



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Noble Energy Inc.		Company Noble Energy Inc.	
Well Faith LC34-775		Well Faith LC34-775	
Field Wattenberg		Field Wattenberg	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API #: 05-123-40648	
SEC 34 TWP 9N RGE 59W		Other Services	
Permanent Datum		Ground Level	
Log Measured From Kelly Bushing		Elevation 4827'	
Drilling Measured From Kelly Bushing		Elevation K.B. 4851' D.F. 4850' G.L. 4827'	
Date 13-Jan-2016		One	
Run Number		10030 FT	
Depth Driller		6167 FT	
Depth Logger		6167 FT	
Bottom Logged Interval		Surface	
Top Log Interval		8.750"	
Open Hole Size		Water	
Type Fluid		8.34 lbm/gal	
Density / Viscosity		216°F	
Max. Recorded Temp.		146 FT	
Estimated Cement Top		ROA	
Time Well Ready		13:54	
Time Logger on Bottom		HD-0343	
Equipment Number		Fort Lupton, CO	
Location		R. Fogarty	
Recorded By		Bill Mansfield	
Witnessed By			
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lbs/ft)	
Intermediate #1		Grade	
Intermediate #2		Top	
Liner		Bottom	

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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 Kelly Bushing at 24 FT
Log ran from 10 FT above Liner Top to surface
Short Joints recorded at 5010 FT - 5022 FT and 5195 FT - 5215 FT
Recorded with 2500 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.

Database File: x:\logs_for_processing\logs to be reviewed\01-13-16_noble_faith lc34-775_mit_rb\01-13-16_noble_faith

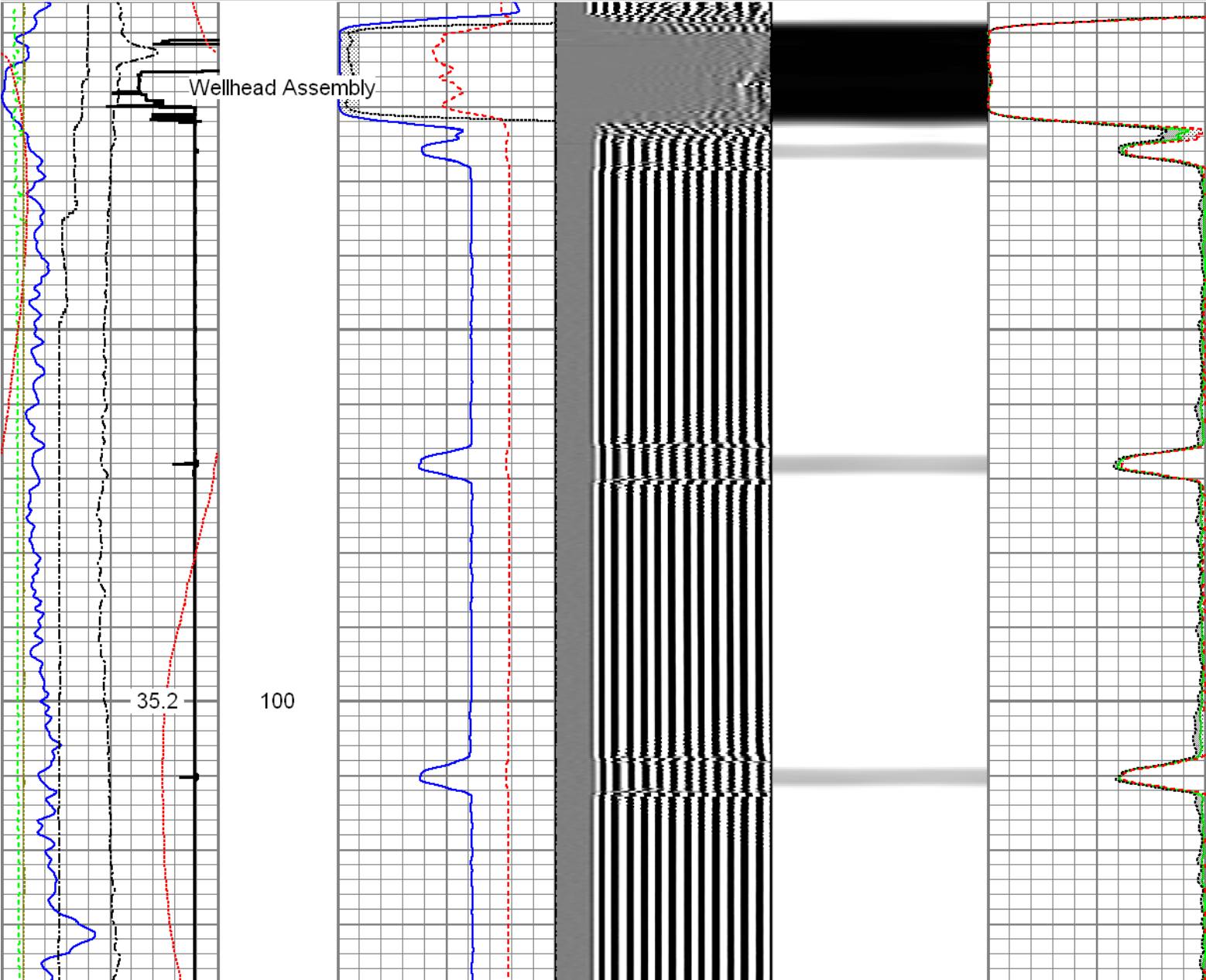
Dataset Pathname: merge1.1

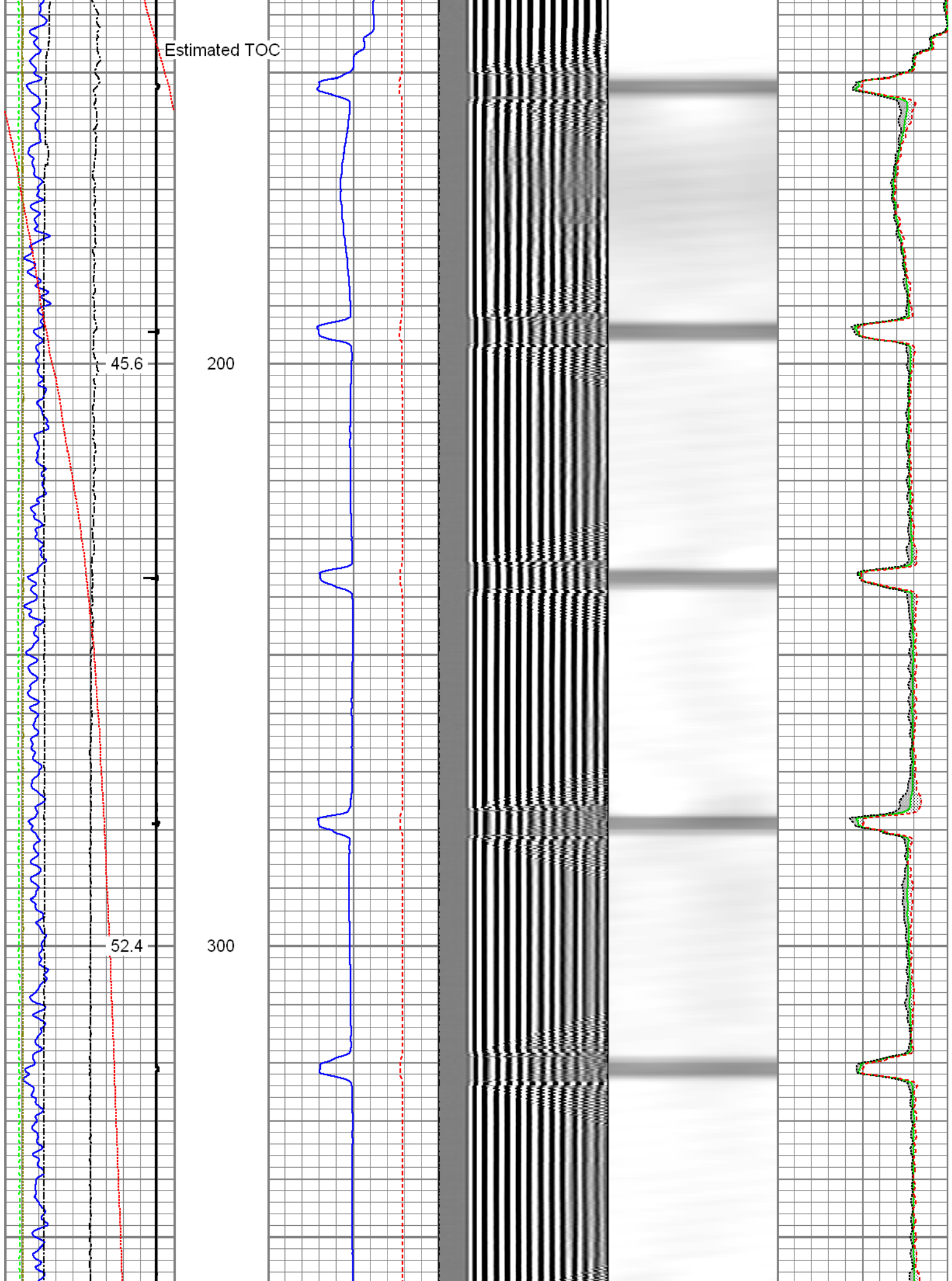
Presentation Format: rbt4_mit

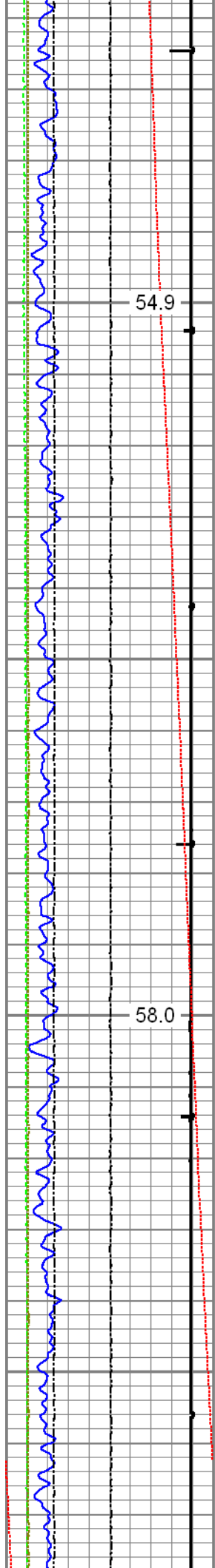
Dataset Creation: Wed Jan 13 16:36:17 2016 by Calc 7.0 B1

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				





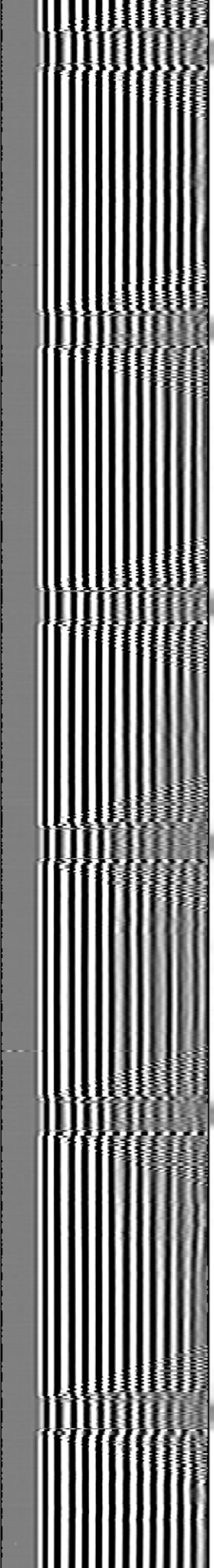
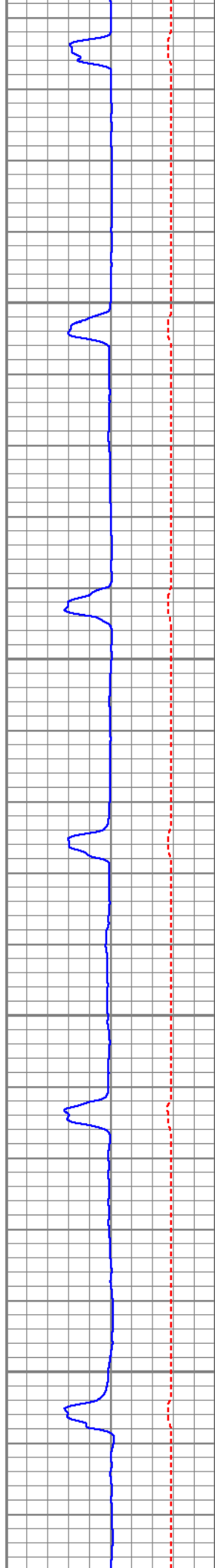


