



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas OnShore L.P.				
Well	Buffalo 35N-15HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Location:		AP1 # : 05-123-36462			Other Services Gauge Ring MIT Elevation K.B. 5159' D.F. 5158' G.L. 5134'
SEC 15 TWP 1N RGE 68W					
Permanent Datum	Ground Level		Elevation 5134'		
Log Measured From	Kelly Bushing		25 FT		
Drilling Measured From	Kelly Bushing				

Date	02-JUL-2015
Run Number	Two
Depth Driller	12447 FT
Depth Logger	7850 FT
Bottom Logged Interval	7845 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	234°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	16:38
Equipment Number	HD-0340
Location	Ft. Lupton, CO
Recorded By	Rob Cameron
Witnessed By	Darrel Bothwell

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	Surface	1329 FT		
Intermediate #1	7	26	HCP-110	Surface	7978 FT		
Intermediate #2							
Liner	4 1/2	11.6	HCP-110	7041 FT	12218 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 liner top at 7041 FT
Adjusted log -6 FT to correlate with liner top
Gauge Ring/Junk Basket run to 7680 FT with no debris found
Log ran from as deep as possible in heel to surface
Recorded with 2800 PSI surface induced pressure
No debris found on logging tools after run

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



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\new folder\0512336462_anadarko_buffalo 35n-15hz_07-02-15_mit_rbl.db

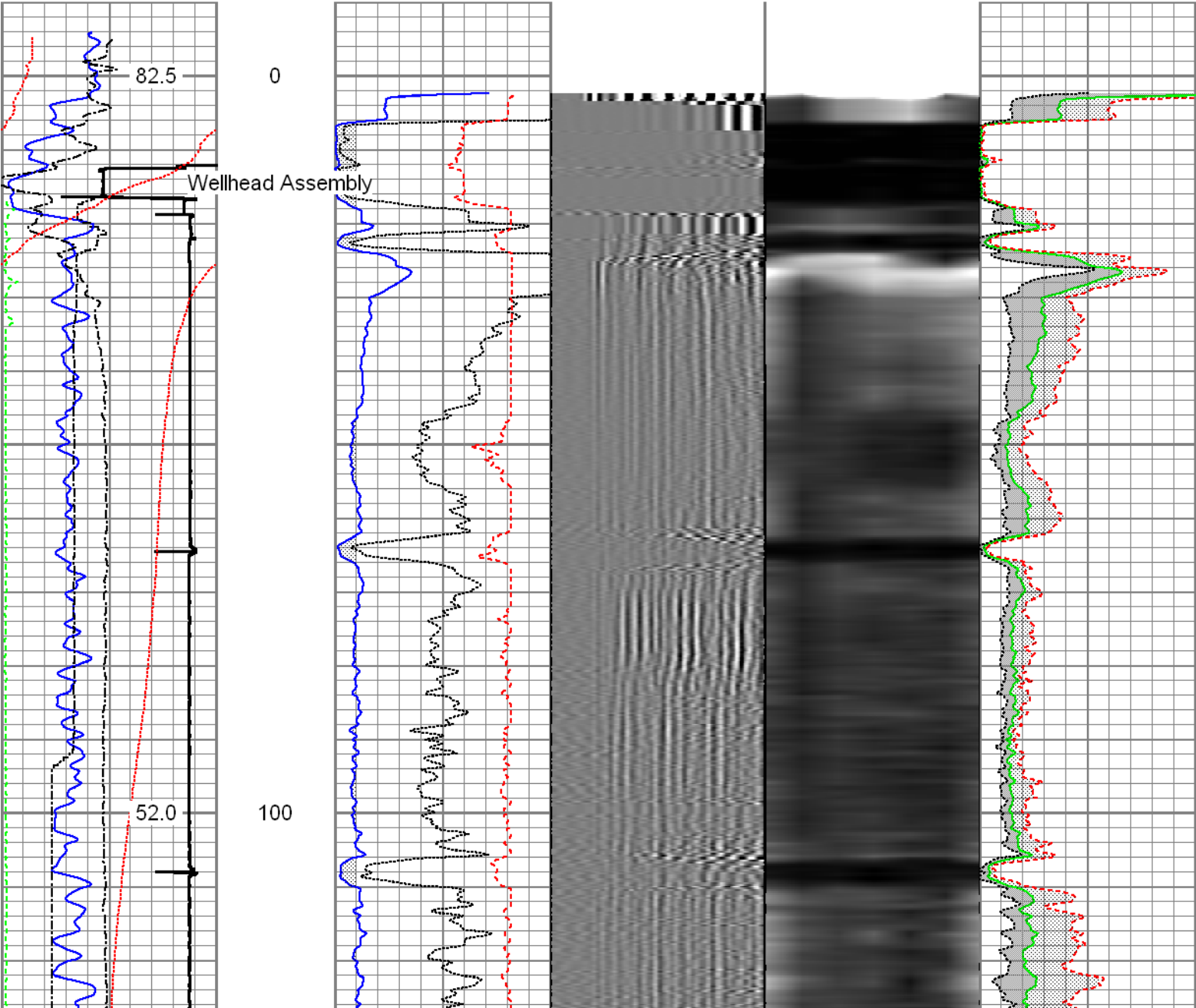
Dataset Pathname: pass13

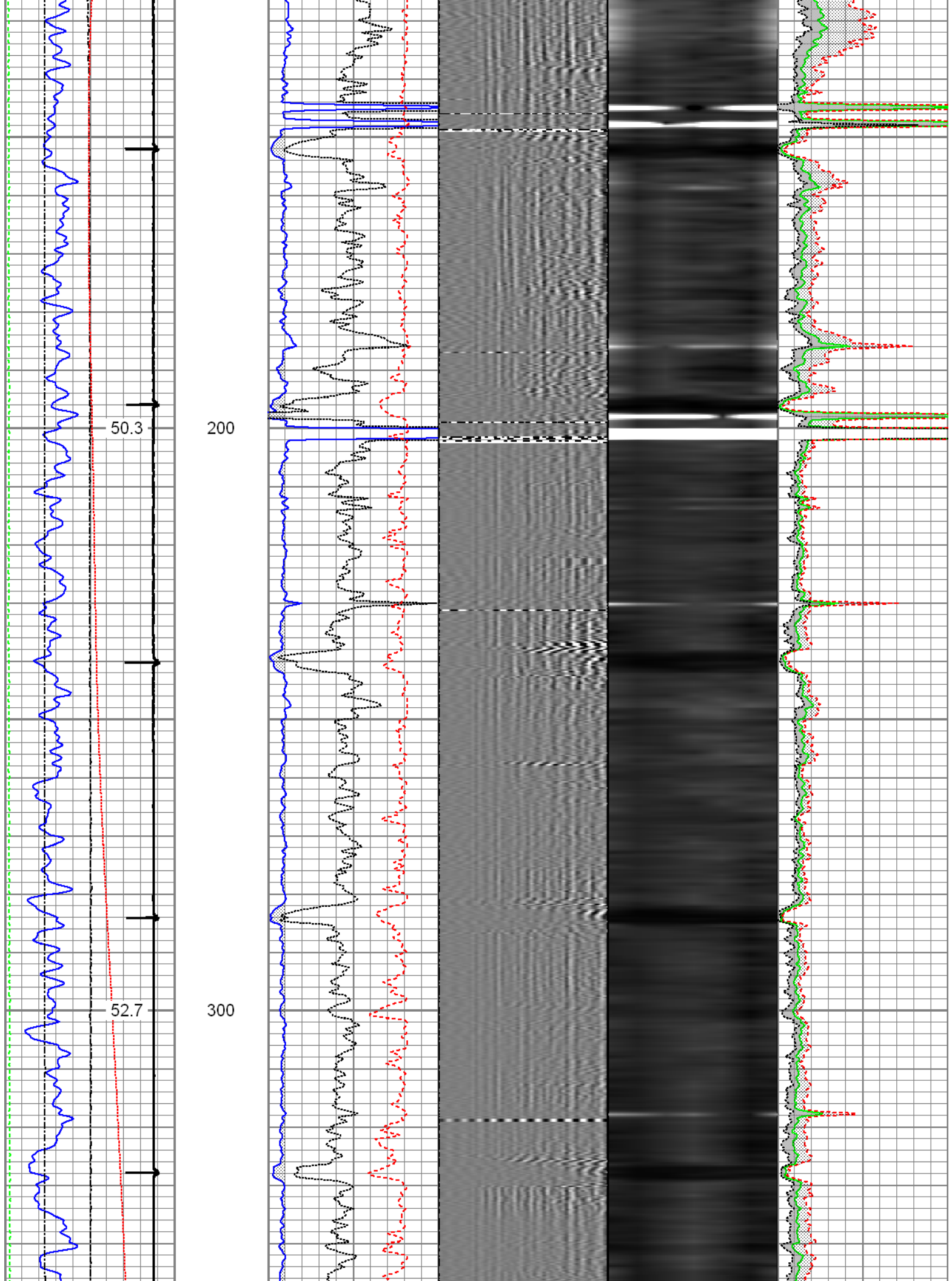
Presentation Format: rbt4_mit

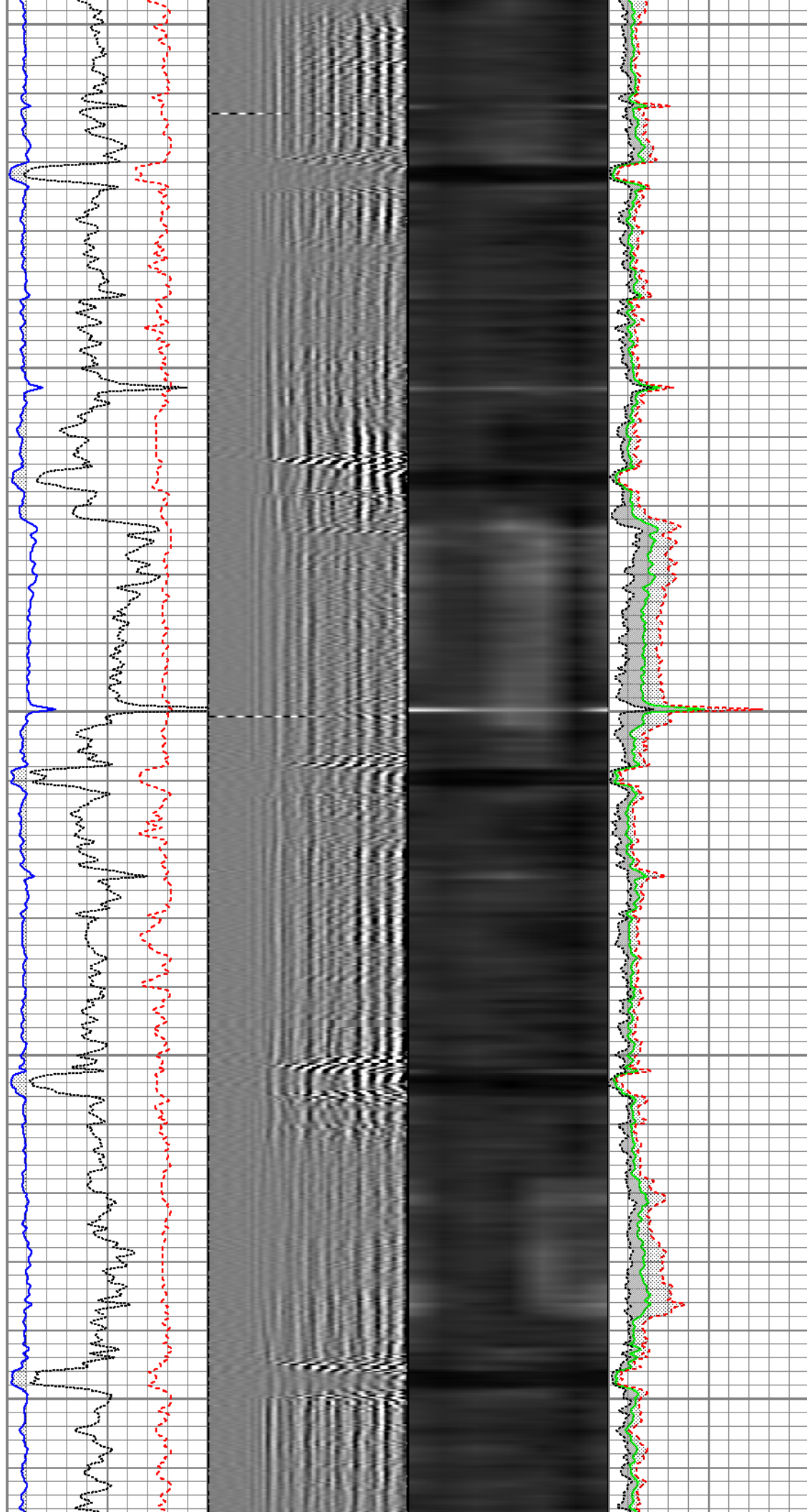
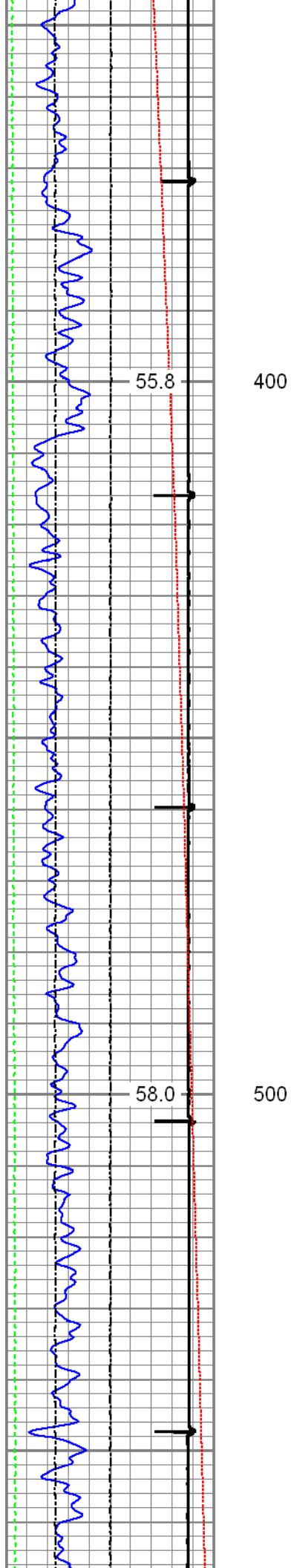
Dataset Creation: Thu Jul 02 16:38:36 2015 by Log 7.0 B1

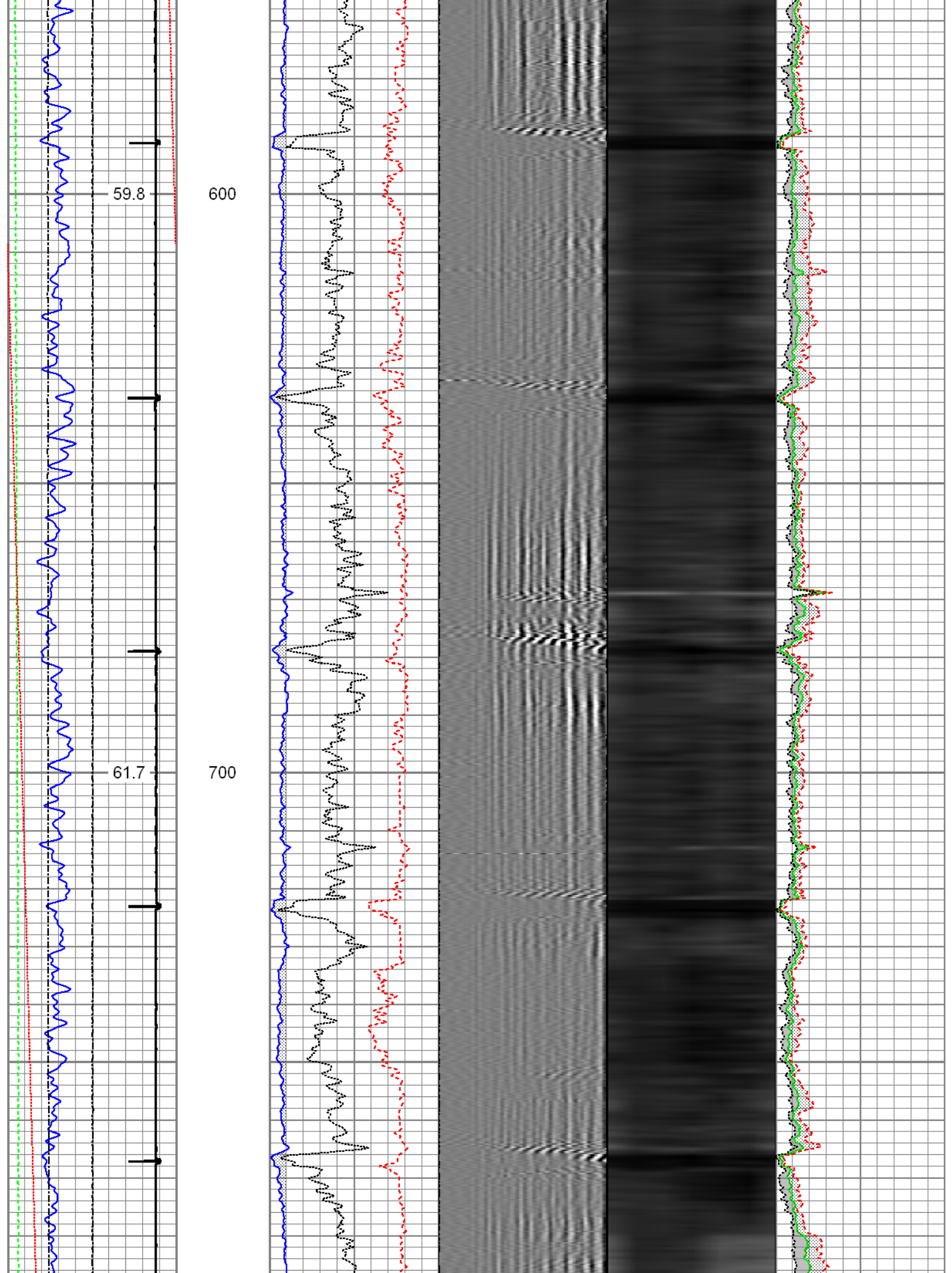
Charted by: Depth in Feet scaled 1:240

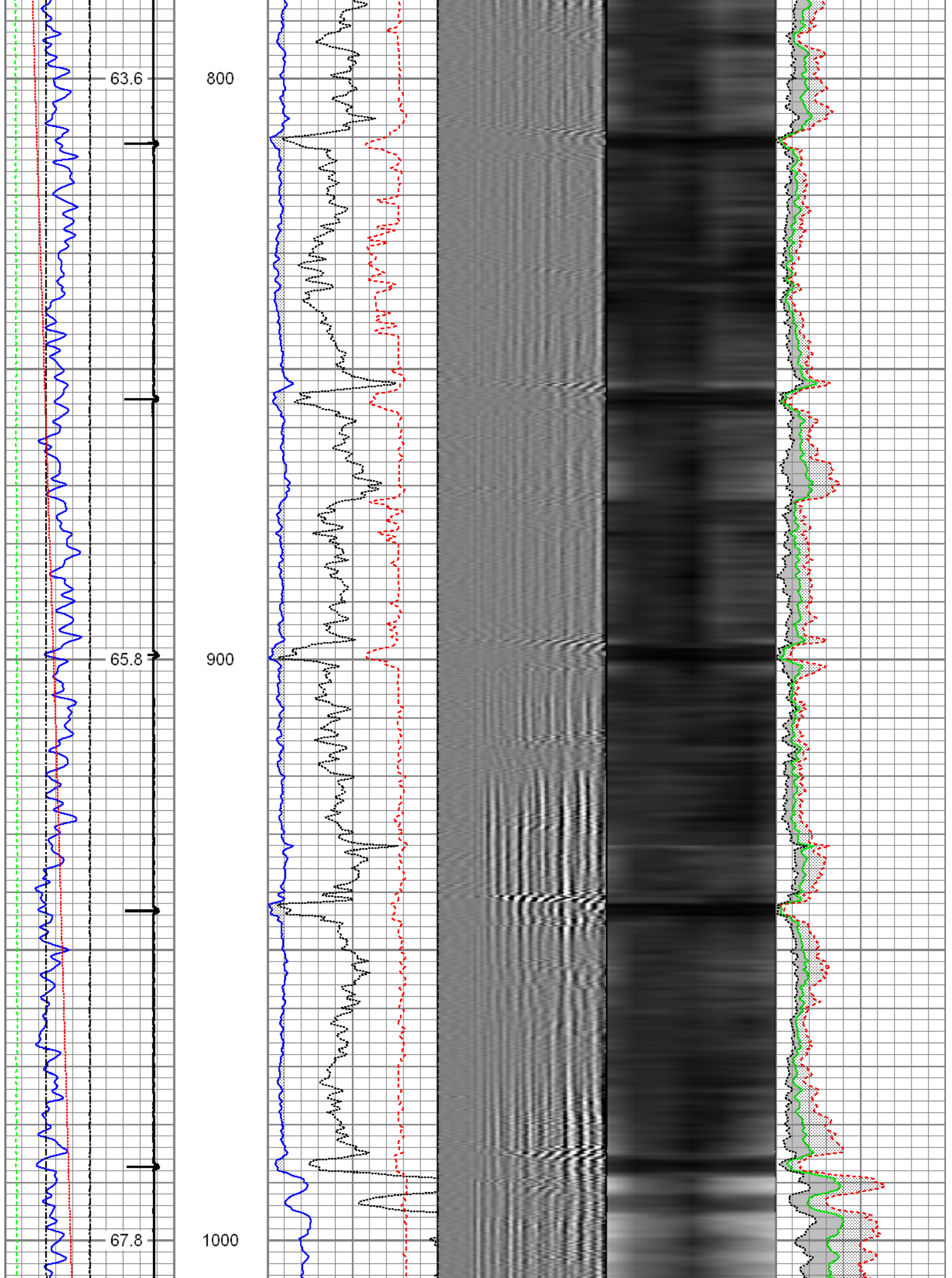
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100			0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				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

