



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company		Whiting Oil & Gas Corporation	
Well		Razor Federal 12F-1306B	
Field		Wildcat	
County		Weld	
State		Colorado	
Company		Whiting Oil & Gas Corporation	
Well		Razor Federal 12F-1306B	
Field		Wildcat	
County		Weld	
State		Colorado	
Location:		API #: 05-123-38710	
SEC 12 TWP 10N RGE 58W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4937'	
K.B. 4958'		D.F. 4957'	
G.L. 4937'			
Date		14-Dec-2015	
Run Number		One	
Depth Driller		14193 FT	
Depth Logger		6290 FT	
Bottom Logged Interval		6290 FT	
Top Log Interval		Surface	
Open Hole Size		7.875"	
Type Fluid		Water	
Density / Viscosity		8.34 lbs/gal	
Max. Recorded Temp.		228°F	
Estimated Cement Top		254 FT	
Time Well Ready		14:45	
Time Logger on Bottom		15:40	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		Robert Fogarty	
Witnessed By		K. Lewis	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		5 1/2	
Intermediate #2		20	
Liner		HCP-110	
Grade		J-55	
Top		Surface	
Bottom		1846 FT	
Surface		14165 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 Marker Joint at 5311 FT
Adjusted Log +1.8 FT to correlate to Marker Joint
Log ran from 6290 FT to surface
Recorded with 1500 PSI surface induced pressure
Logging tools were clean and free of any debris upon completion of operations
Thank you for choosing FMC Technologies Surface Integrated Services.



Main Pass

Recorded with 1500 PSI Surface Induced Pressure

Database File:processed_12-14-15_whiting_razor federal 12f-1306b_rbl.db

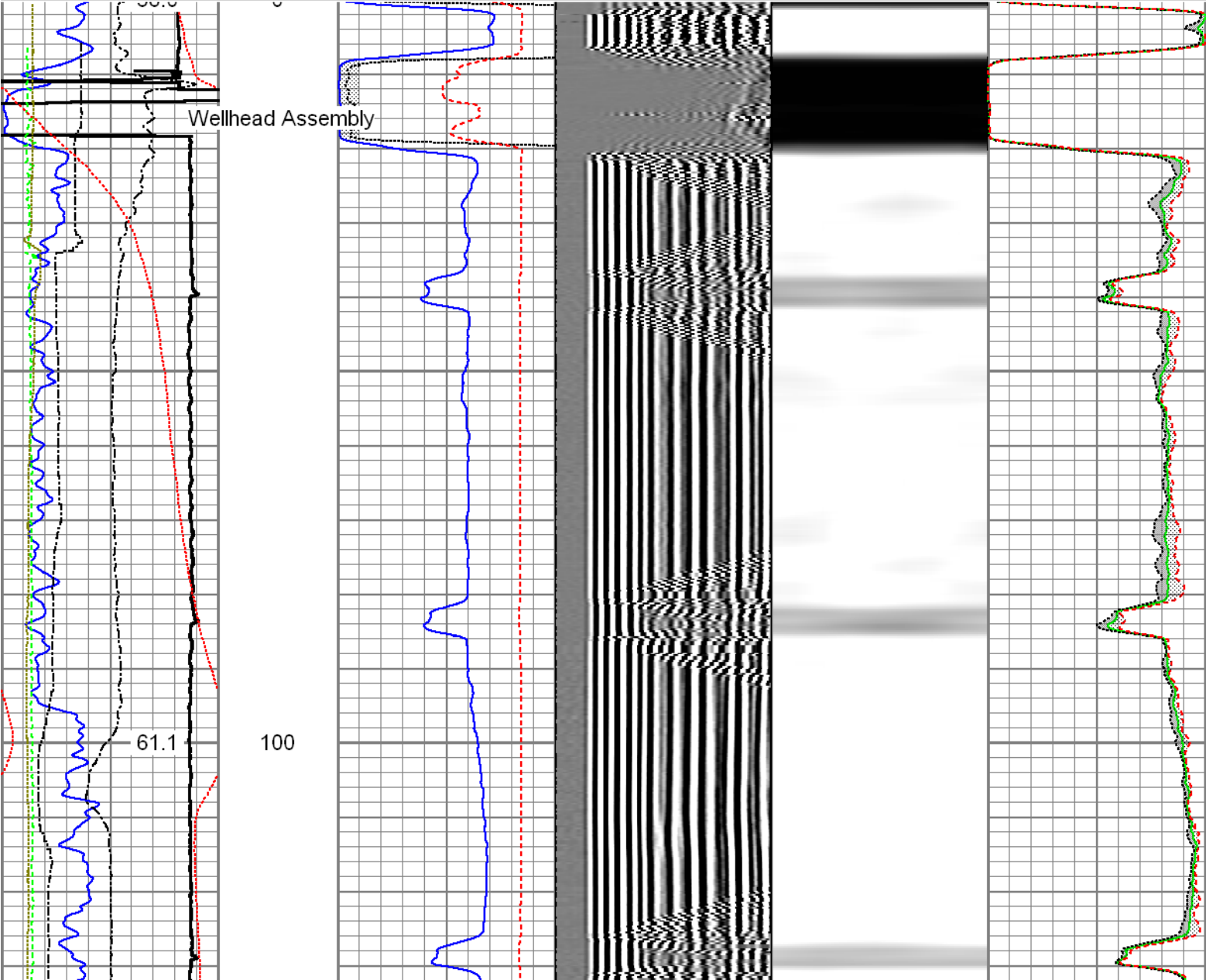
Dataset Pathname:pass8.1

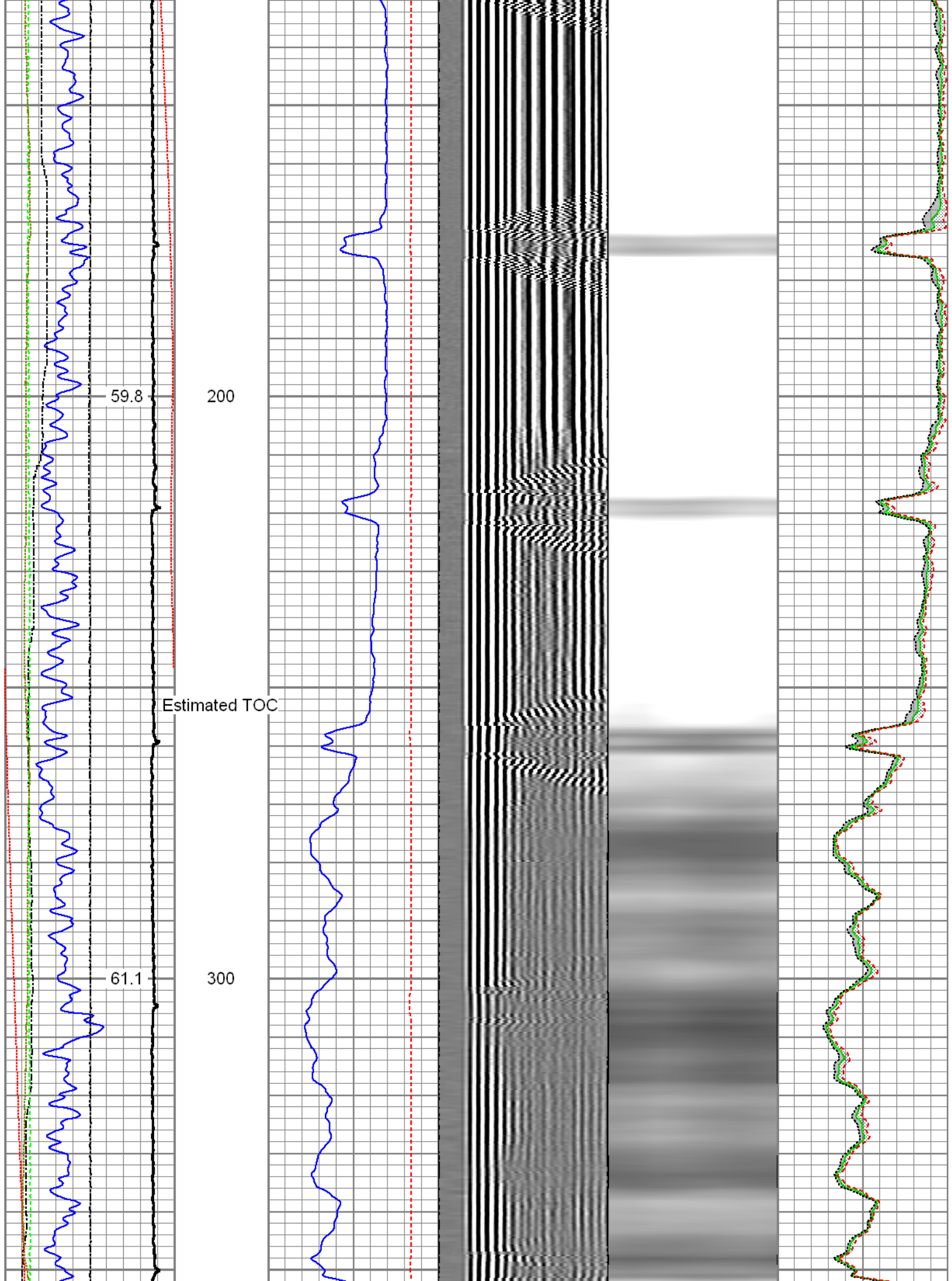
Presentation Format:rbt4_mit

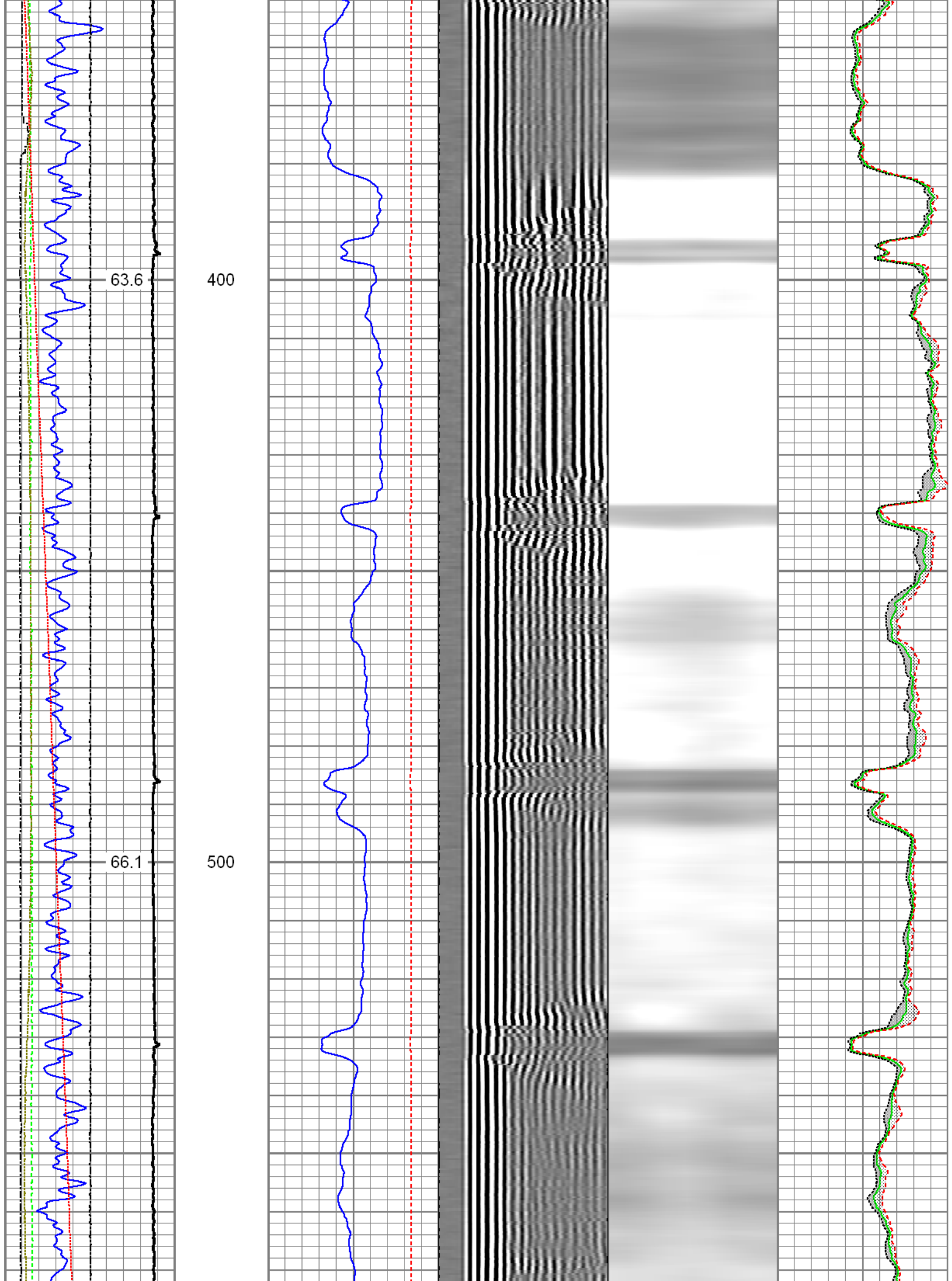
Dataset Creation:Mon Dec 14 17:15:39 2015 by Calc 7.0 B1