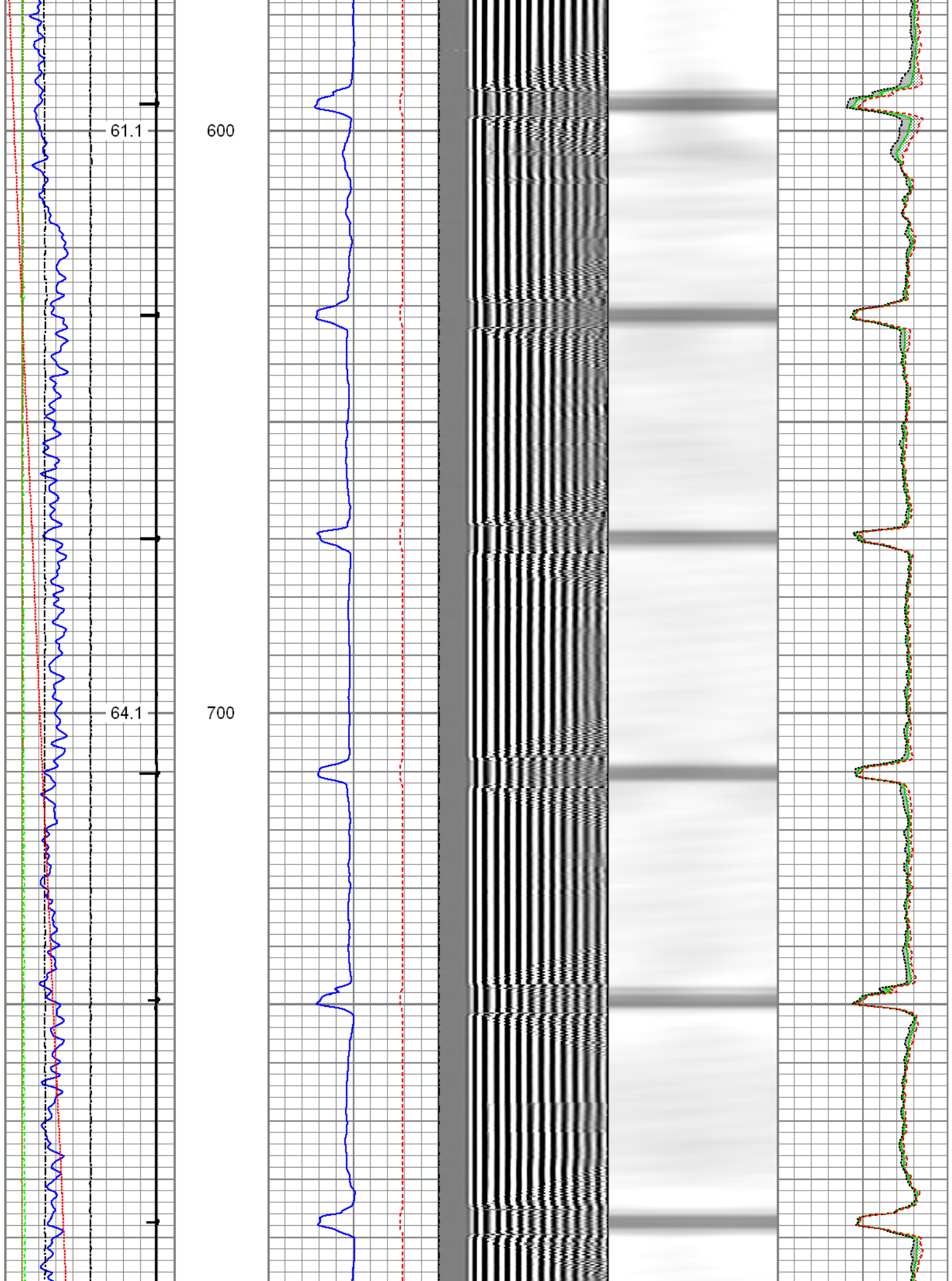
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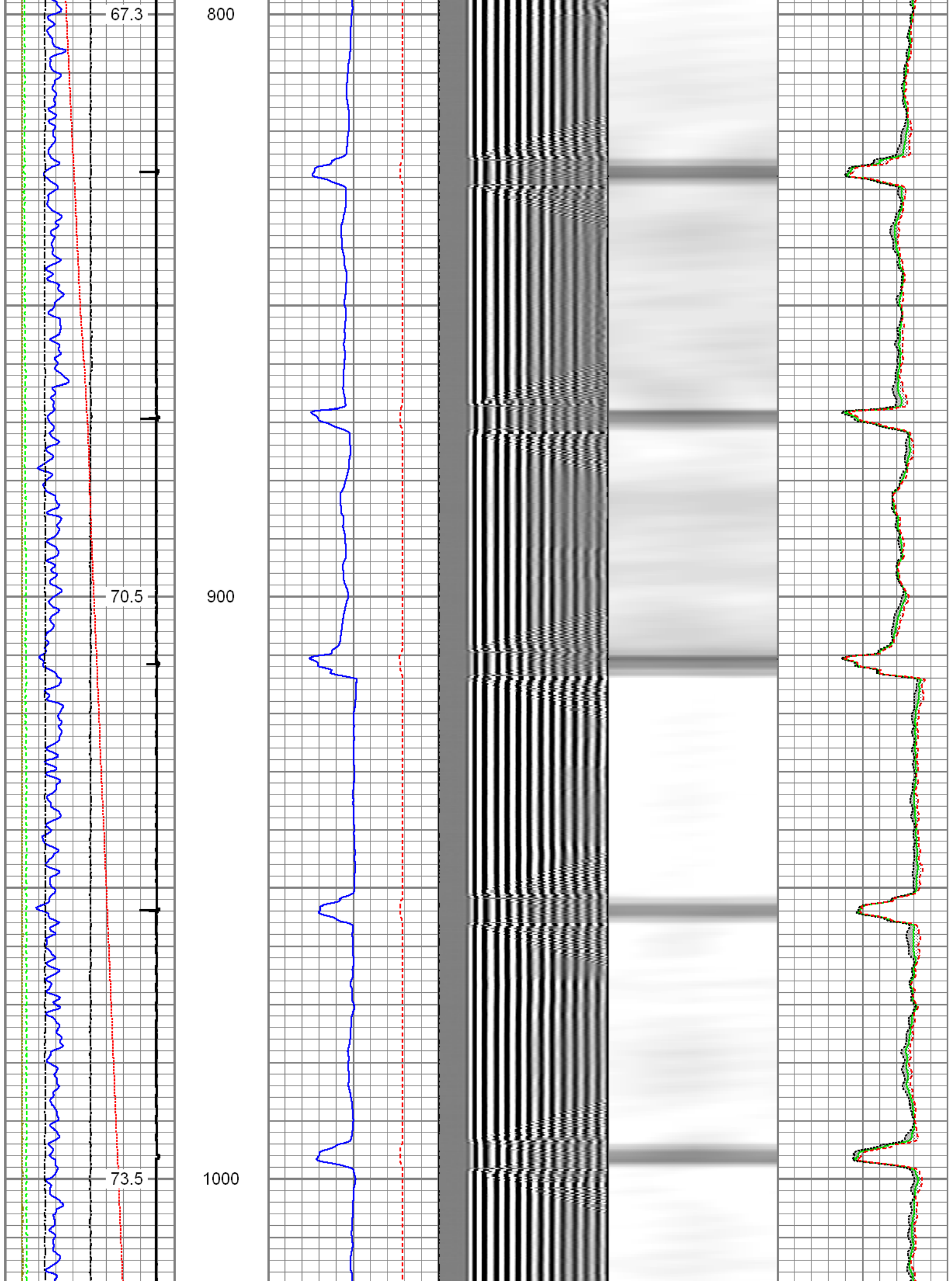
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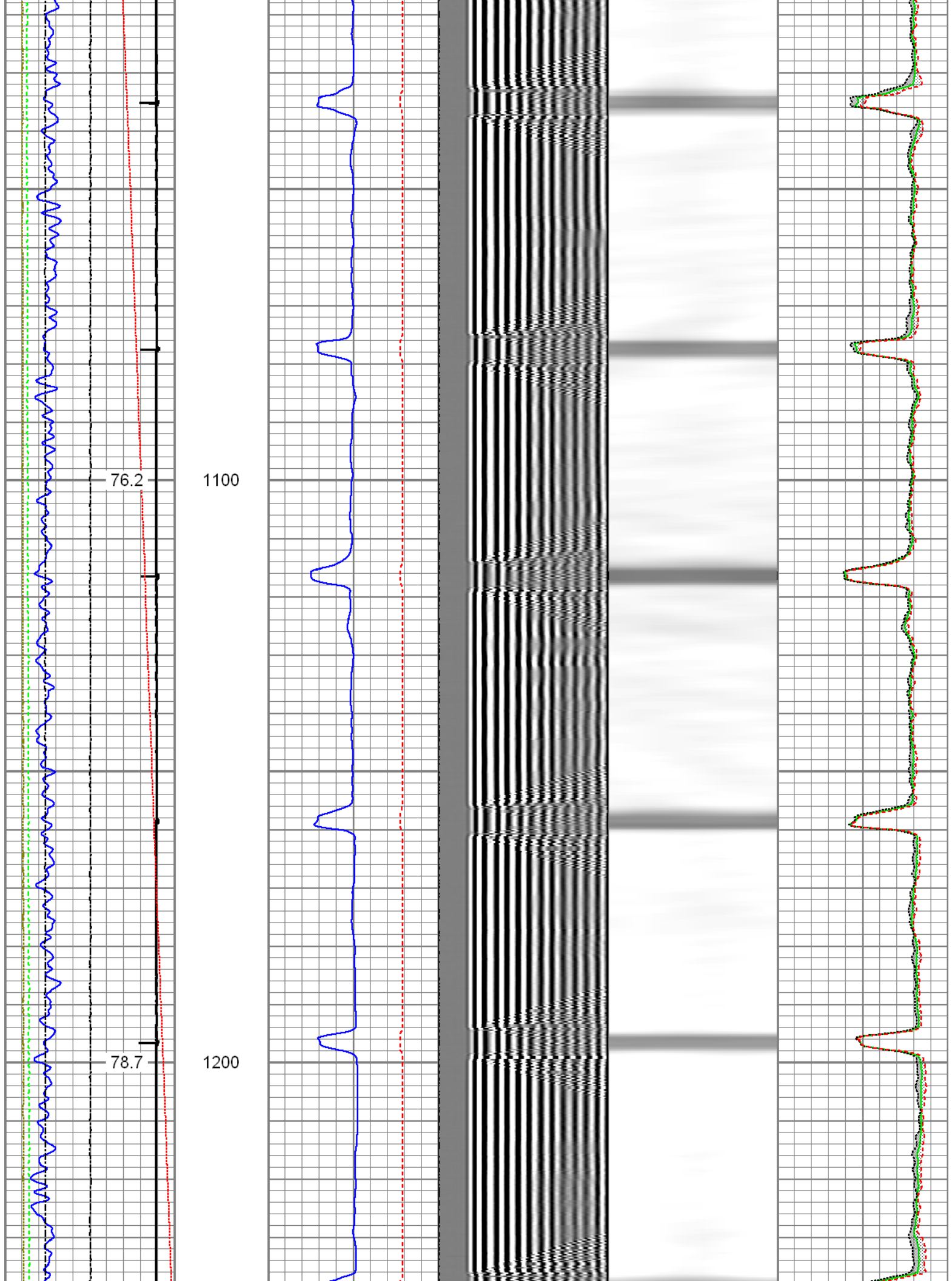
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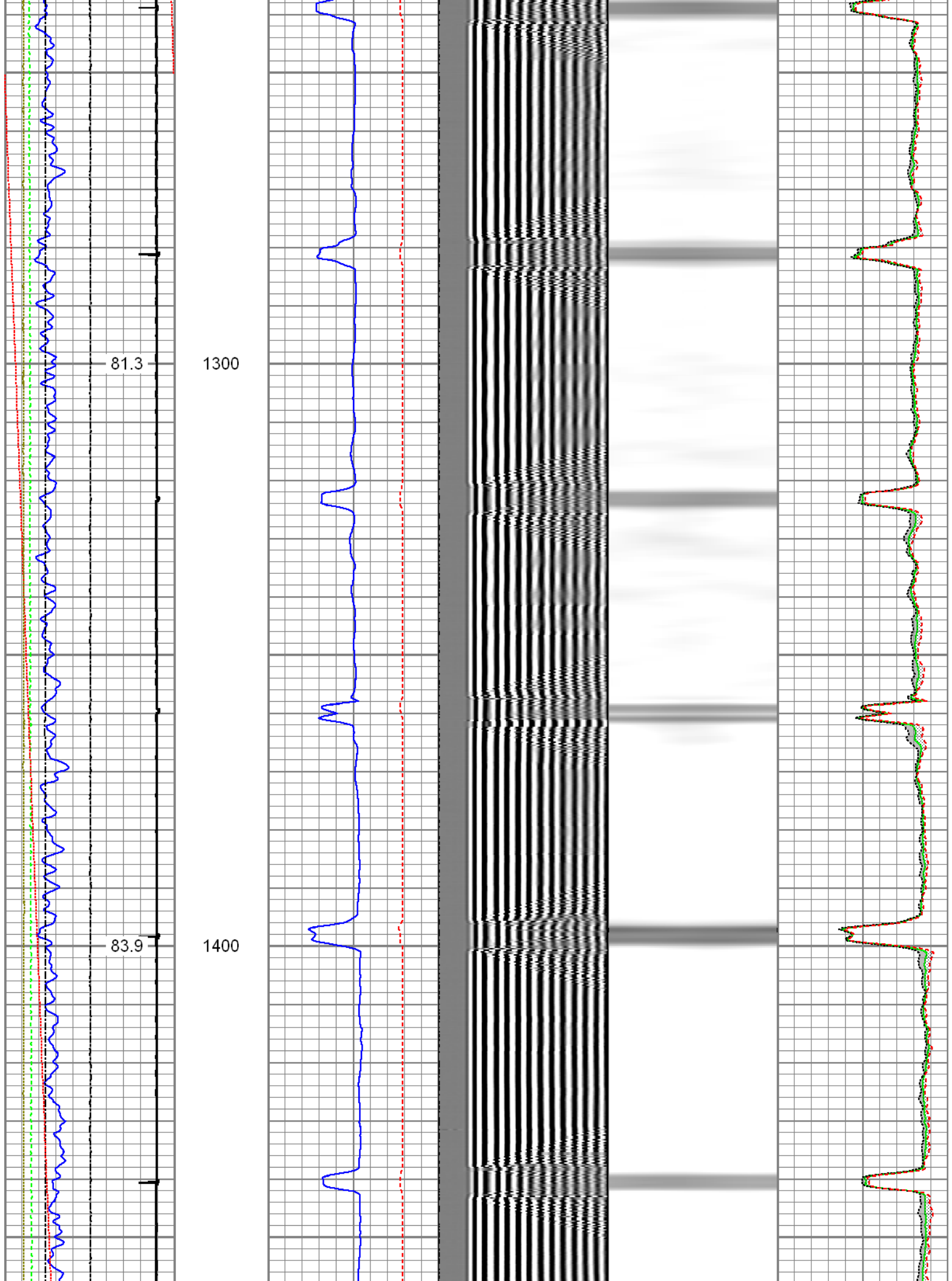
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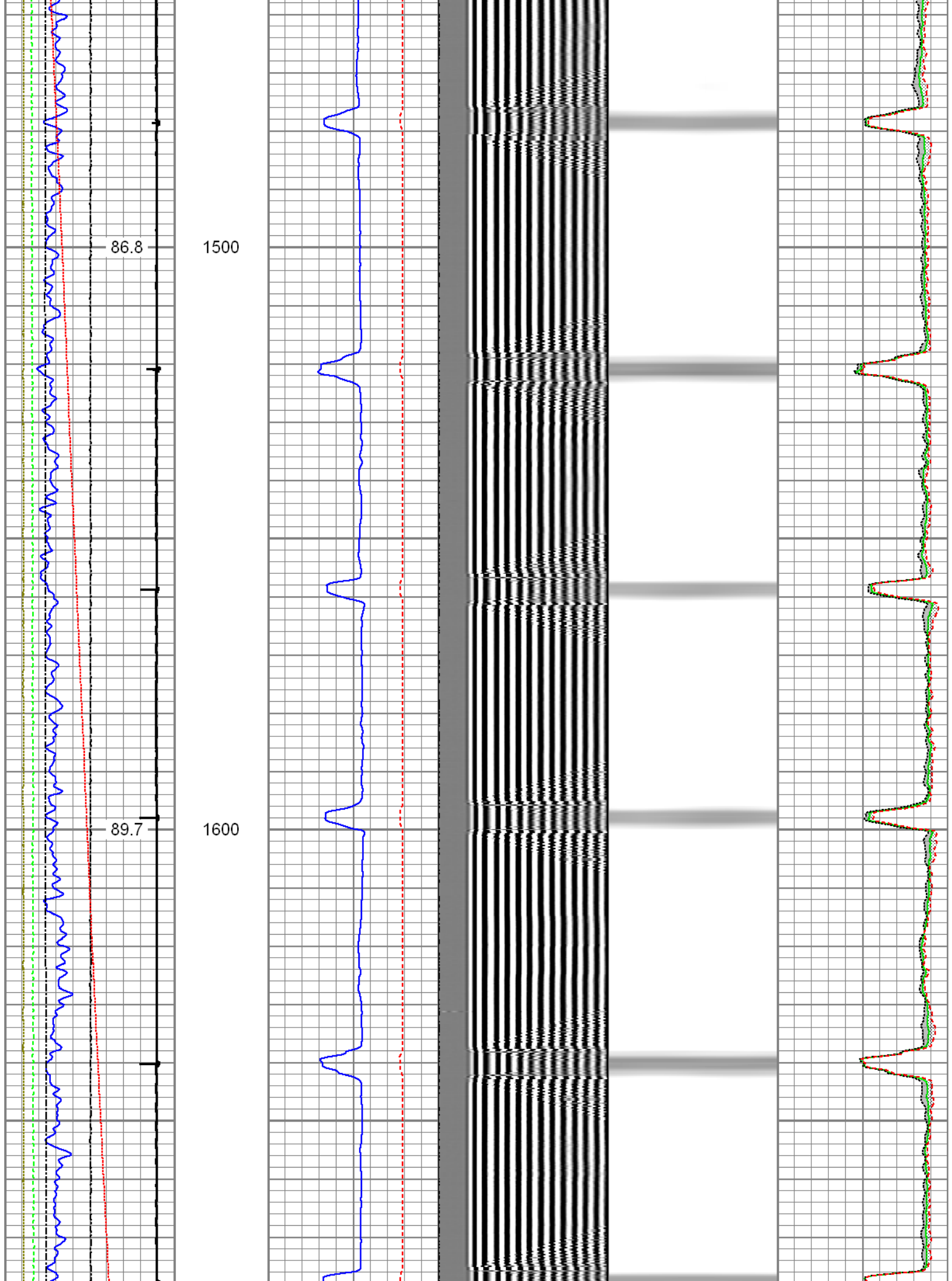


