

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Reynolds Cattle 30N-23HZ
Field	Wattenberg
County	Weld
State	Colorado
Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Reynolds Cattle 30N-23HZ
Field	Wattenberg
County	Weld
State	Colorado
Location:	API #: 05-123-39135
SHL: 560' FNL & 155' FEL NENE Lat/Long: 40.217381/-104.961385	
SEC 23 TWP 3N RGE 68W	
Permanent Datum	Ground Level
Log Measured From	Kelly Bushing
Drilling Measured From	Kelly Bushing
Elevation	4931'
Other Services	Gauge Ring Set RBP MIT
Elevation	K.B. 4947' D.F. 4946' G.L. 4931'

Date	July 27, 2014
Run Number	One
Depth Driller	12429 FT
Depth Logger	6585 FT
Bottom Logged Interval	6580 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	205°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	12:15 p.m.
Equipment Number	HD 0255
Location	Fort Lupton, CO
Recorded By	Zach Fisher
Witnessed By	Trevor Daniels

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	1332 FT		
Intermediate #1	7	26	HCP-110	Surface	7506 FT		
Intermediate #2							
Liner	4 1/2	11.6	P-110	6546 FT	12439 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.

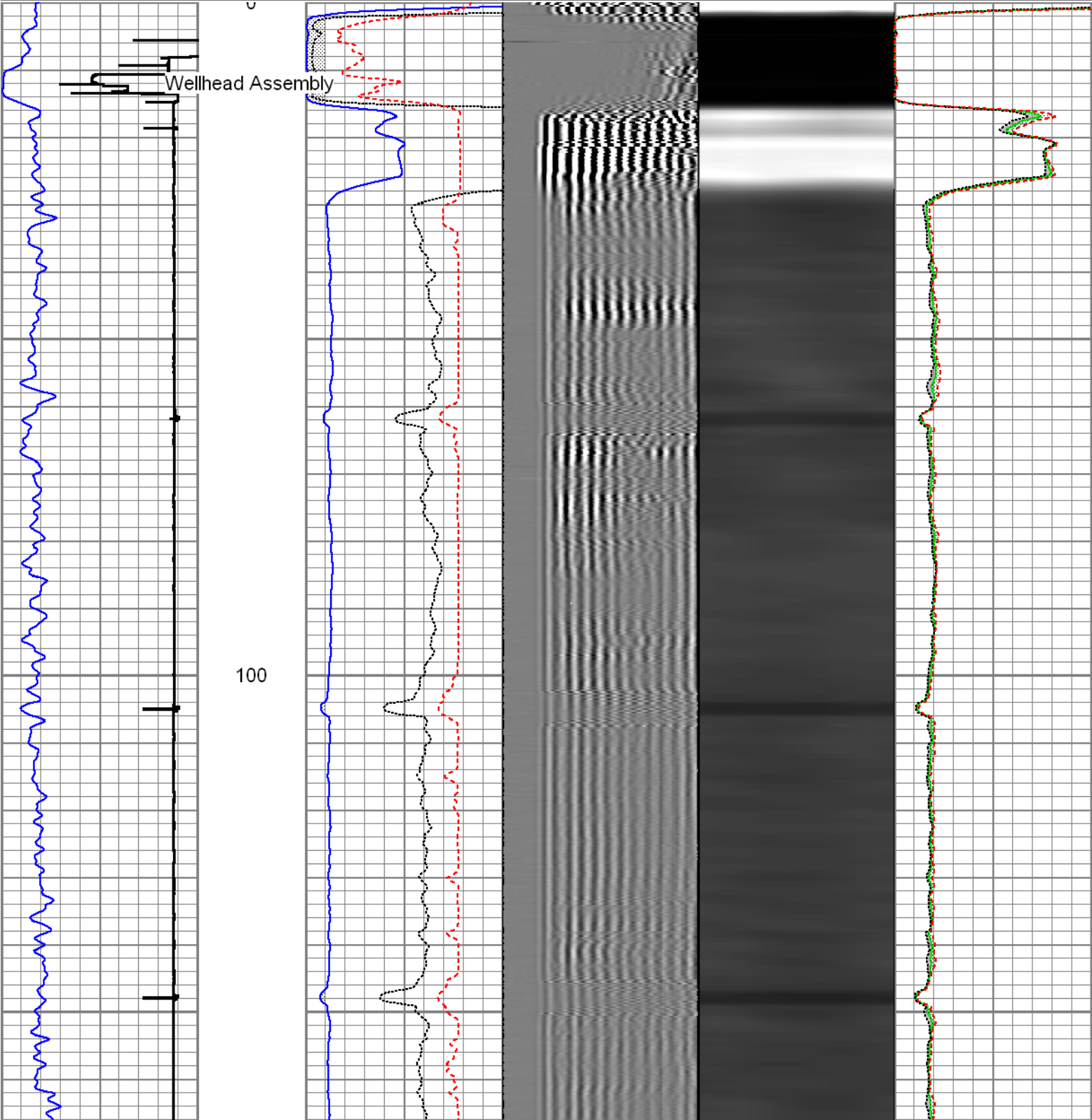
Comments

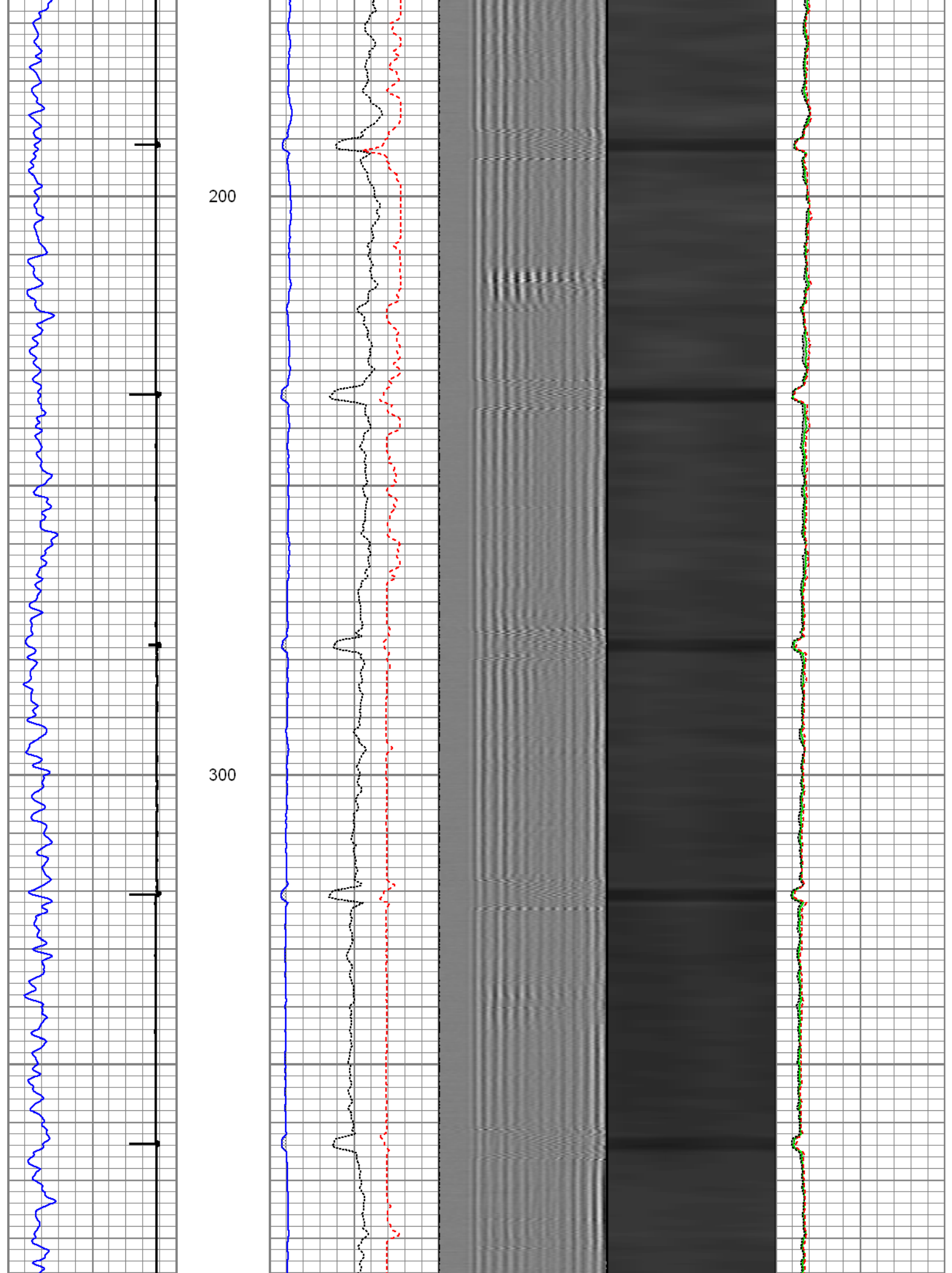
Log ran as per Customer request.