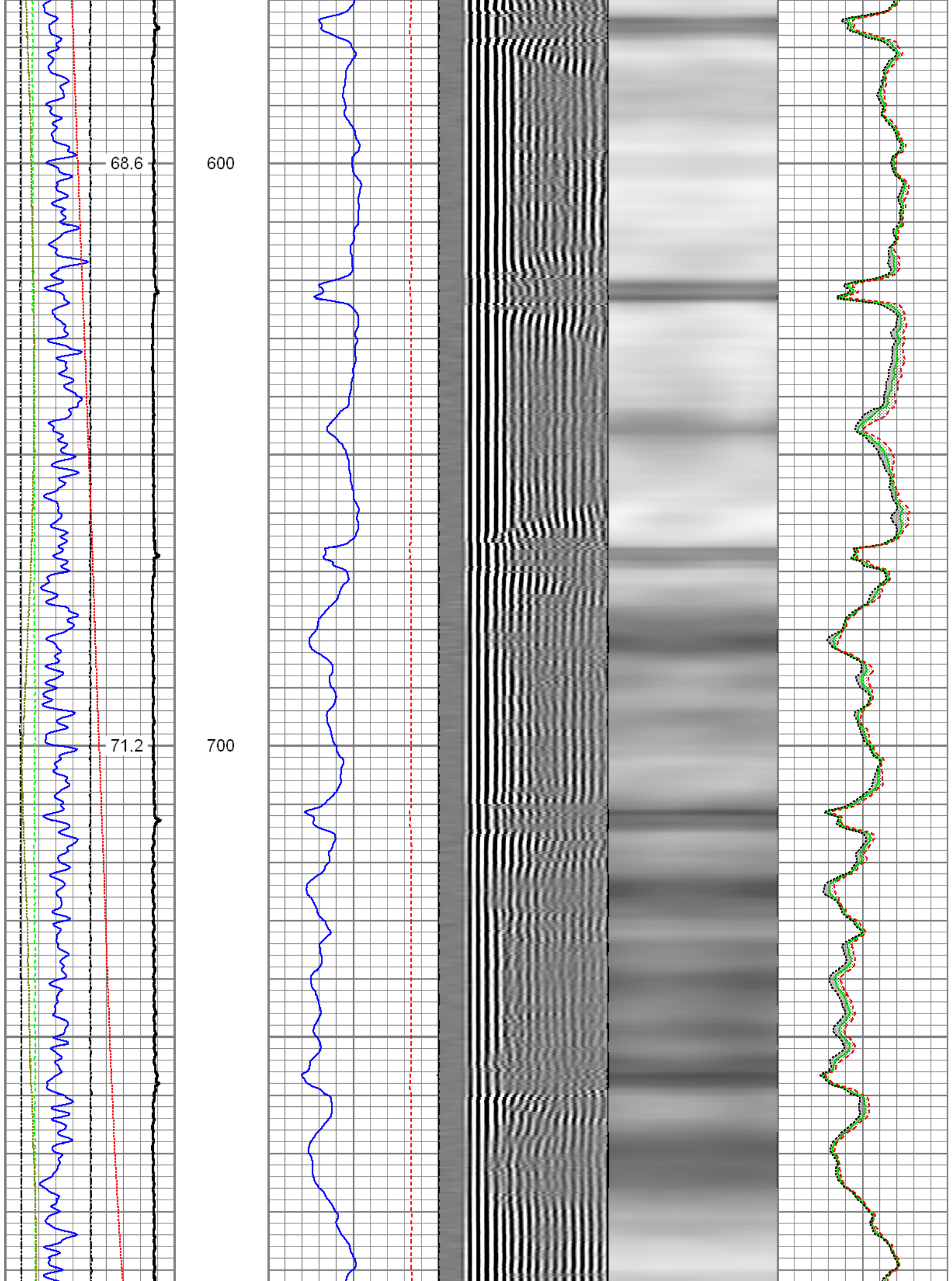
Charted by:Depth in Feet scaled 1:240

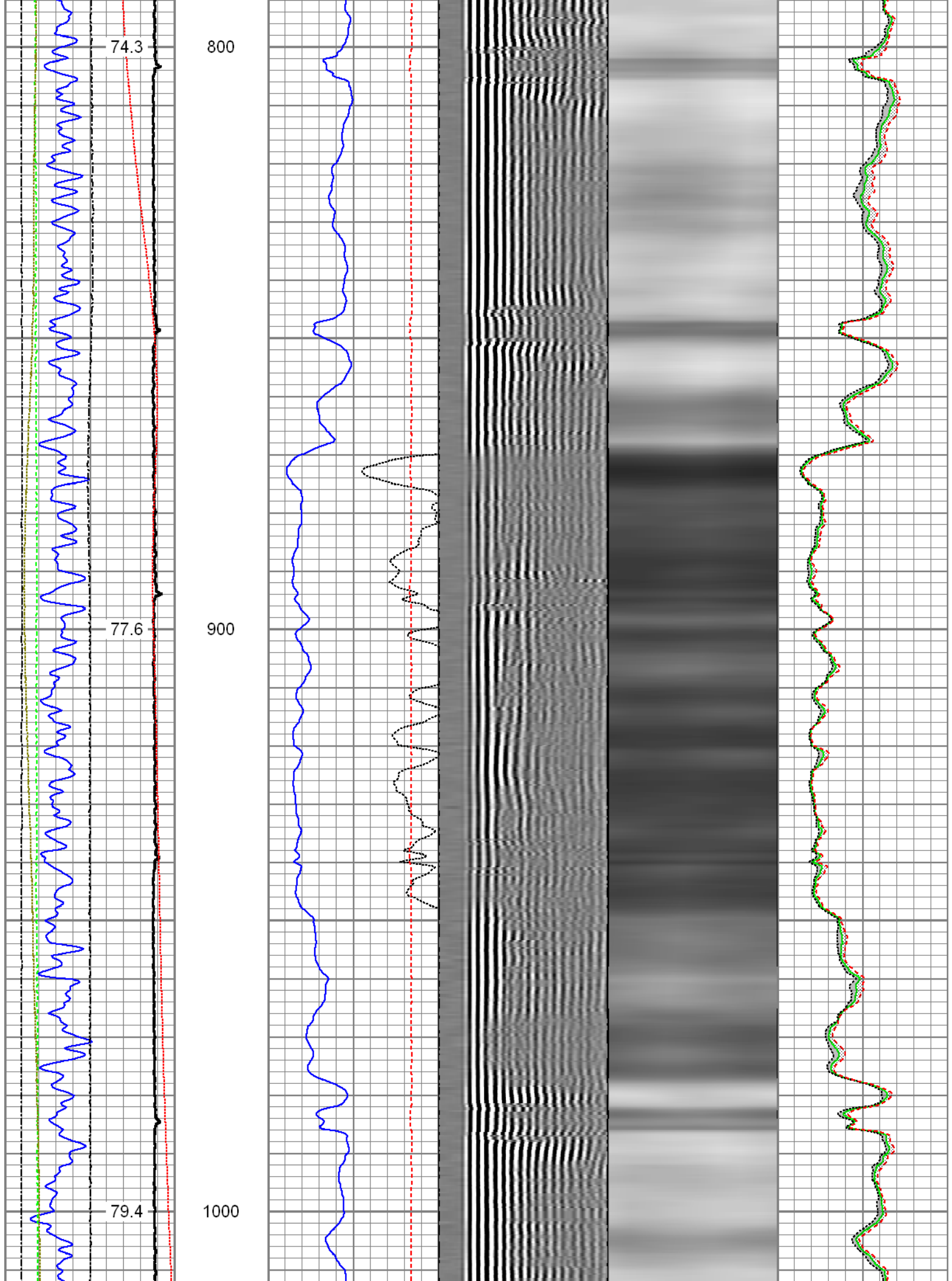
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

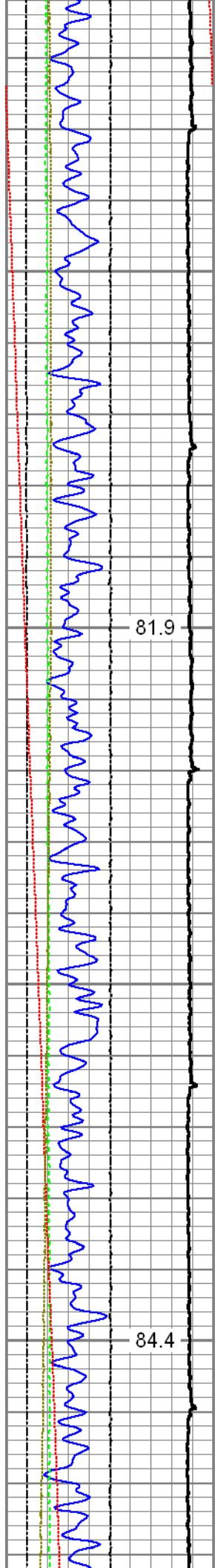










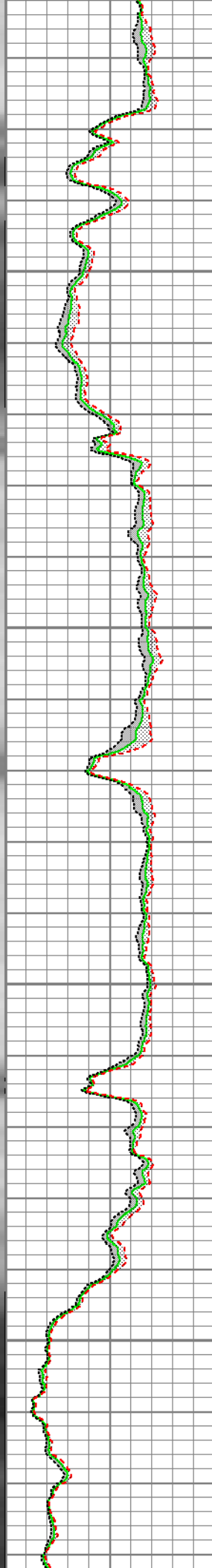
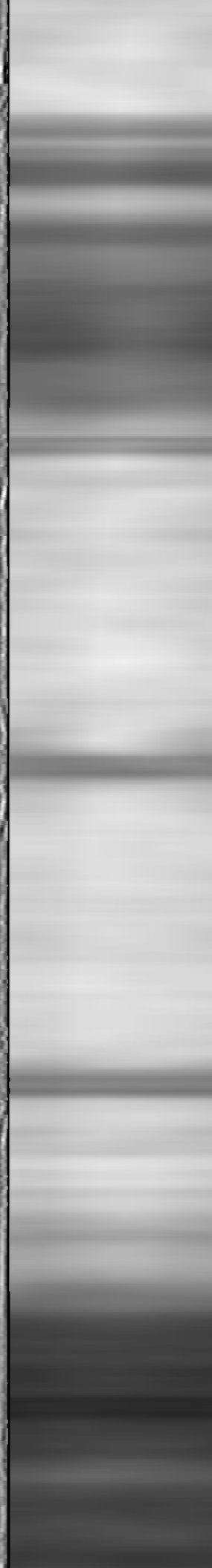
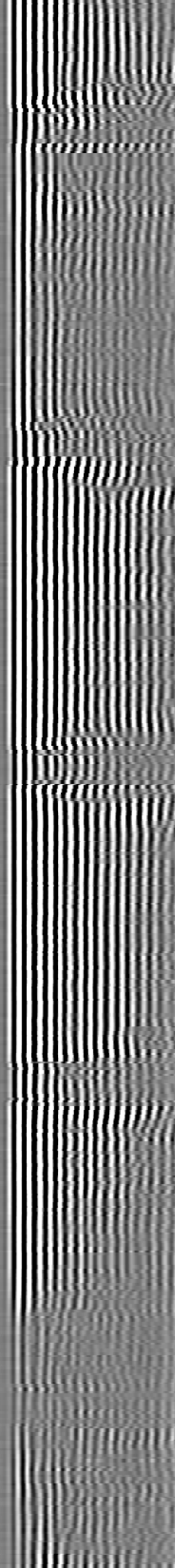
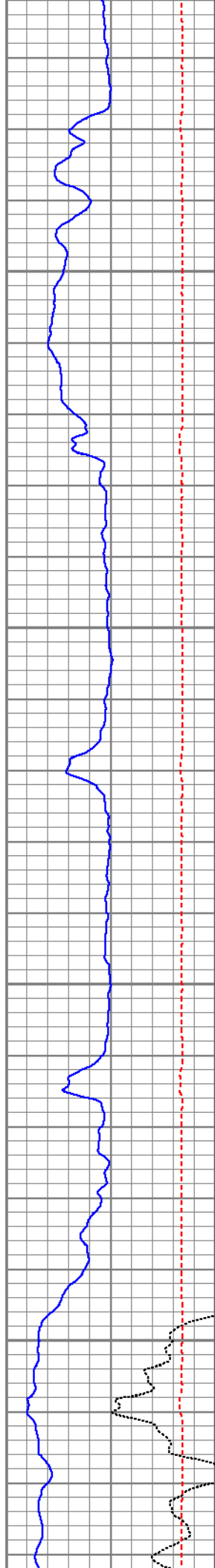