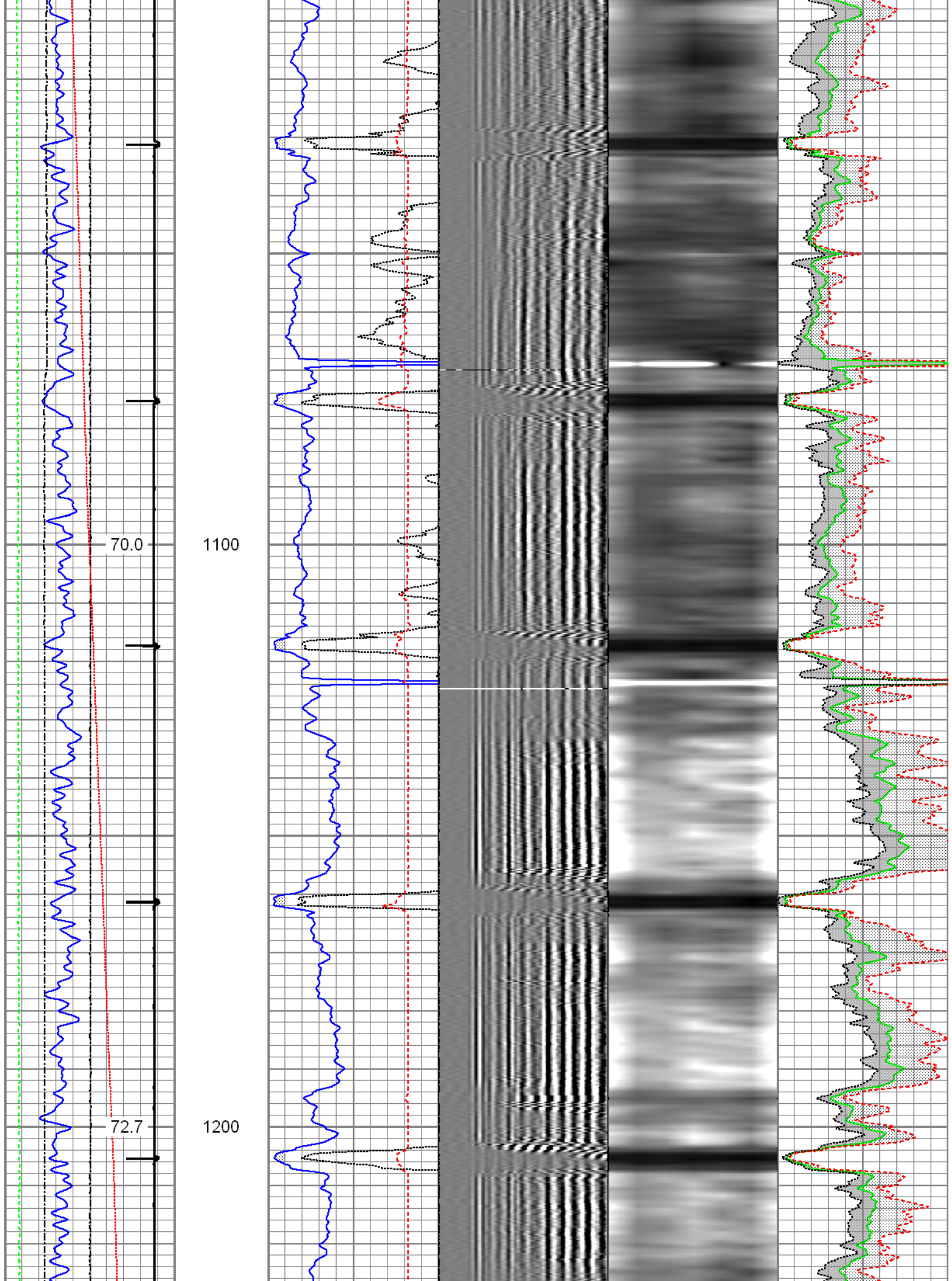


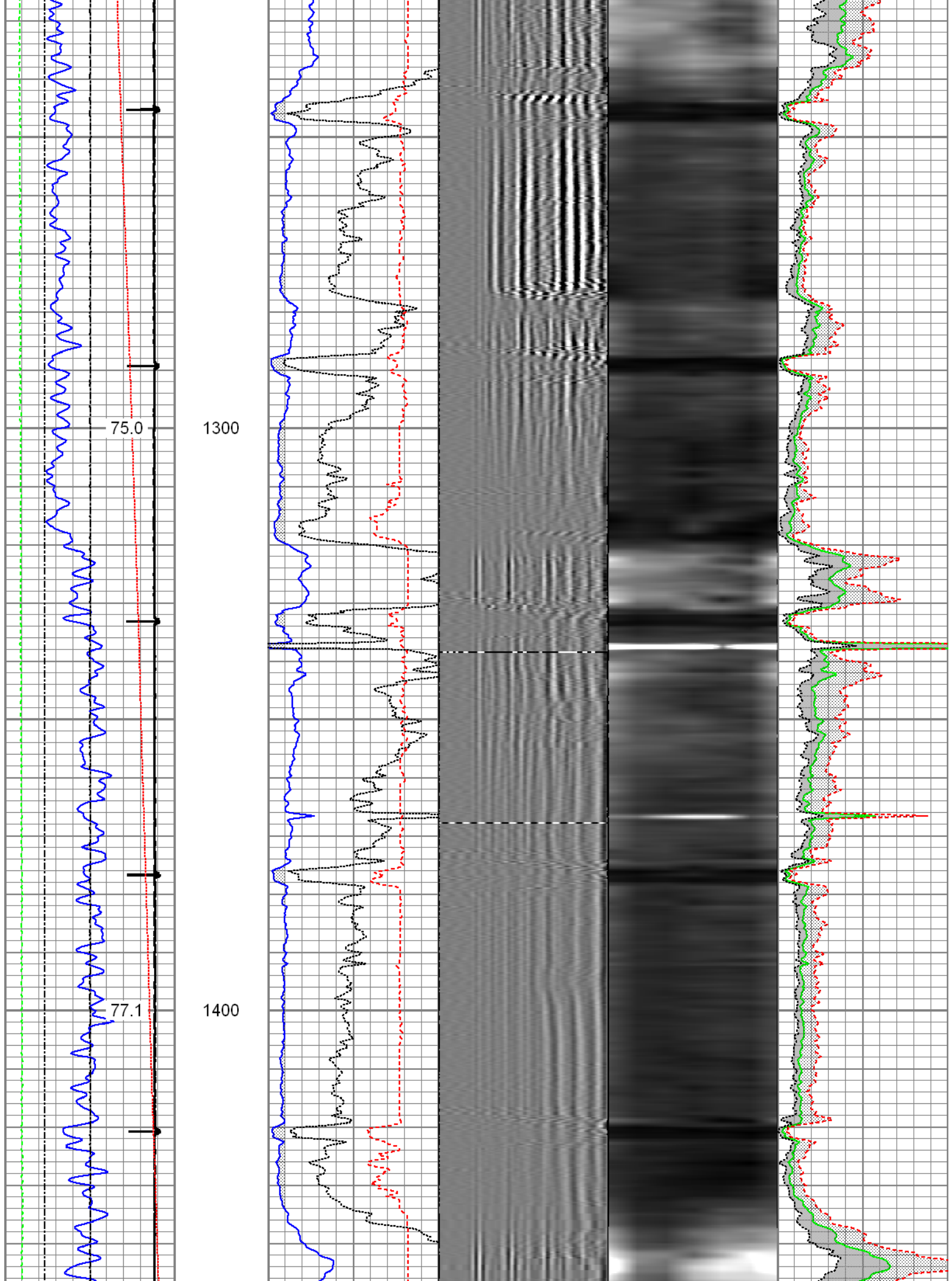


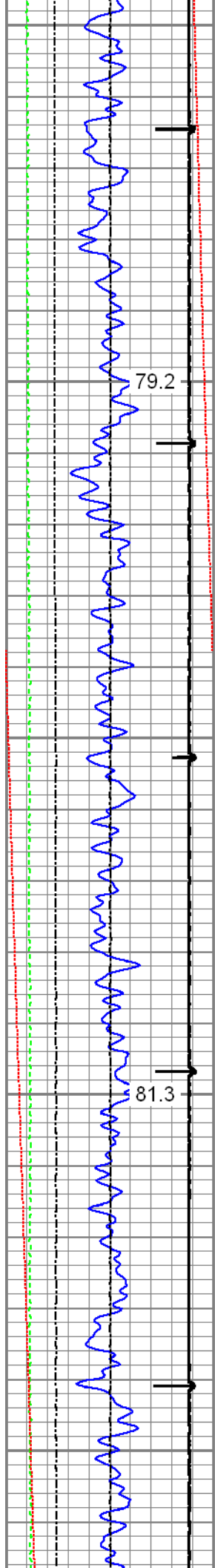






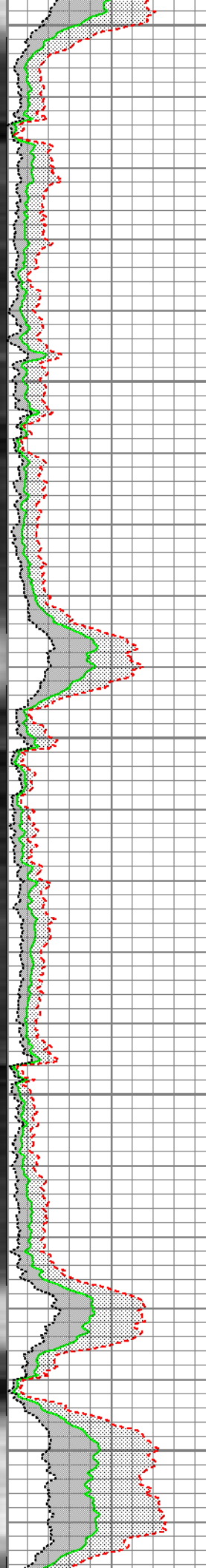
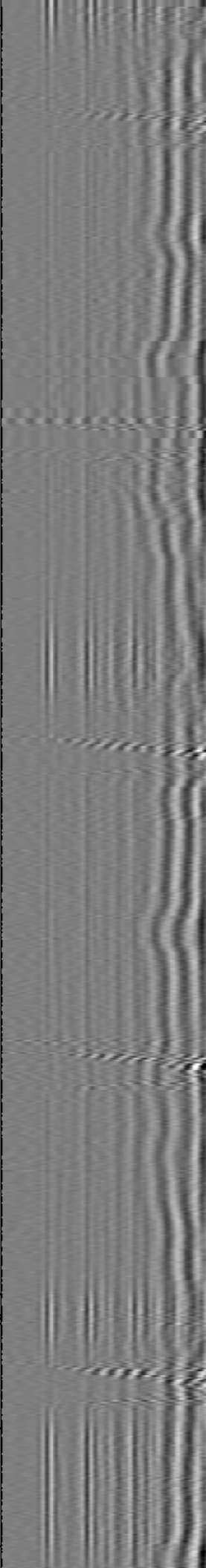
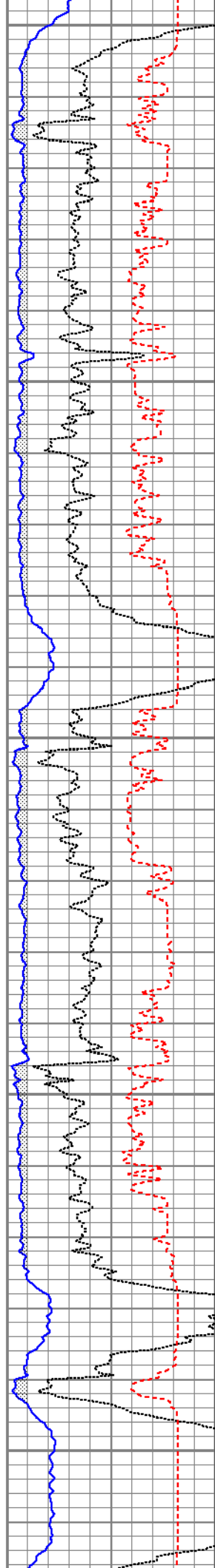