 Depth reference to Casing Tally reported Liner Top at 6546 FT.
 Adjusted log - 4 FT prior to log run.
 Gauge Ring/Junk Basket ran to 6650 FT prior to log run.
 Log ran from 6585 FT to surface.
 Log ran with 2800 PSI surface induced pressure.

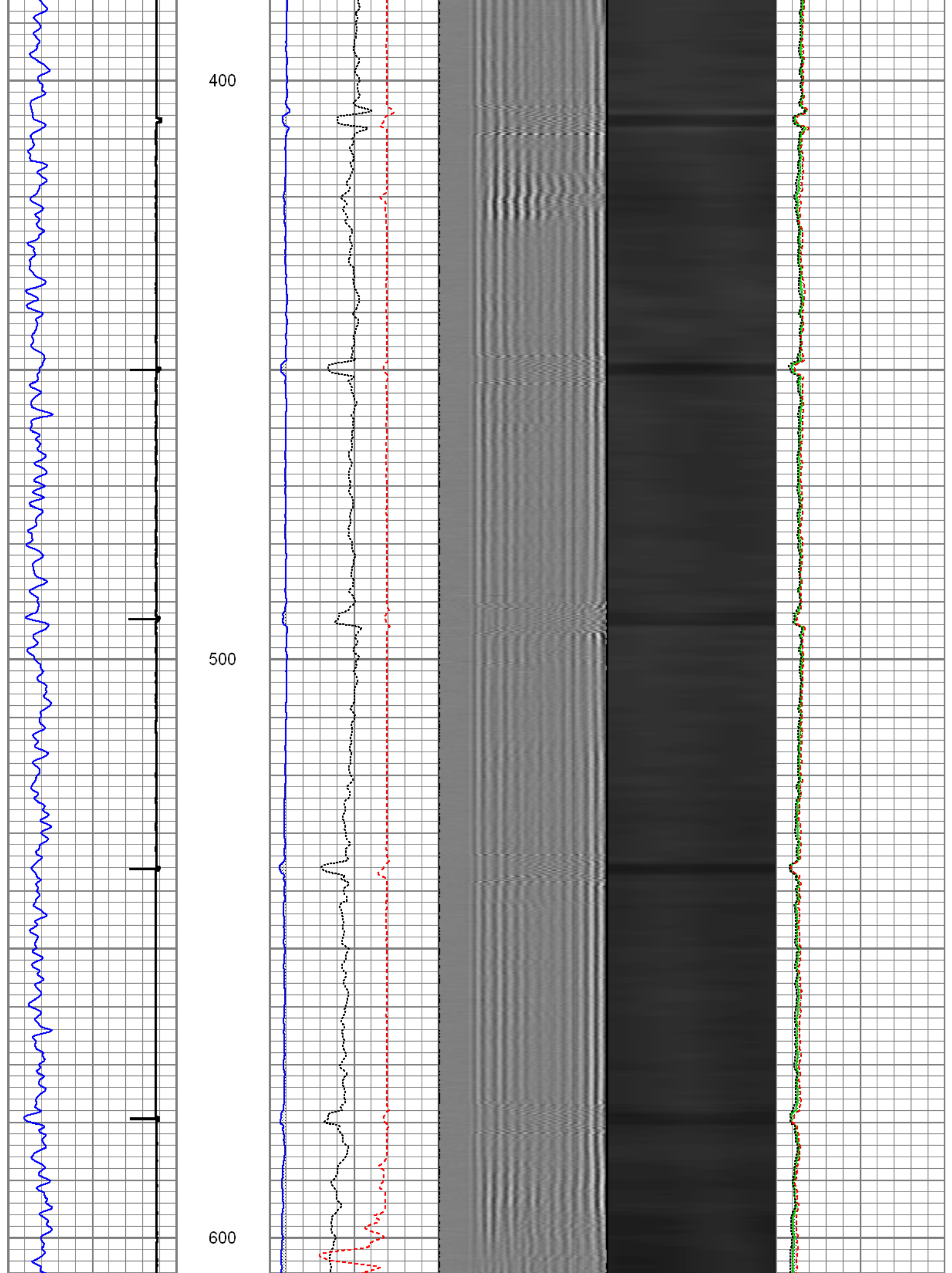
Thank you for choosing FMC Technologies Completion Services, Inc.!!