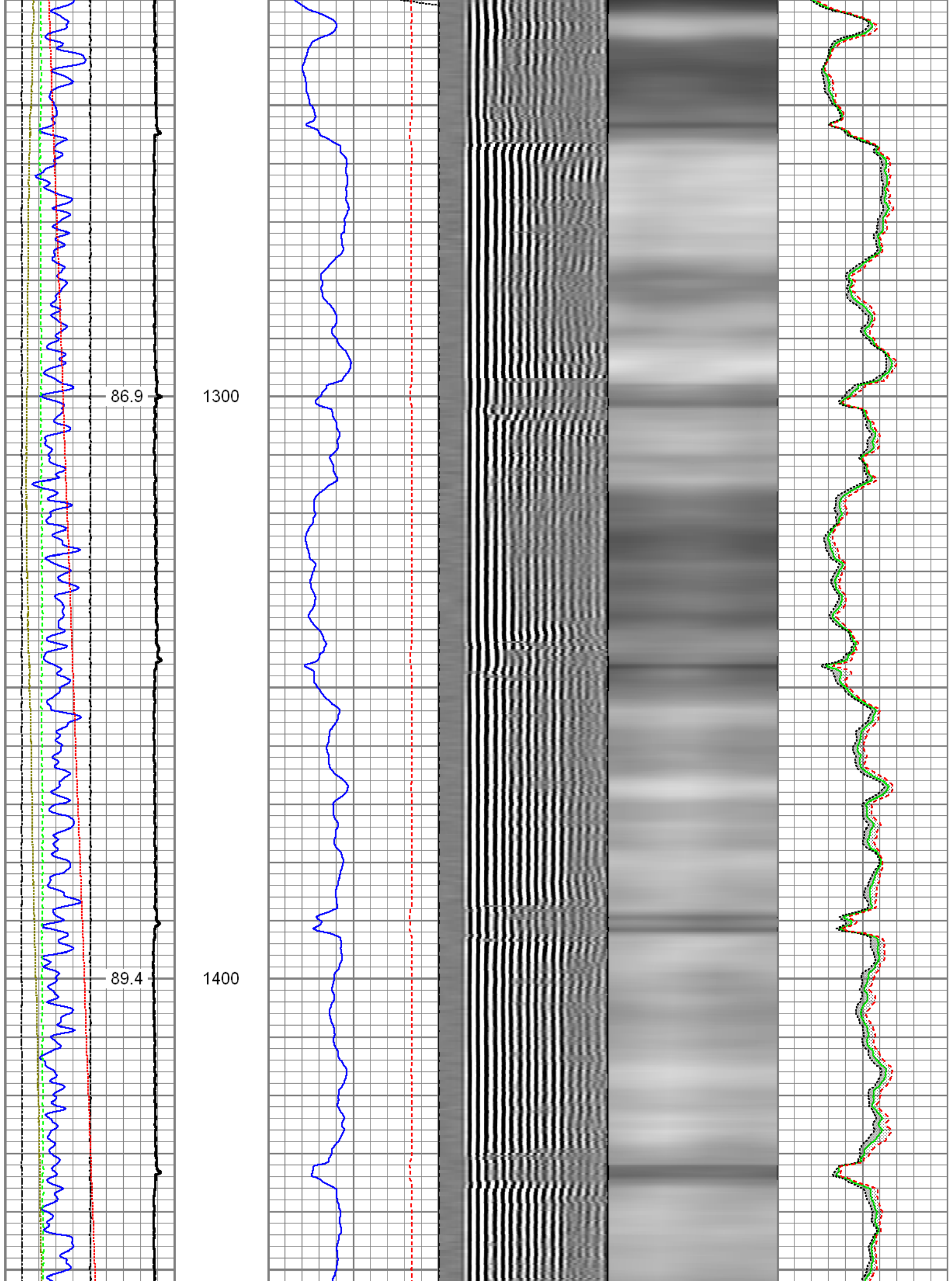
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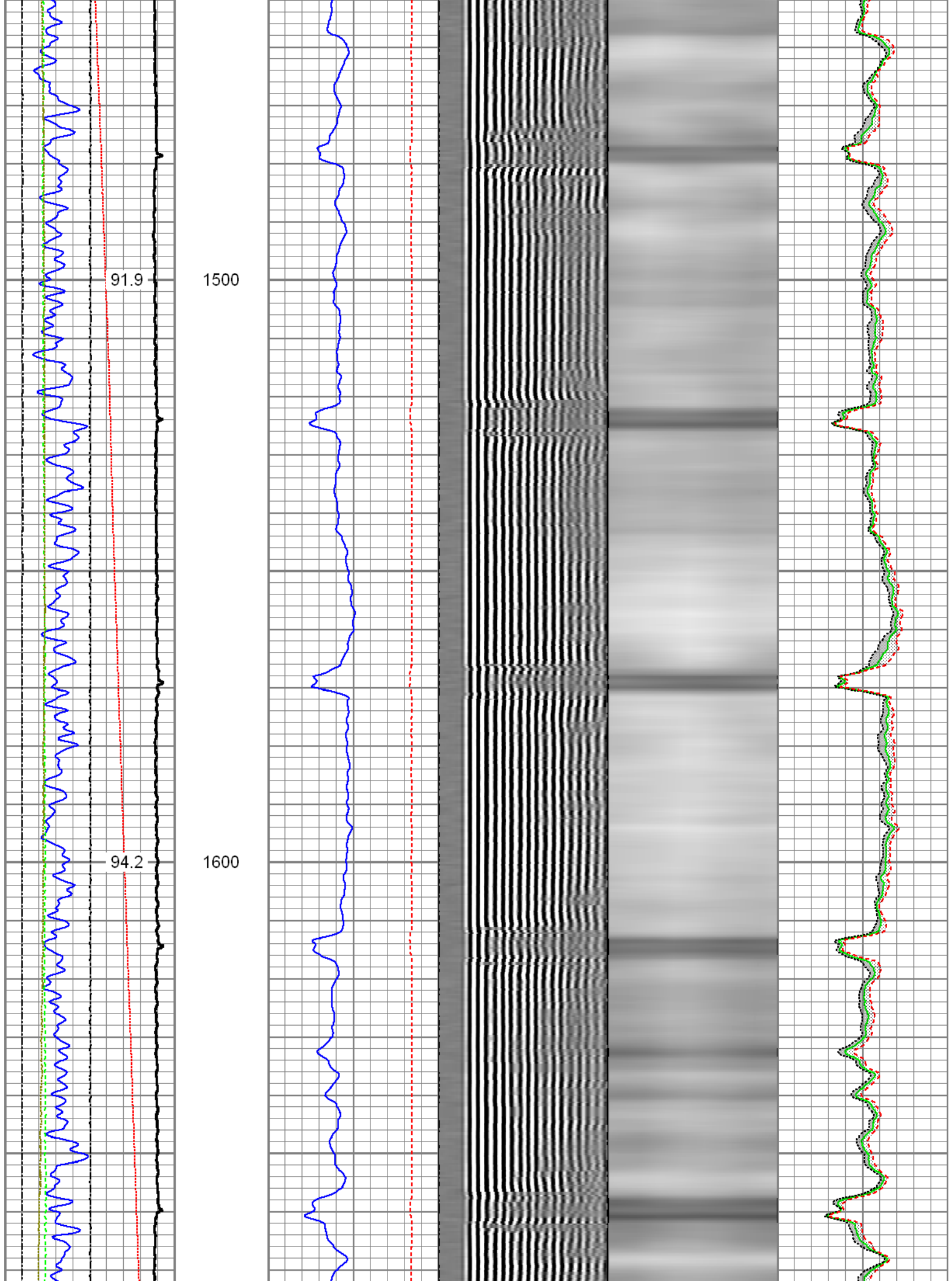
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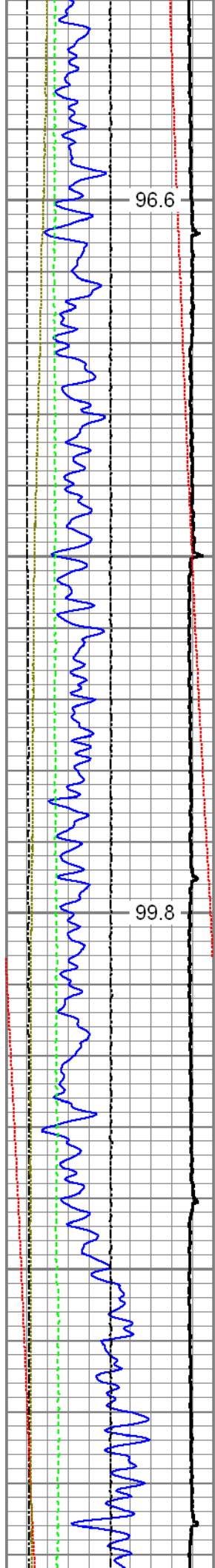
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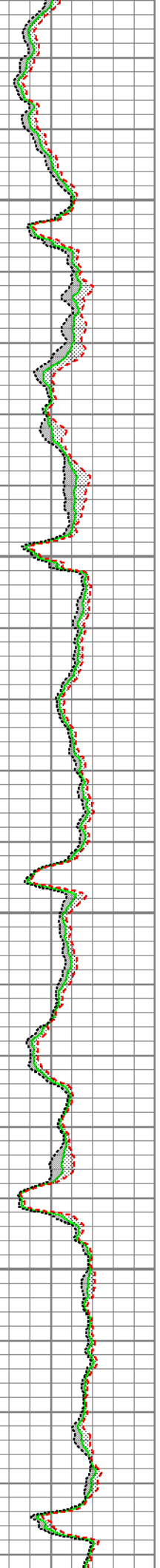
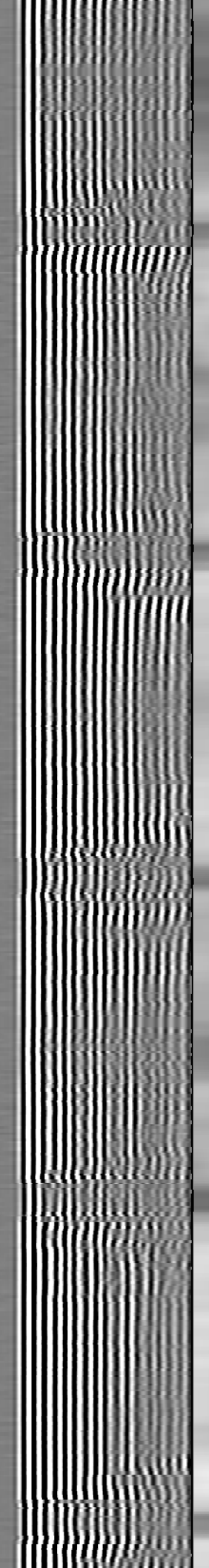
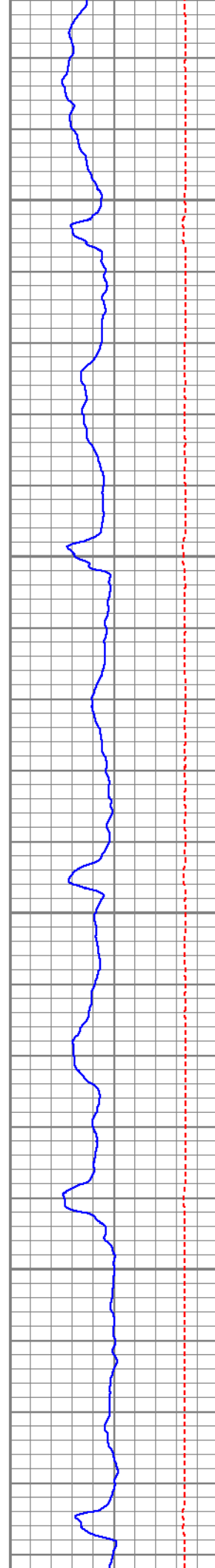