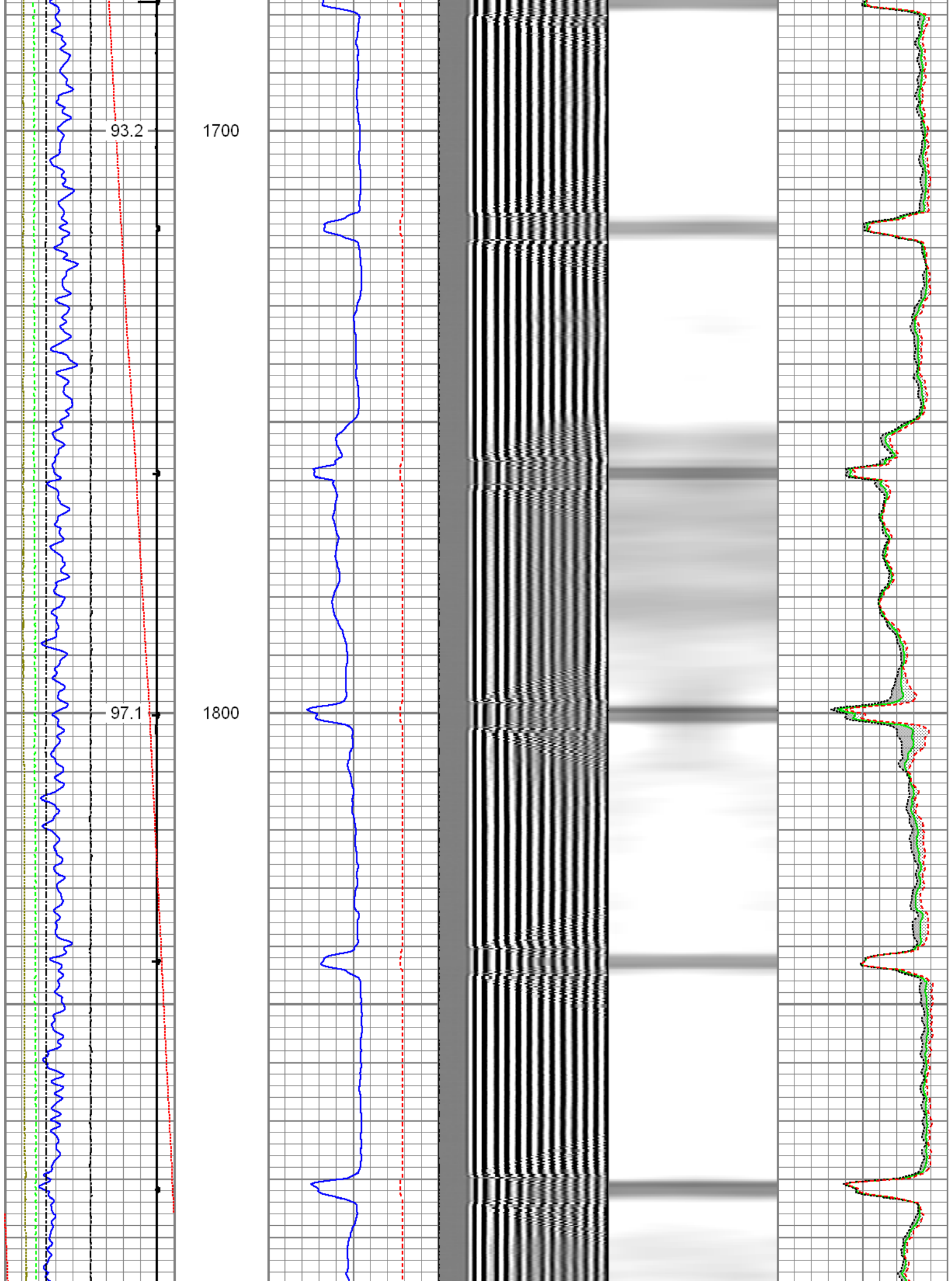


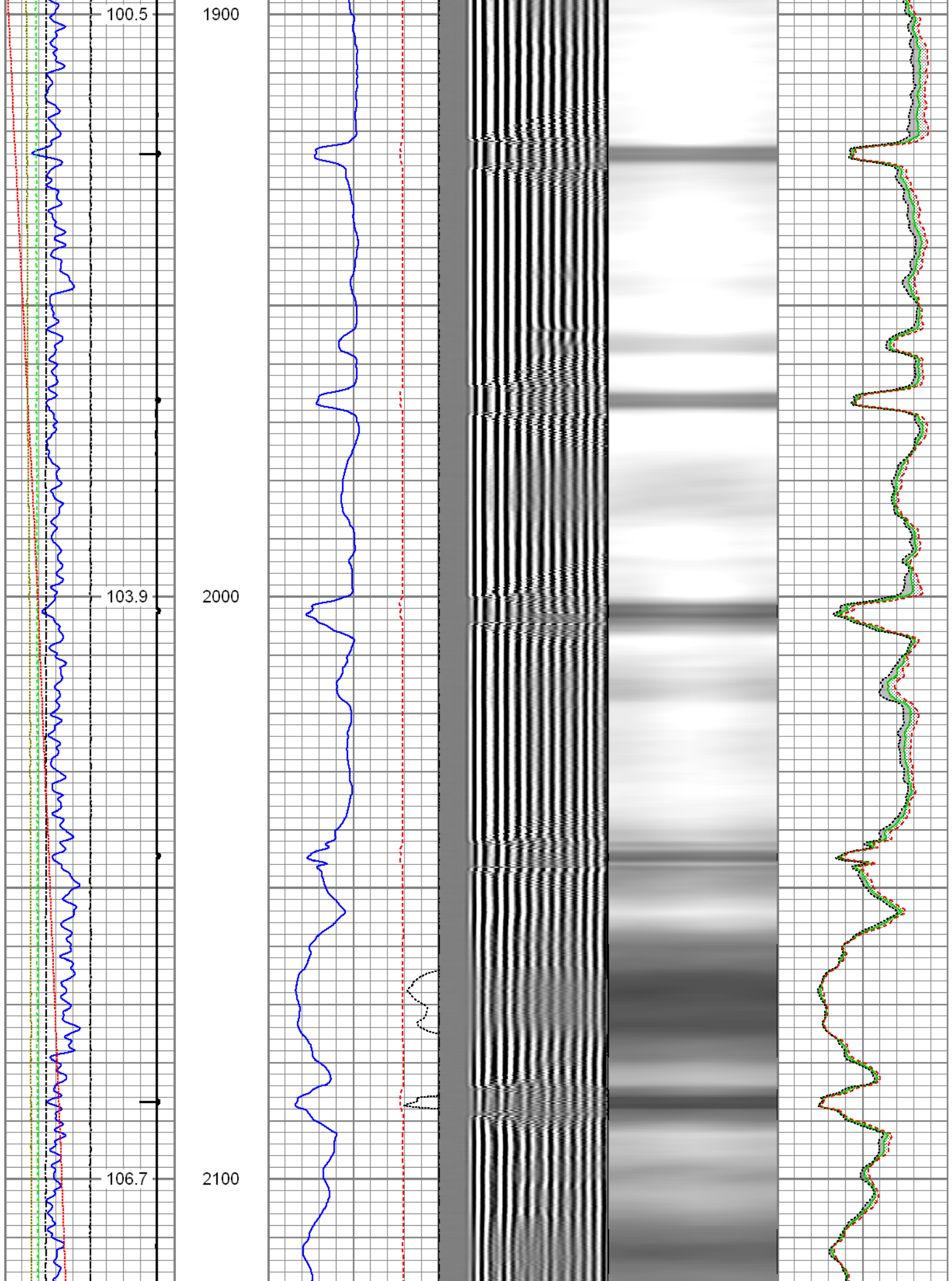


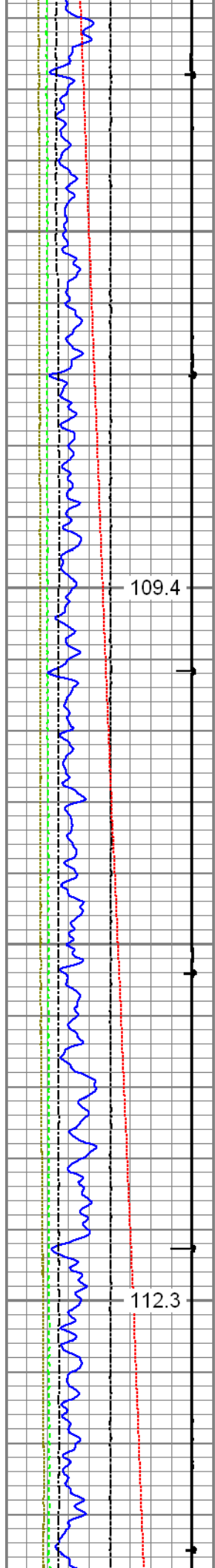






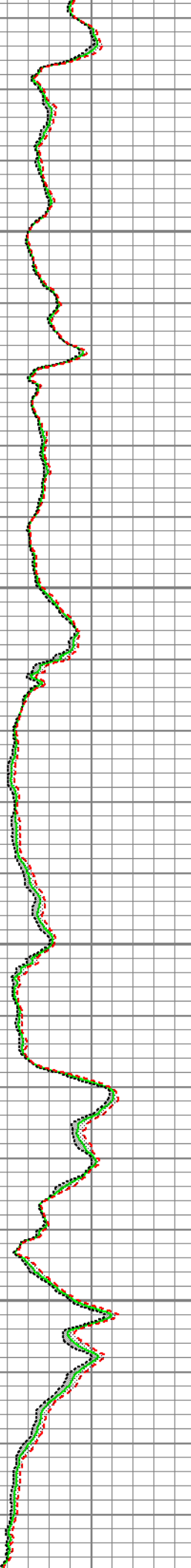
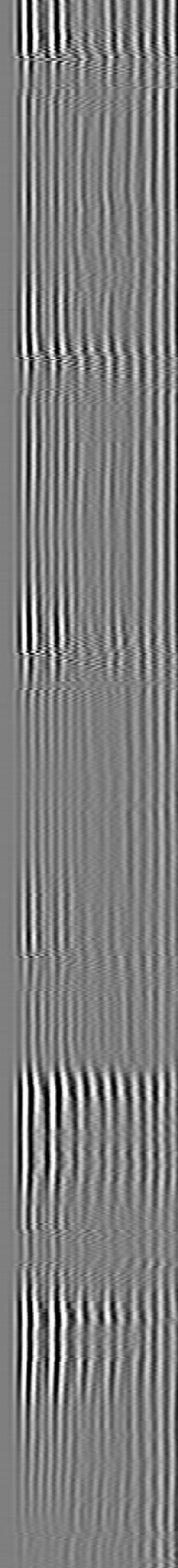
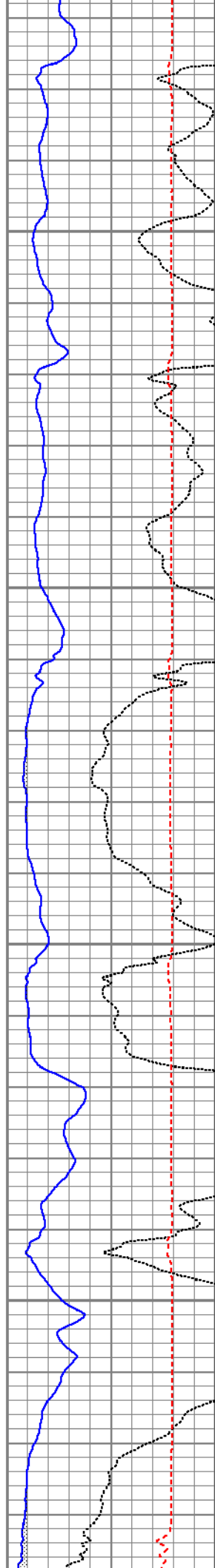