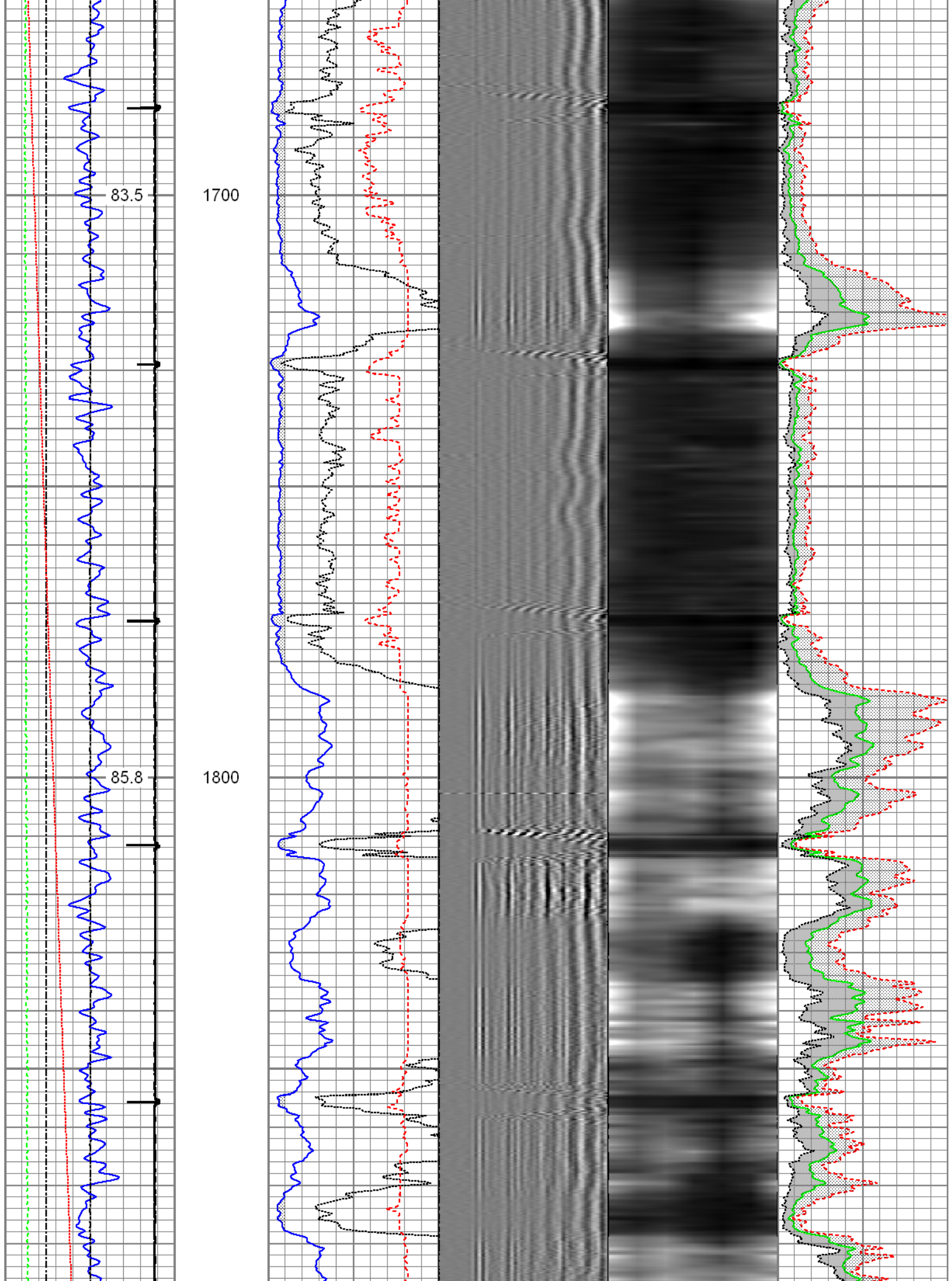


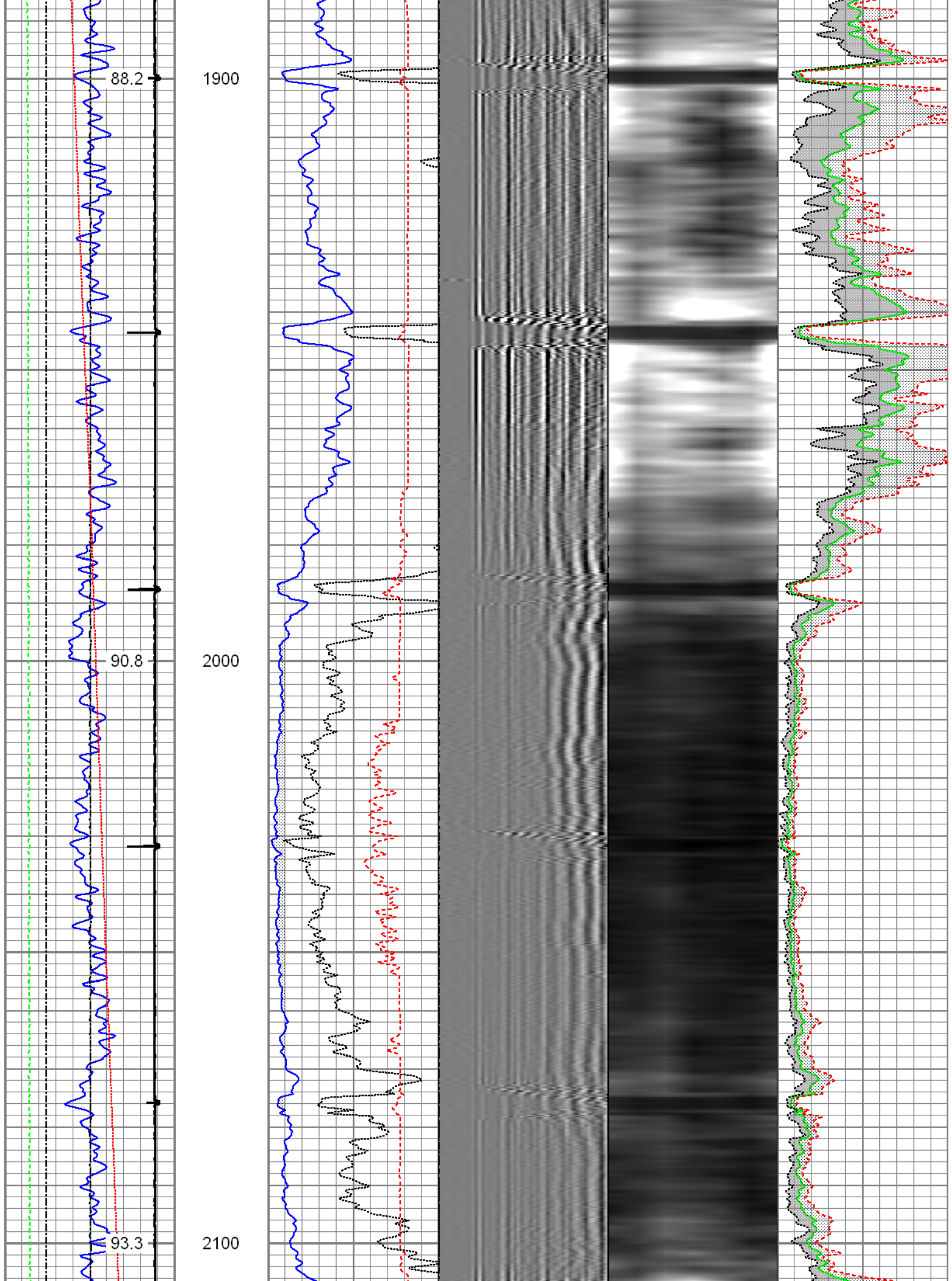


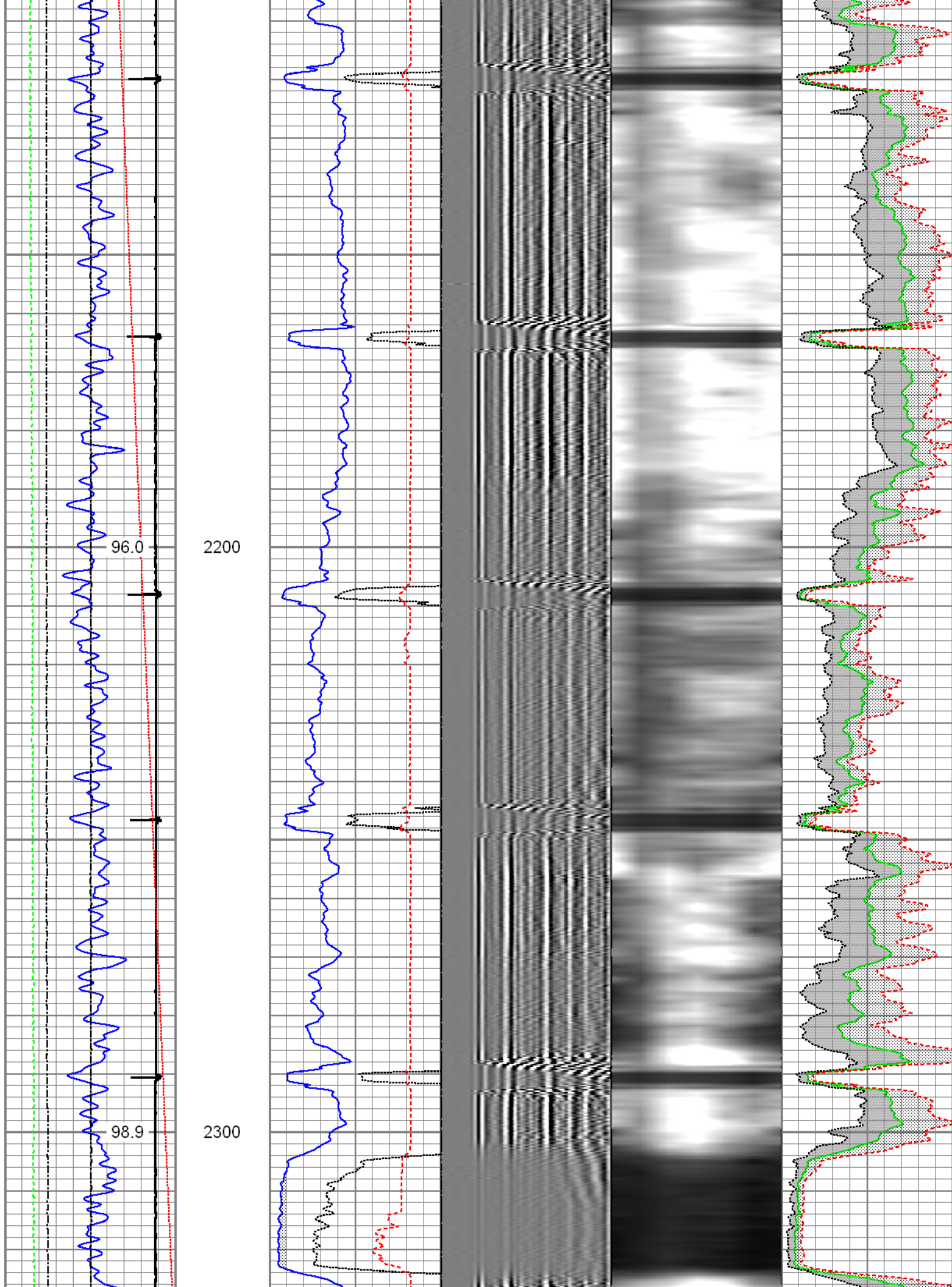
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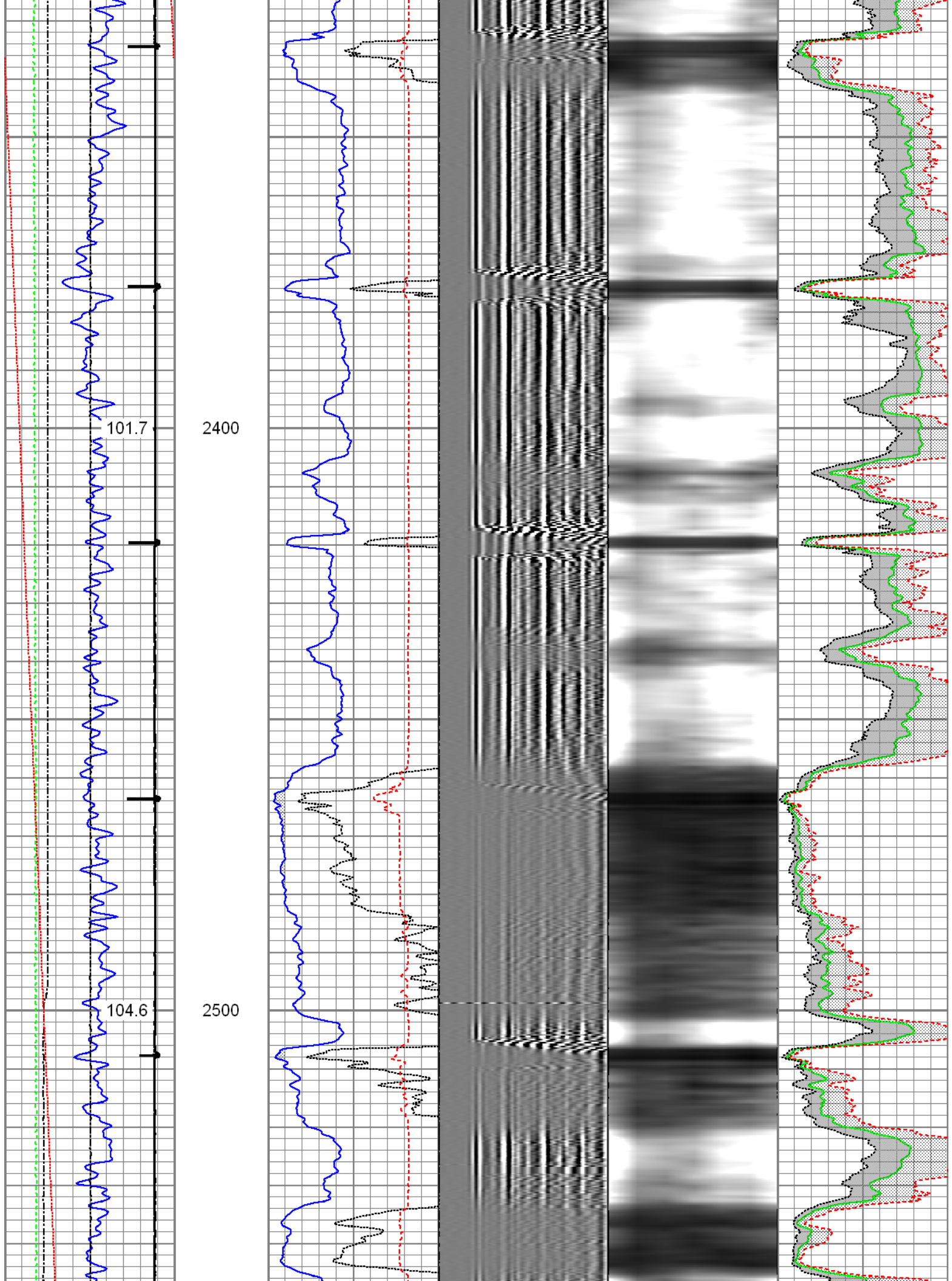
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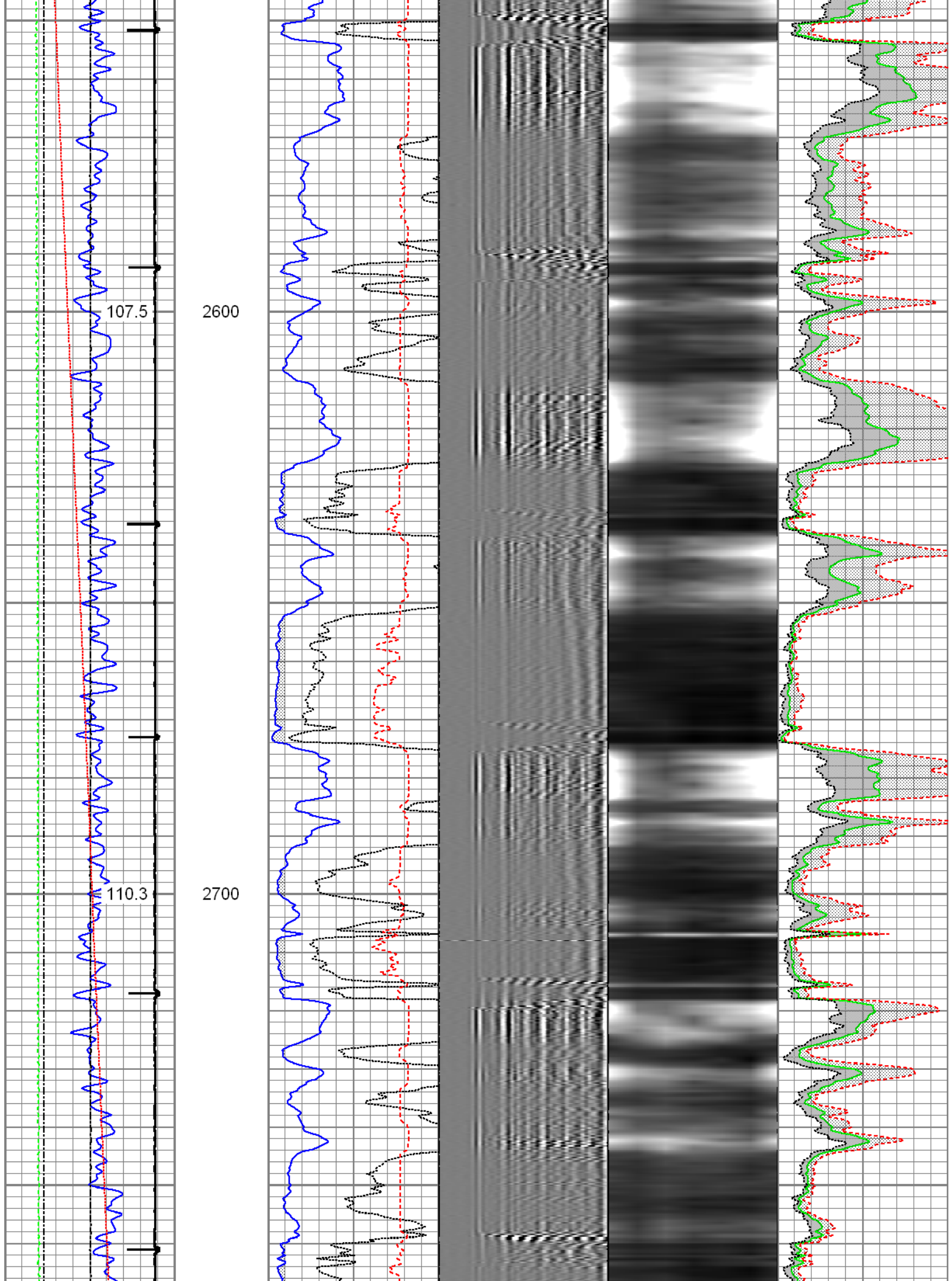