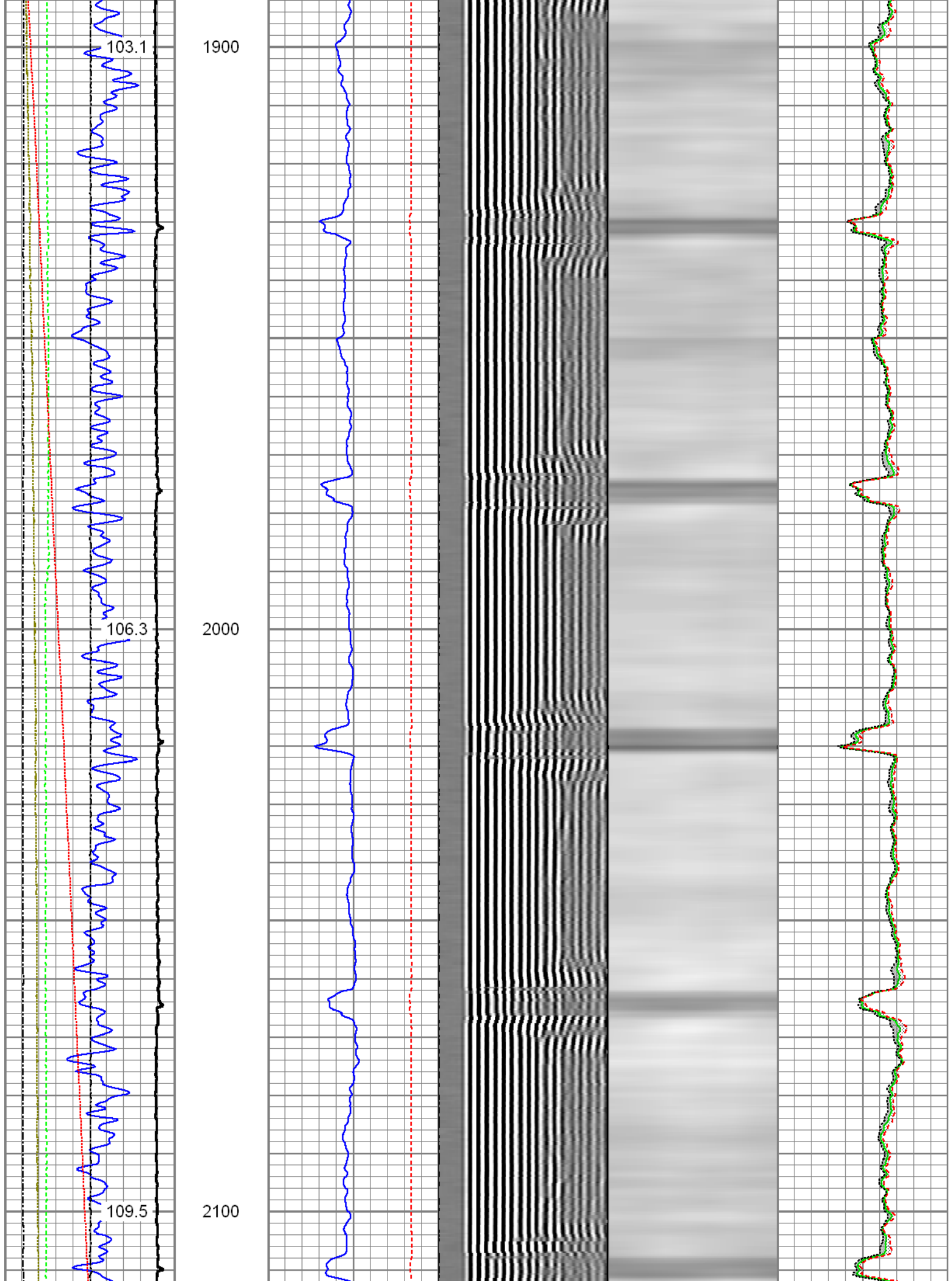
96.6

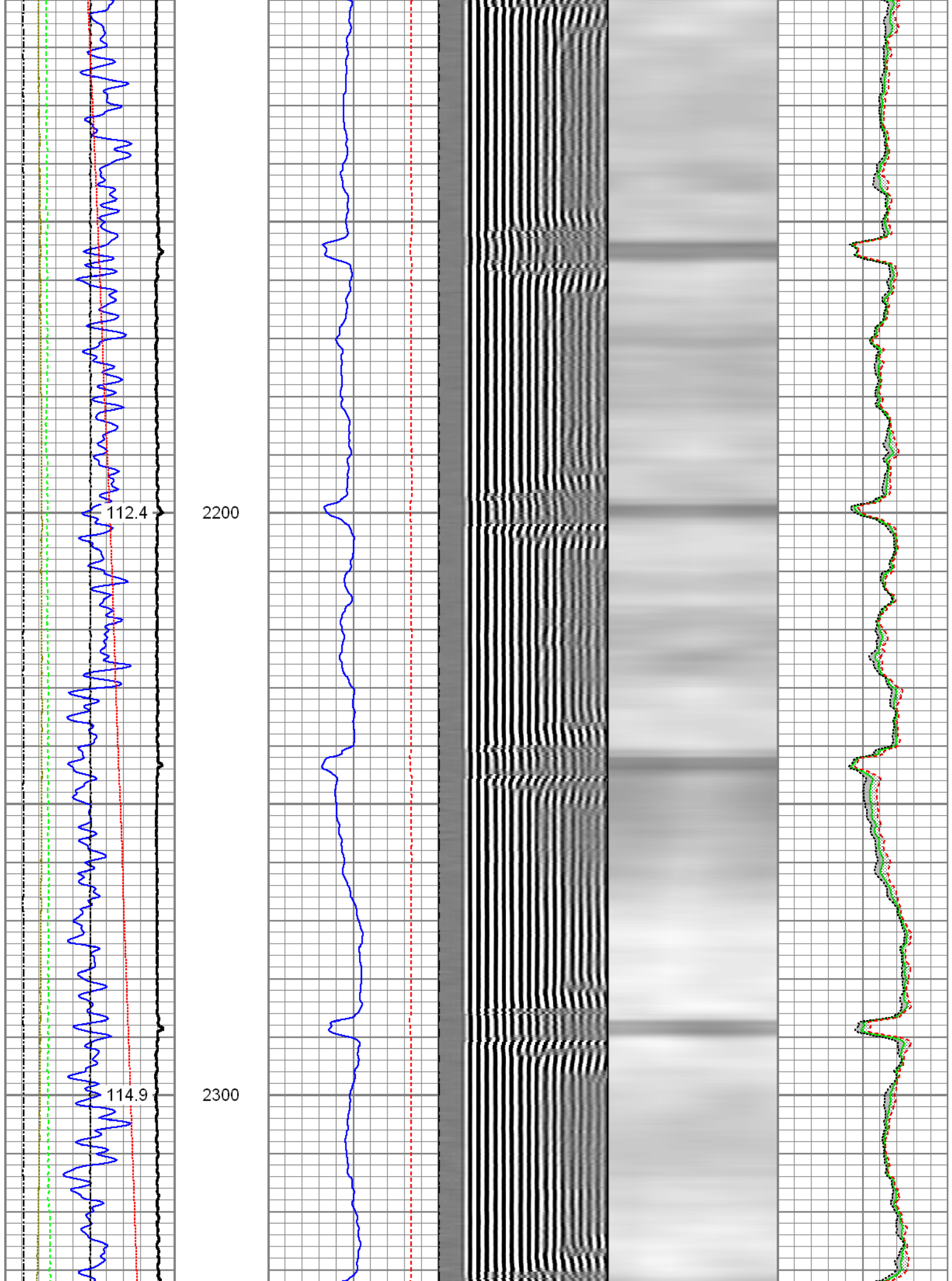
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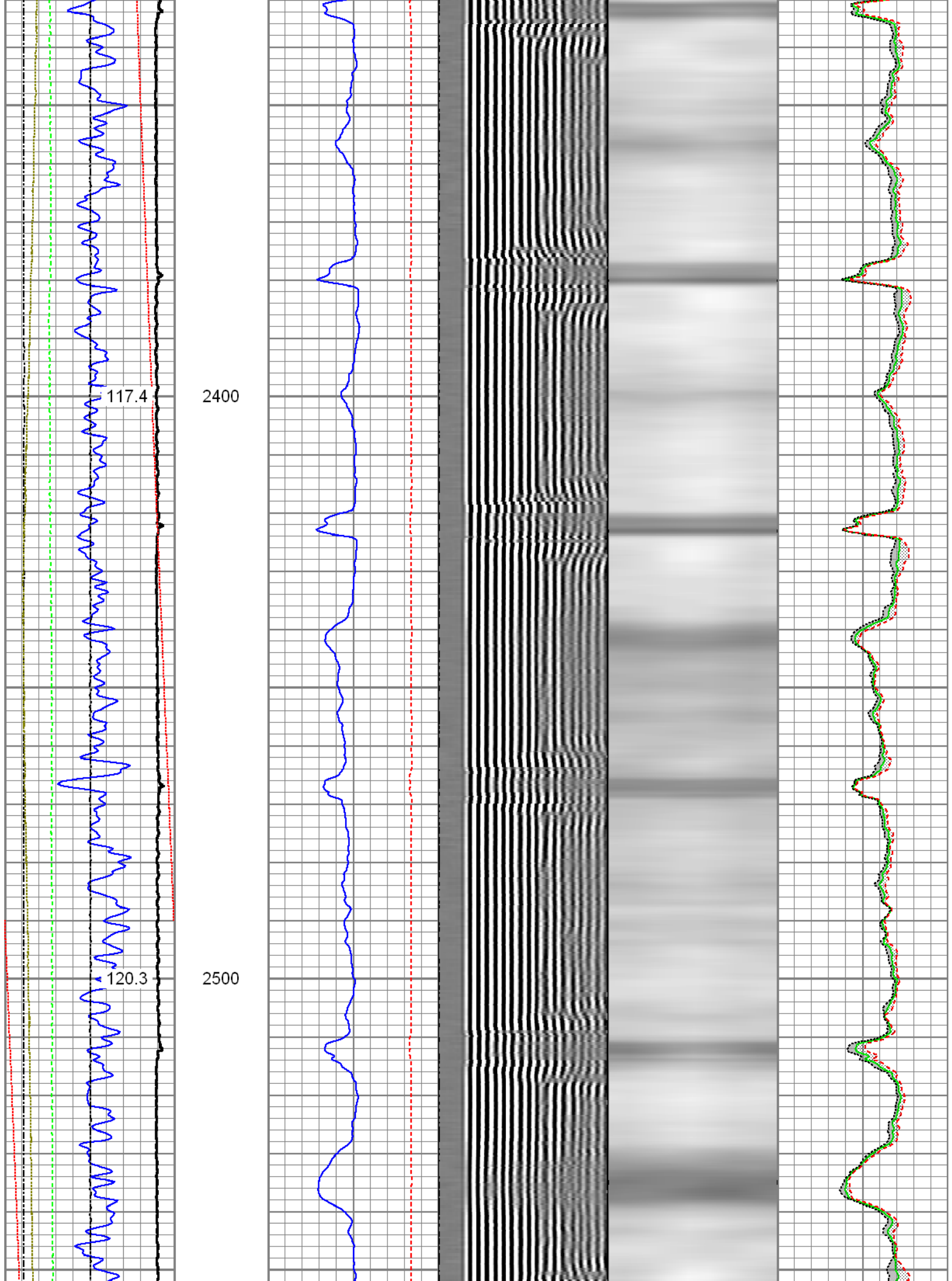
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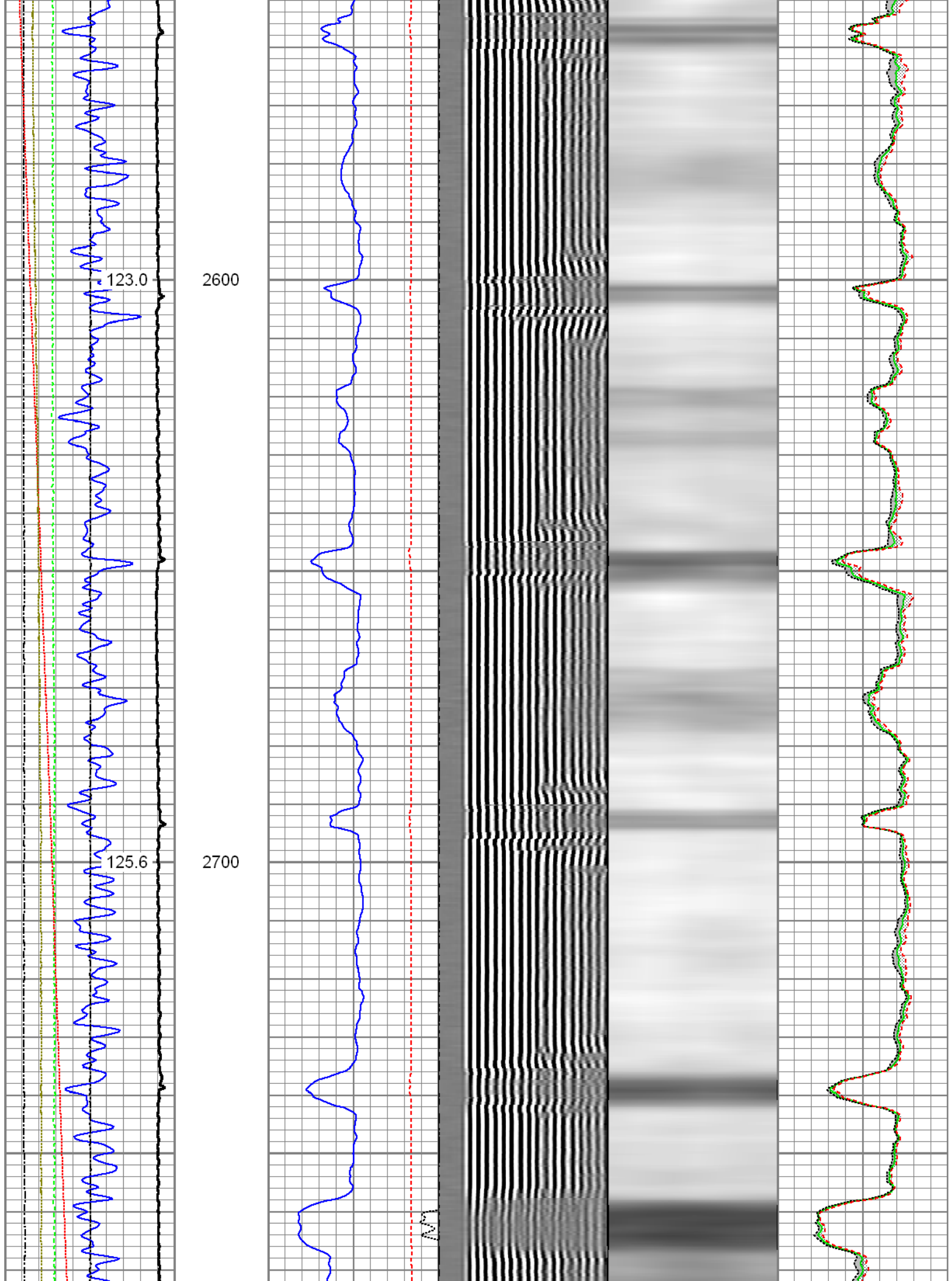
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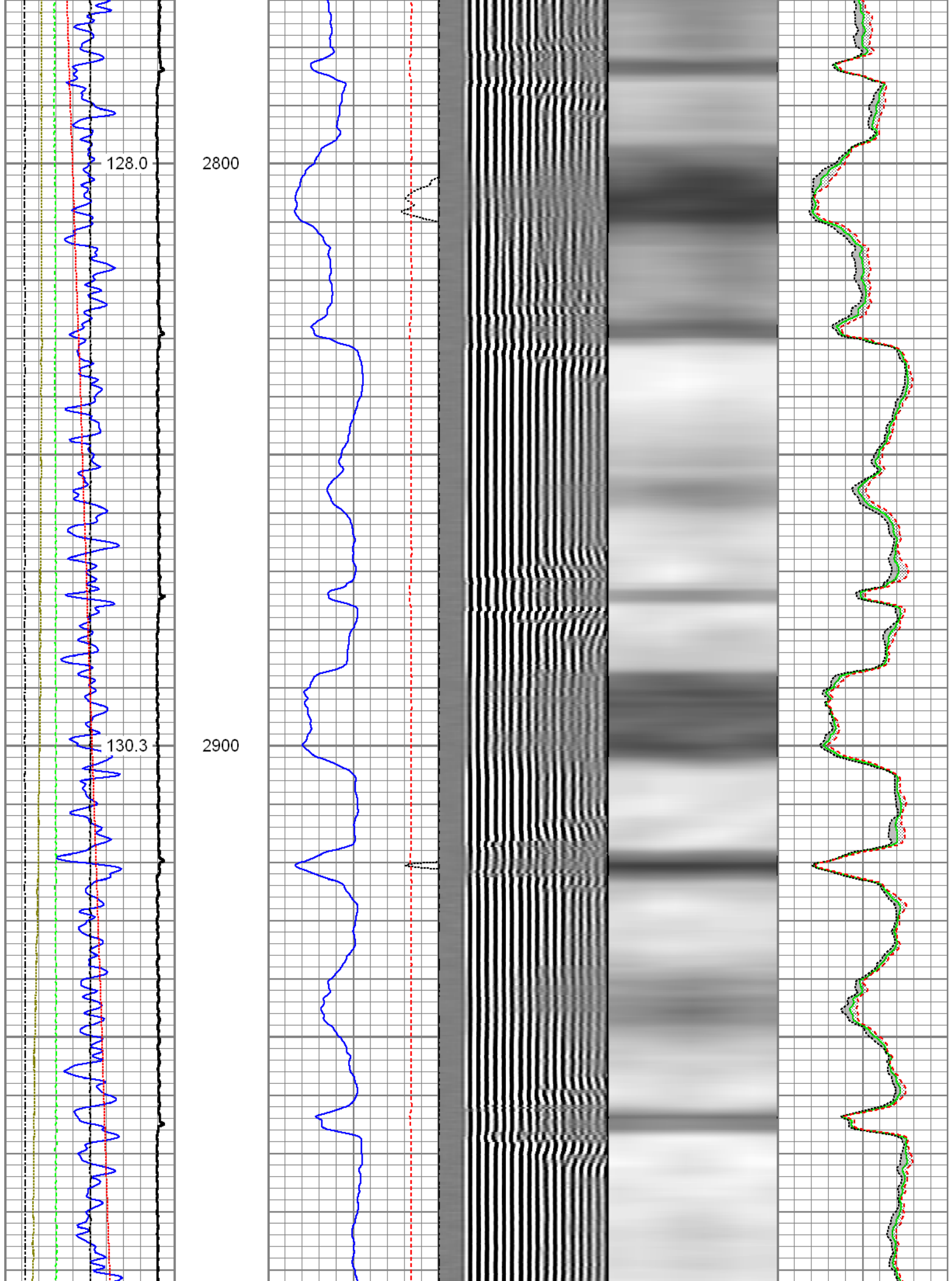