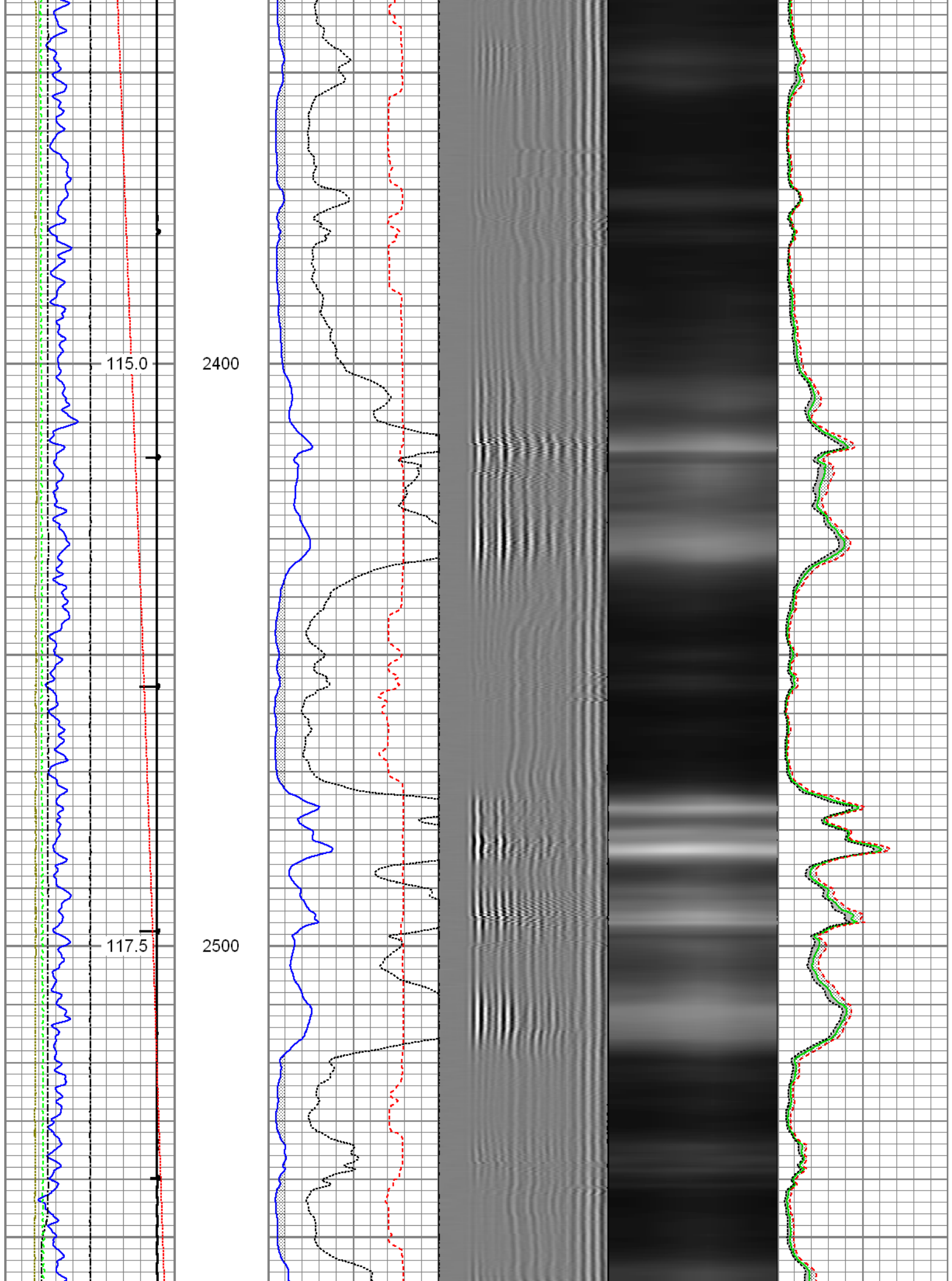


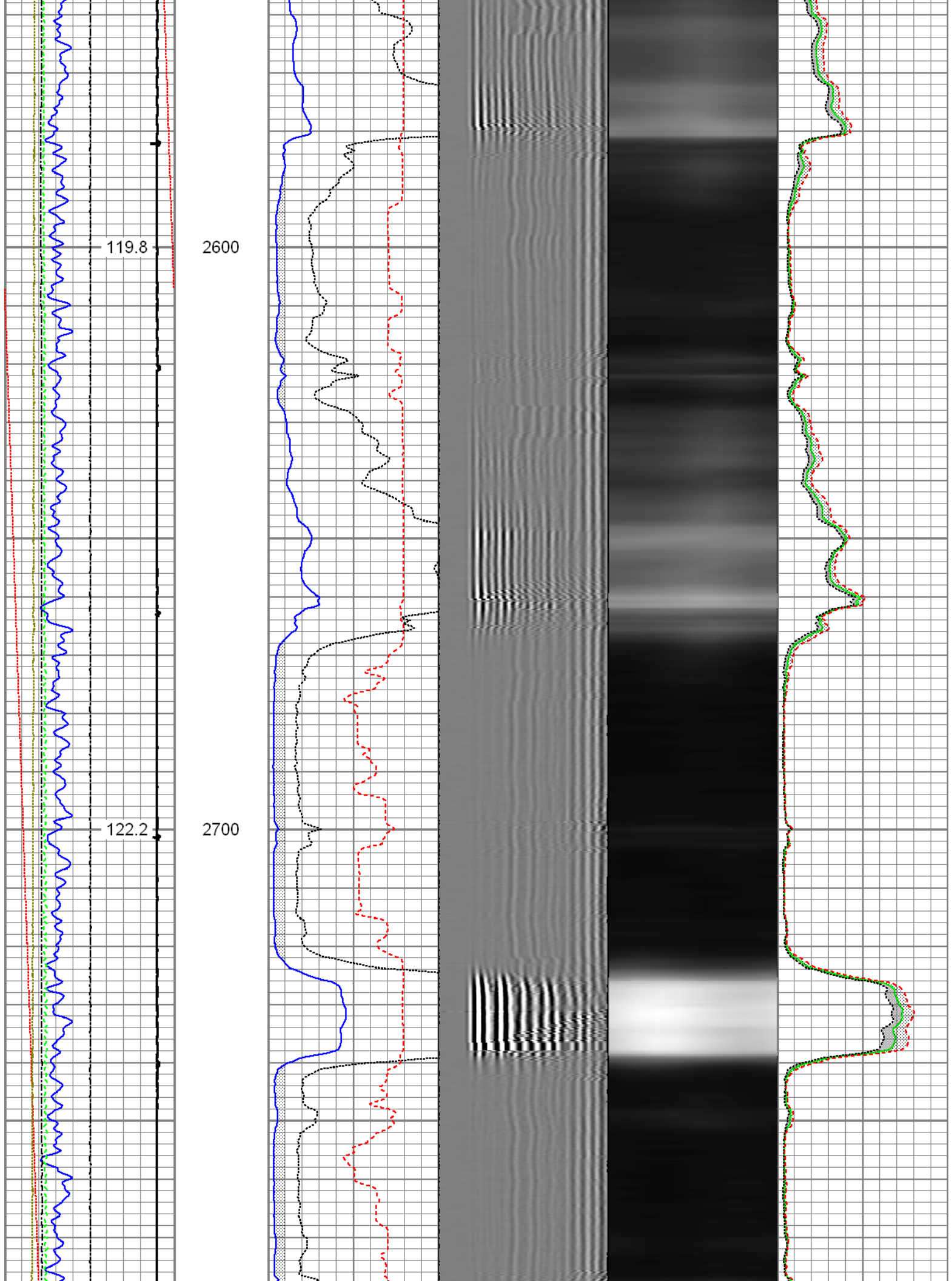


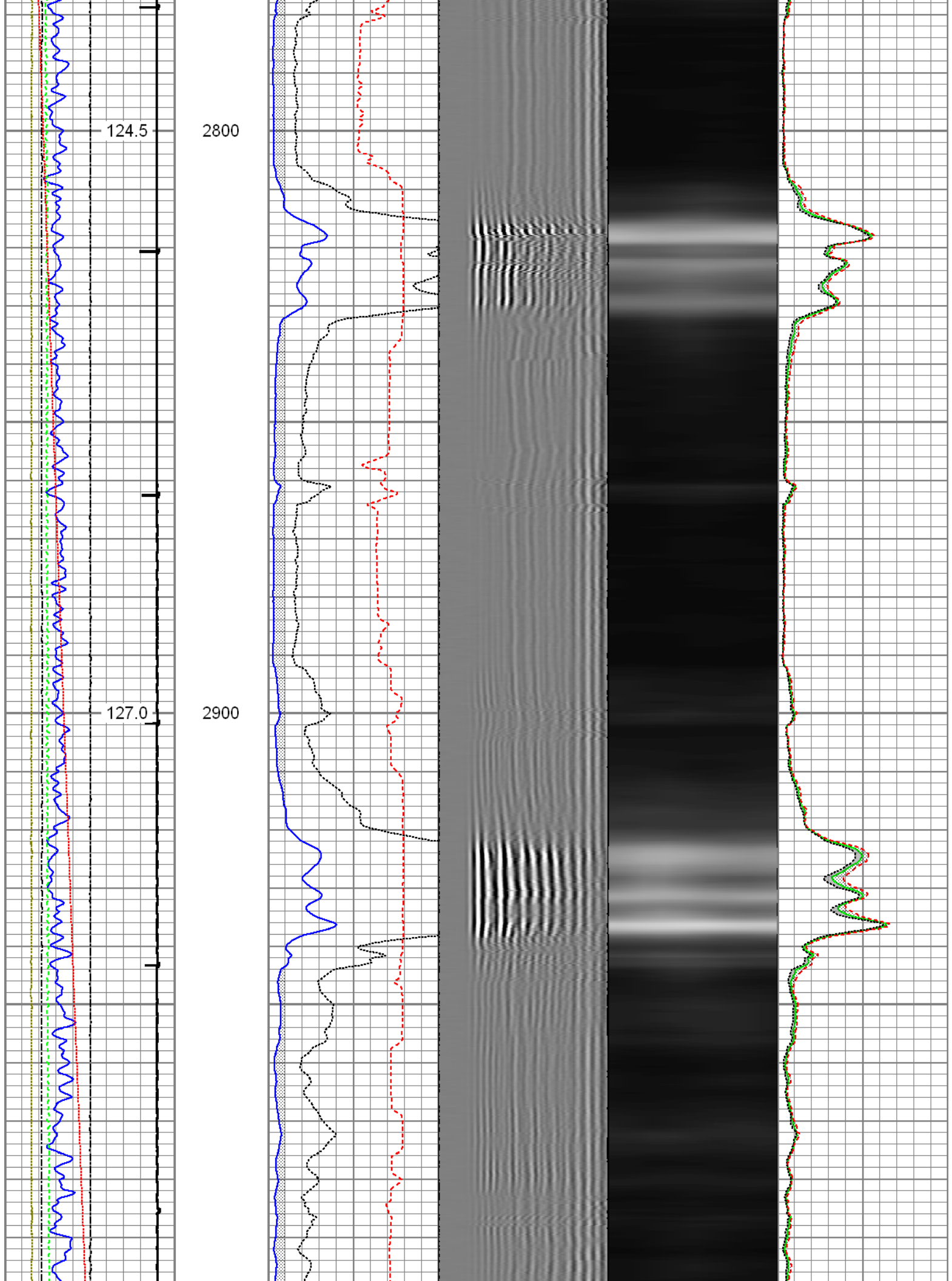
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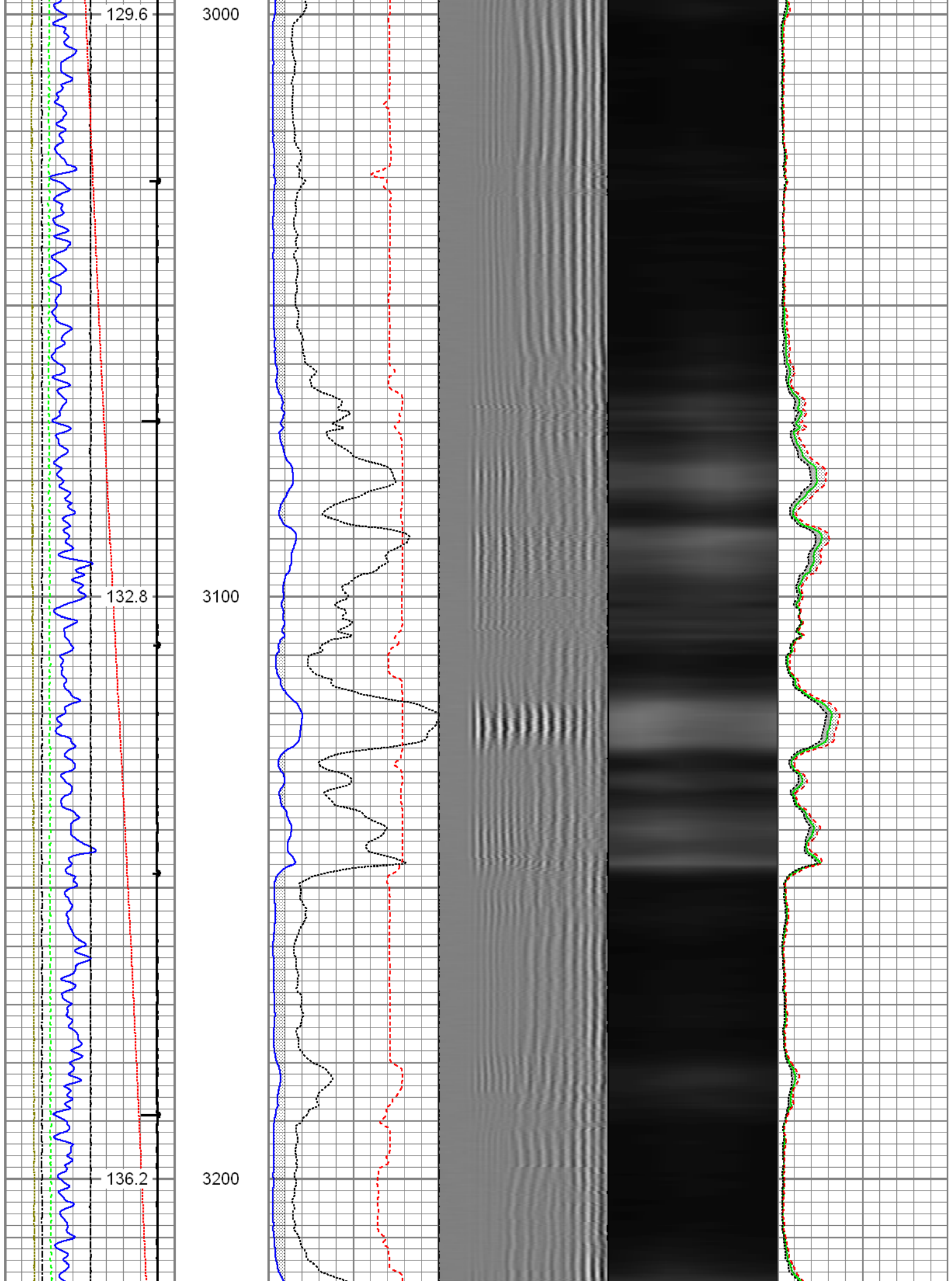
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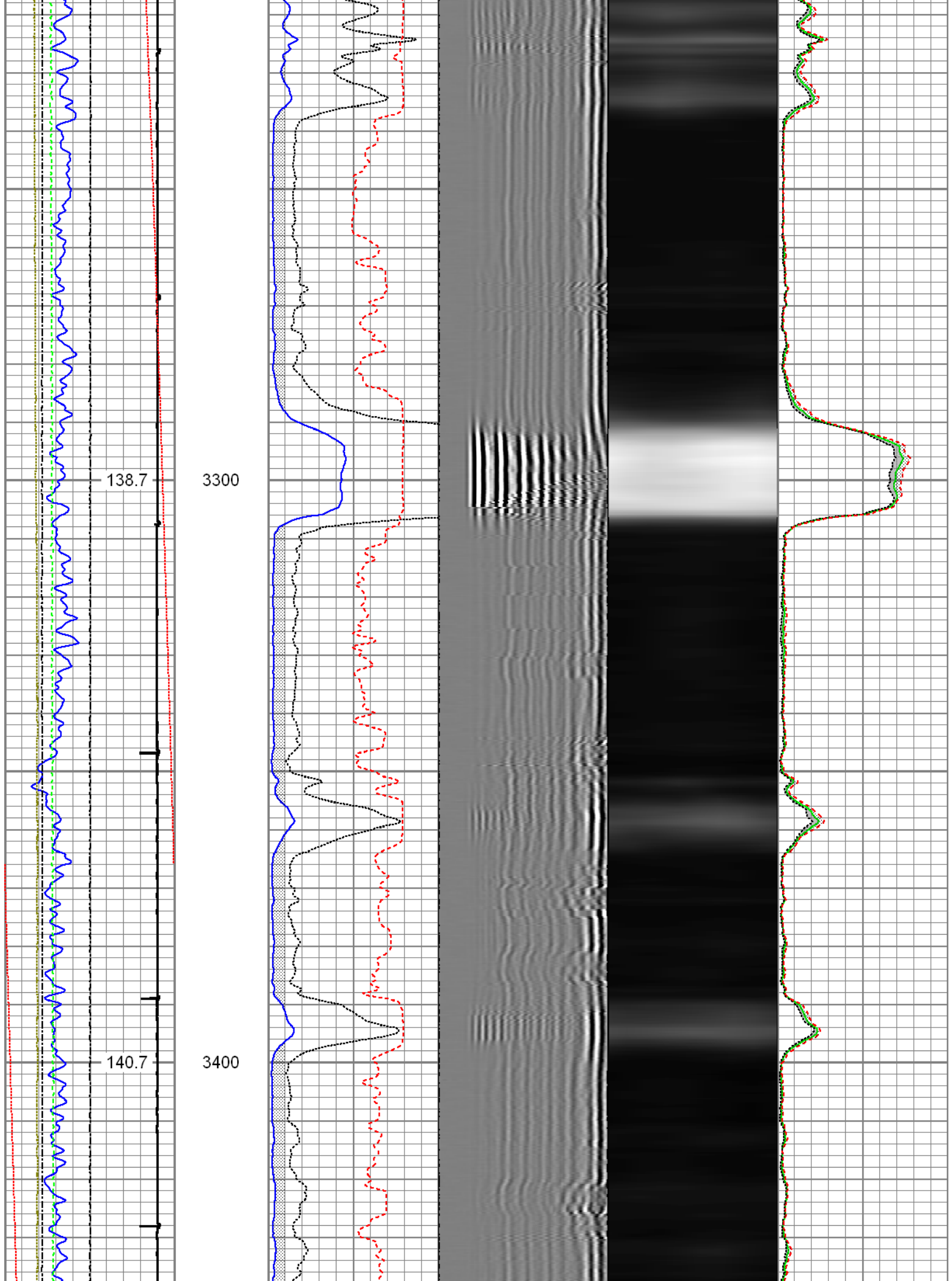


