-0.001	0.790	0.000	100.000	126.464	0.073
S5	-0.000	0.805	0.000	100.000	124.134	0.019
S6	-0.001	0.802	0.000	100.000	124.504	0.139
S7	-0.000	0.791	0.000	100.000	126.395	0.061
S8	-0.000	0.765	0.000	100.000	130.609	0.025

Gamma Ray Calibration Report

Serial Number:

10024770

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 LP

Well

Vollmar 4N-11HZ

Field

Wattenberg

County

Weld

State

Colorado