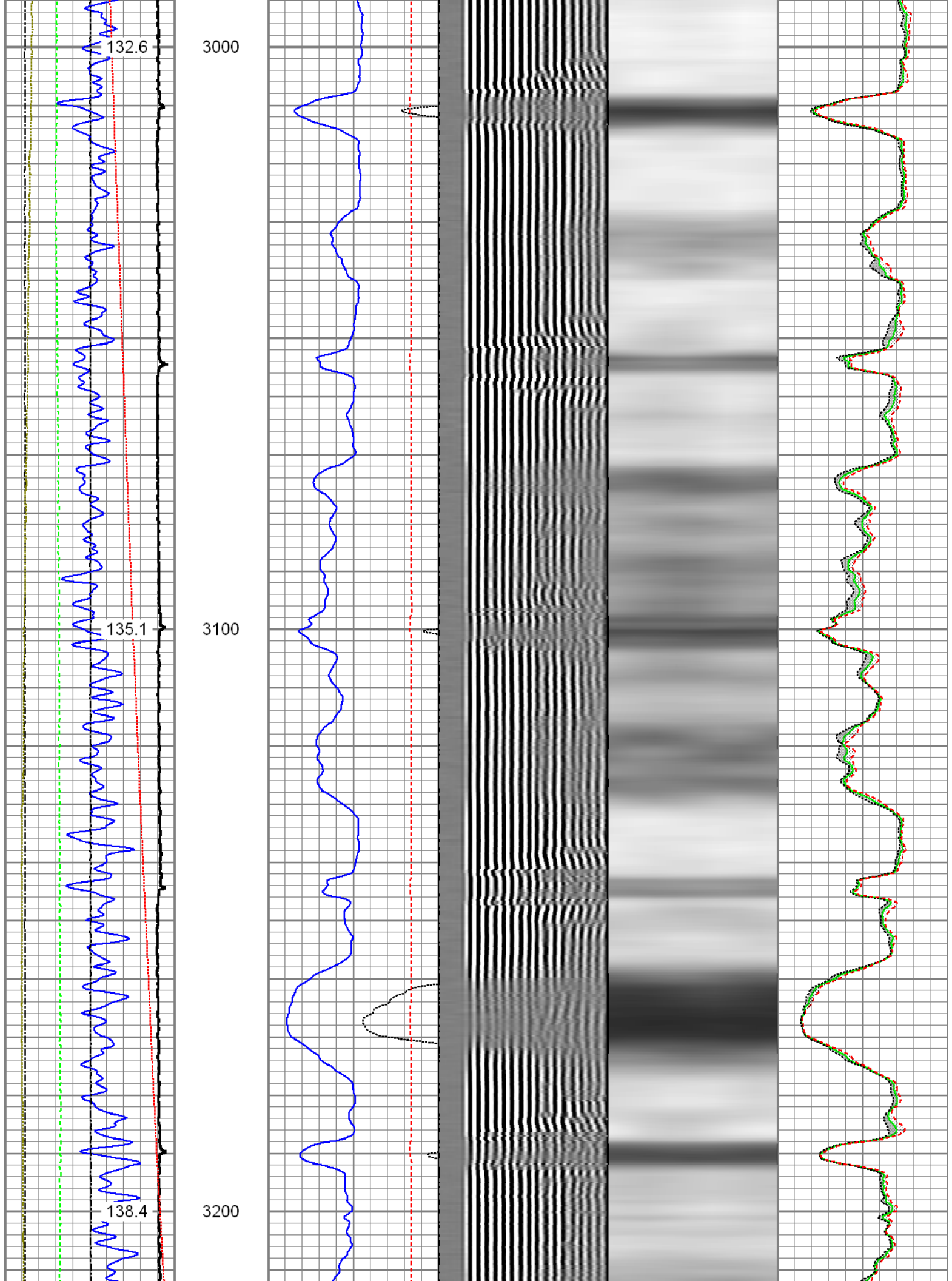


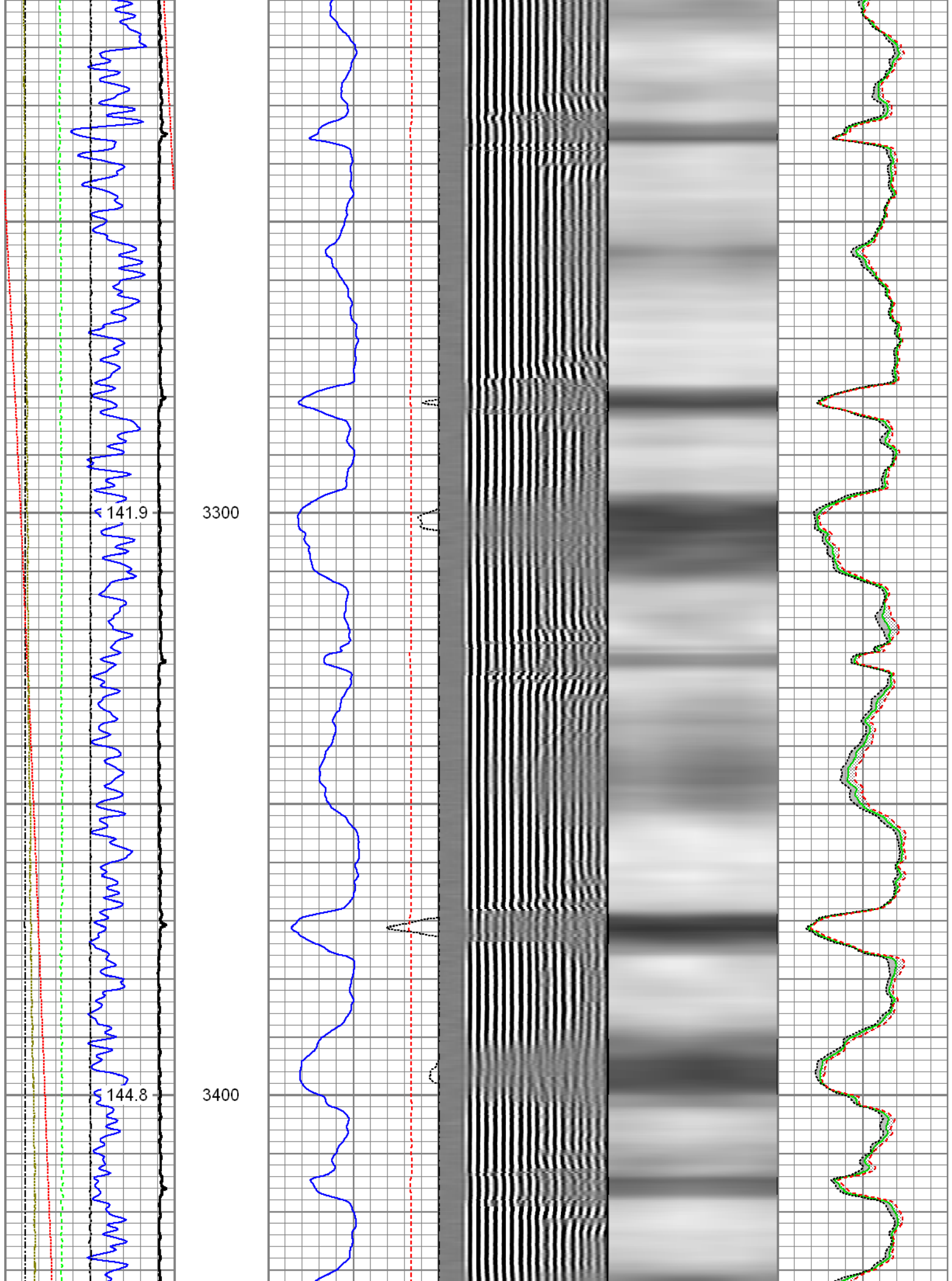


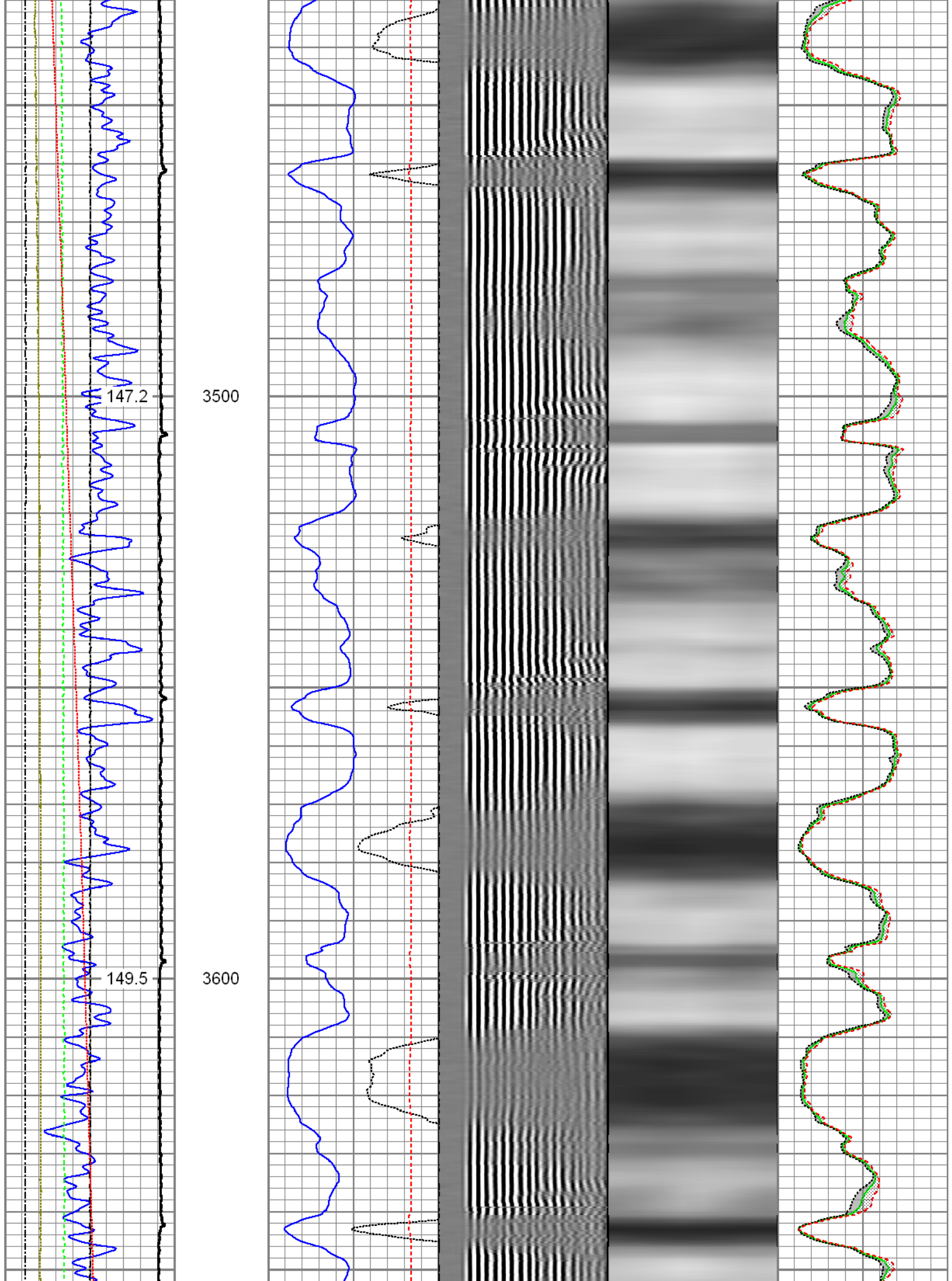


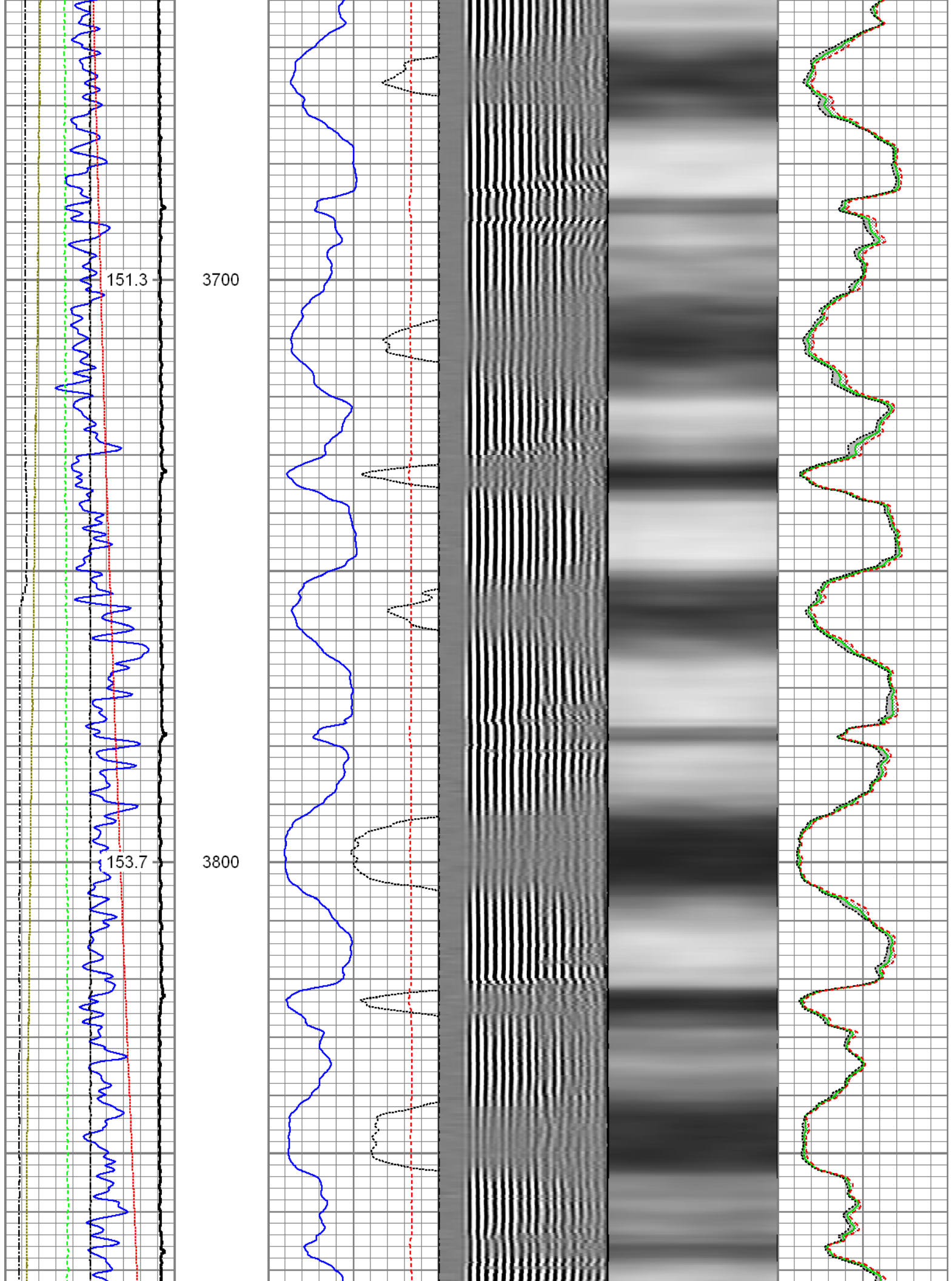


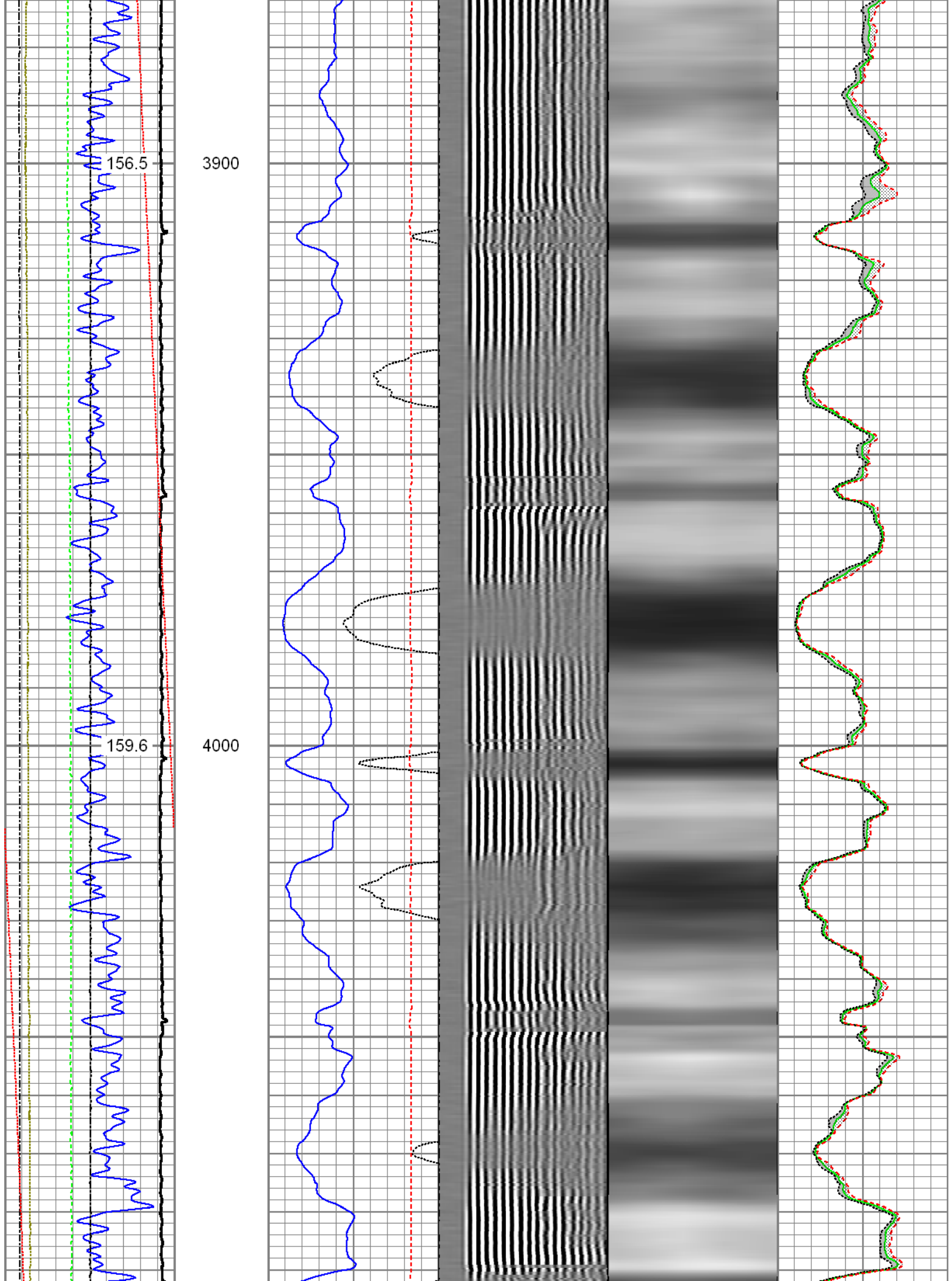


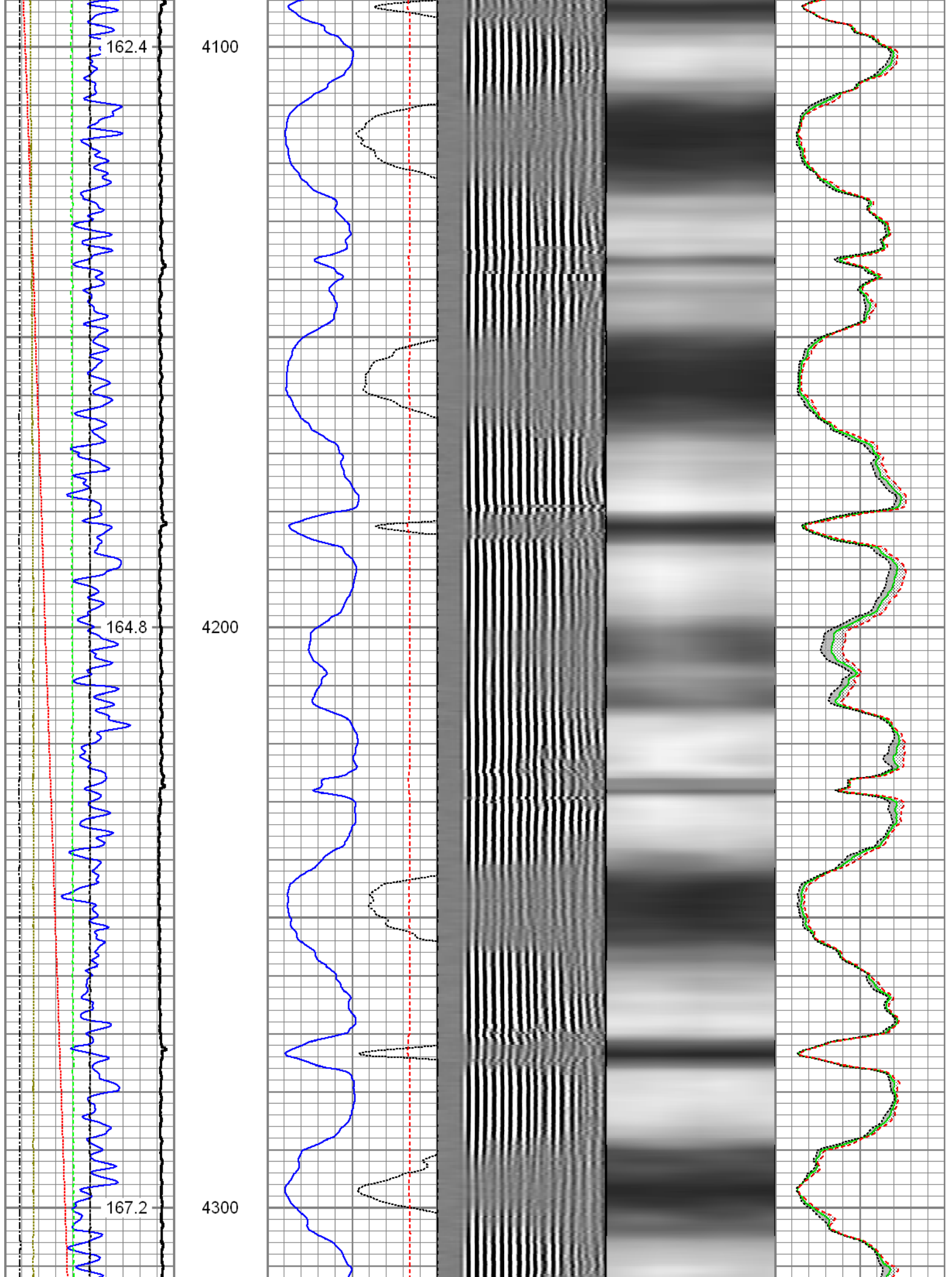


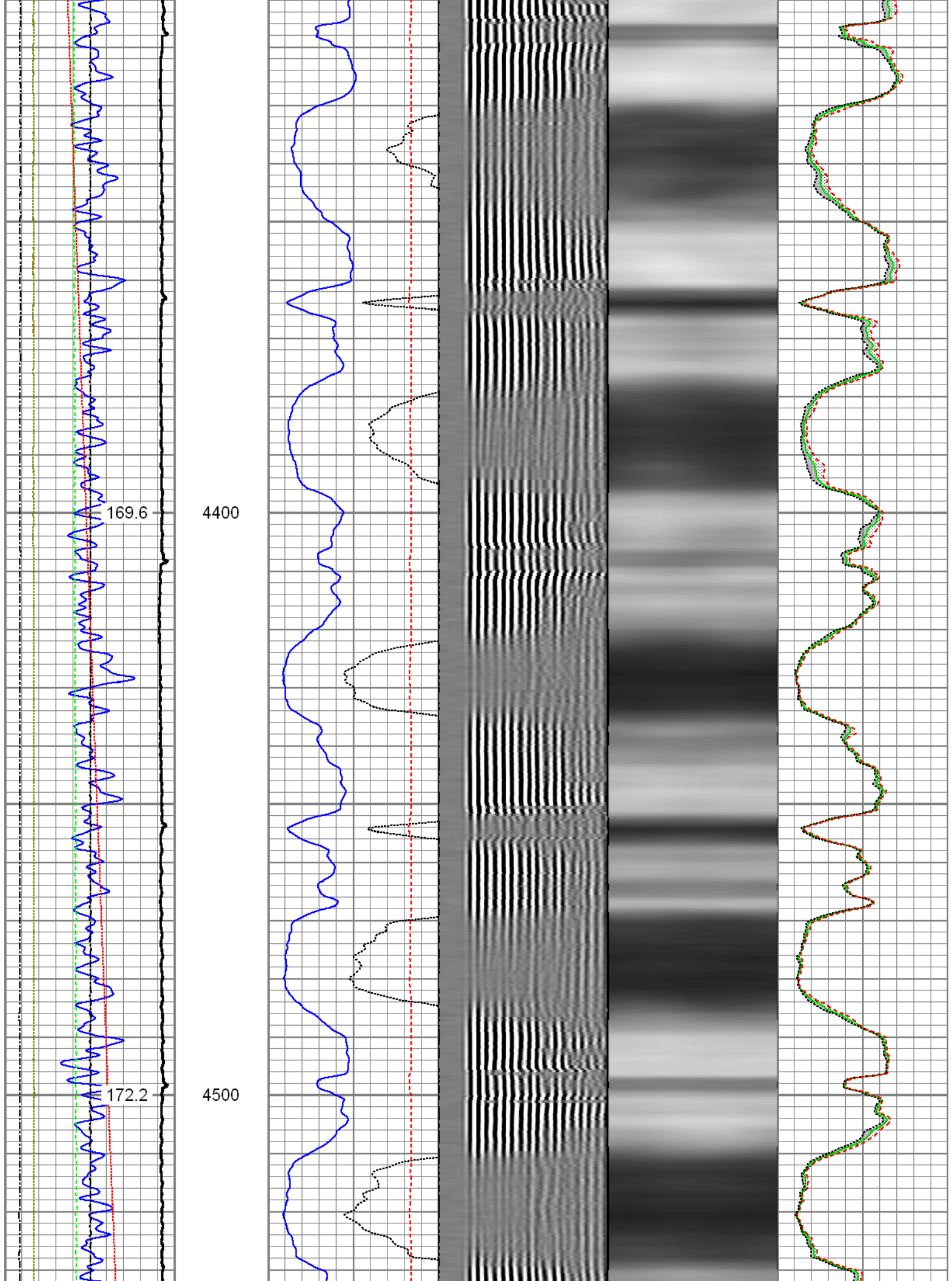


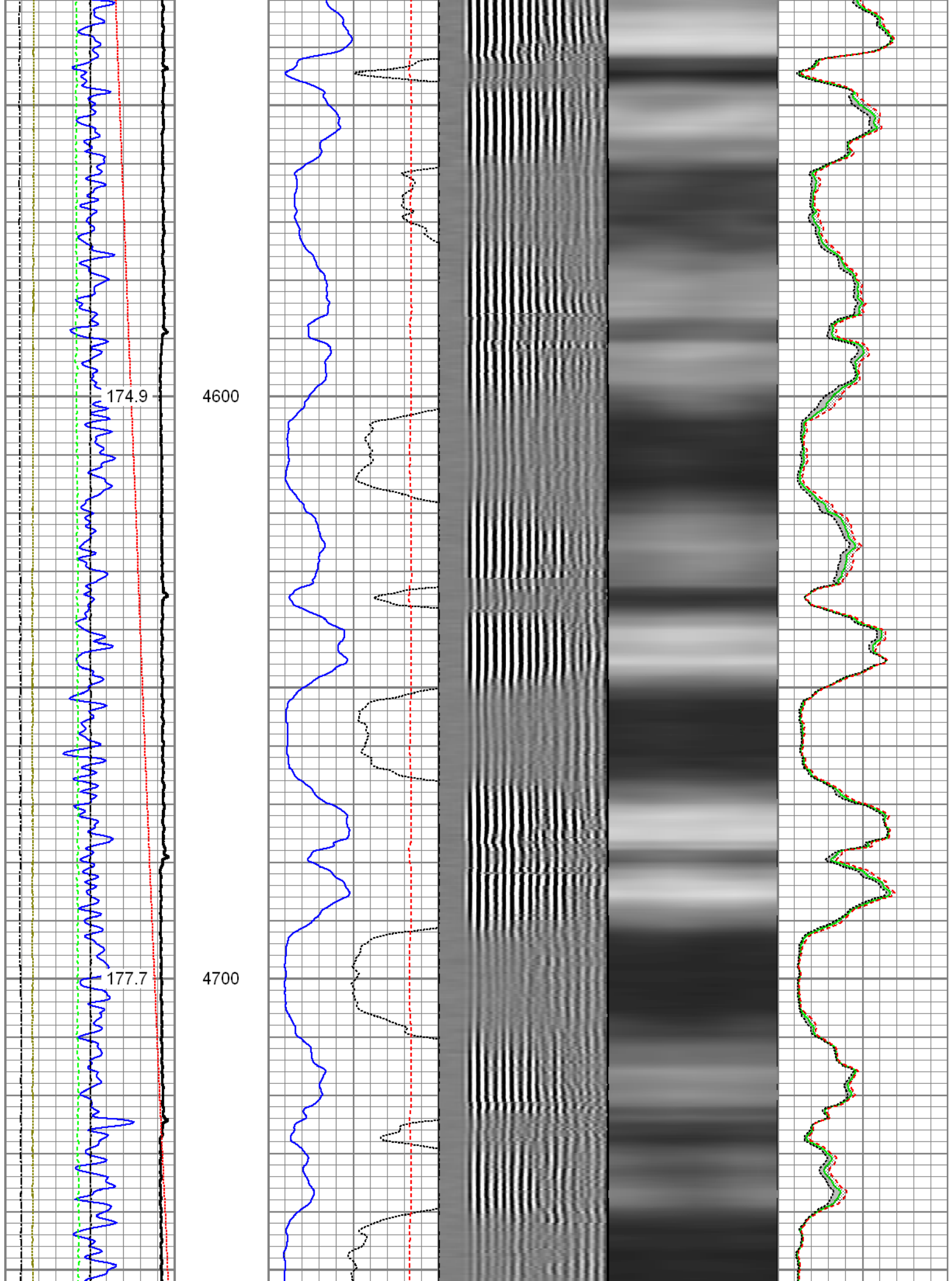