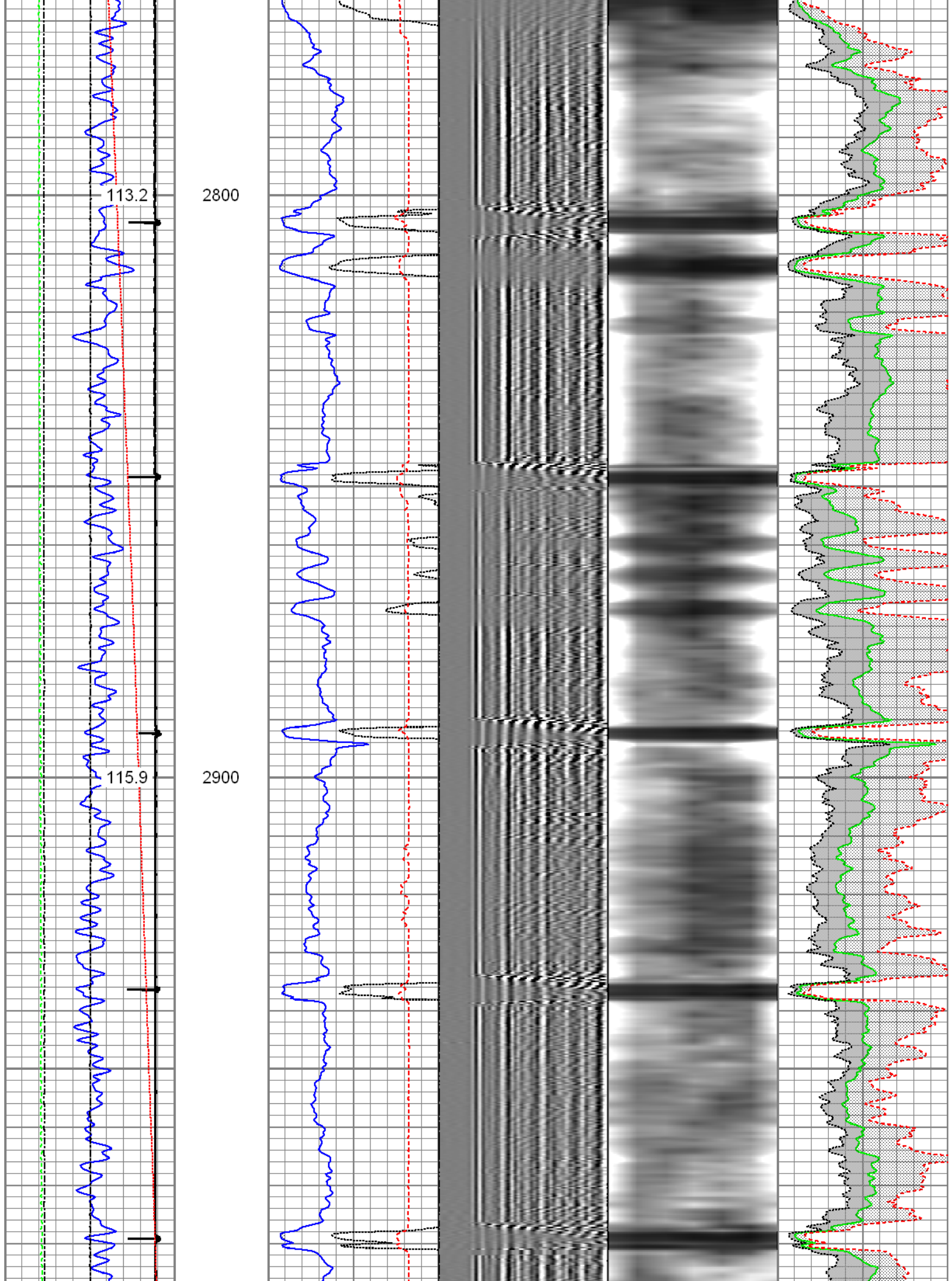


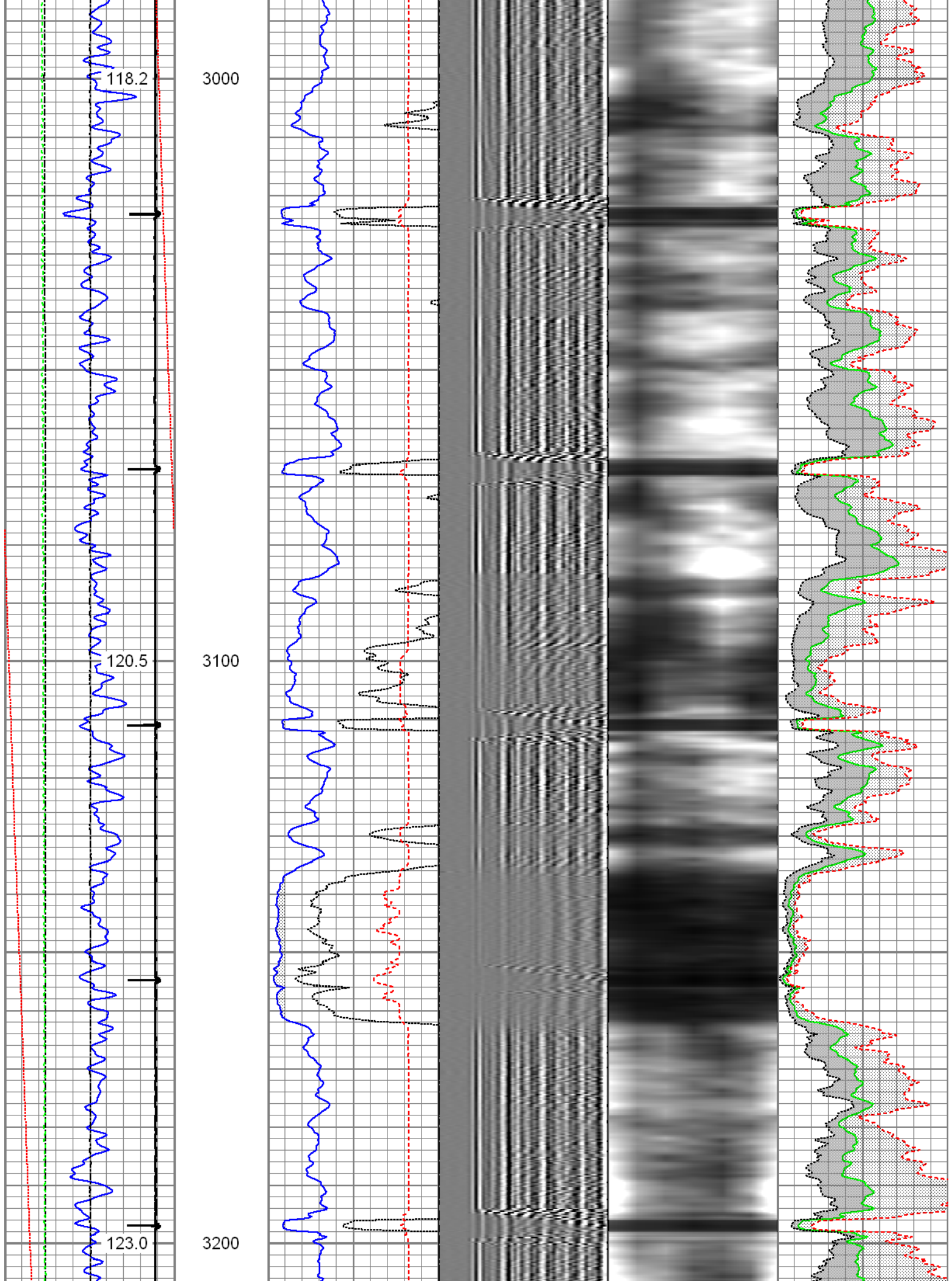


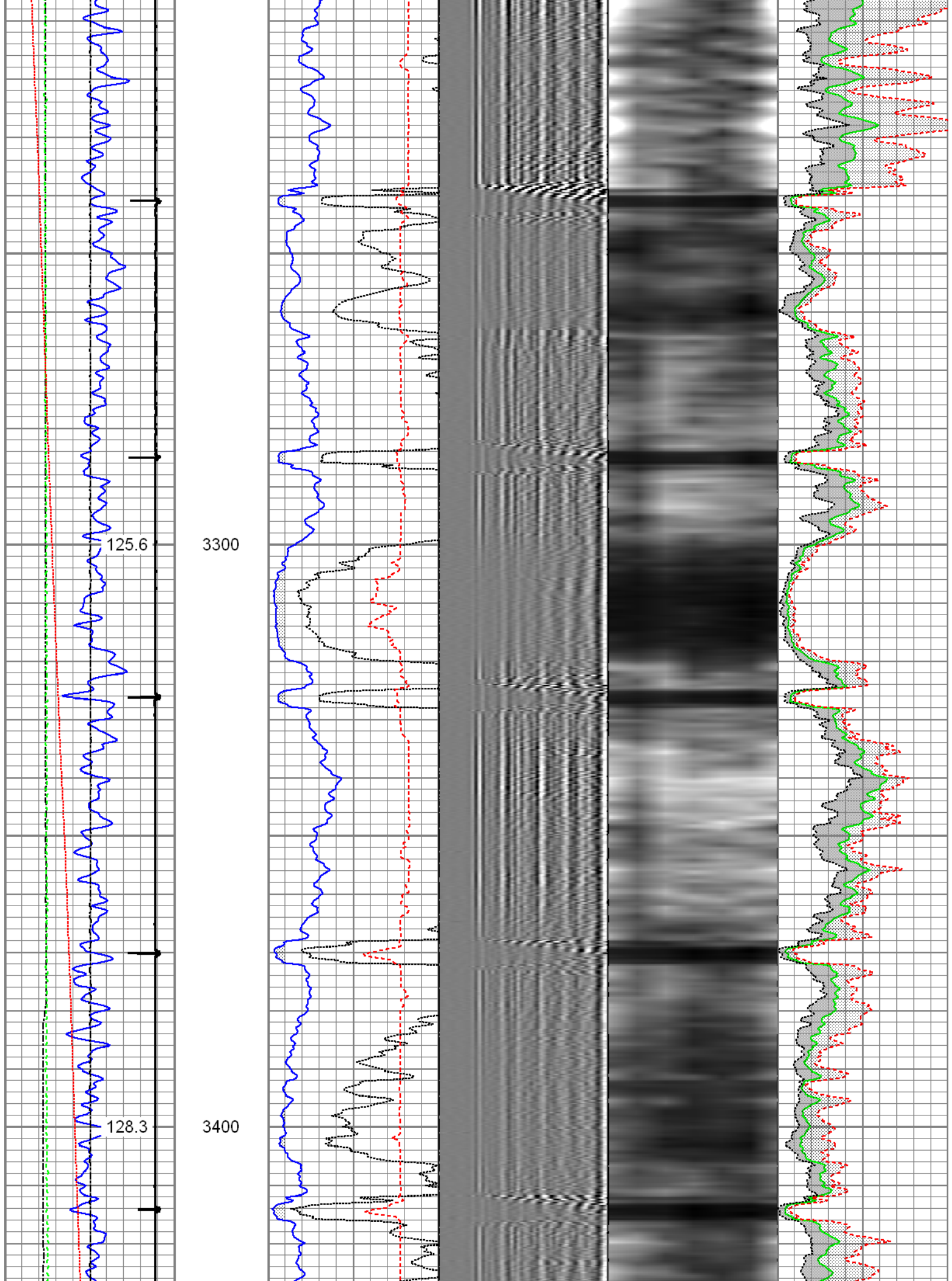


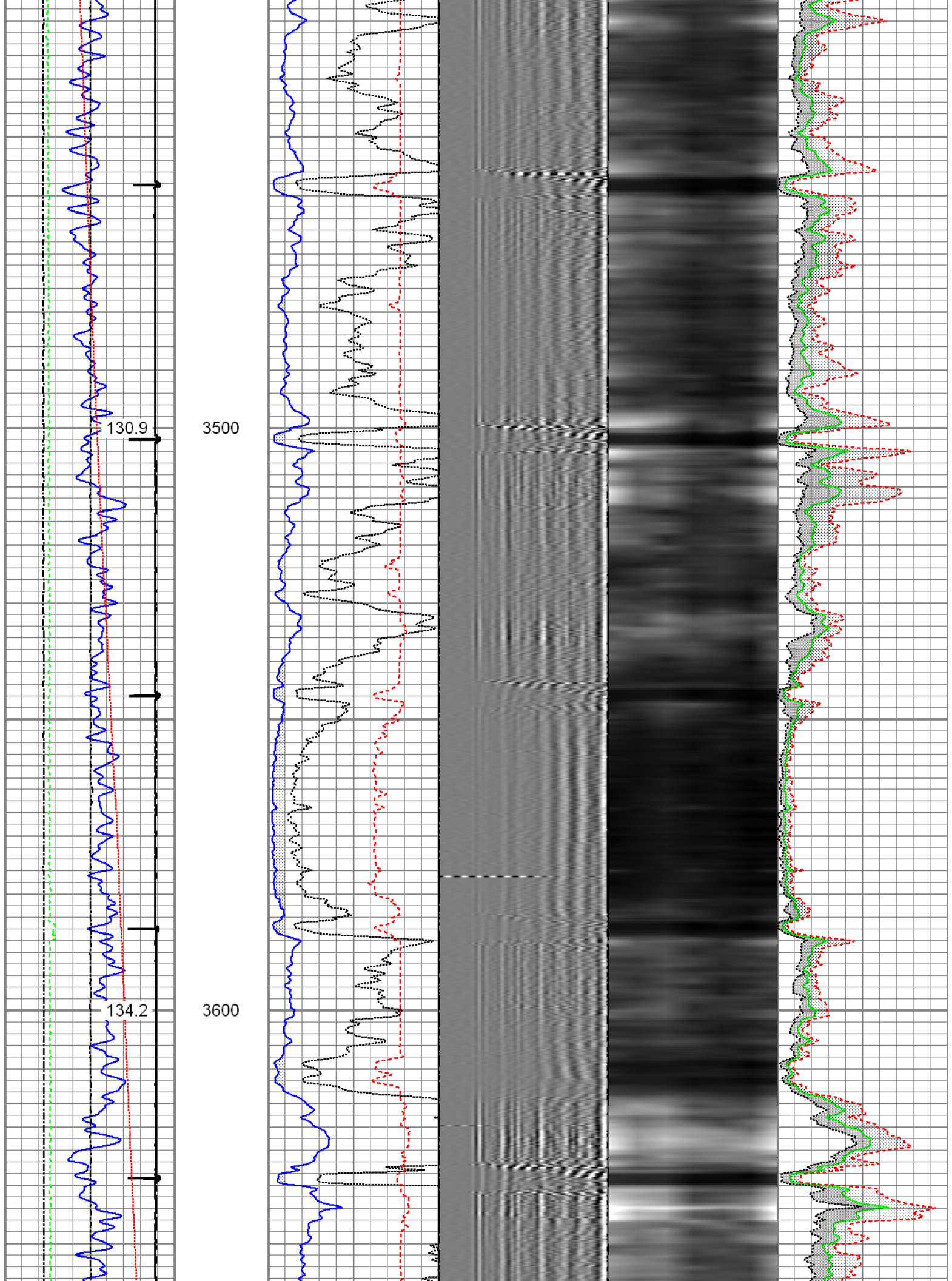


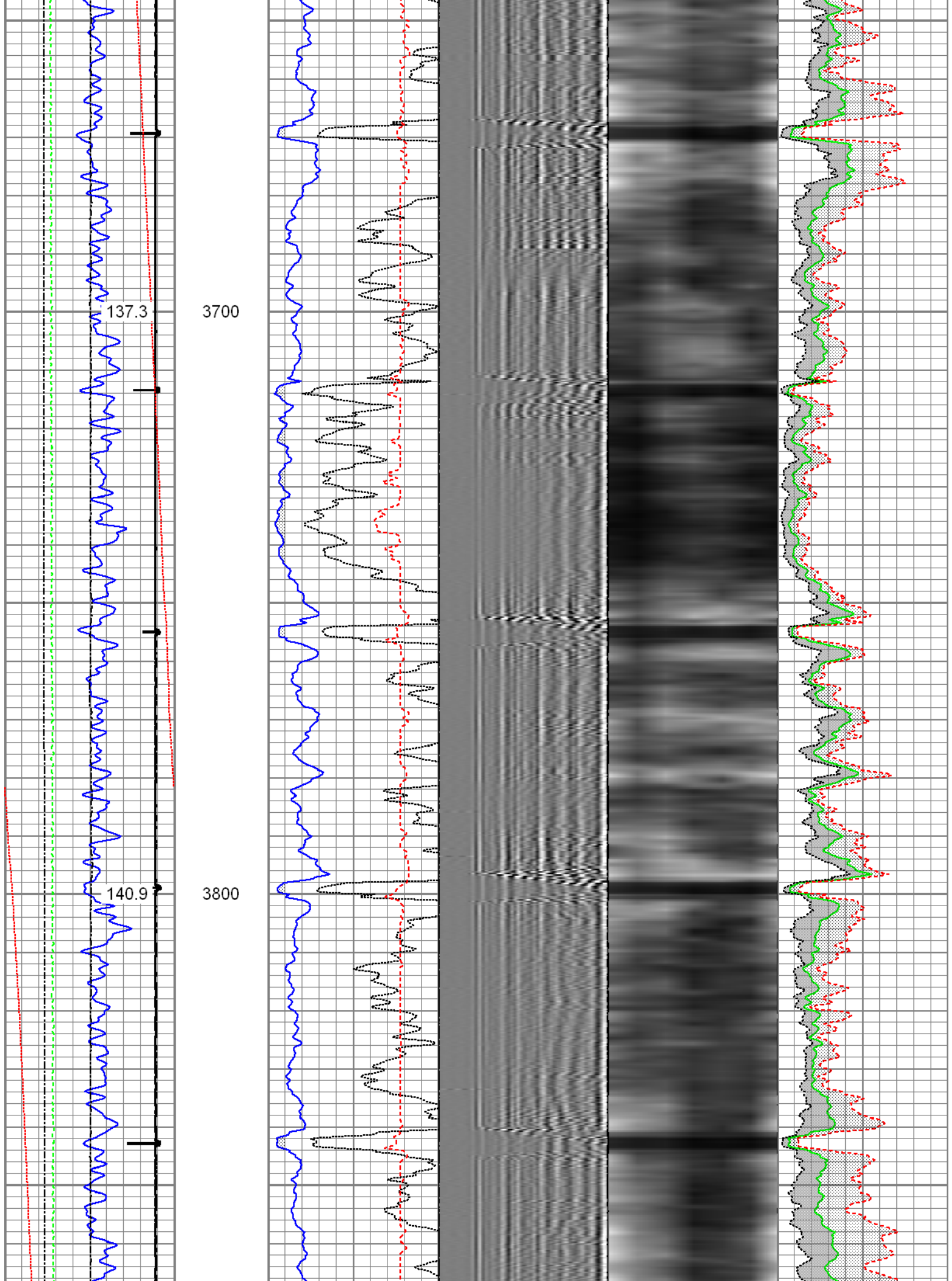


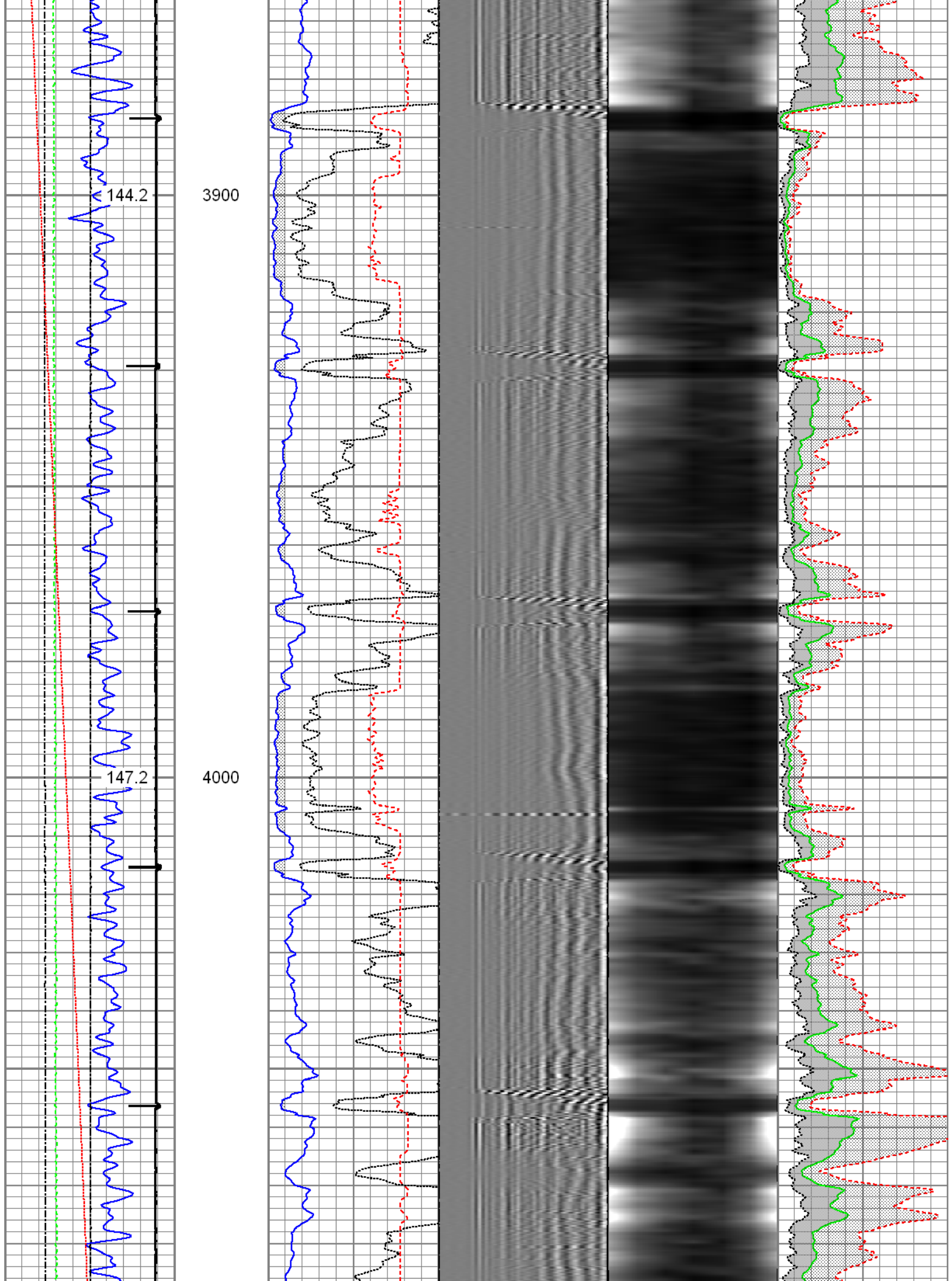


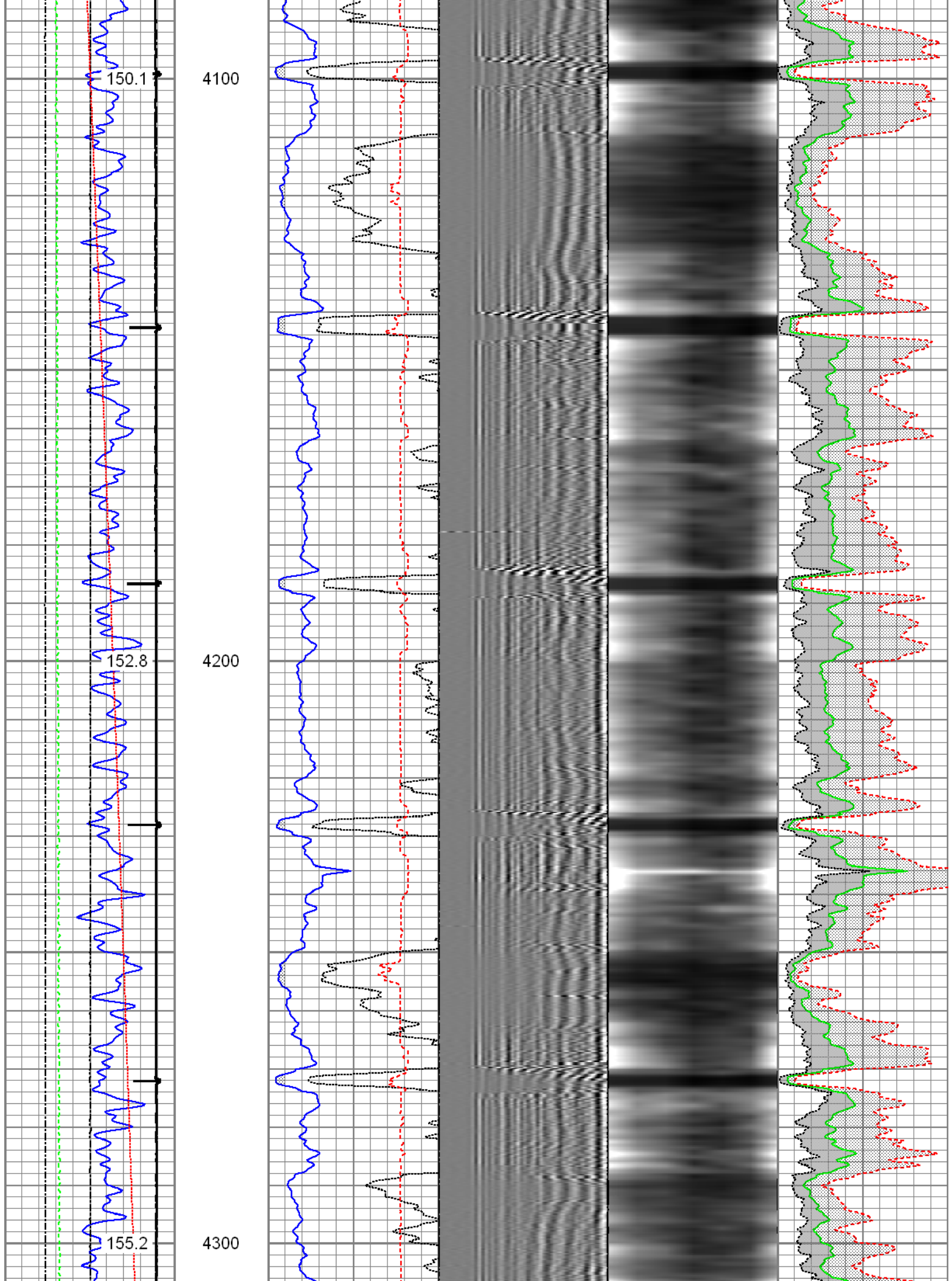


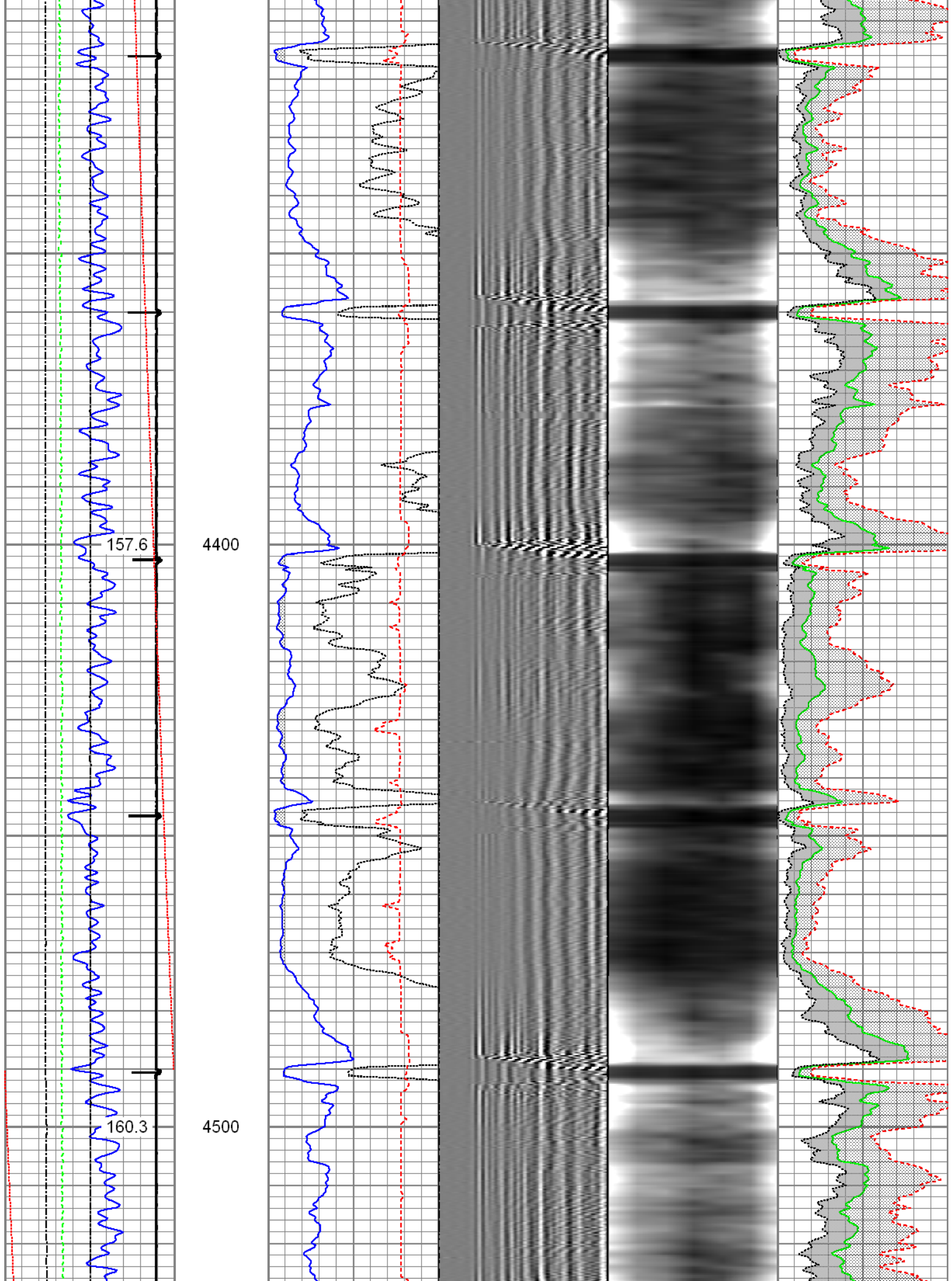