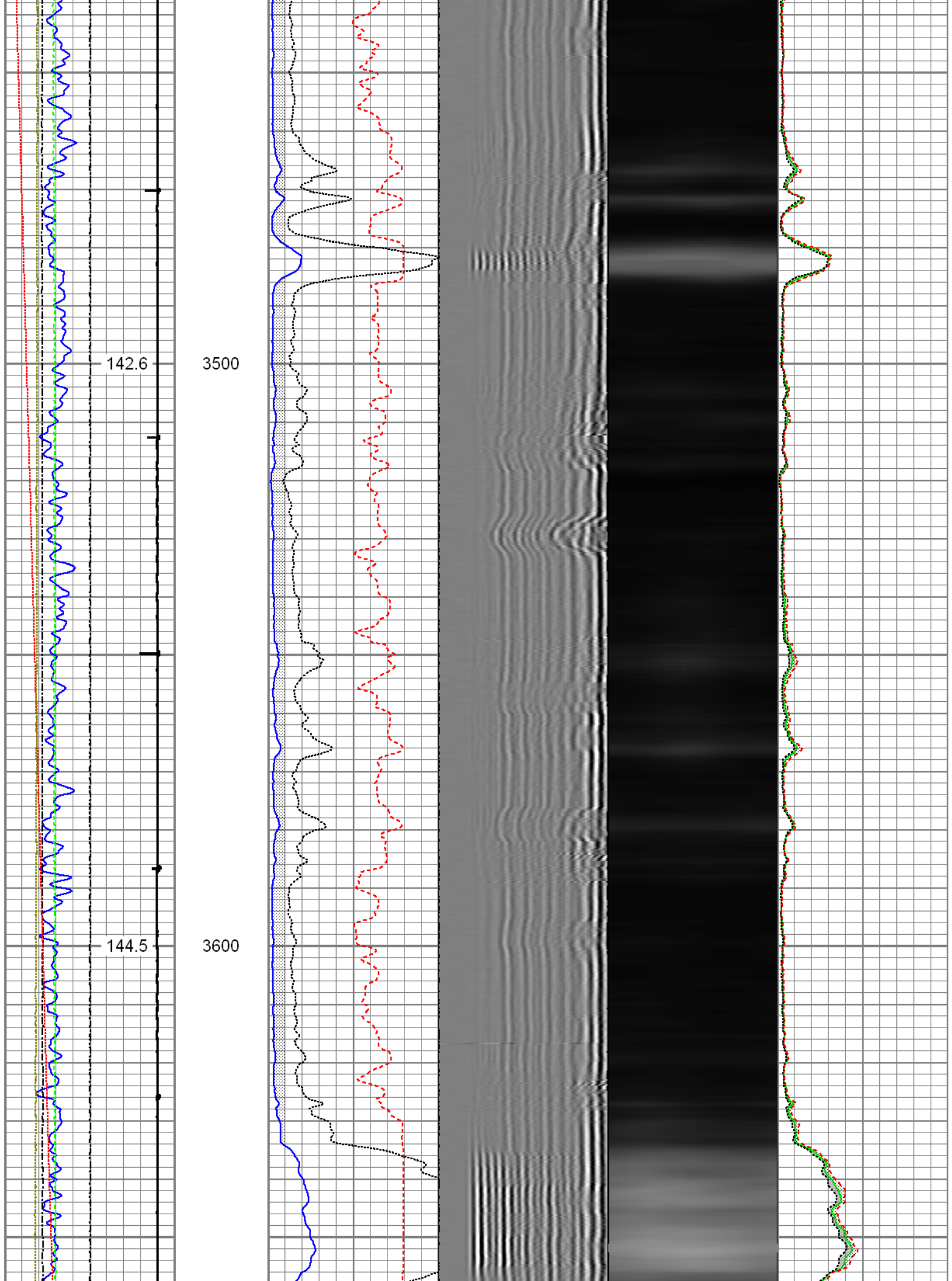


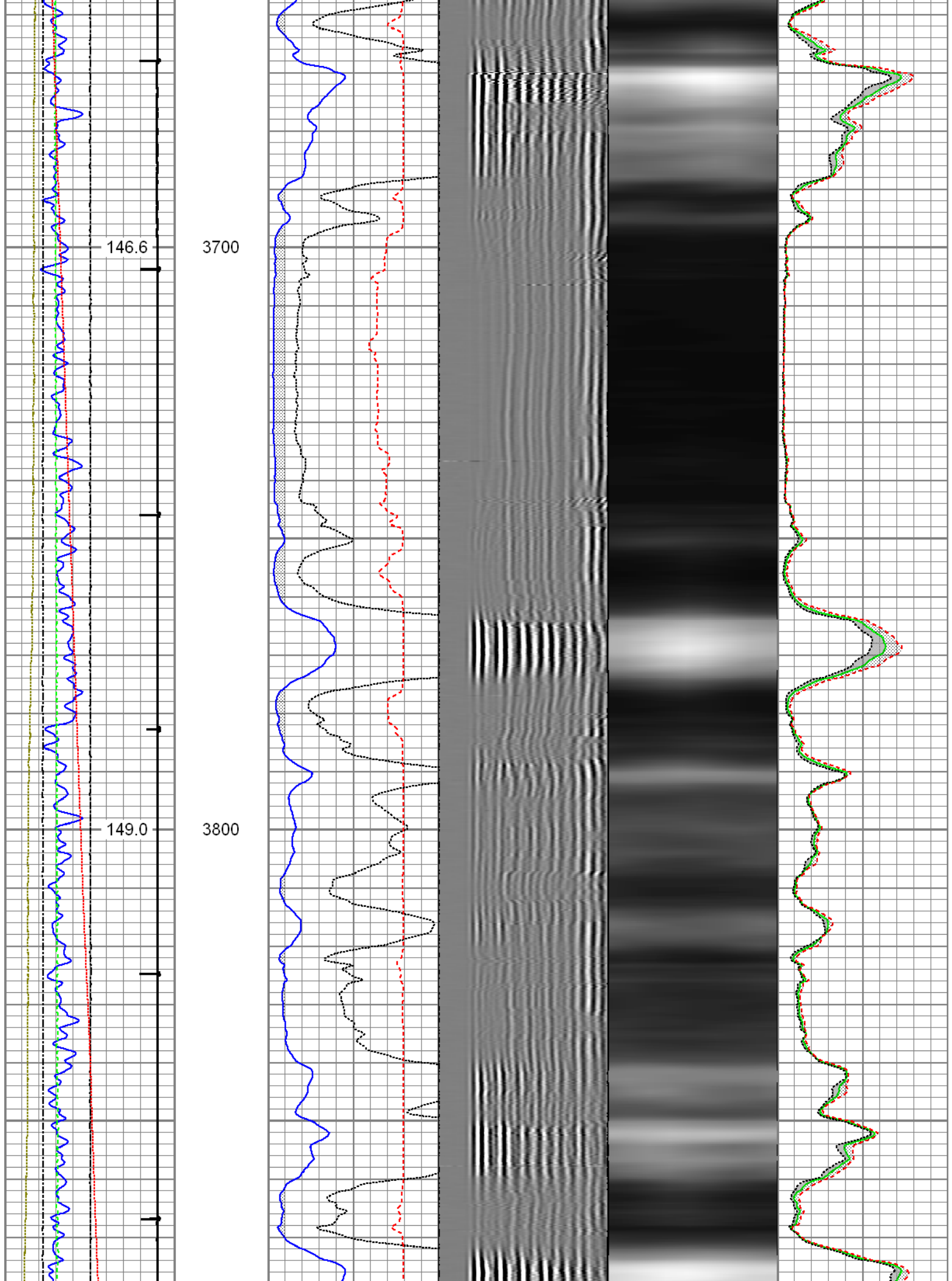


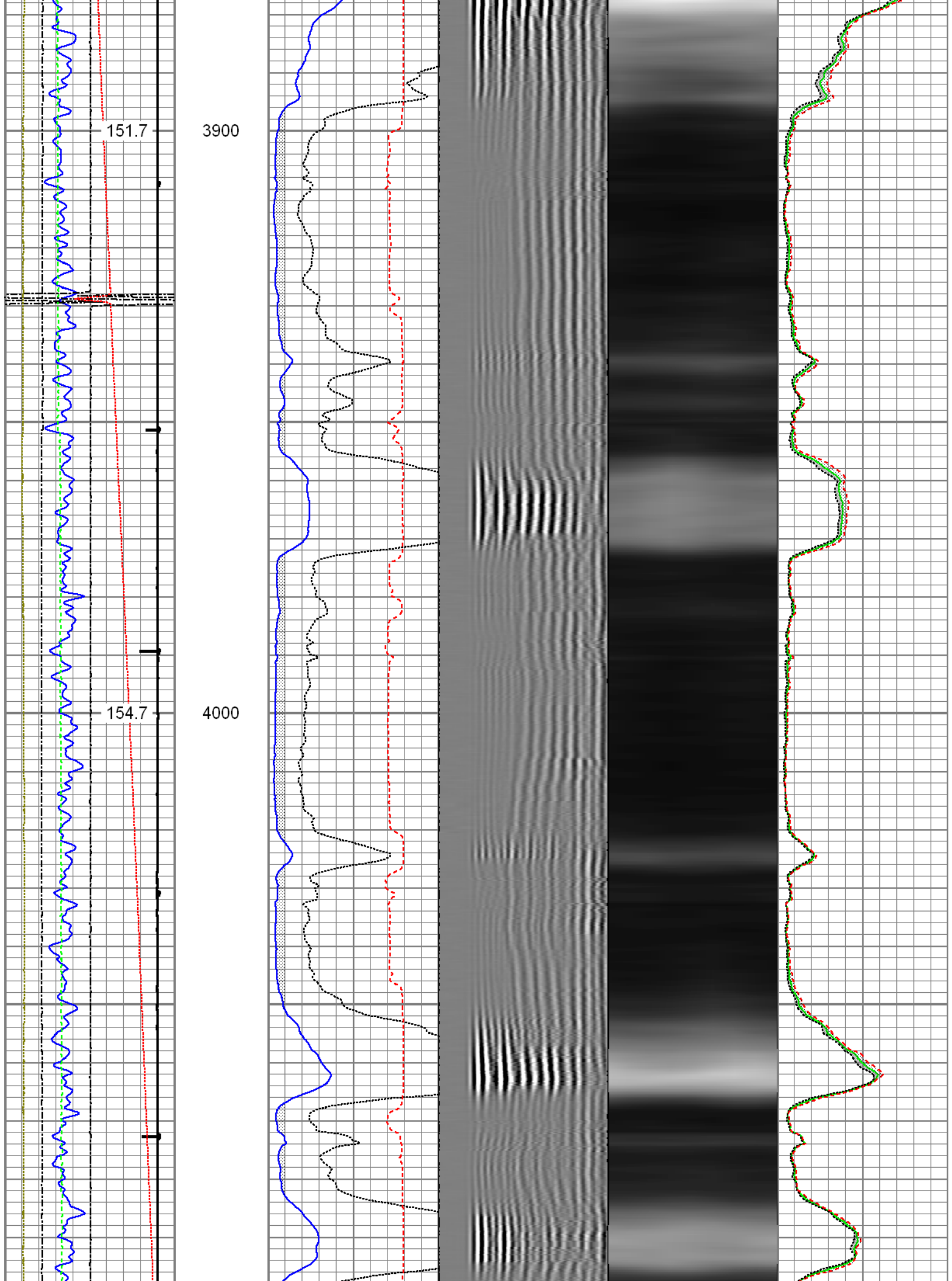


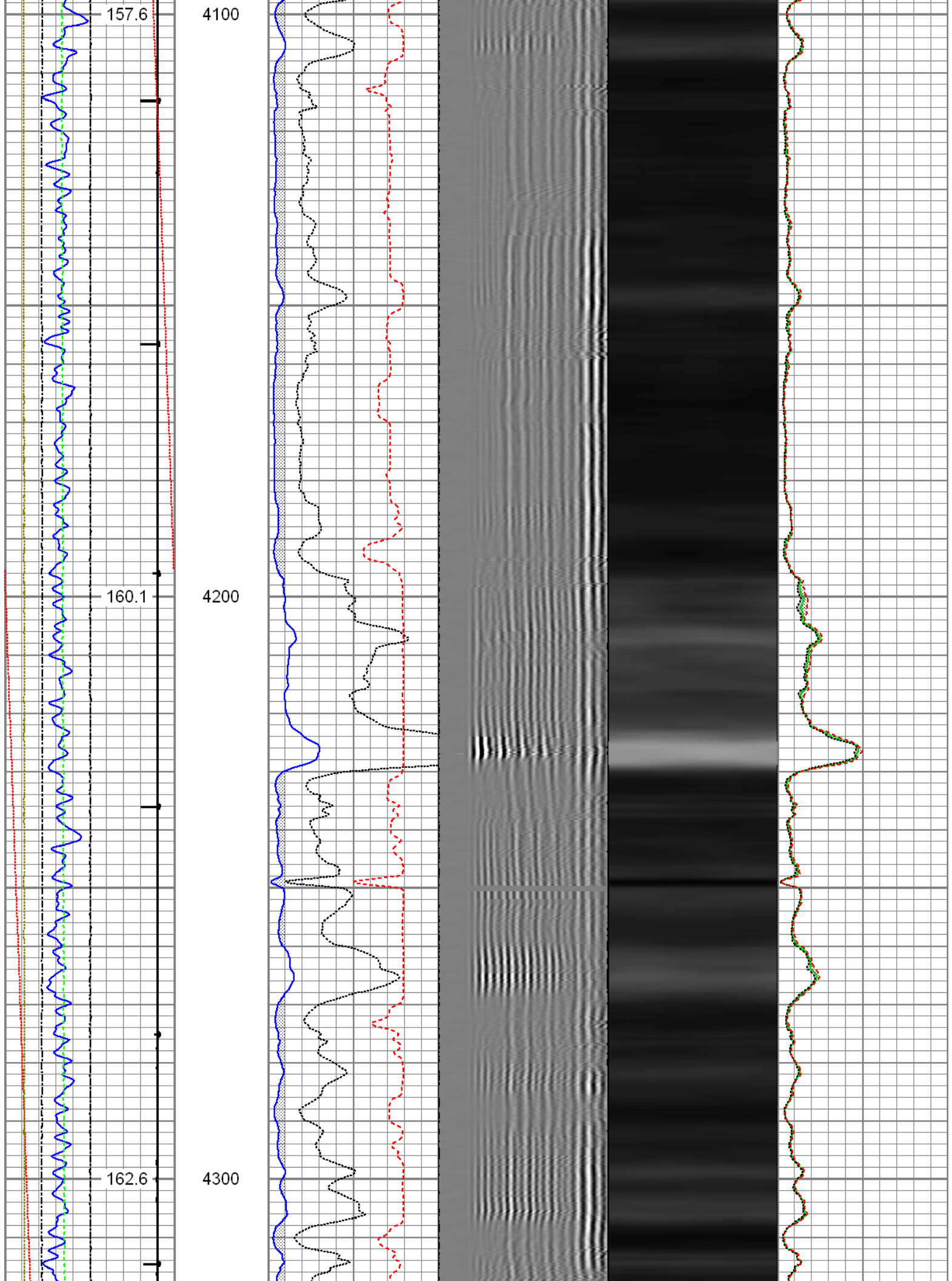


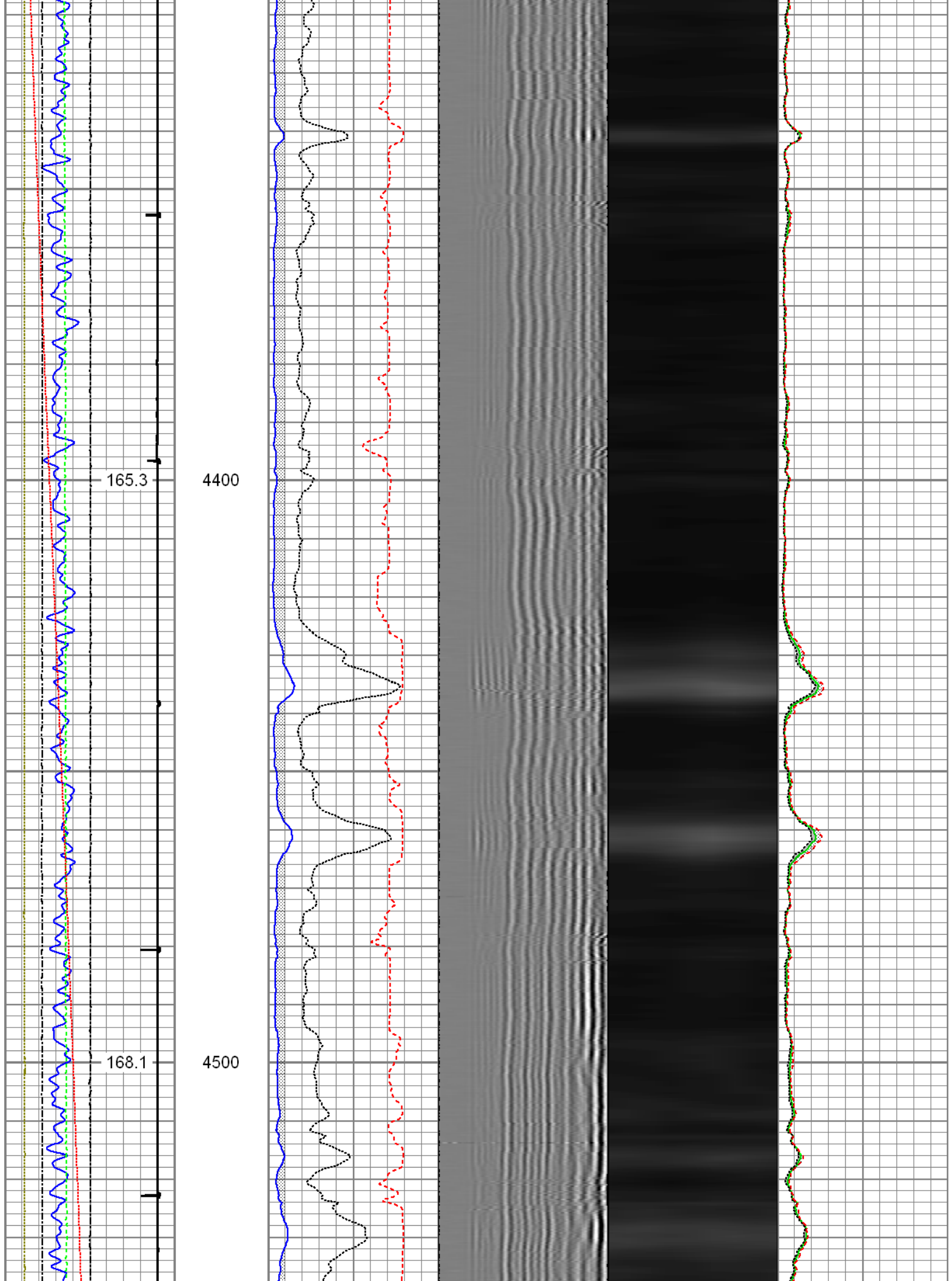


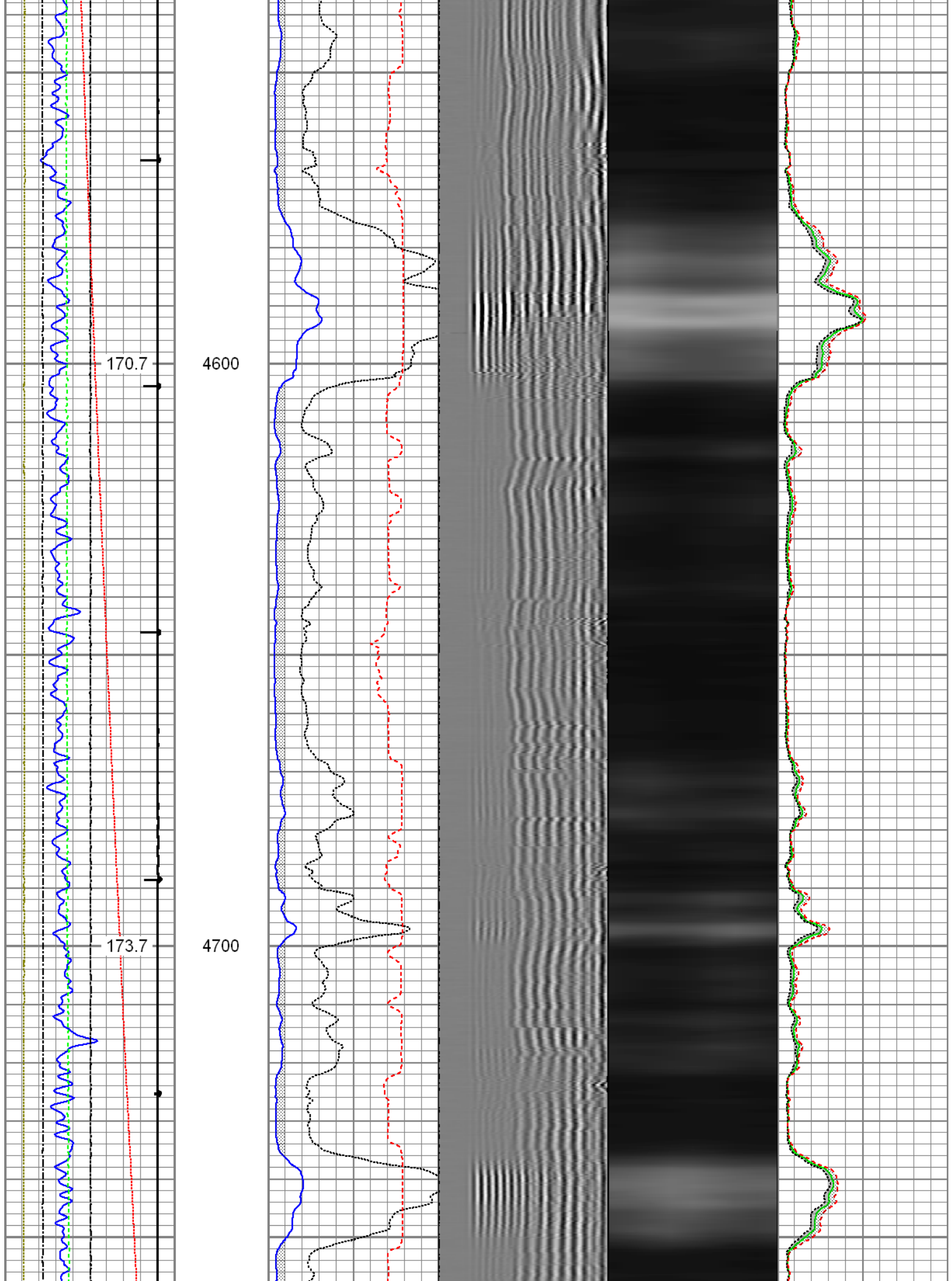


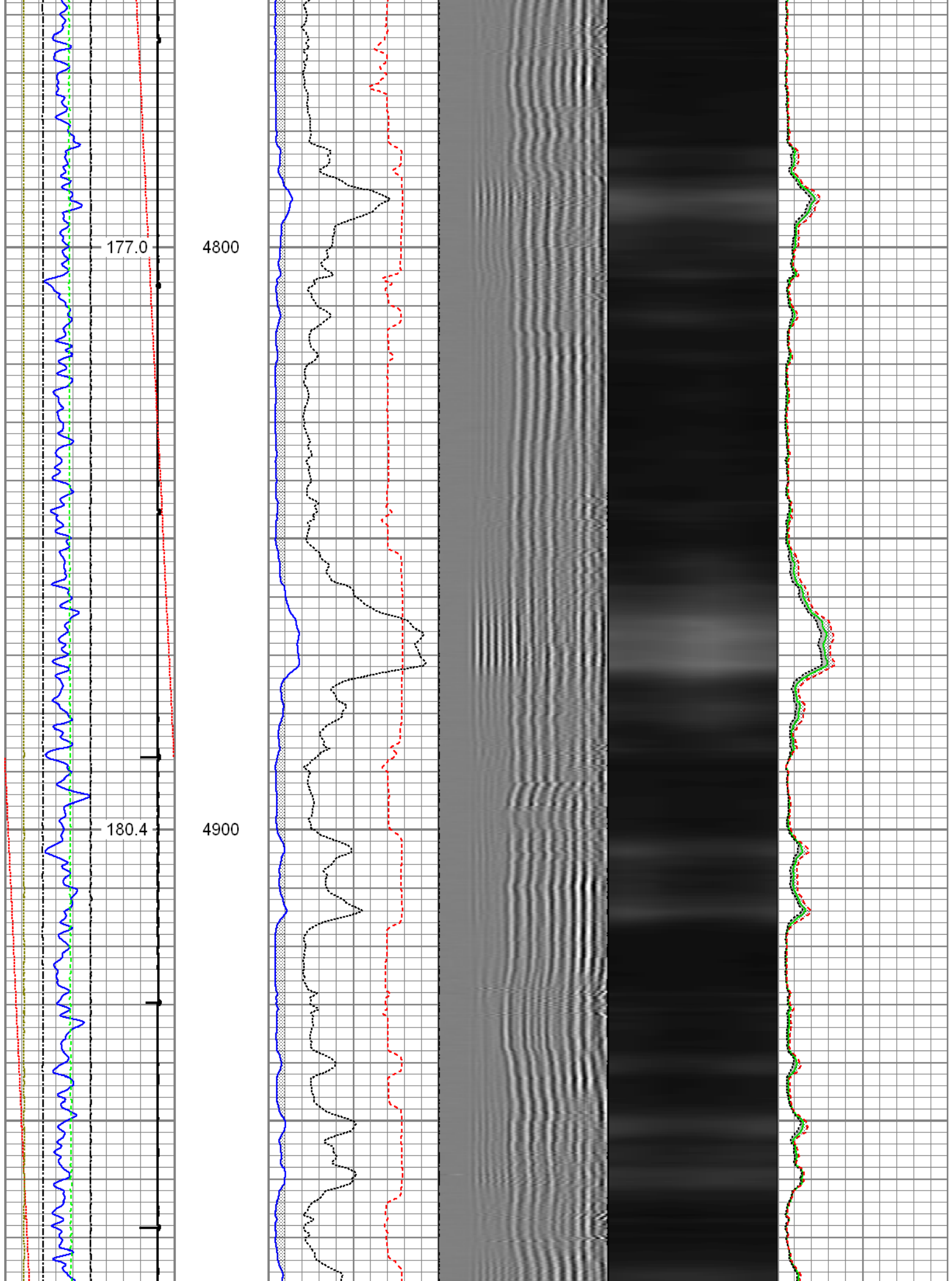