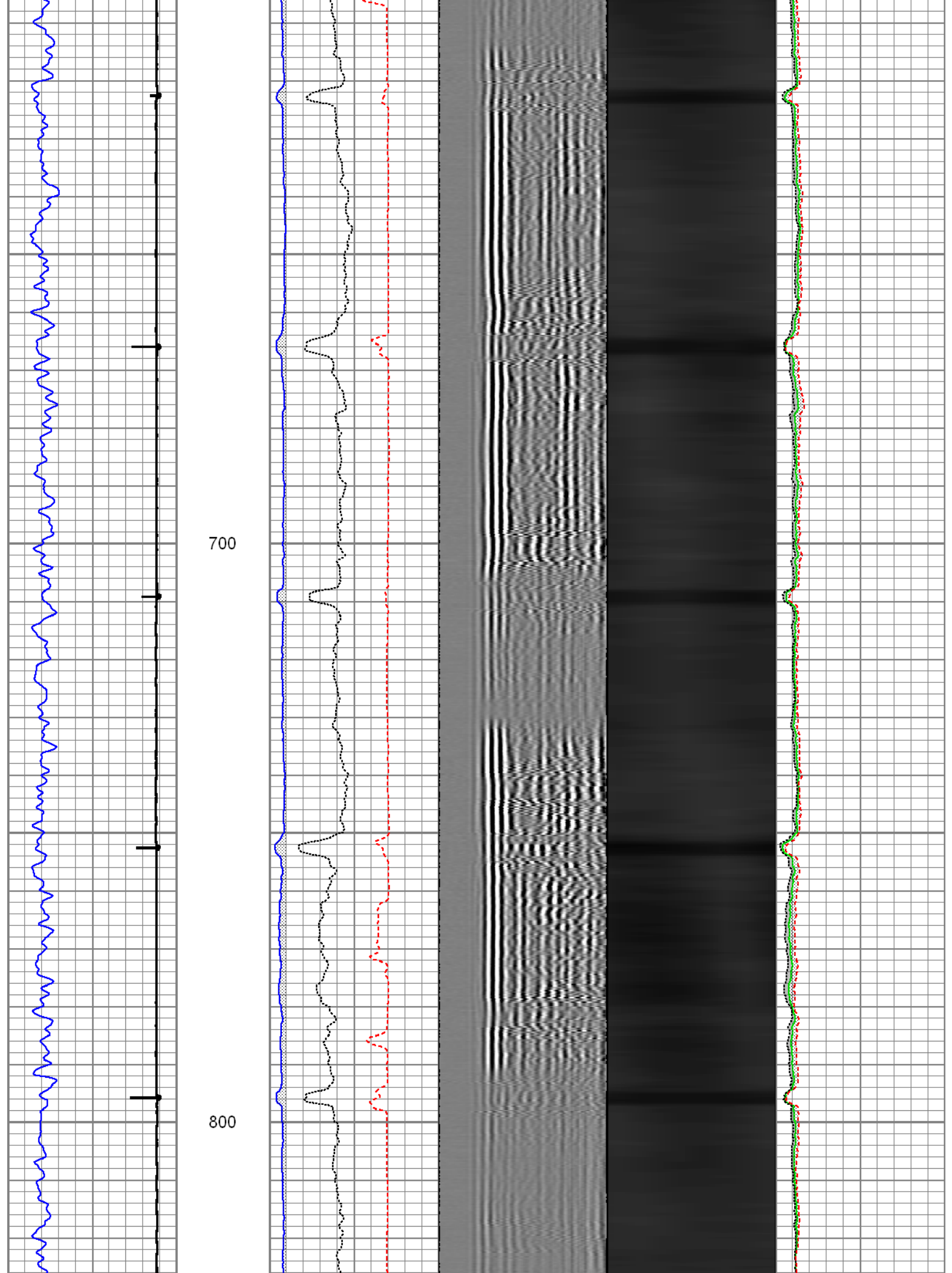
Database File: 0512339135_anadarko_reynolds cattle 30n-23hz_07-27-14_mit_rbl.db
Dataset Pathname: 7Main
Presentation Format: rbt4_mit