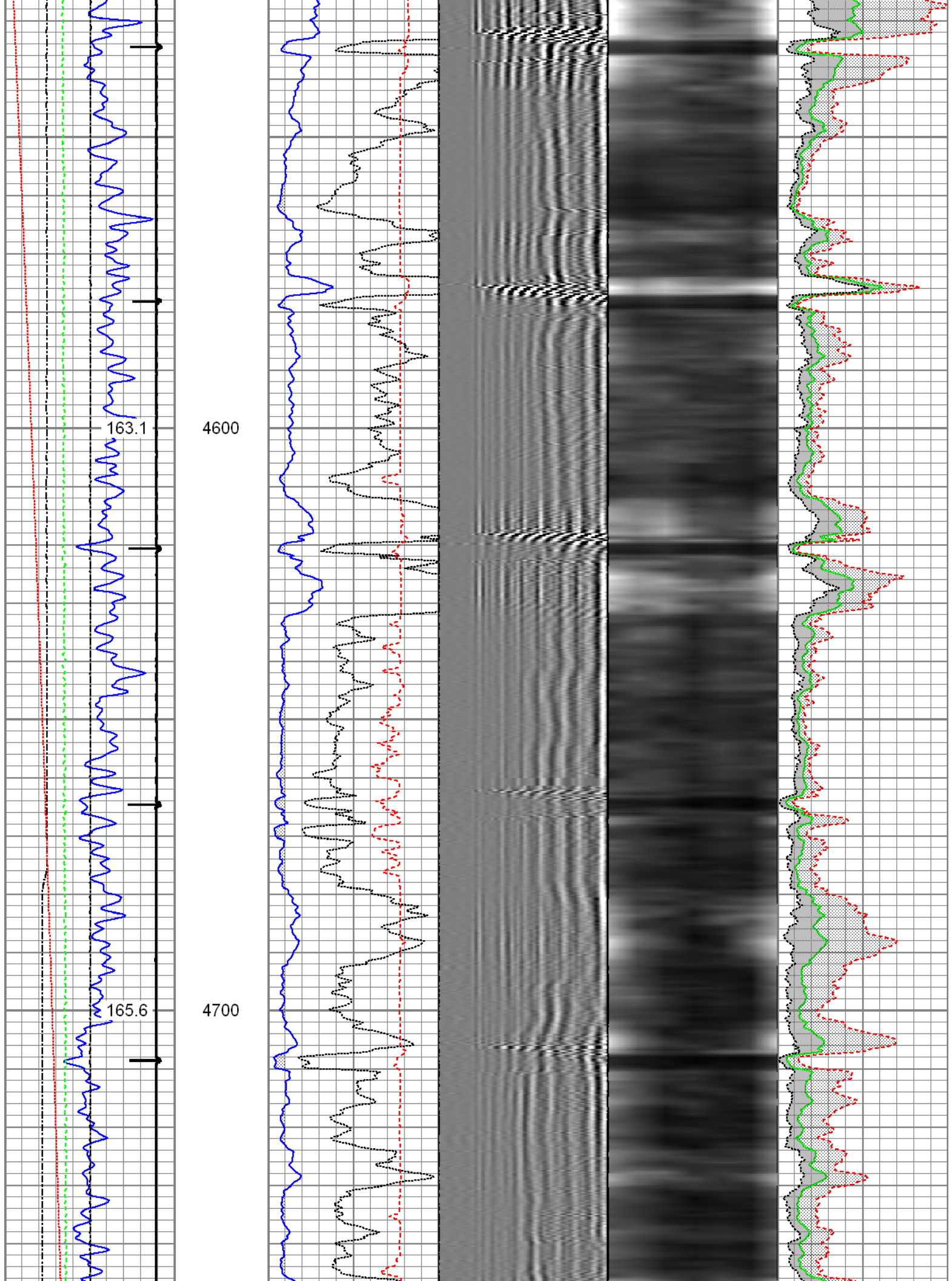


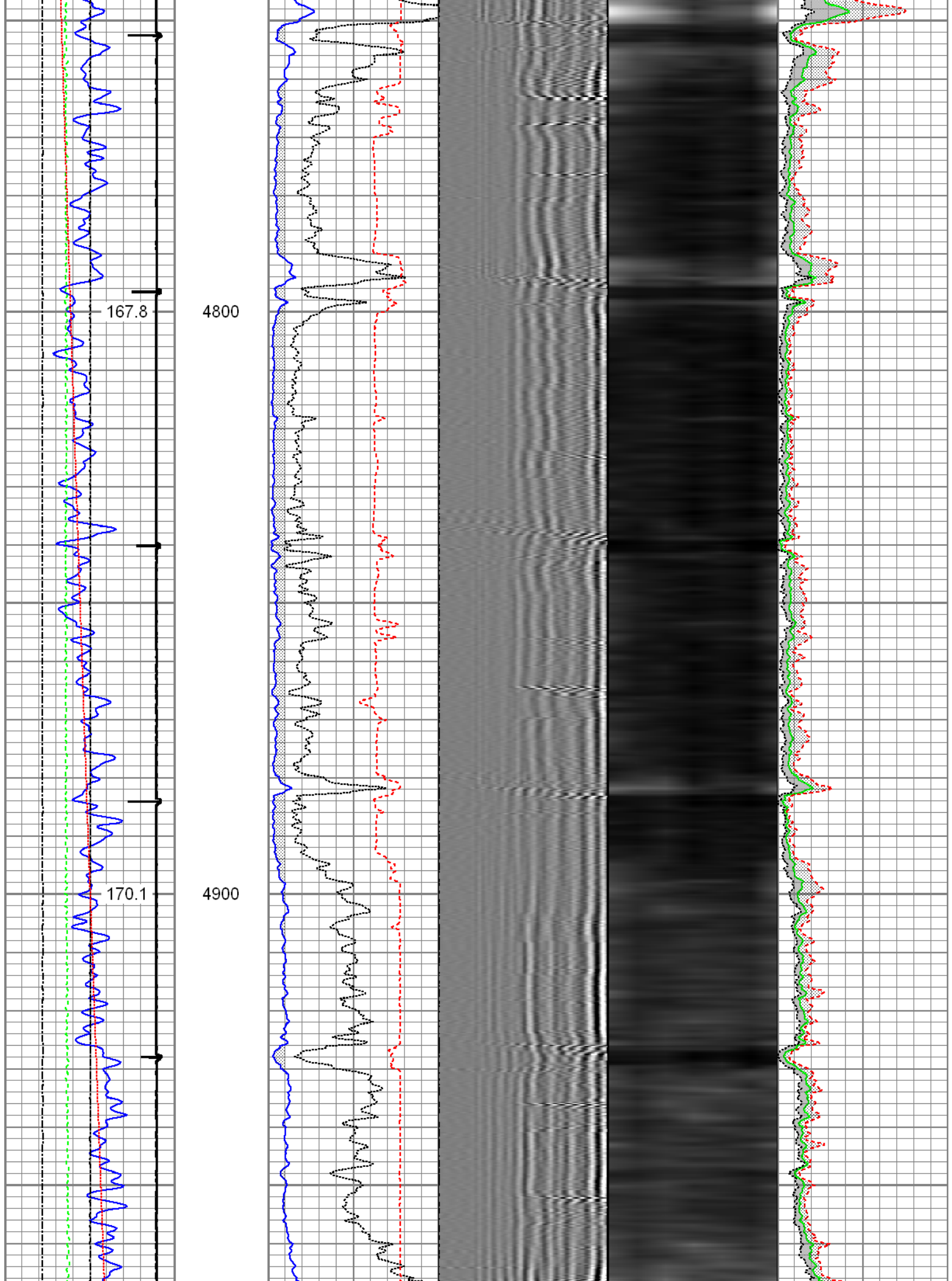


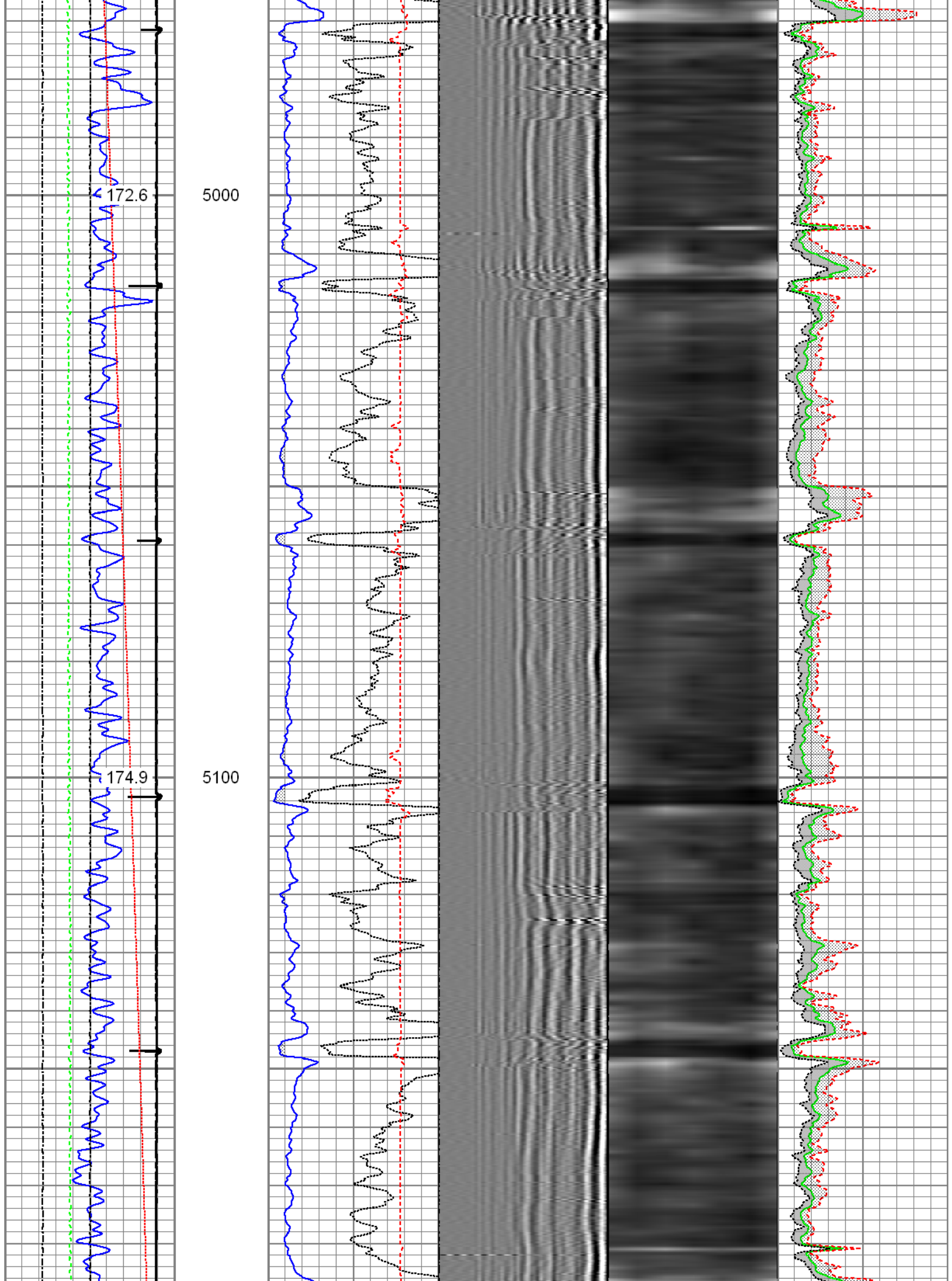


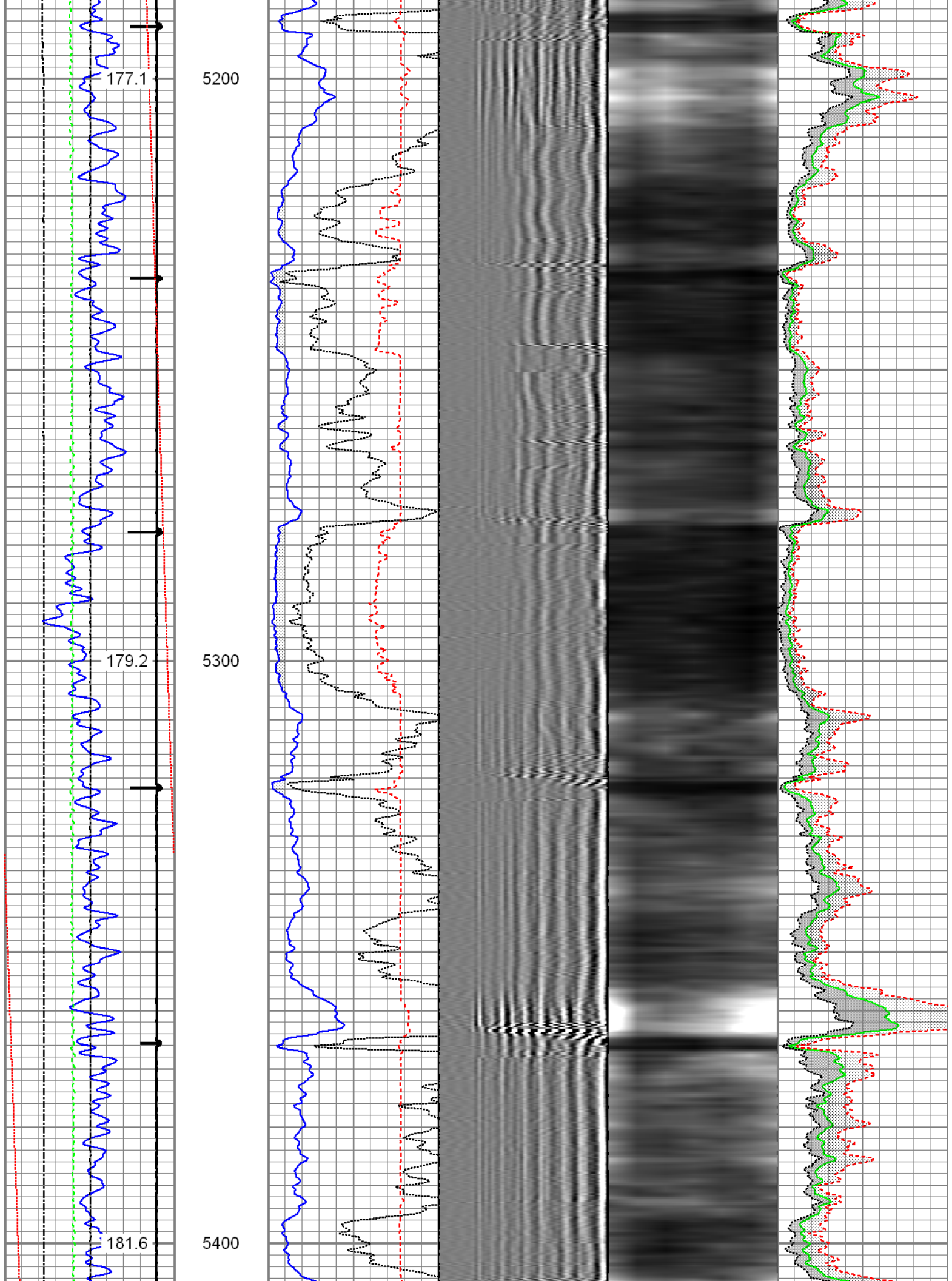


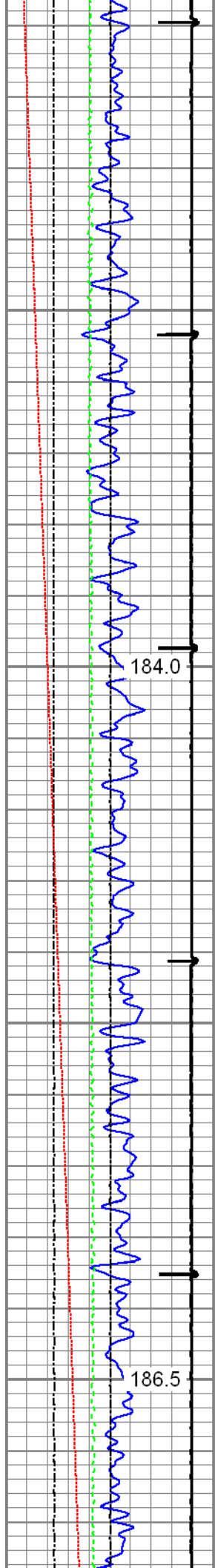






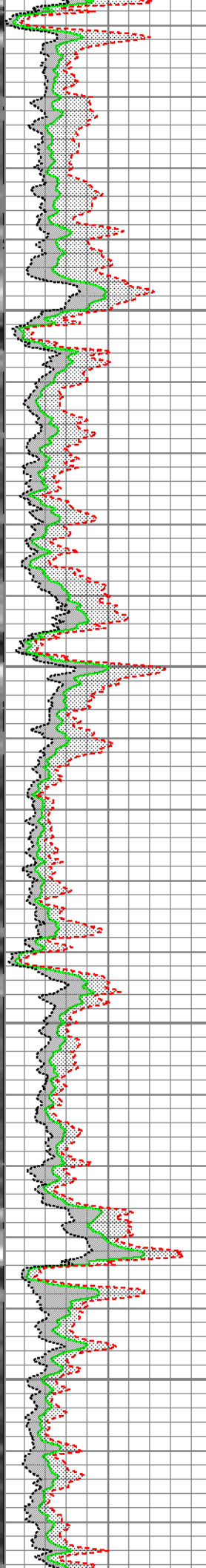
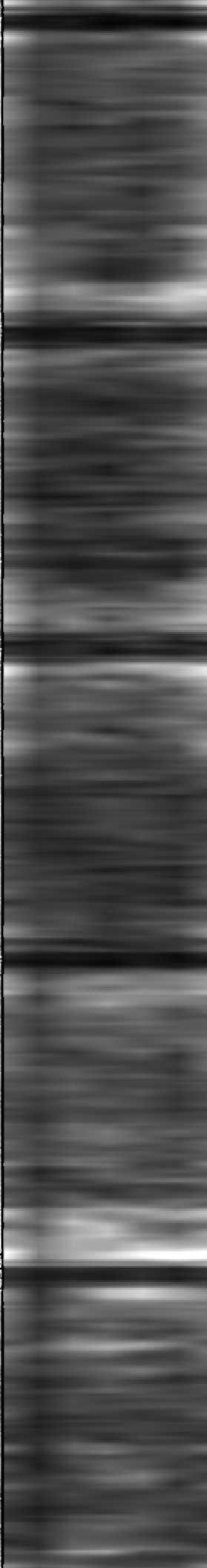
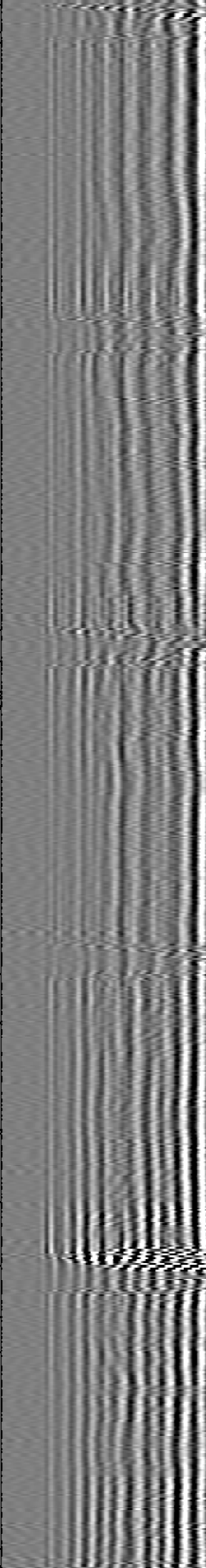
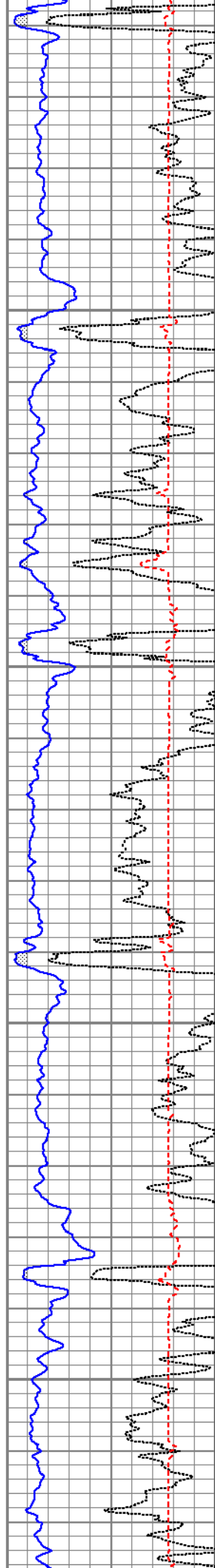