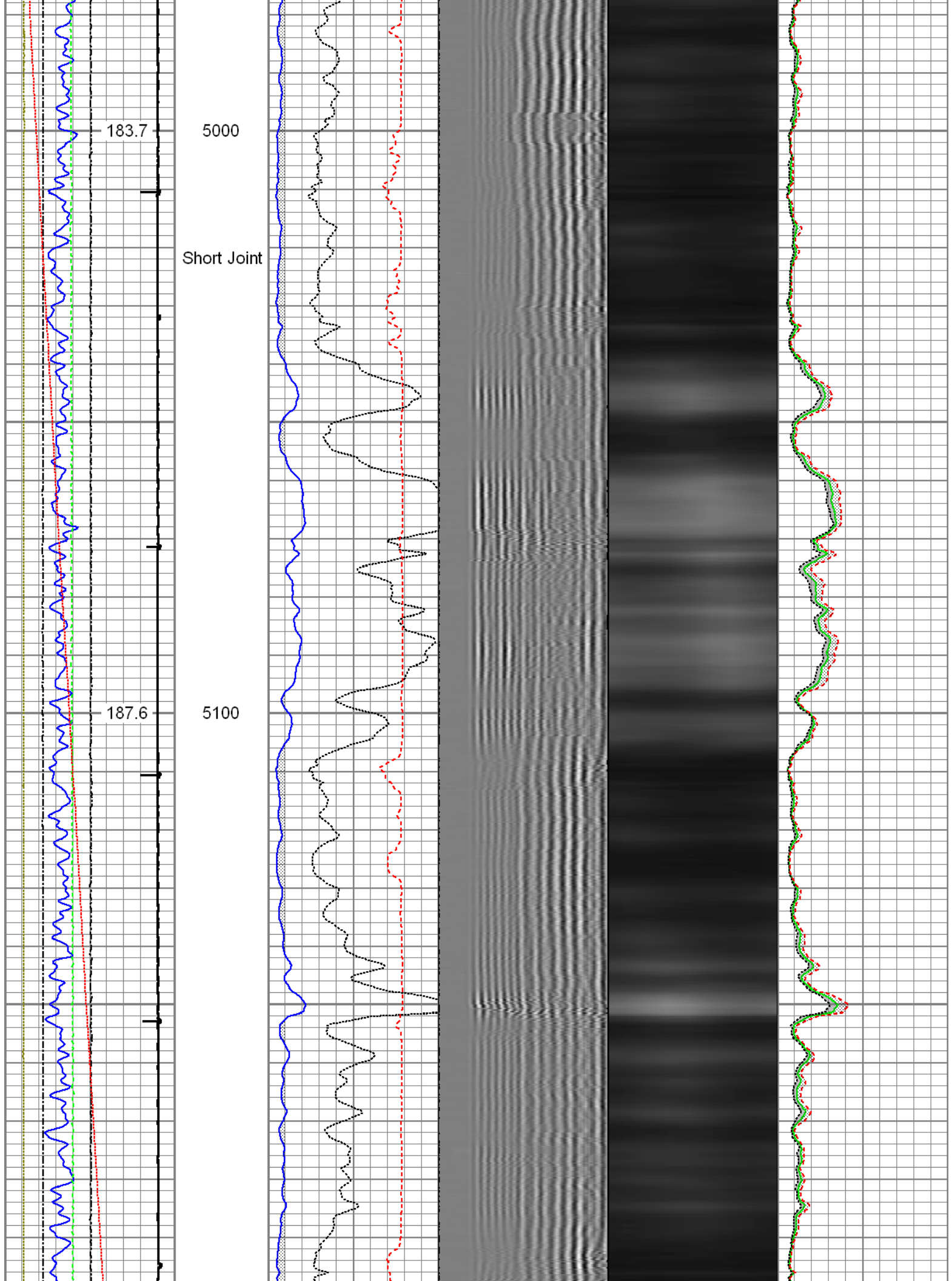












5200
Short Joint

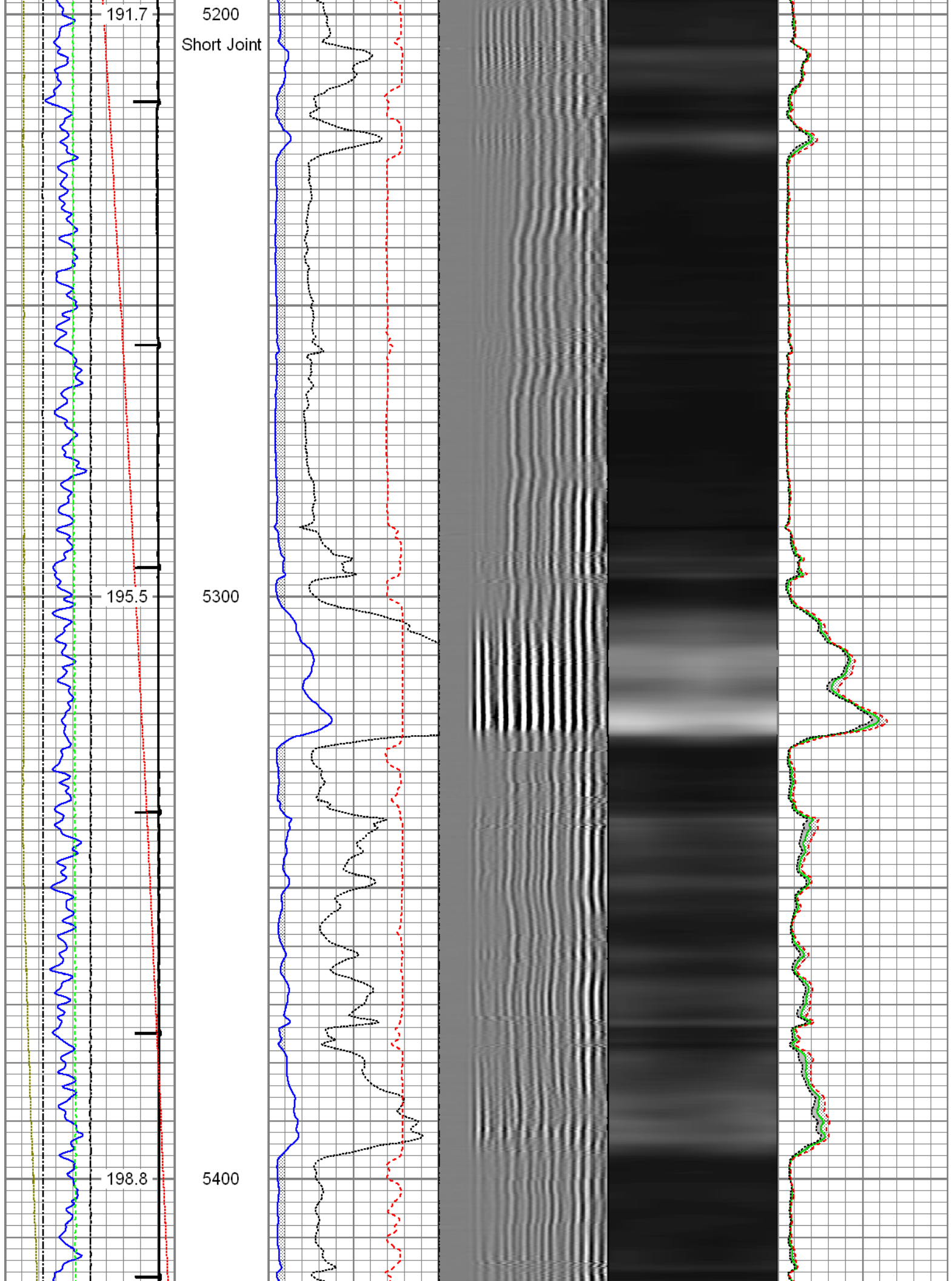
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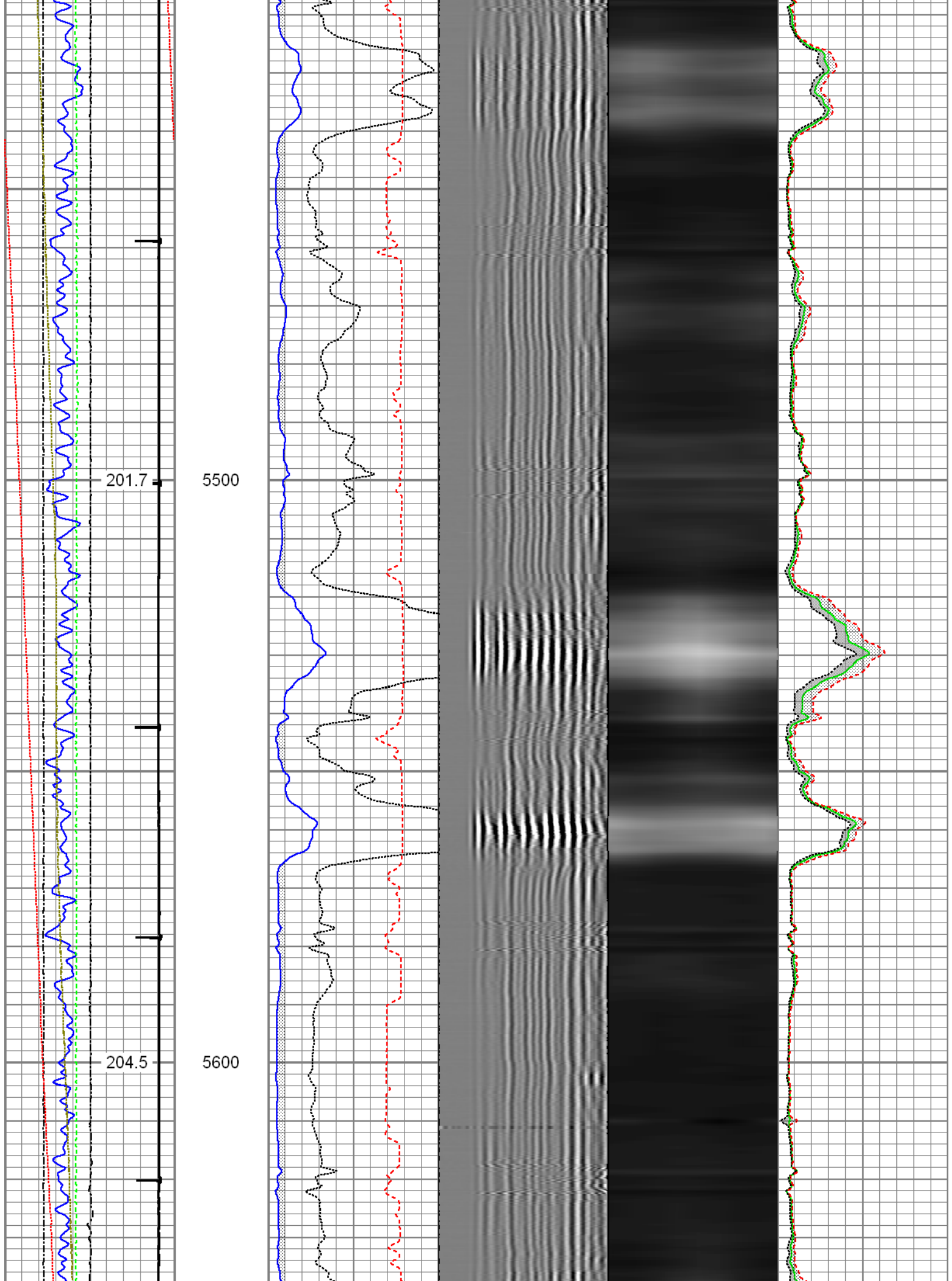
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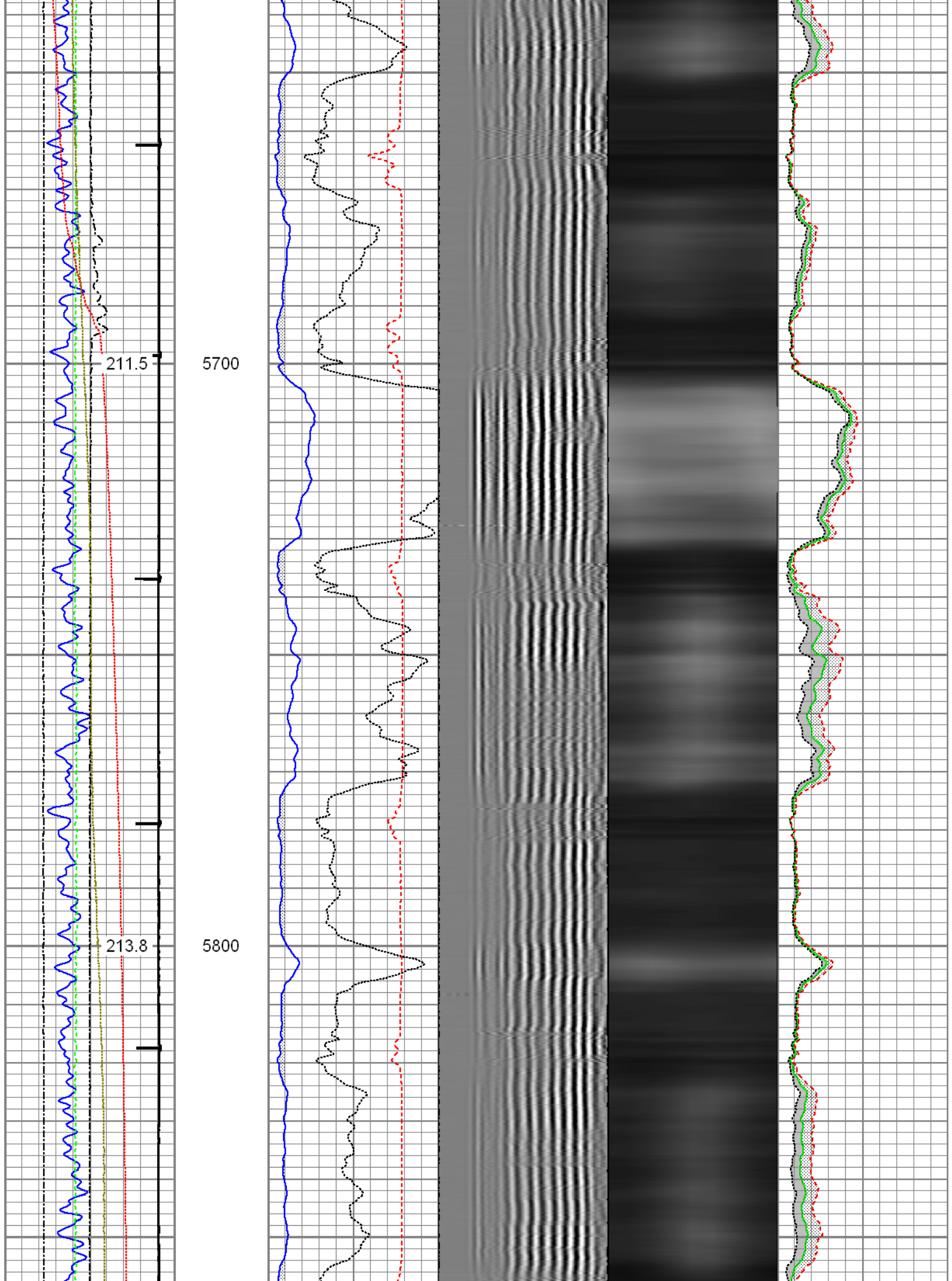