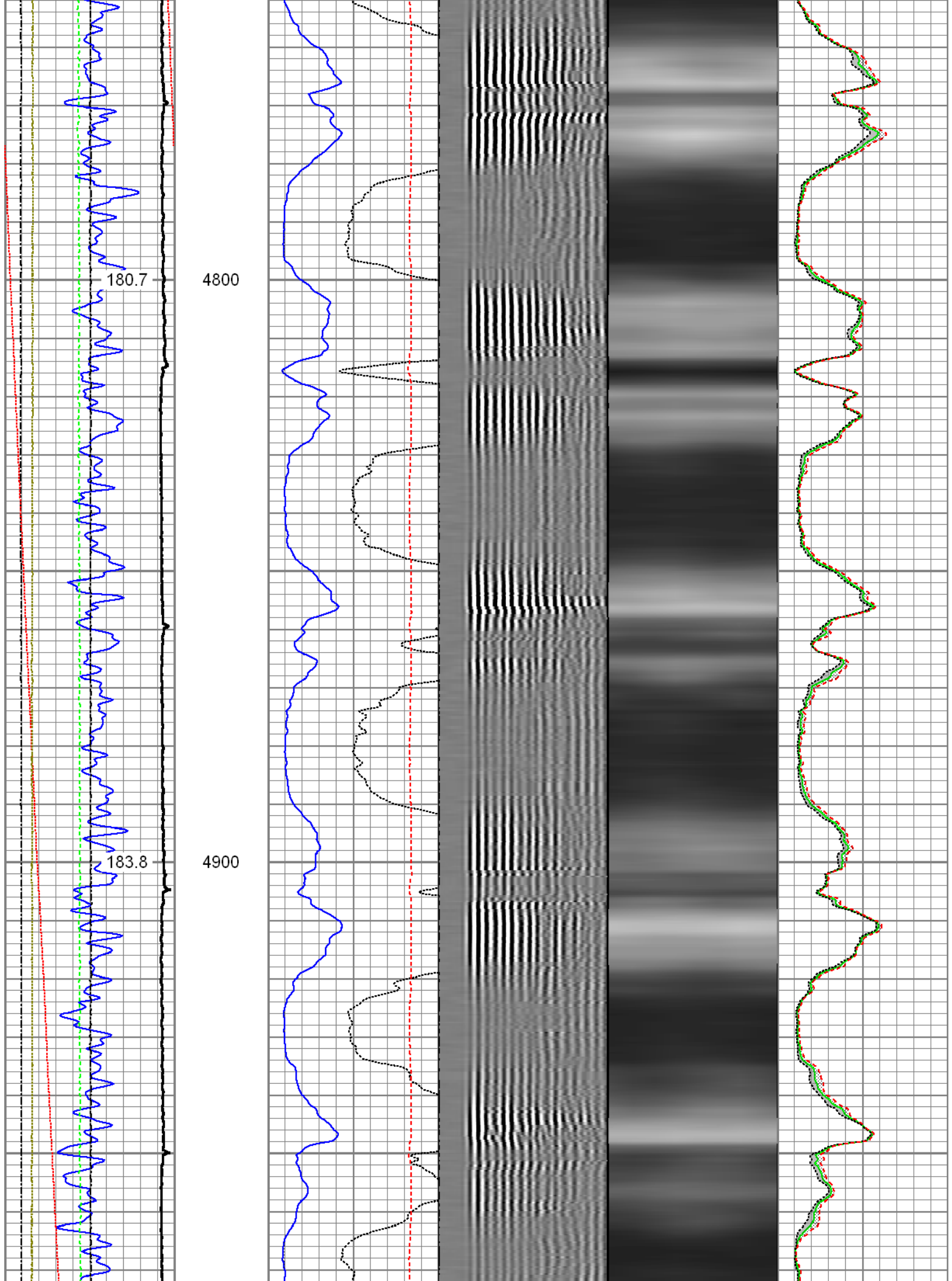


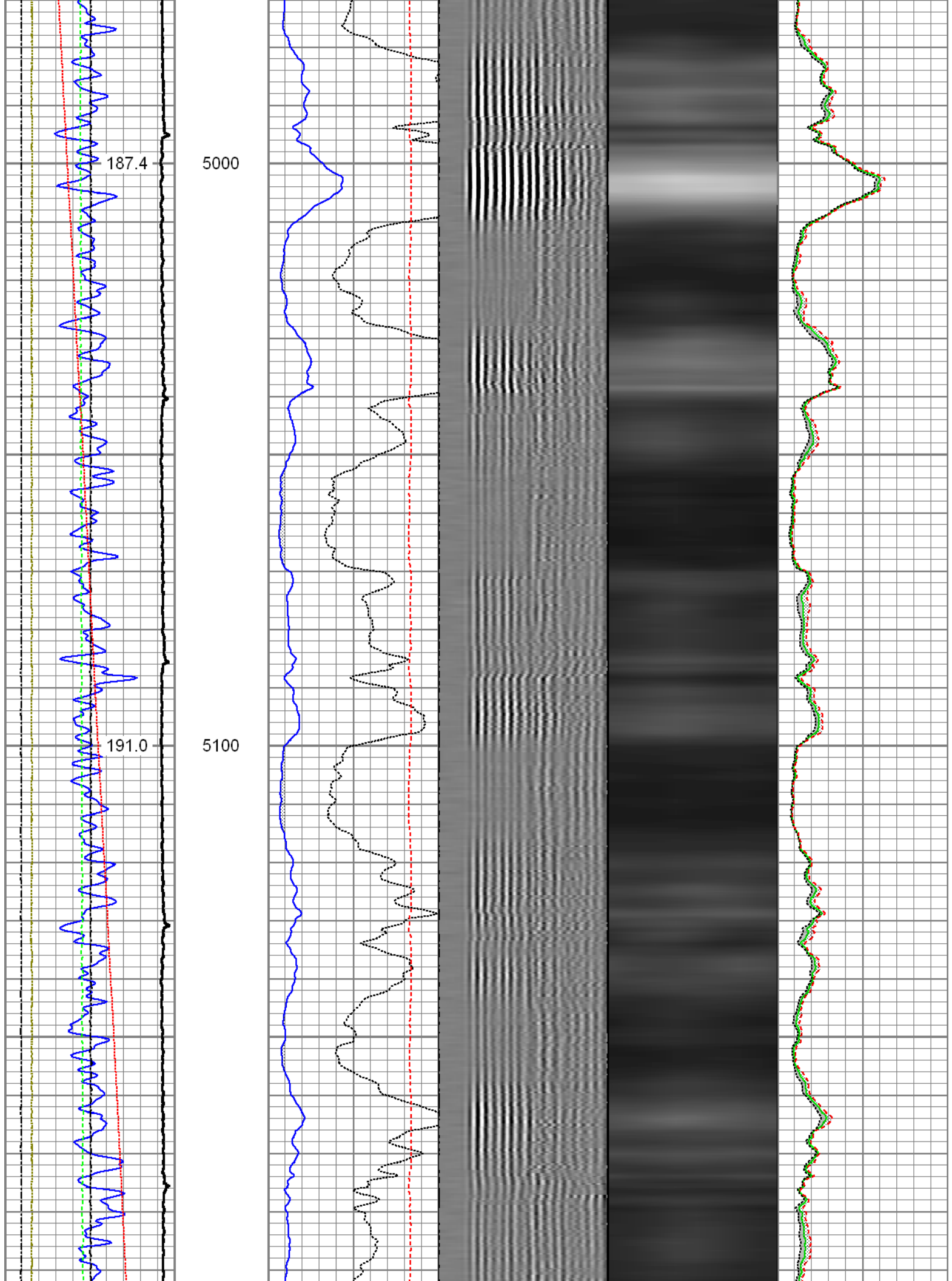


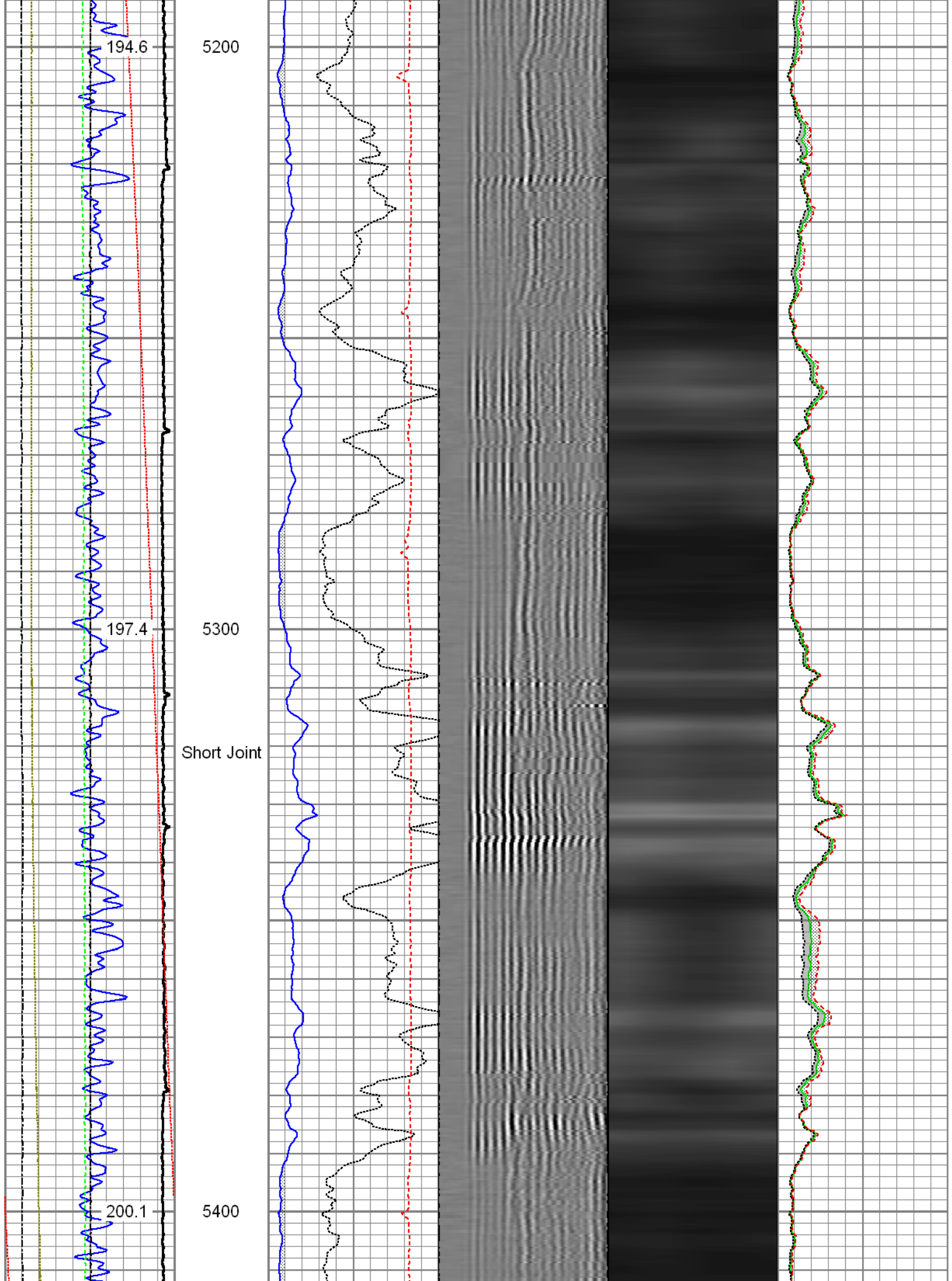


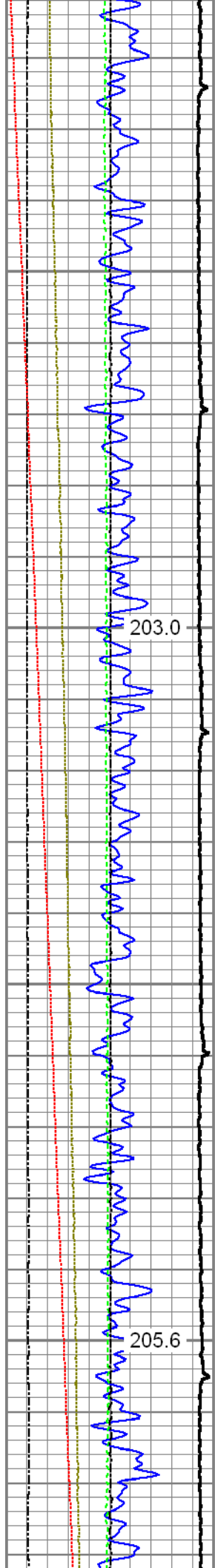






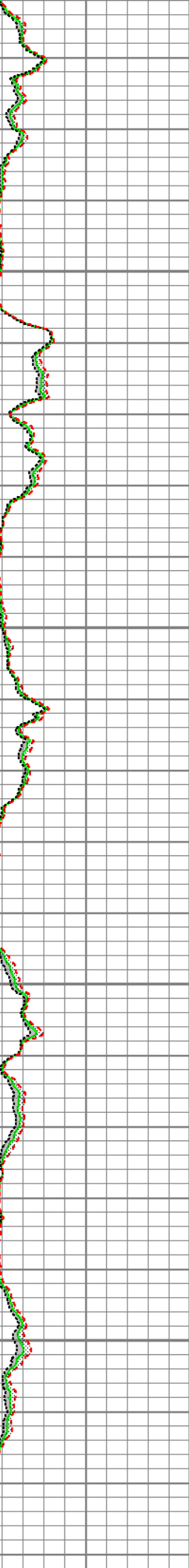
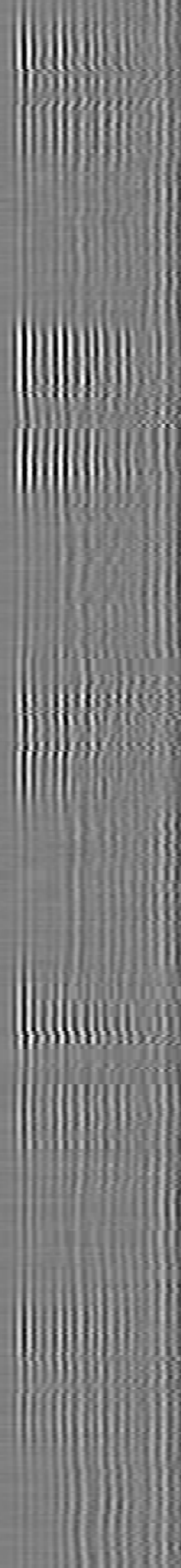
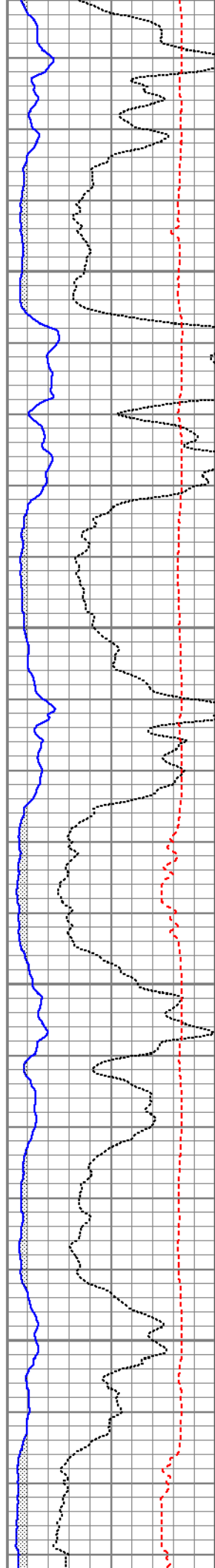


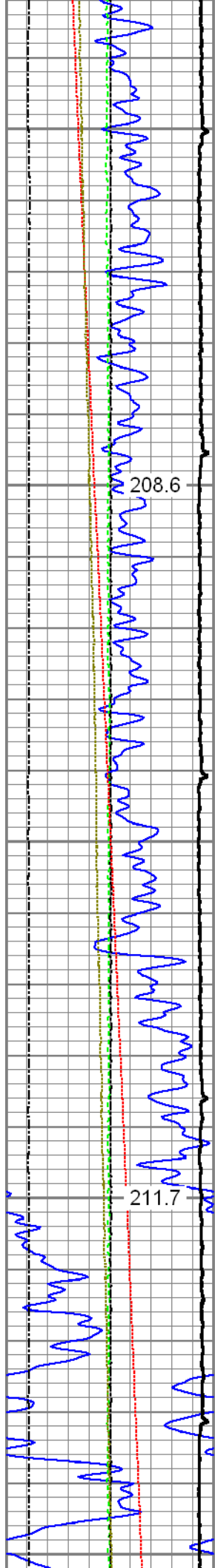