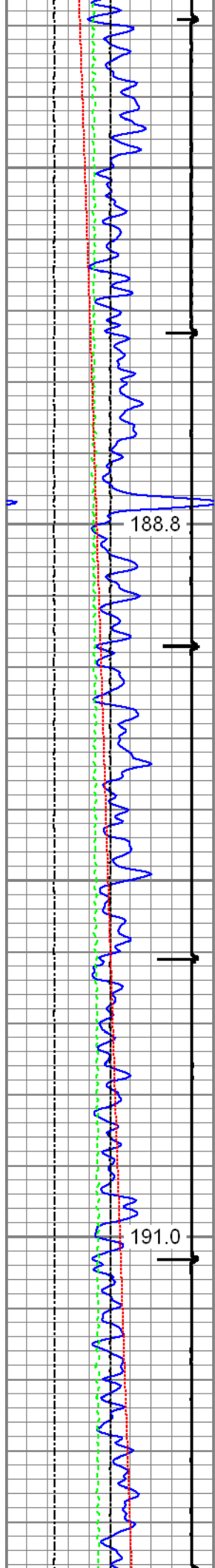




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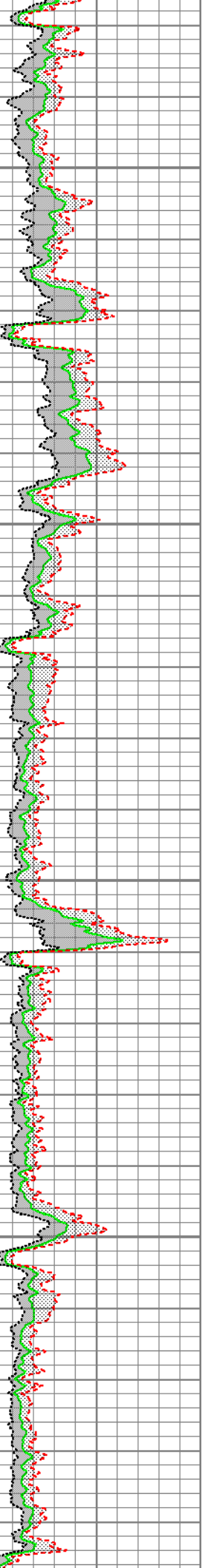
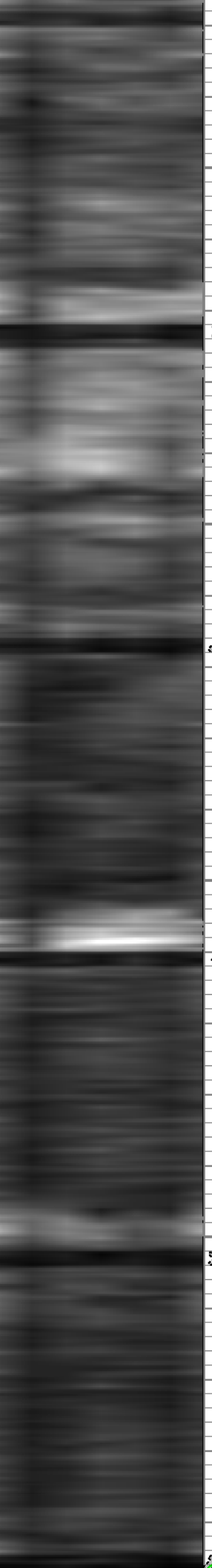
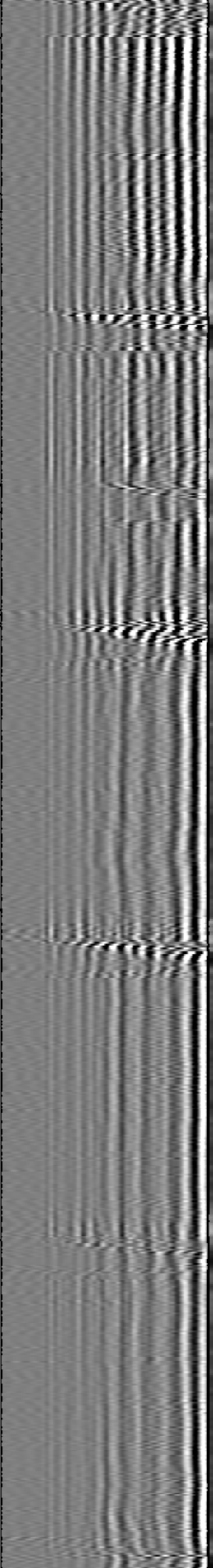
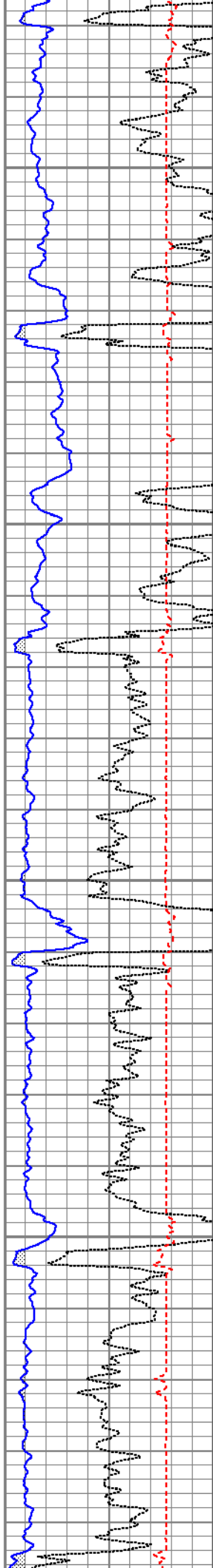
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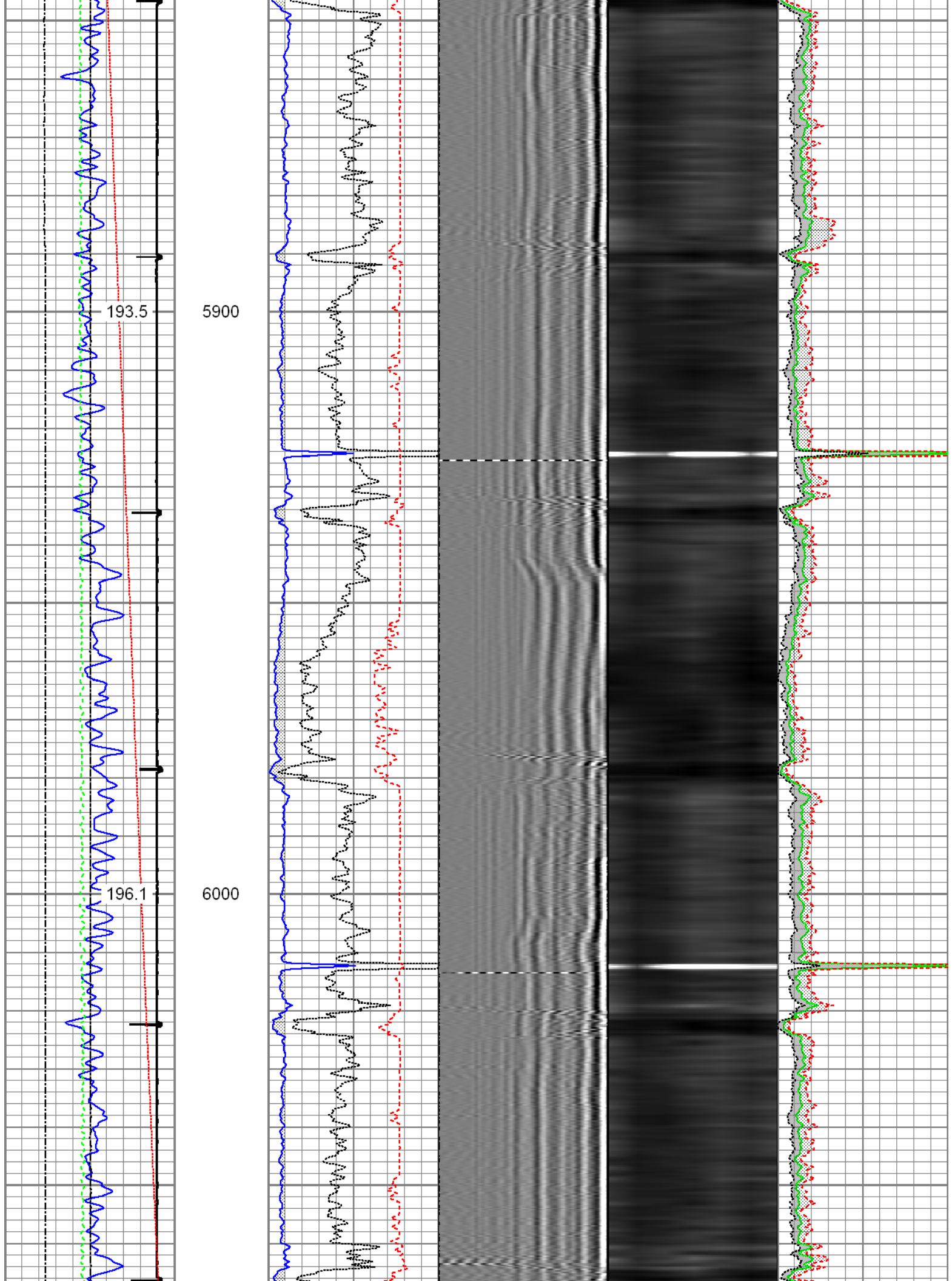


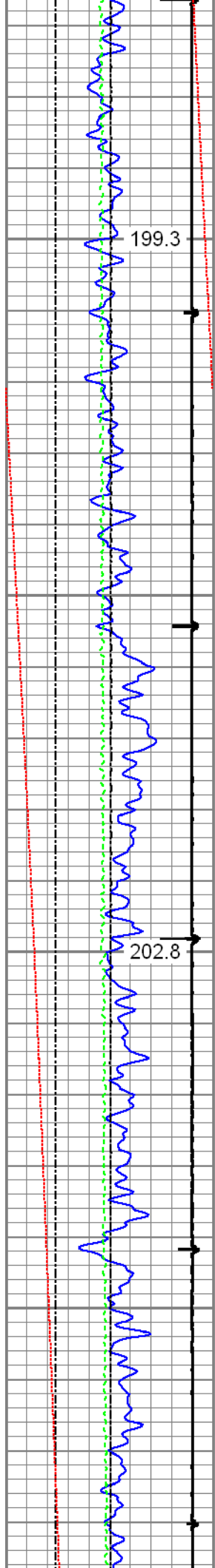


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5800





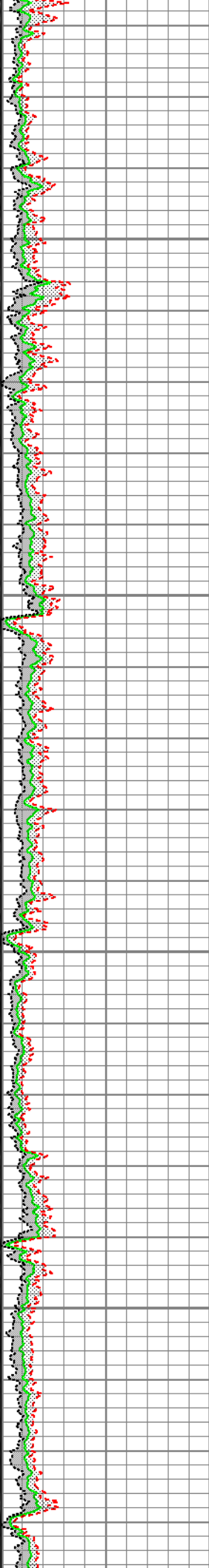
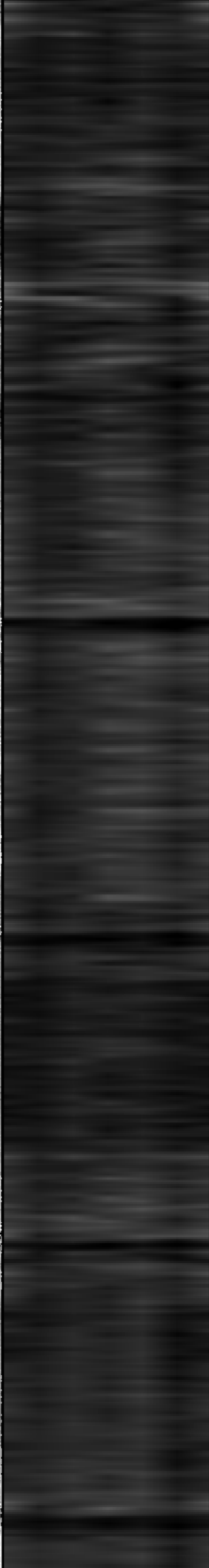
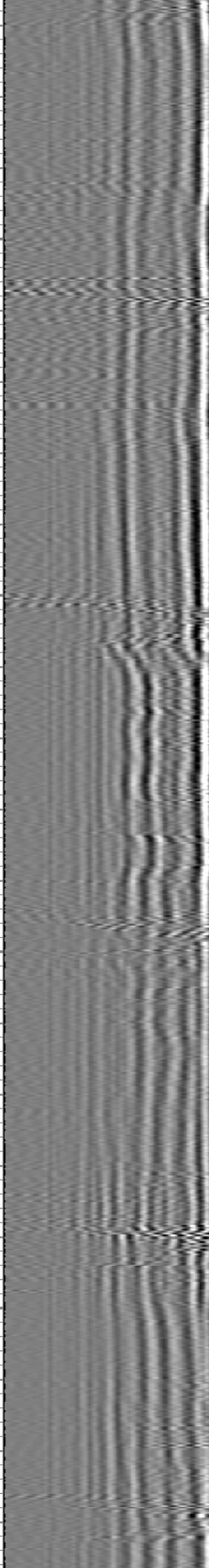
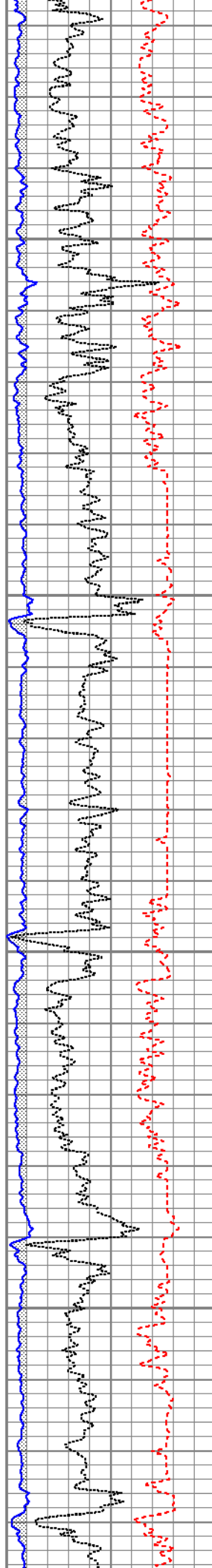