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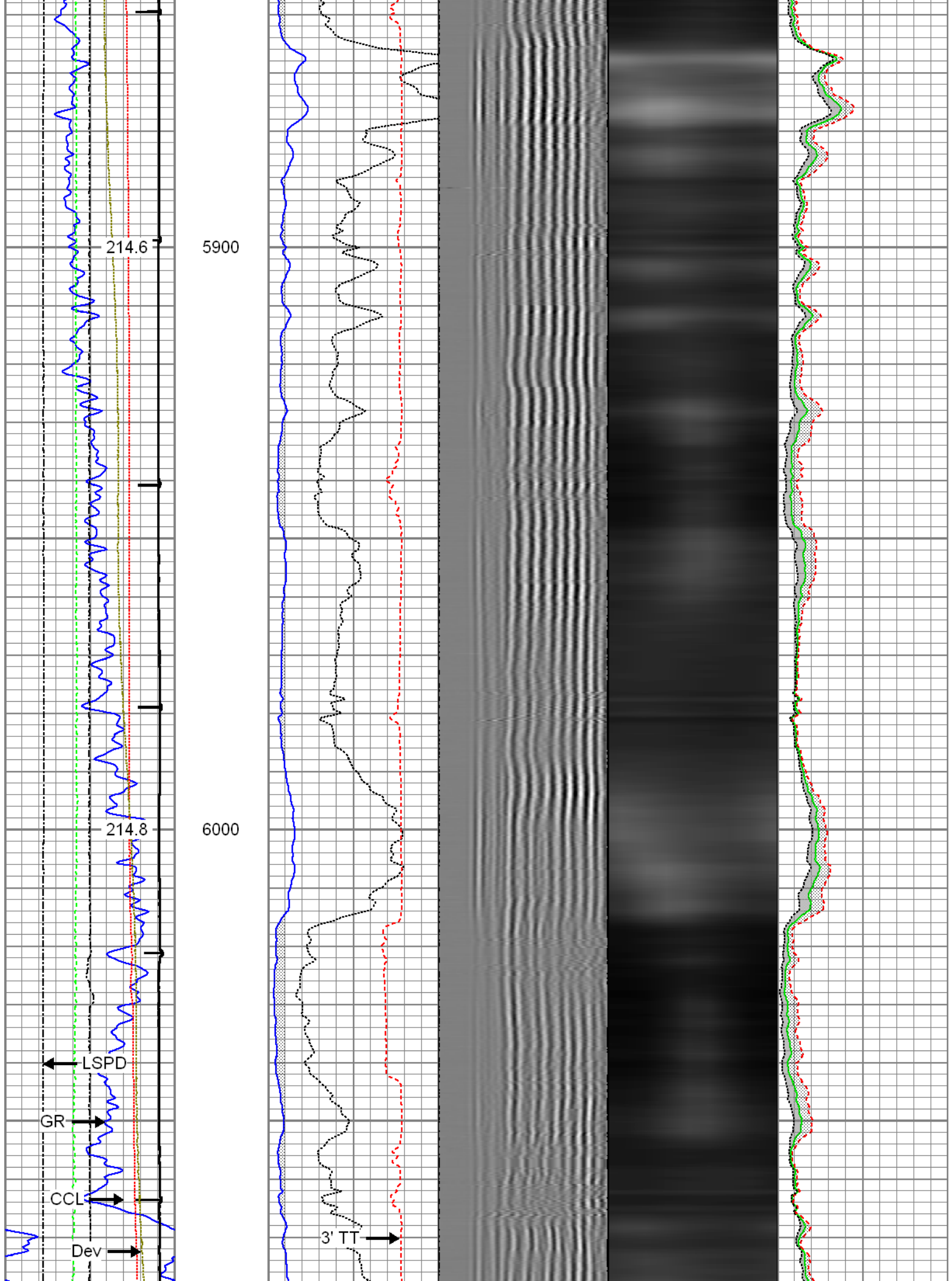
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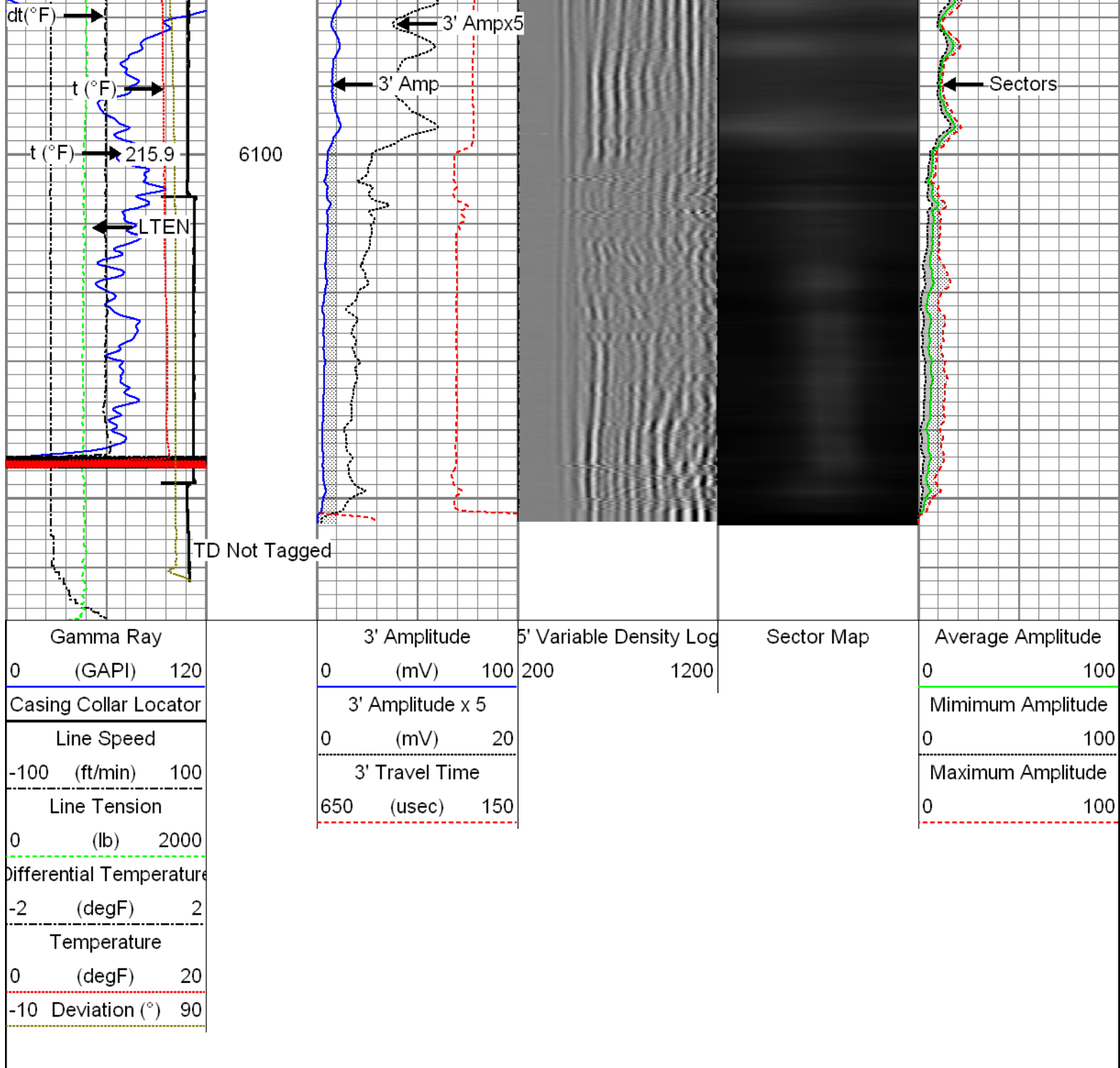
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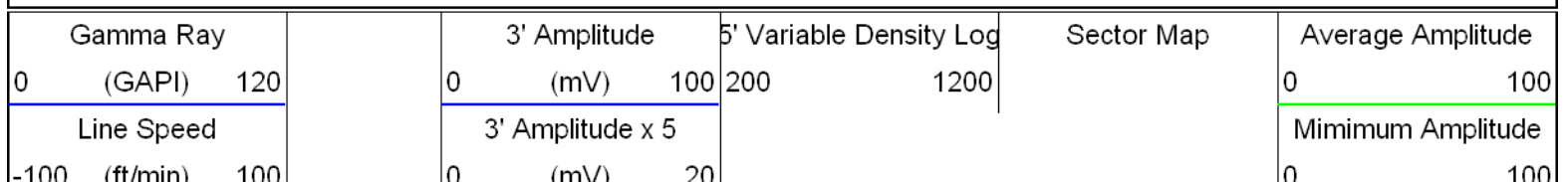