5500

5600



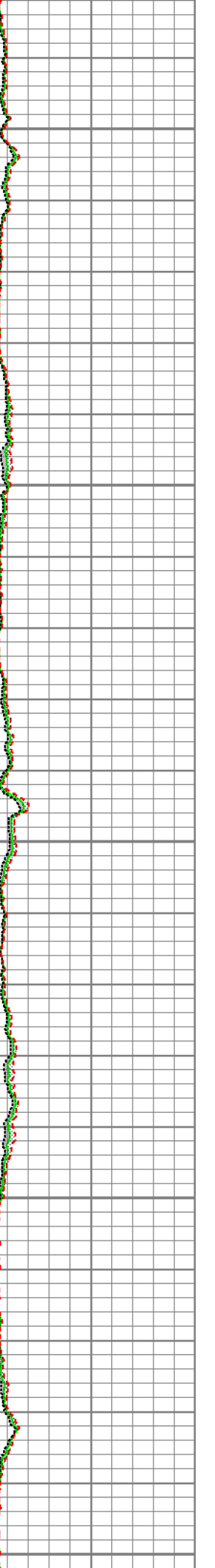
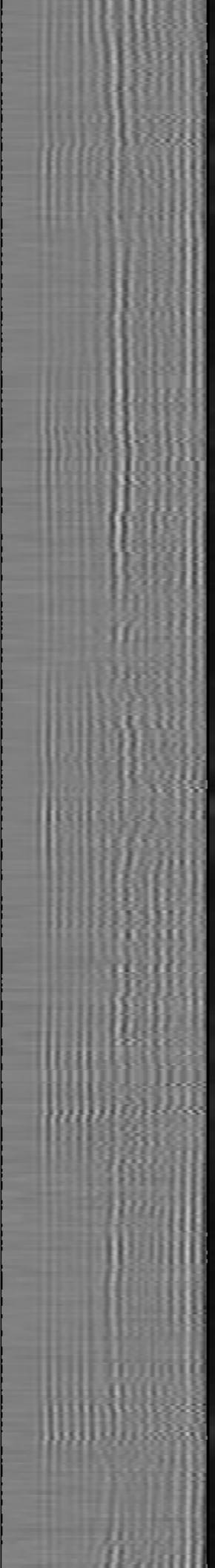
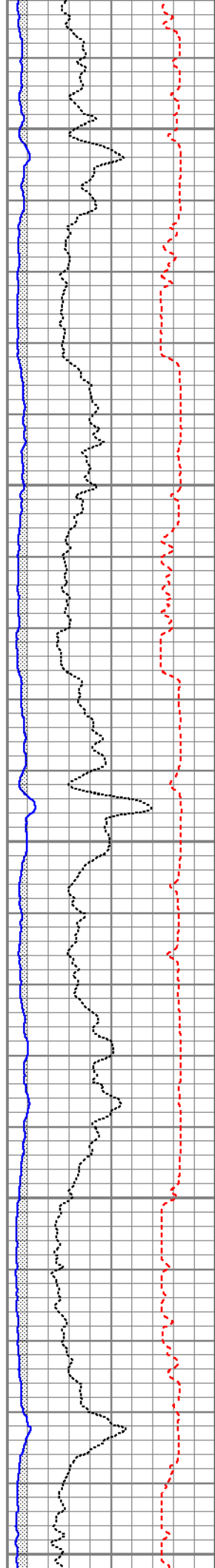


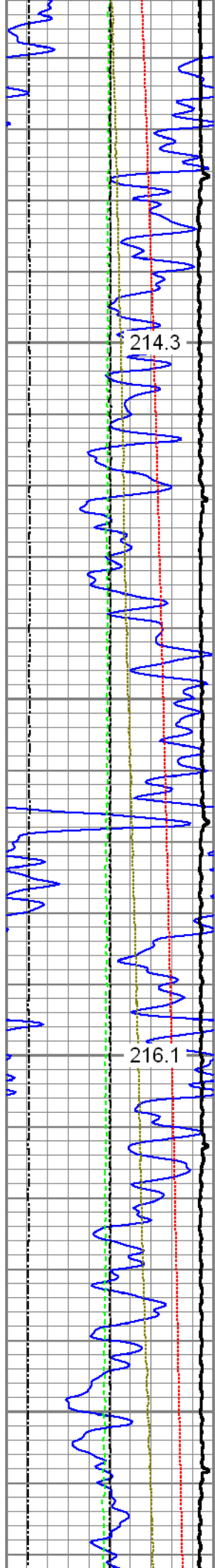
208.6

211.7

5700

5800



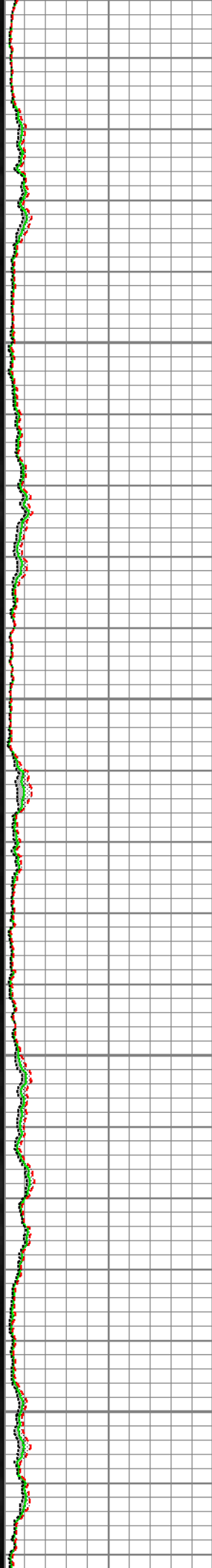
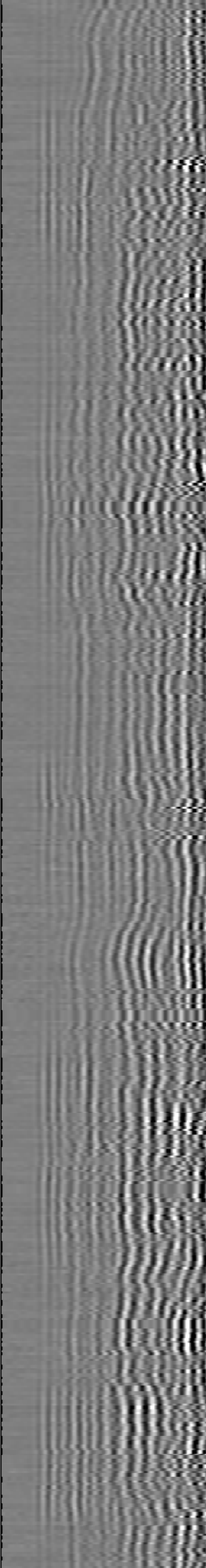
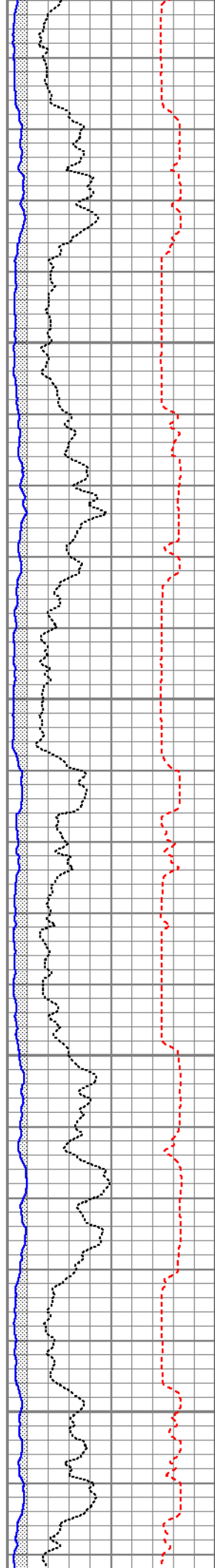