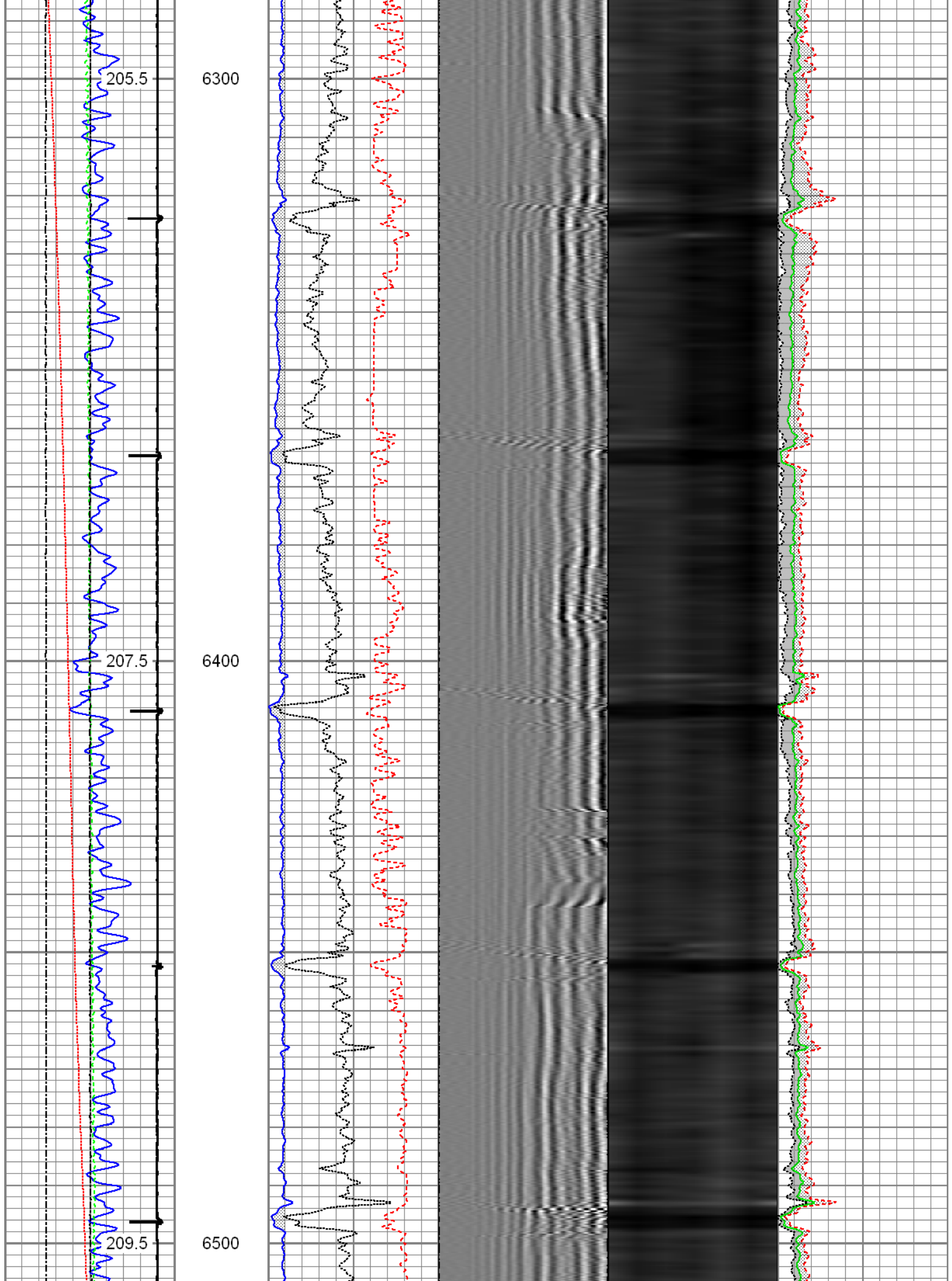
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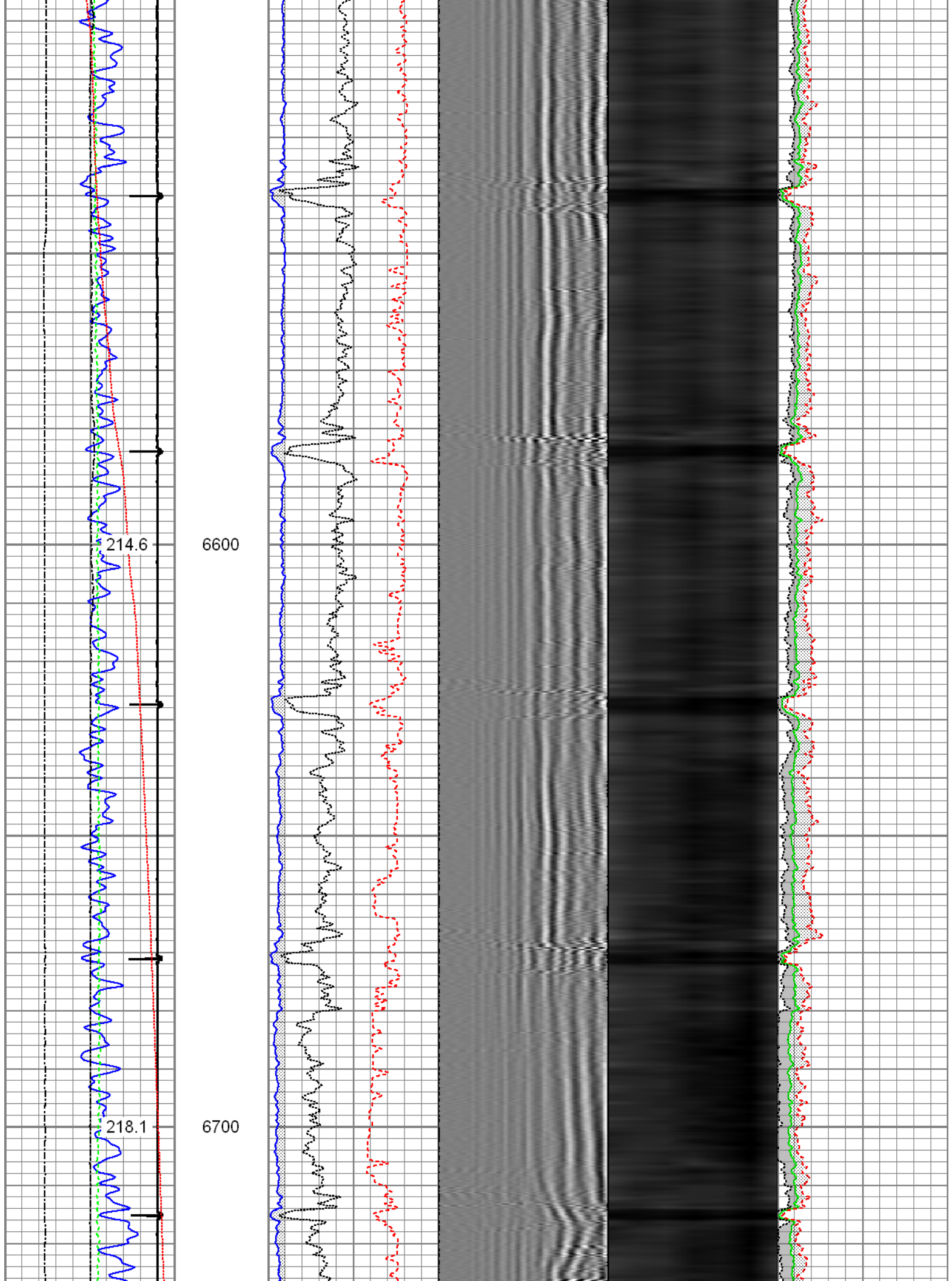
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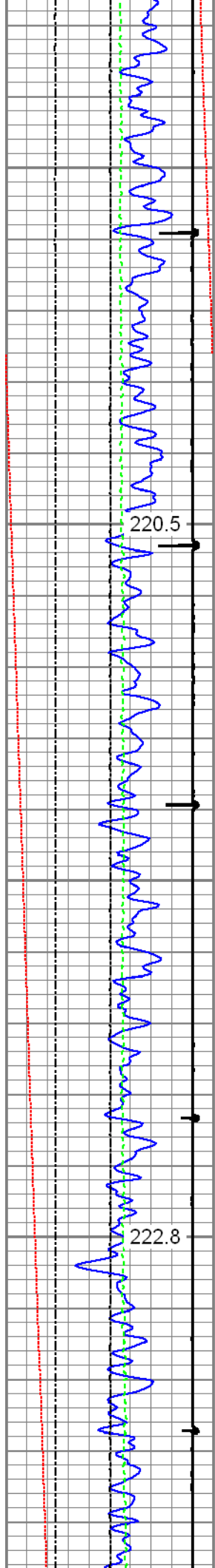
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6200



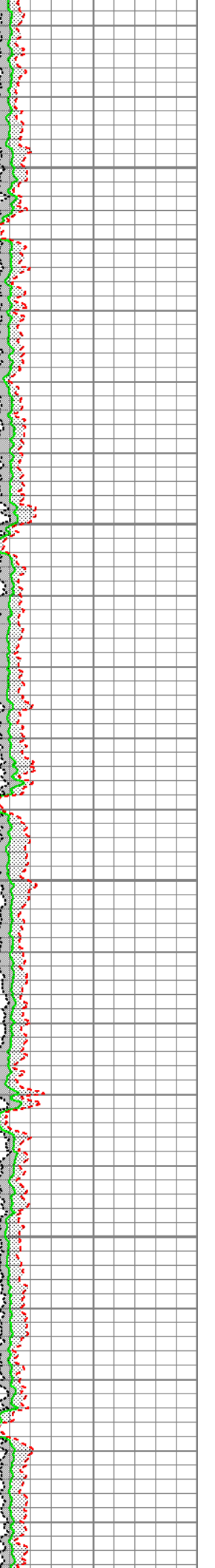
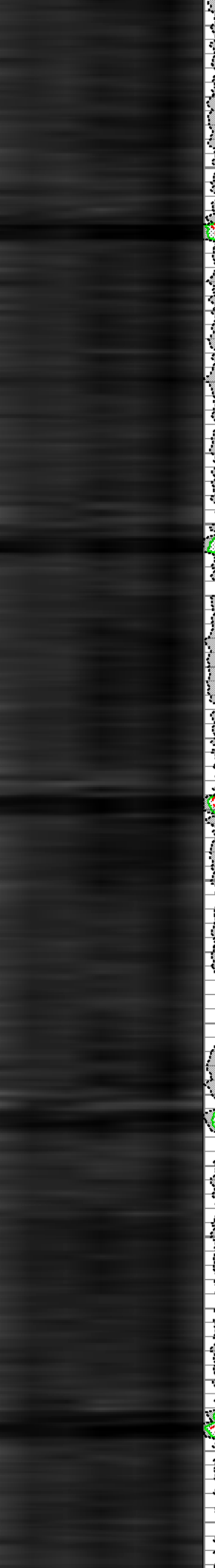
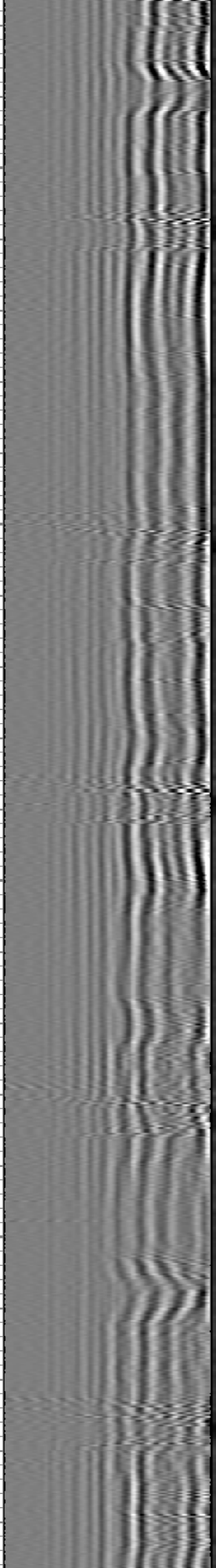
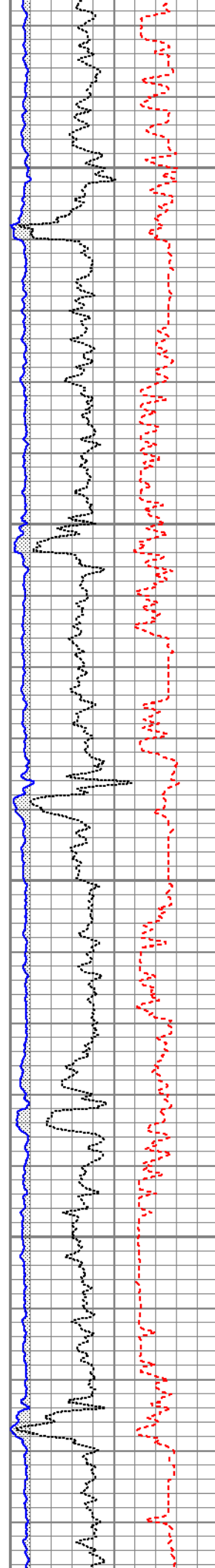






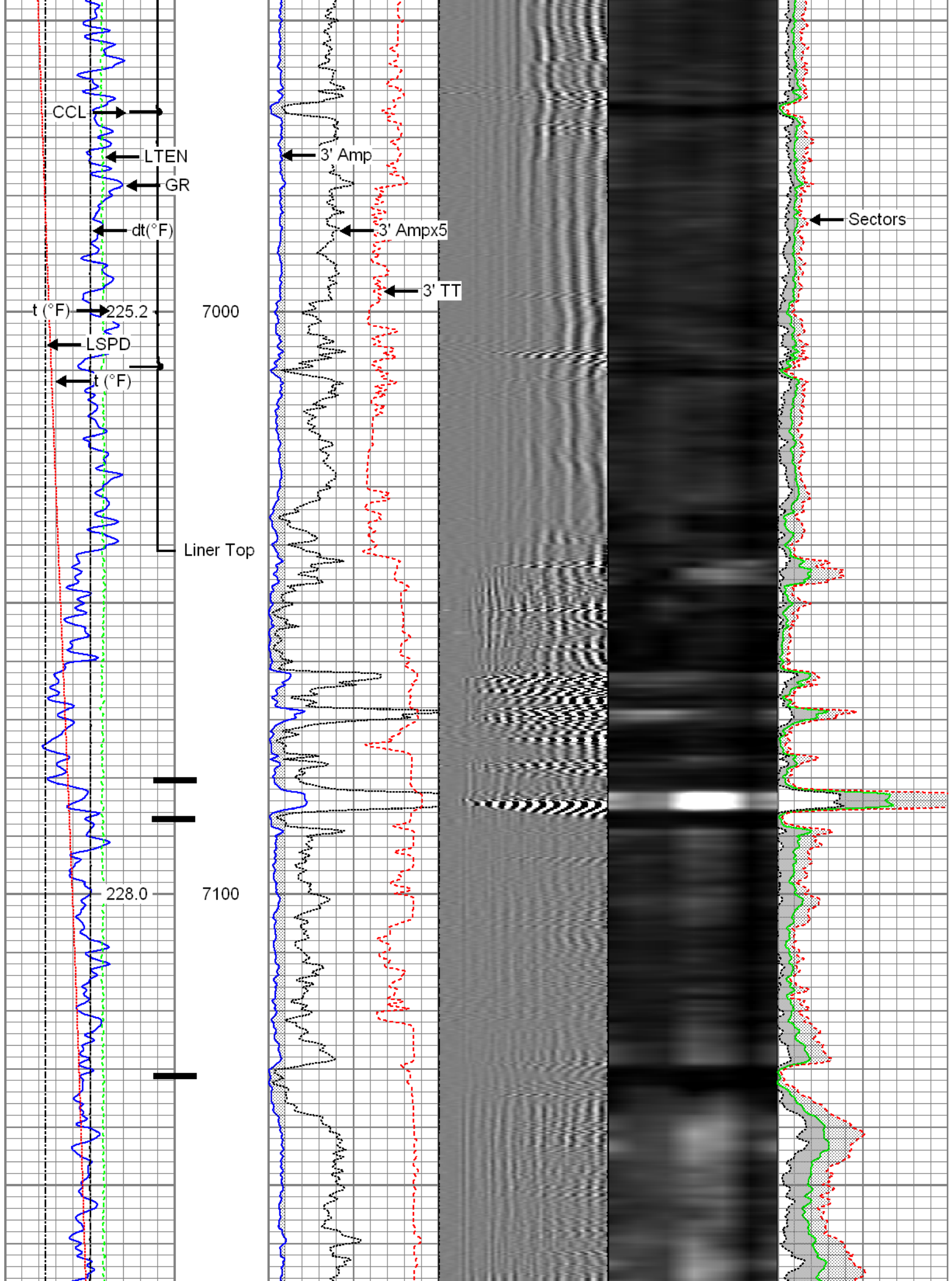
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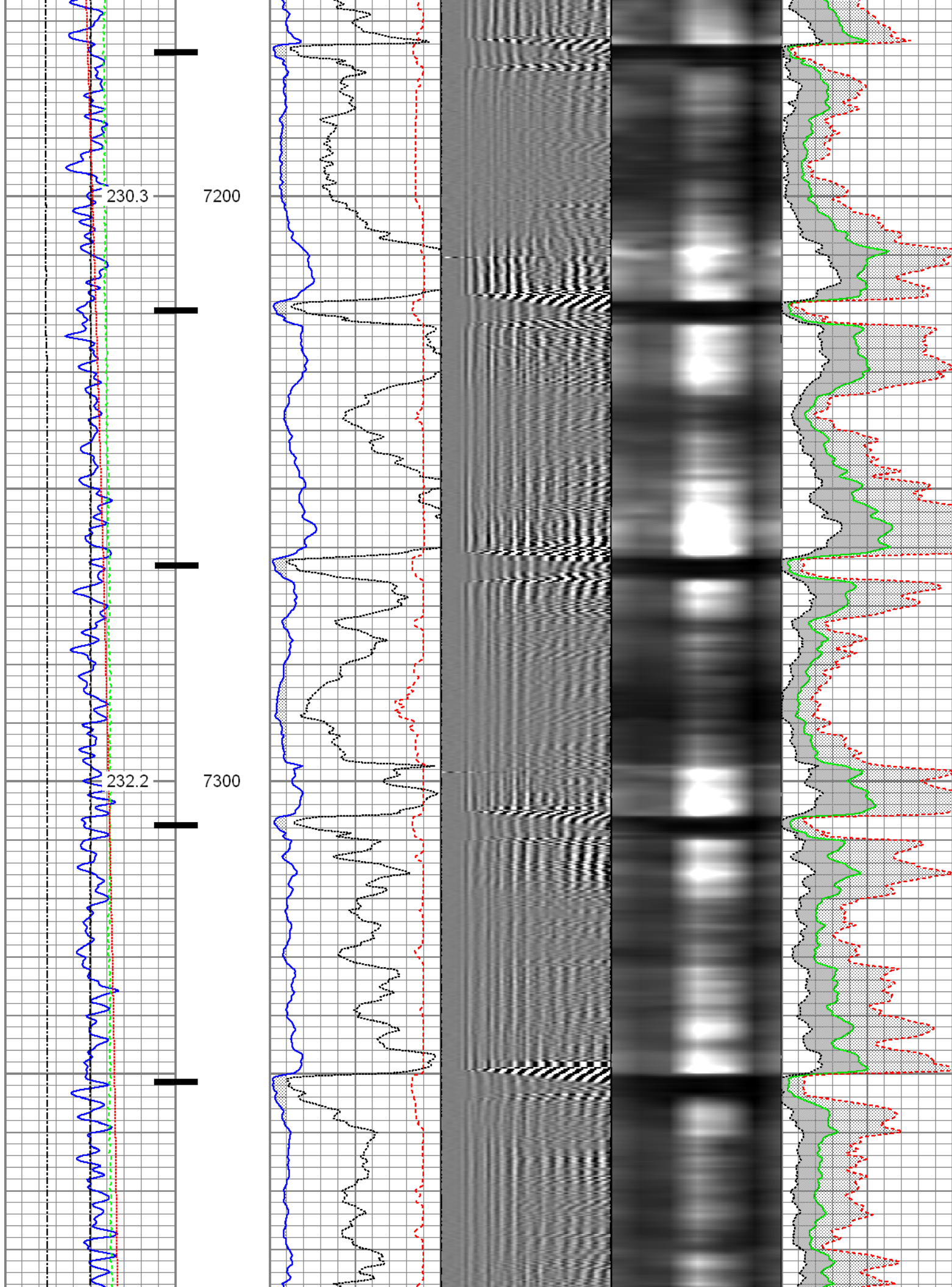
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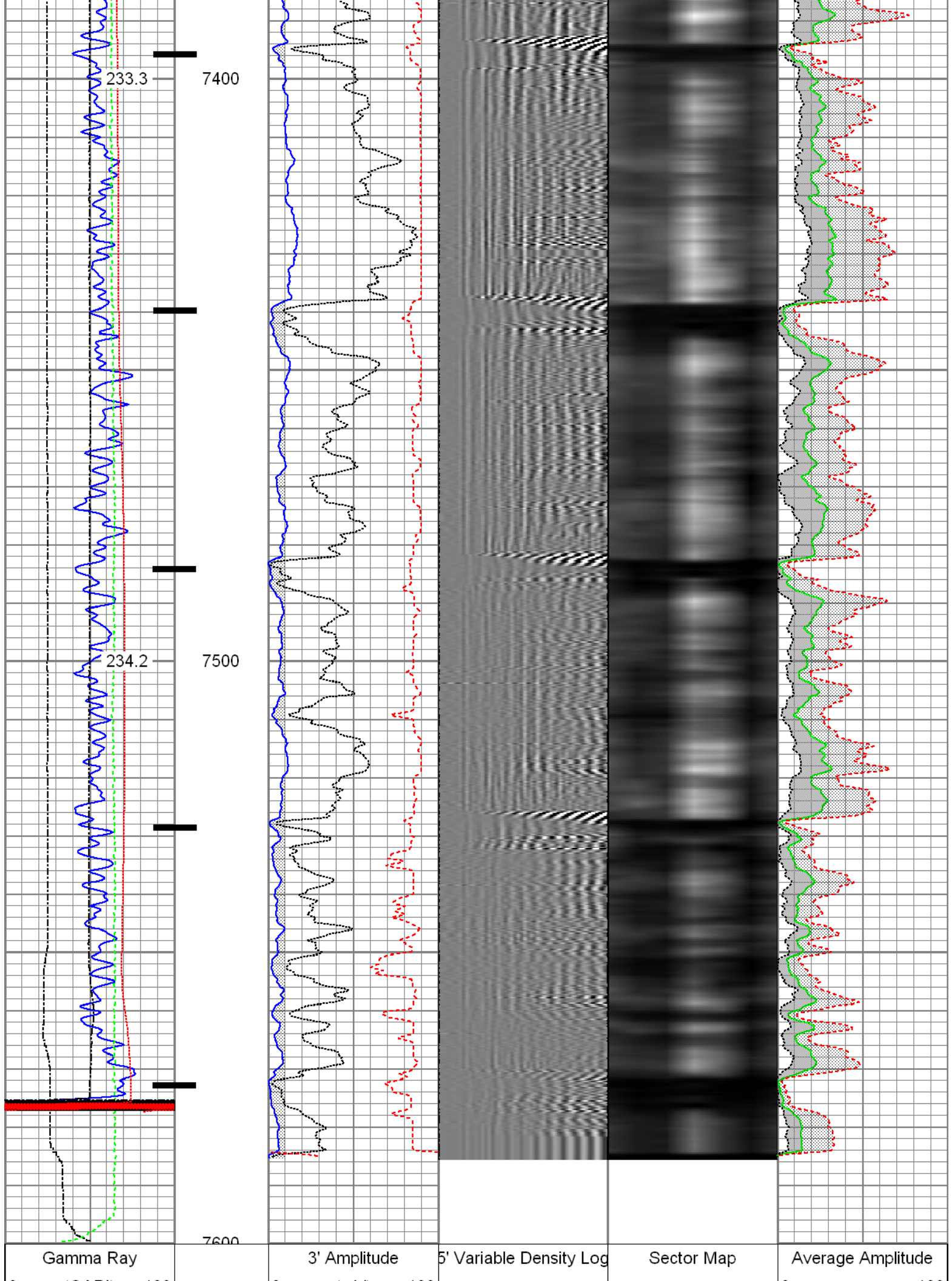