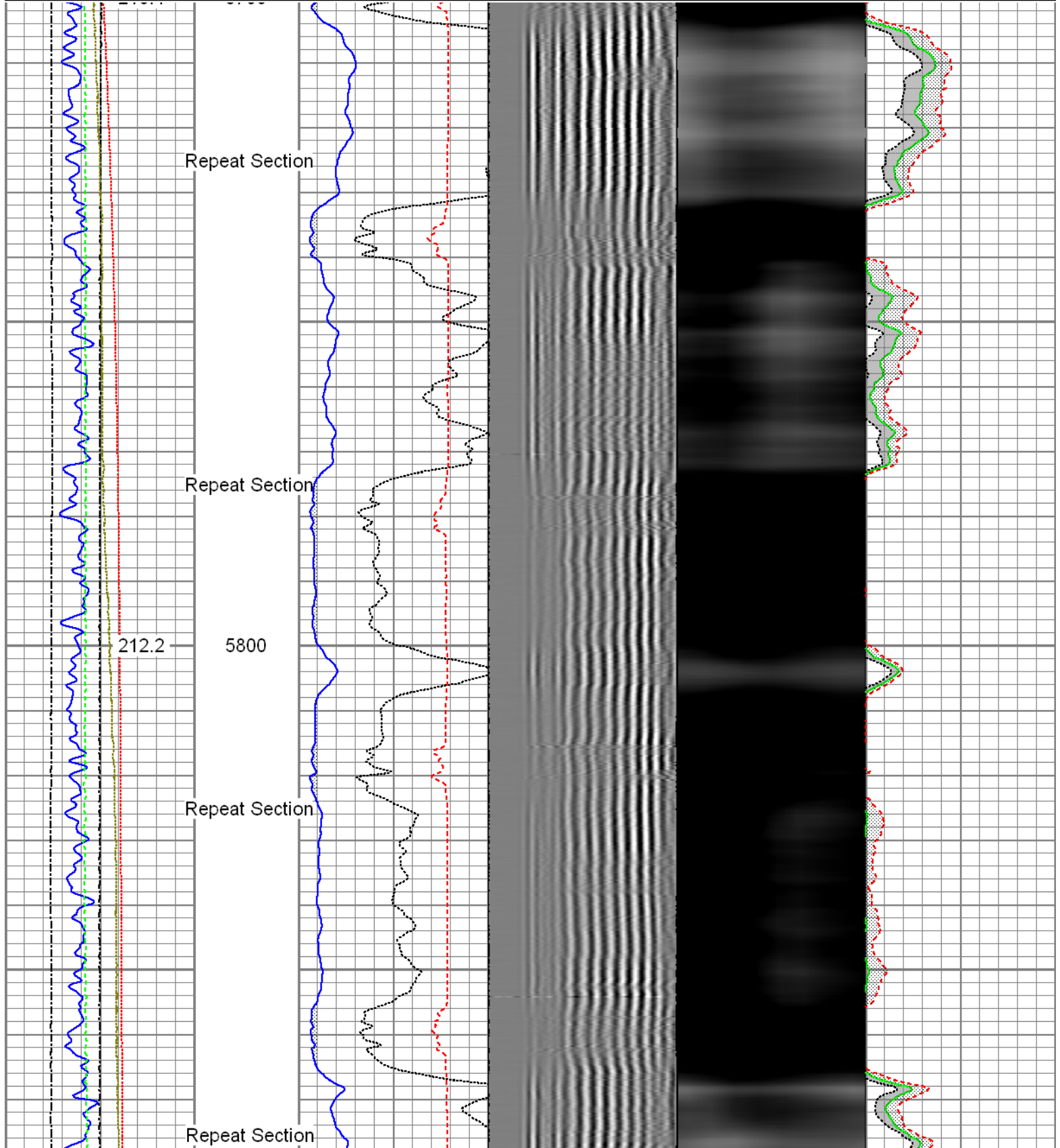
Repeat Pass

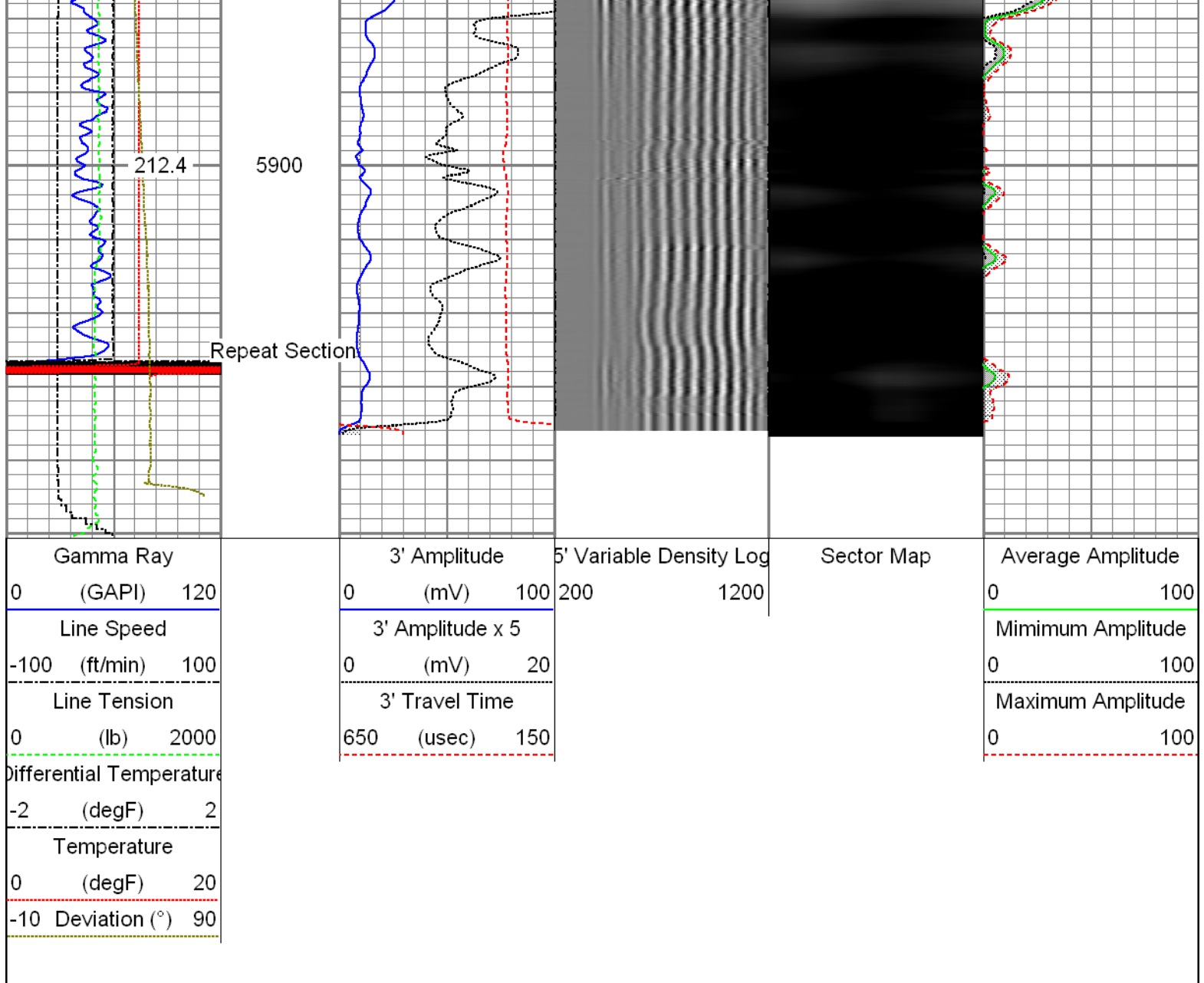
Recorded with 2500 PSI Surface Induced Pressure

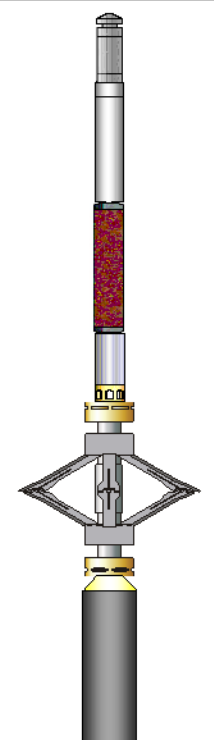
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 Presentation Format: rbt4_mit
 Dataset Creation: Wed Jan 13 13:42:35 2016 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

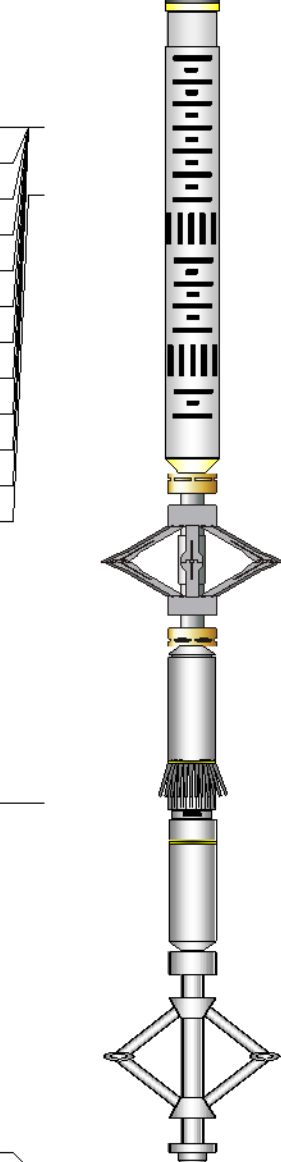


Line Tension			3' Travel Time			Maximum Amplitude		
0	(lb)	2000	650	(usec)	150	0		100
Differential Temperature								
-2	(degF)	2						
Temperature								
0	(degF)	20						
-10	Deviation (°)	90						





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
			UW_PRT-UW_PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	22.45		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

WVF3FT	15.42		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.42					
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					
WVF5FT	14.42					
			UW_PRC-DSSRAC (082) 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 #3 -UW_PRC_057 (1101) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 01-13-16_Noble_Faith LC34-775_RBL.db: field/well/run1/merge1.1 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report			
Database File:	X:\Logs_For_Processing\Logs to be reviewed\01-13-16_Noble_Faith LC34-775_MIT_RBL\01-13-16_N		
Dataset Pathname:	merge1.1		
Dataset Creation:	Wed Jan 13 16:36:17 2016 by Calc 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: Wed Jan 13 13:07:26 2016

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1476	275.0	1751	287.0	2038	297.0	2335
Finger 02:	1573	254.0	1827	259.0	2086	264.0	2350
Finger 03:	1455	276.0	1731	289.0	2020	300.0	2320
Finger 04:	1479	275.0	1754	285.0	2039	292.0	2331
Finger 05:	1511	266.0	1777	276.0	2053	281.0	2334
Finger 06:	1442	279.0	1721	293.0	2014	305.0	2319
Finger 07:	1463	275.0	1738	289.0	2027	301.0	2328
Finger 08:	1452	270.0	1722	286.0	2008	294.0	2302
Finger 09:	1438	274.0	1712	292.0	2004	303.0	2307
Finger 10:	1453	264.0	1717	283.0	2000	289.0	2289
Finger 11:	1451	273.0	1724	293.0	2017	303.0	2320
Finger 12:	1393	275.0	1668	300.0	1968	309.0	2277
Finger 13:	1484	254.0	1738	272.0	2010	279.0	2289
Finger 14:	1429	260.0	1689	286.0	1975	296.0	2271
Finger 15:	1421	274.0	1695	297.0	1992	307.0	2299
Finger 16:	1432	266.0	1698	294.0	1992	301.0	2293
Finger 17:	1426	275.0	1701	299.0	2000	312.0	2312
Finger 18:	1382	264.0	1646	292.0	1938	303.0	2241
Finger 19:	1419	271.0	1690	295.0	1985	302.0	2287
Finger 20:	1416	268.0	1684	294.0	1978	306.0	2284
Finger 21:	1397	281.0	1678	308.0	1986	319.0	2305
Finger 22:	1426	262.0	1688	285.0	1973	294.0	2267
Finger 23:	1394	267.0	1661	290.0	1951	299.0	2250
Finger 24:	1439	268.0	1707	286.0	1993	293.0	2286
Finger 25:	1379	274.0	1653	284.0	1937	295.0	2232
Finger 26:	1395	277.0	1672	297.0	1969	307.0	2276
Finger 27:	1448	269.0	1717	286.0	2003	293.0	2296
Finger 28:	1441	282.0	1723	297.0	2020	307.0	2327
Finger 29:	1494	262.0	1756	278.0	2034	284.0	2318
Finger 30:	1396	277.0	1673	295.0	1968	311.0	2279
Finger 31:	1421	284.0	1705	297.0	2002	306.0	2308
Finger 32:	1465	265.0	1730	276.0	2006	283.0	2289
Finger 33:	1433	282.0	1715	303.0	2018	310.0	2328
Finger 34:	1441	280.0	1721	297.0	2018	308.0	2326
Finger 35:	1495	256.0	1751	270.0	2021	276.0	2297
Finger 36:	1515	266.0	1781	281.0	2062	291.0	2353
Finger 37:	1480	279.0	1759	293.0	2052	299.0	2351
Finger 38:	1563	249.0	1812	260.0	2072	272.0	2344
Finger 39:	1478	271.0	1749	281.0	2030	287.0	2317
Finger 40:	1398	281.0	1679	299.0	1978	309.0	2287

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454
Tool Model: UW_RBT_004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 6167.645 ft

Master Calibration, performed Wed Jan 13 16:35:52 2016:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.003	0.709	0.800	62.165	86.997	0.509
5FT	0.000	0.798	0.800	62.165	76.930	0.788

S1	0.003	0.698	0.000	100.000	143.737	-0.398
S2	0.002	0.718	0.000	100.000	139.671	-0.275
S3	0.003	0.729	0.000	100.000	137.699	-0.406
S4	0.003	0.736	0.000	100.000	136.499	-0.427
S5	0.004	0.728	0.000	100.000	138.047	-0.565
S6	0.002	0.714	0.000	100.000	140.422	-0.313
S7	0.002	0.691	0.000	100.000	145.071	-0.241
S8	0.002	0.688	0.000	100.000	145.601	-0.228

Temperature Calibration Report

Serial Number: 10025097
 Tool Model: UW_PRT_016
 Performed: Wed Feb 11 13:44:44 2015

Point #	Reading	Reference
1	13053.00 cps	68.00 degF
2	18014.00 cps	104.00 degF
3	29668.00 cps	176.00 degF
4	41181.00 cps	248.00 degF
5	52983.00 cps	320.00 degF
6	58931.00 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: Sat Jan 09 08:09:30 2016

Calibrator Value: 1.0 GAPI
 Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps
 Sensitivity: 0.6000 GAPI/cps



Company: Noble Energy Inc.
 Well: Faith LC34-775
 Field: Wattenberg
 County: Weld
 State: Colorado