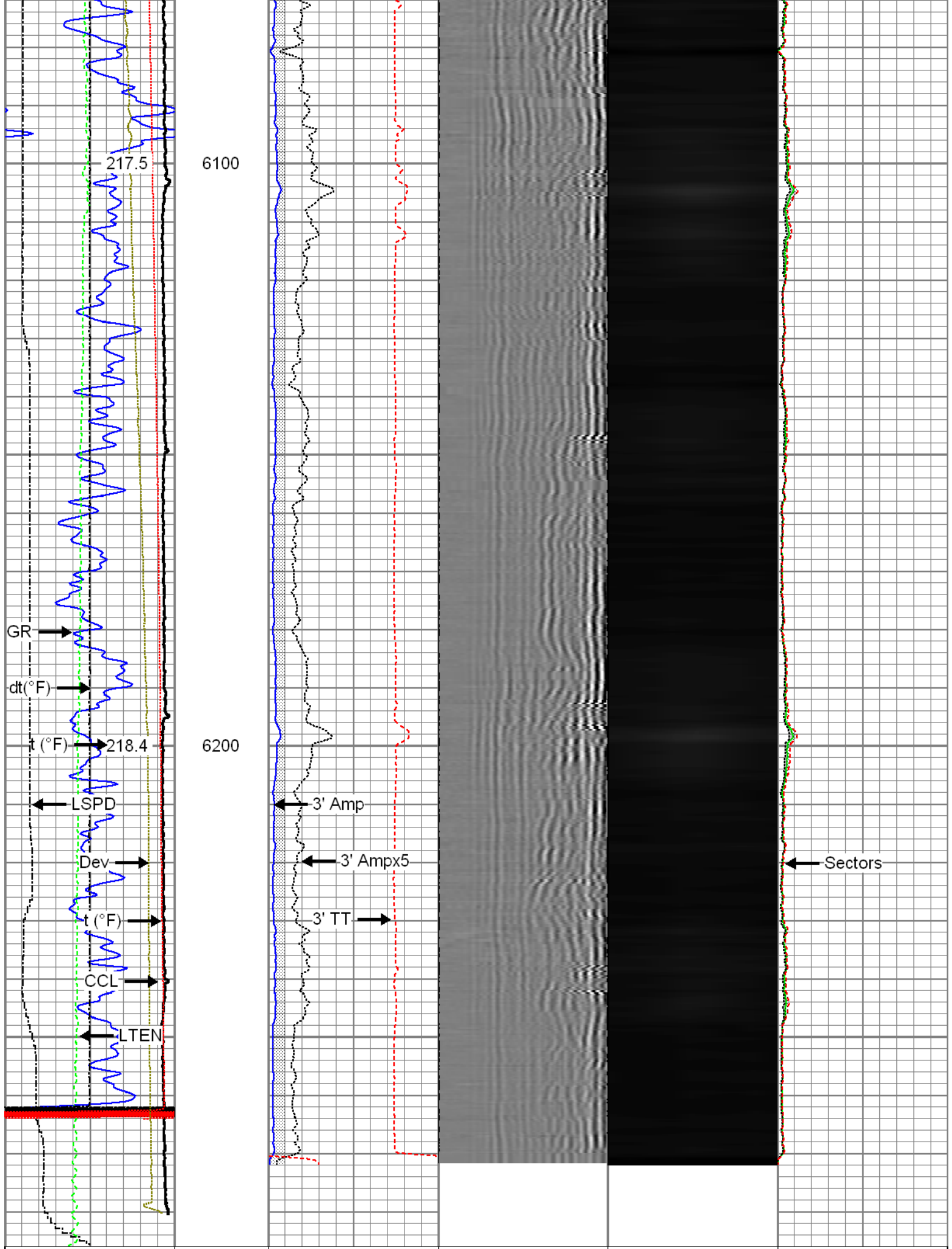
214.3

216.1

5900

6000





Gamma Ray


3' Amplitude

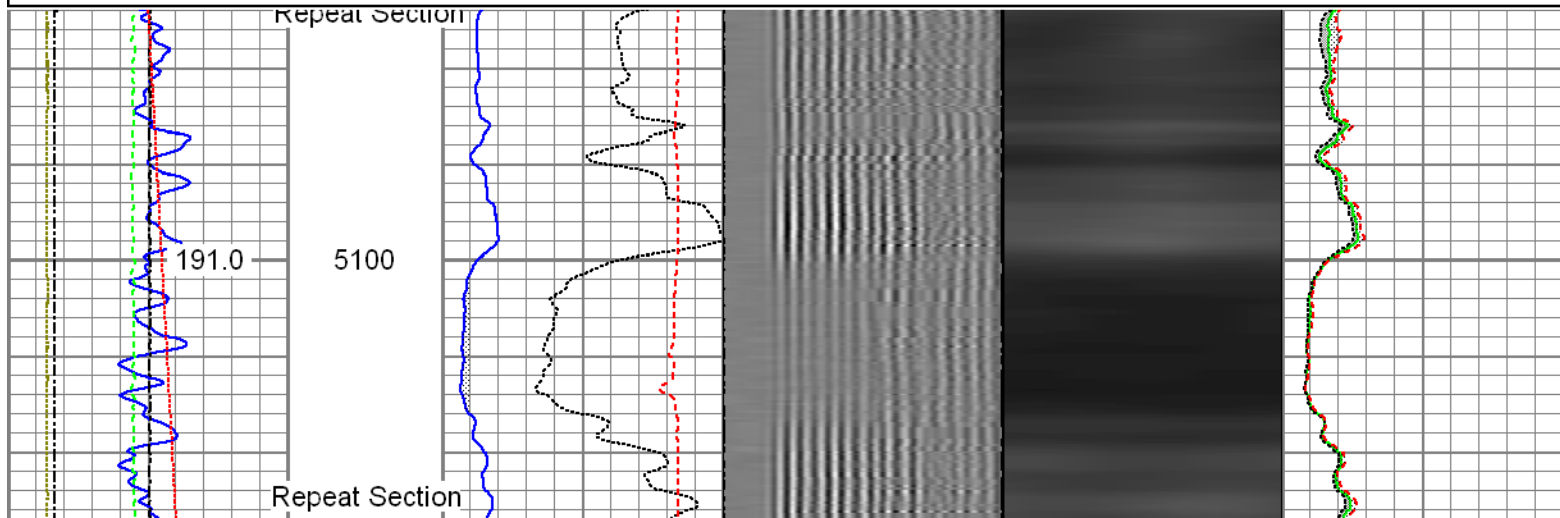
5' Variable Density Log

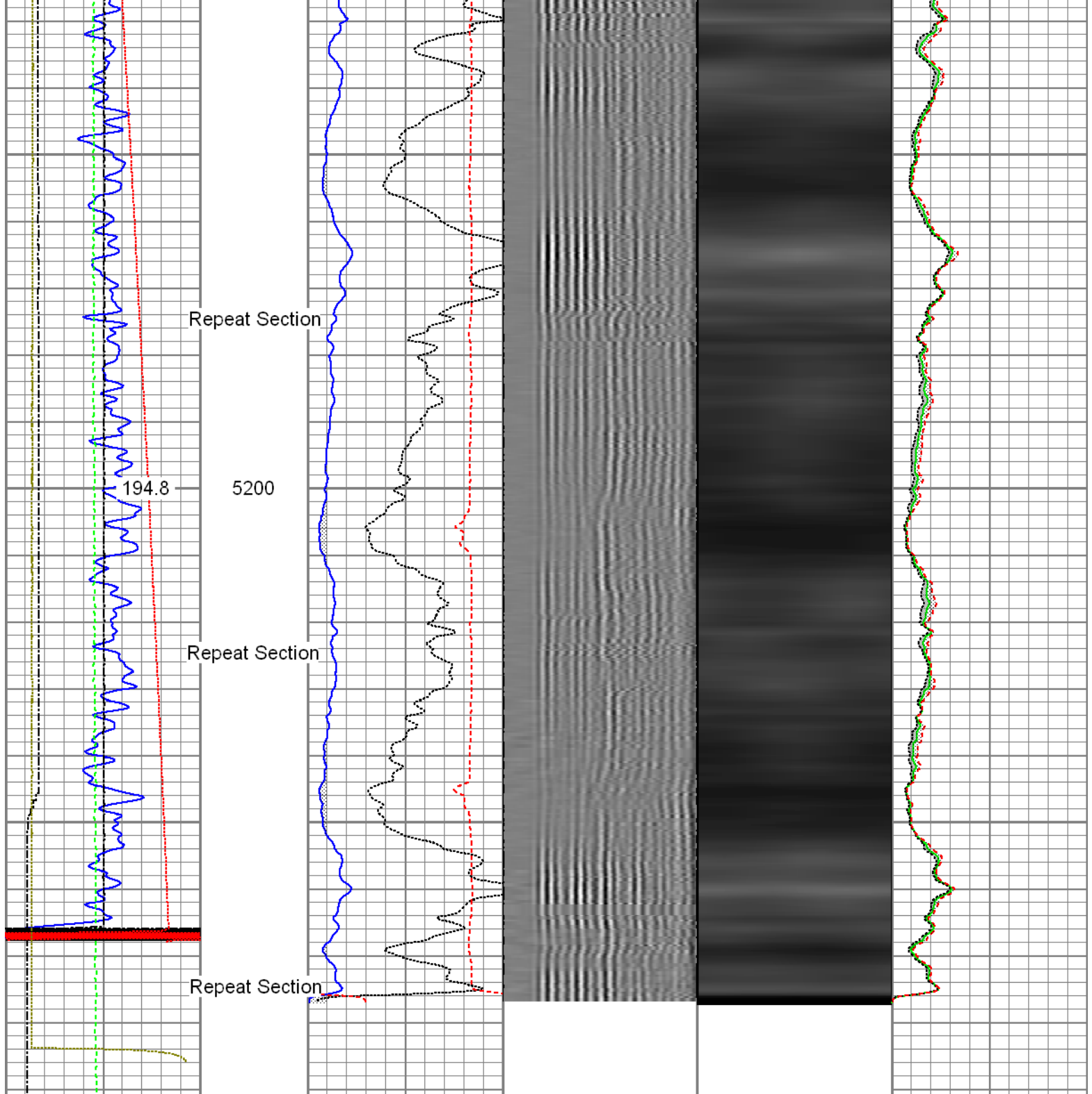
Sector Map

Average Amplitude

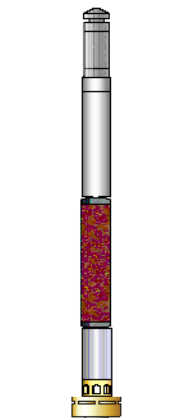
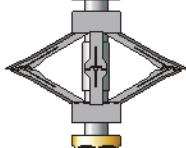
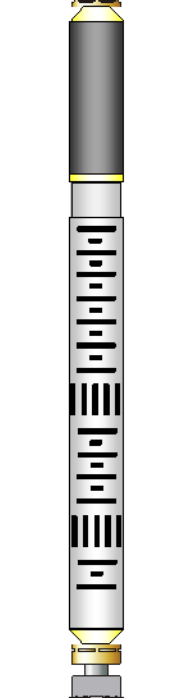
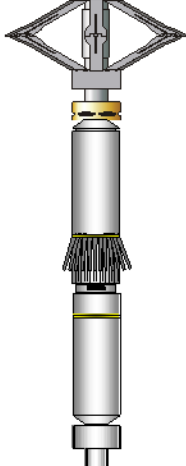
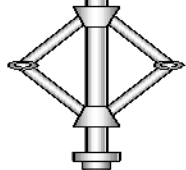
0 (GAPI) 120	0 (mV) 100 200 1200	0 100
Casing Collar Locator	3' Amplitude x 5	Minimum Amplitude
Line Speed	0 (mV) 20	0 100
-100 (ft/min) 100	3' Travel Time	Maximum Amplitude
Line Tension	650 (usec) 150	0 100
0 (lb) 2000		
Differential Temperature		
-2 (degF) 2		
Temperature		
0 (degF) 20		
-10 Deviation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

		<h2>Repeat Pass</h2> <p>Recorded with 1500 PSI Surface Induced Pressure</p>			
Database File: processed_12-14-15_whiting_razor federal 12f-1306b_rbl.db Dataset Pathname: pass5 Presentation Format: rbt4_mit Dataset Creation: Mon Dec 14 15:15:38 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	
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					
-10 Deviation (°) 90					





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								
Deviation (°)									
-10	90								

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 (10010522) 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	22.45		UW_PRT-UW_PRT_016 (10025100) 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
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					
MIT	5.41		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_MIT-UW_MIT40_027 (218949) 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
TSTAMP	0.00		UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20

Total Length: 28.09 ft
Total Weight: 324.50 lb
O.D. 3.13 in

Calibration Report

Database File: PROCESSED_12-14-15_Whiting_Razor Federal 12F-1306B_RBL.db
Dataset Pathname: pass8.1
Dataset Creation: Mon Dec 14 17:15:39 2015 by Calc 7.0 B1

Multi-finger Imaging Tool Calibration Report

Serial Number: 218949
Number of Fingers: 40
Tool Model: UW_MIT40_027

Inclinometer Calibration Report

Performed: Mon, Oct, 06 14:03:04 2008
Calibration Angle: 45

		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738
Finger 31 up:		2235	1756
Finger 21 up:		2216	2228
Finger 11 up:		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report

Performed: Mon Dec 14 14:30:59 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1392	288.0	1680	291.0	1971	315.0	2286
Finger 02:	1443	282.0	1725	288.0	2013	305.0	2318
Finger 03:	1683	293.0	1976	277.0	2253	292.0	2545
Finger 04:	1660	284.0	1944	276.0	2220	286.0	2506
Finger 05:	1544	267.0	1811	271.0	2082	285.0	2367
Finger 06:	1531	261.0	1792	257.0	2049	281.0	2330
Finger 07:	1369	292.0	1661	274.0	1935	315.0	2250
Finger 08:	1548	261.0	1809	259.0	2068	283.0	2351
Finger 09:	1421	280.0	1701	277.0	1978	309.0	2287
Finger 10:	1481	261.0	1742	276.0	2018	284.0	2302
Finger 11:	1482	260.0	1742	271.0	2013	280.0	2293
Finger 12:	1336	275.0	1611	296.0	1907	309.0	2216
Finger 13:	1606	275.0	1881	287.0	2168	293.0	2461
Finger 14:	1451	279.0	1730	295.0	2025	307.0	2332
Finger 15:	1539	258.0	1797	270.0	2067	286.0	2353
Finger 16:	1403	278.0	1681	295.0	1976	311.0	2287
Finger 17:	1631	270.0	1901	281.0	2182	288.0	2470
Finger 18:	1417	291.0	1708	308.0	2016	325.0	2341
Finger 19:	1642	261.0	1903	259.0	2162	264.0	2426
Finger 20:	1544	262.0	1806	277.0	2083	290.0	2373
Finger 21:	1597	257.0	1854	251.0	2105	272.0	2377
Finger 22:	1565	274.0	1839	285.0	2124	295.0	2419
Finger 23:	1370	274.0	1644	289.0	1933	302.0	2235
Finger 24:	1691	260.0	1951	272.0	2223	279.0	2502
Finger 25:	1383	295.0	1678	308.0	1986	325.0	2311
Finger 26:	1529	285.0	1814	297.0	2111	313.0	2424
Finger 27:	1443	265.0	1708	272.0	1980	289.0	2269
Finger 28:	1632	280.0	1912	282.0	2194	300.0	2494
Finger 29:	1470	280.0	1750	281.0	2031	303.0	2334
Finger 30:	1431	285.0	1716	280.0	1996	313.0	2309
Finger 31:	1522	267.0	1789	278.0	2067	293.0	2360

Finger 31:	1335	266.0	1601	280.0	1881	301.0	2182
Finger 32:	1616	304.0	1920	309.0	2229	320.0	2549
Finger 33:	1535	271.0	1806	276.0	2082	291.0	2373
Finger 34:	1425	268.0	1693	281.0	1974	297.0	2271
Finger 35:	1583	285.0	1868	289.0	2157	300.0	2457
Finger 36:	1592	276.0	1868	284.0	2152	295.0	2447
Finger 37:	1493	278.0	1771	286.0	2057	302.0	2359
Finger 38:	1454	287.0	1741	294.0	2035	313.0	2348
Finger 39:	1591	298.0	1889	296.0	2185	310.0	2495

Segmented Cement Bond Log Calibration Report

Serial Number:
Tool Model:

10013454
UW_RBT_004

Calibration Casing Diameter:
Calibration Depth:

5.500
153.623

in
ft

Master Calibration, performed Mon Dec 14 17:15:14 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.913	0.800	71.921	77.574	1.067
5FT	-0.014	0.853	0.800	71.921	82.005	1.980
S1	-0.003	0.911	0.000	100.000	109.343	0.355
S2	-0.005	0.924	0.000	100.000	107.628	0.552
S3	-0.004	0.920	0.000	100.000	108.185	0.484
S4	-0.006	0.919	0.000	100.000	108.104	0.648
S5	-0.004	0.920	0.000	100.000	108.325	0.385
S6	-0.004	0.919	0.000	100.000	108.302	0.439
S7	-0.004	0.892	0.000	100.000	111.591	0.410
S8	-0.004	0.897	0.000	100.000	110.951	0.454

Temperature Calibration Report

Serial Number:
Tool Model:
Performed:

10025100
UW_PRT_016
Wed Feb 11 13:47:59 2015

Point #	Reading		Reference	
1	13249.00	cps	68.00	degF
2	18454.00	cps	104.00	degF
3	29735.00	cps	176.00	degF
4	41457.00	cps	248.00	degF
5	52851.00	cps	320.00	degF
6	59128.00	cps	356.00	degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

Gamma Ray Calibration Report

Serial Number:
Tool Model:
Performed:

211727
UW_PGR_020
Sun Jun 13 13:33:21 1993


Calibrator Value:

1.0
GAPI

Background Reading:
Calibrator Reading:

0.0
1.0

cps
cps

	Company	Whiting Oil & Gas Corporation
	Well	Razor Federal 12F-1306B
	Field	Wildcat
	County	Weld
	State	Colorado