222.8


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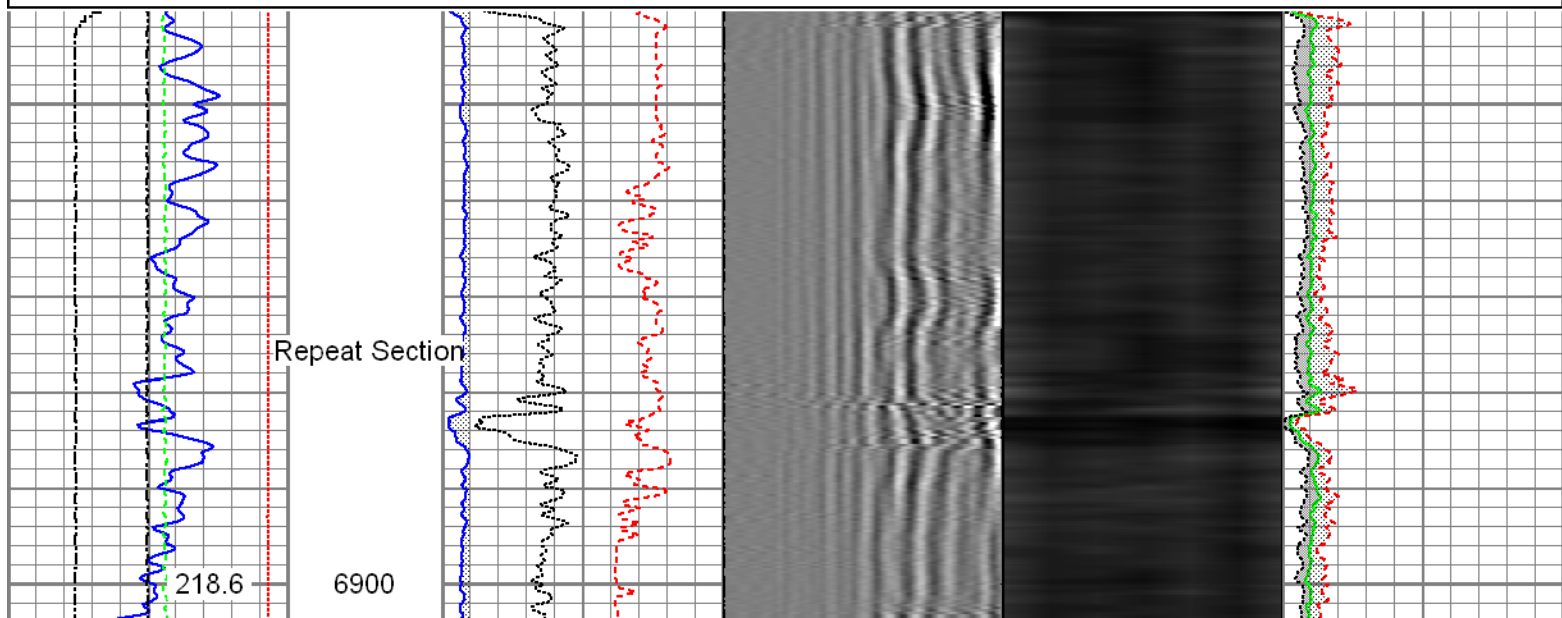


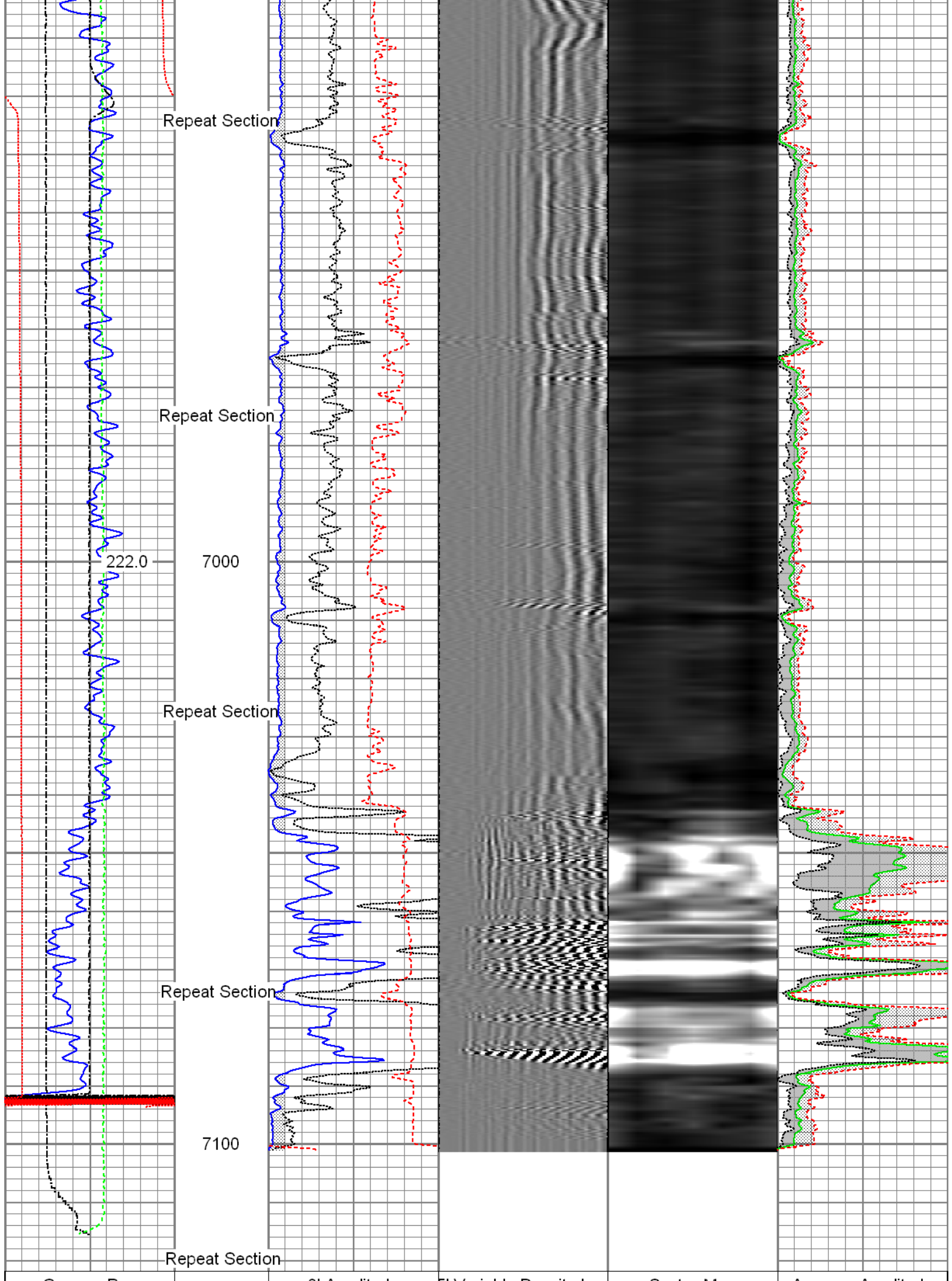




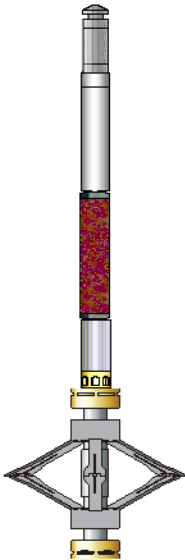
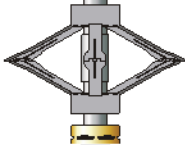
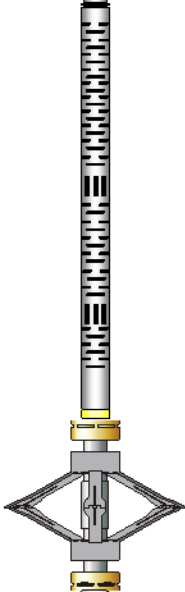
0 (GAPI) 120	0 (mV) 100	0 100
Casing Collar Locator	3' Amplitude x 5	Minimum Amplitude
Line Speed	0 (mV) 20	0 100
-100 (ft/min) 100	3' Travel Time	Maximum Amplitude
Line Tension	650 (usec) 150	0 100
0 (lb) 2000		
Differential Temperature		
-2 (degF) 2		
Temperature		
0 (degF) 20		

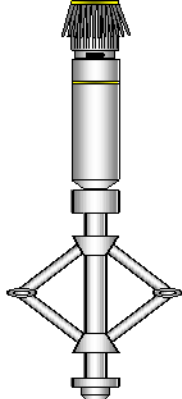
		<h1>Repeat Pass</h1> <p>Recorded with 2800 PSI Surface Induced Pressure</p>		
Database File: c:\warrior\data\new folder\0512336462_anadarko_buffalo 35n-15hz_07-02-15_mit_rbl.db Dataset Pathname: pass11 Presentation Format: rbt4_mit Dataset Creation: Thu Jul 02 16:14:46 2015 by Log 7.0 B1 Charted by: Depth in Feet scaled 1:240				
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100			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				





Gamma Ray	3' Amplitude	Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100			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)
GR	24.30		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 (218874) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.93	1.69	9.50
TEMP	22.91		UW_PRT-UW_PRT_016 (10025100) 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
WVF3FT	15.34		UW_RBT-UW_RBT_003 (1048) Sondex Ultrawire 1-11/16" Radial Bond Tool	9.93	1.69	42.00
WVFS1	15.34					
WVFS2	15.34					
WVFS3	15.34					
WVFS4	15.34					
WVFS5	15.34					
WVFS6	15.34					
CBLTEMP	15.34					
CBLROT	15.34					
WVF5FT	14.34		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

MIT	5.41		UW_MIT-UW_MIT40_027 (218950) 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
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512336462_Anadarko_Buffalo 35N-15HZ_07-02-15_MIT_RBL.db: field/well/run1/pass13 Total Length: 28.55 ft Total Weight: 226.50 lb O.D. 2.75 in						

Calibration Report		
Database File:	C:\Warrior\Data\New Folder\0512336462_Anadarko_Buffalo 35N-15HZ_07-02-15_MIT_RBL.db	
Dataset Pathname:	calrpt	
Dataset Creation:	Thu Jul 02 19:38:31 2015 by Log 7.0 B1	
Multi-finger Imaging Tool Calibration Report		
Serial Number:	218950	
Number of Fingers:	40	
Tool Model:	UW_MIT40_027	
Inclinometer Calibration Report		
Performed:	Fri, Oct, 10 10:41:51 2008	
Calibration Angle:	45	
	Inc X	Inc Y
Vertical:	1996	1975
Finger 1 up:	2238	2226
Finger 31 up:	1760	2216
Finger 21 up:	1769	1745
Finger 11 up:	2250	1738
Sensitivity ratio:	1.00023	
X-axis angle:	314.283	
Deviation const.:	339.139	

Finger Calibration Report							
	Performed: Thu Jul 02 15:19:39 2015						
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens				
Finger 01:	1427 276.0	1703 291.0	1994 307.0	2301			
Finger 02:	1495 255.0	1750 260.0	2010 276.0	2286			
Finger 03:	1412 279.0	1691 291.0	1982 305.0	2287			
Finger 04:	1429 281.0	1710 290.0	2000 299.0	2299			
Finger 05:	1468 273.0	1741 278.0	2019 286.0	2305			
Finger 06:	1396 286.0	1682 293.0	1975 307.0	2282			
Finger 07:	1417 283.0	1700 289.0	1989 306.0	2295			
Finger 08:	1414 280.0	1694 286.0	1980 295.0	2275			
Finger 09:	1405 287.0	1692 291.0	1983 303.0	2286			
Finger 10:	1420 276.0	1696 284.0	1980 294.0	2274			
Finger 11:	1406 287.0	1693 292.0	1985 300.0	2285			
Finger 12:	1361 290.0	1651 294.0	1945 307.0	2252			
Finger 13:	1462 273.0	1735 272.0	2007 278.0	2285			
Finger 14:	1399 278.0	1677 283.0	1960 295.0	2255			
Finger 15:	1397 292.0	1689 293.0	1982 302.0	2284			
Finger 16:	1398 286.0	1684 288.0	1972 300.0	2272			

Finger 17:	1414	296.0	1710	297.0	2007	304.0	2311
Finger 18:	1357	282.0	1639	284.0	1923	292.0	2215
Finger 19:	1415	289.0	1704	287.0	1991	296.0	2287
Finger 20:	1426	290.0	1716	289.0	2005	297.0	2302
Finger 21:	1376	299.0	1675	304.0	1979	310.0	2289
Finger 22:	1397	282.0	1679	282.0	1961	287.0	2248
Finger 23:	1402	286.0	1688	288.0	1976	295.0	2271
Finger 24:	1438	289.0	1727	290.0	2017	290.0	2307
Finger 25:	1417	289.0	1706	290.0	1996	295.0	2291
Finger 26:	1386	291.0	1677	295.0	1972	302.0	2274
Finger 27:	1439	283.0	1722	287.0	2009	289.0	2298
Finger 28:	1429	289.0	1718	293.0	2011	299.0	2310
Finger 29:	1479	272.0	1751	278.0	2029	282.0	2311
Finger 30:	1389	287.0	1676	294.0	1970	303.0	2273
Finger 31:	1422	287.0	1709	301.0	2010	303.0	2313
Finger 32:	1478	272.0	1750	280.0	2030	284.0	2314
Finger 33:	1431	287.0	1718	302.0	2020	311.0	2331
Finger 34:	1440	279.0	1719	295.0	2014	306.0	2320
Finger 35:	1488	258.0	1746	271.0	2017	277.0	2294
Finger 36:	1469	268.0	1737	284.0	2021	295.0	2316
Finger 37:	1440	284.0	1724	294.0	2018	304.0	2322
Finger 38:	1512	252.0	1764	261.0	2025	273.0	2298
Finger 39:	1437	274.0	1711	285.0	1996	292.0	2288
Finger 40:	1404	285.0	1689	298.0	1987	311.0	2298

Post Survey Calibration Check								
Performed: Thu Jul 02 19:37:19 2015								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.011	0.005	5.008	0.004	6.008	0.004	7.005	0.003
Finger 02:	4.008	0.004	5.003	0.002	6.003	0.001	6.980	-0.010
Finger 03:	4.000	-0.000	5.008	0.004	6.002	0.001	7.005	0.002
Finger 04:	4.009	0.005	5.012	0.006	6.007	0.003	7.005	0.003
Finger 05:	4.009	0.004	5.010	0.005	6.008	0.004	7.005	0.002
Finger 06:	4.007	0.003	5.004	0.002	6.010	0.005	7.012	0.006
Finger 07:	4.005	0.002	5.012	0.006	6.010	0.005	6.998	-0.001
Finger 08:	4.005	0.003	5.012	0.006	6.009	0.005	7.010	0.005
Finger 09:	4.006	0.003	5.012	0.006	6.008	0.004	7.009	0.004
Finger 10:	3.997	-0.001	5.015	0.007	6.007	0.004	7.001	0.001
Finger 11:	4.014	0.007	5.017	0.008	6.009	0.005	7.010	0.005
Finger 12:	4.012	0.006	5.018	0.009	6.011	0.005	7.005	0.003
Finger 13:	4.008	0.004	5.006	0.003	5.999	-0.000	6.996	-0.002
Finger 14:	4.009	0.004	5.015	0.007	6.011	0.006	7.005	0.003
Finger 15:	4.009	0.004	5.012	0.006	6.003	0.001	7.001	0.001
Finger 16:	4.019	0.010	5.017	0.009	6.019	0.009	7.009	0.004
Finger 17:	4.008	0.004	5.004	0.002	6.001	0.001	7.000	-0.000
Finger 18:	4.006	0.003	5.004	0.002	6.002	0.001	7.003	0.001
Finger 19:	4.006	0.003	5.003	0.001	6.009	0.005	7.008	0.004
Finger 20:	4.007	0.004	5.002	0.001	6.007	0.004	7.005	0.002
Finger 21:	4.001	0.001	5.001	0.001	6.001	0.001	7.004	0.002
Finger 22:	4.013	0.007	5.005	0.002	6.003	0.002	7.005	0.002
Finger 23:	4.006	0.003	5.006	0.003	6.009	0.005	7.003	0.001
Finger 24:	4.007	0.004	5.005	0.003	5.997	-0.001	6.995	-0.002
Finger 25:	4.003	0.002	5.006	0.003	6.005	0.003	7.005	0.003
Finger 26:	4.003	0.002	5.010	0.005	6.010	0.005	7.005	0.002
Finger 27:	4.009	0.005	5.013	0.007	6.005	0.002	7.003	0.001
Finger 28:	4.007	0.004	5.012	0.006	6.014	0.007	7.010	0.005
Finger 29:	4.010	0.005	5.021	0.011	6.006	0.003	6.998	-0.001
Finger 30:	4.009	0.004	5.016	0.008	6.013	0.006	7.009	0.004
Finger 31:	4.004	0.002	5.017	0.008	6.008	0.004	7.007	0.003
Finger 32:	4.008	0.004	5.014	0.007	6.010	0.005	7.004	0.002
Finger 33:	4.009	0.005	5.011	0.005	6.011	0.005	7.002	0.001
Finger 34:	4.006	0.003	5.013	0.007	6.009	0.005	7.009	0.004
Finger 35:	4.010	0.005	5.013	0.006	6.003	0.001	7.004	0.002
Finger 36:	4.013	0.007	5.014	0.007	6.008	0.004	7.004	0.002

Finger 37:	4.009	0.005	4.992	-0.004	6.002	0.001	7.004	0.002
Finger 38:	4.008	0.004	5.006	0.003	6.007	0.003	7.002	0.001
Finger 39:	4.011	0.006	5.004	0.002	6.000	0.000	7.008	0.004
Finger 40:	4.003	0.002	5.002	0.001	6.007	0.004	7.009	0.005
Average:	4.008	0.004	5.009	0.005	6.007	0.003	7.004	0.002

Segmented Cement Bond Log Calibration Report								
Serial Number:			1048					
Tool Model:			UW_RBT_003					
Calibration Casing Diameter:			7.000	in				
Calibration Depth:			781.072	ft				

Master Calibration, performed Thu Jul 02 15:38:47 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.002	0.415	0.800	62.165	148.549	0.568
5FT	-0.003	0.572	0.800	62.165	106.745	1.100
S1	0.002	0.278	0.000	100.000	362.126	-0.756
S2	-0.000	0.458	0.000	100.000	218.105	0.088
S3	0.003	0.421	0.000	100.000	239.638	-0.778
S4	0.004	0.358	0.000	100.000	282.805	-1.257
S5	0.002	0.397	0.000	100.000	253.529	-0.613
S6	0.006	0.387	0.000	100.000	262.590	-1.548

Temperature Calibration Report					
Serial Number:			10025100		
Tool Model:			UW_PRT_016		
Performed:			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:		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	
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Company

Ref. #1000 Oil & Gas Services Ltd.

Well

Buffalo 35N-15HZ

Field

Wattenberg

County

Weld

State

Colorado