Dataset Creation: Sun Jul 27 12:16:47 2014 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240

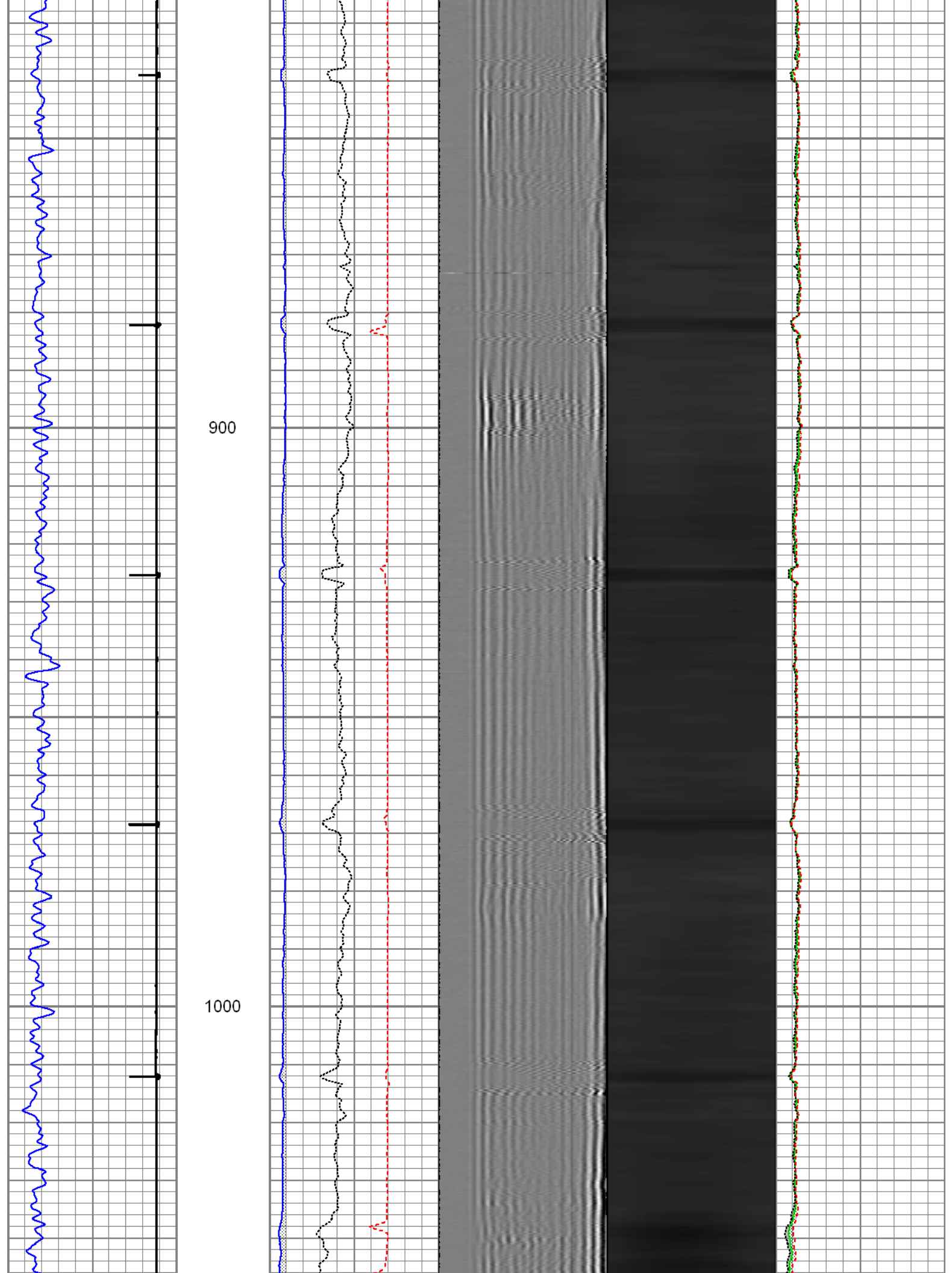
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100

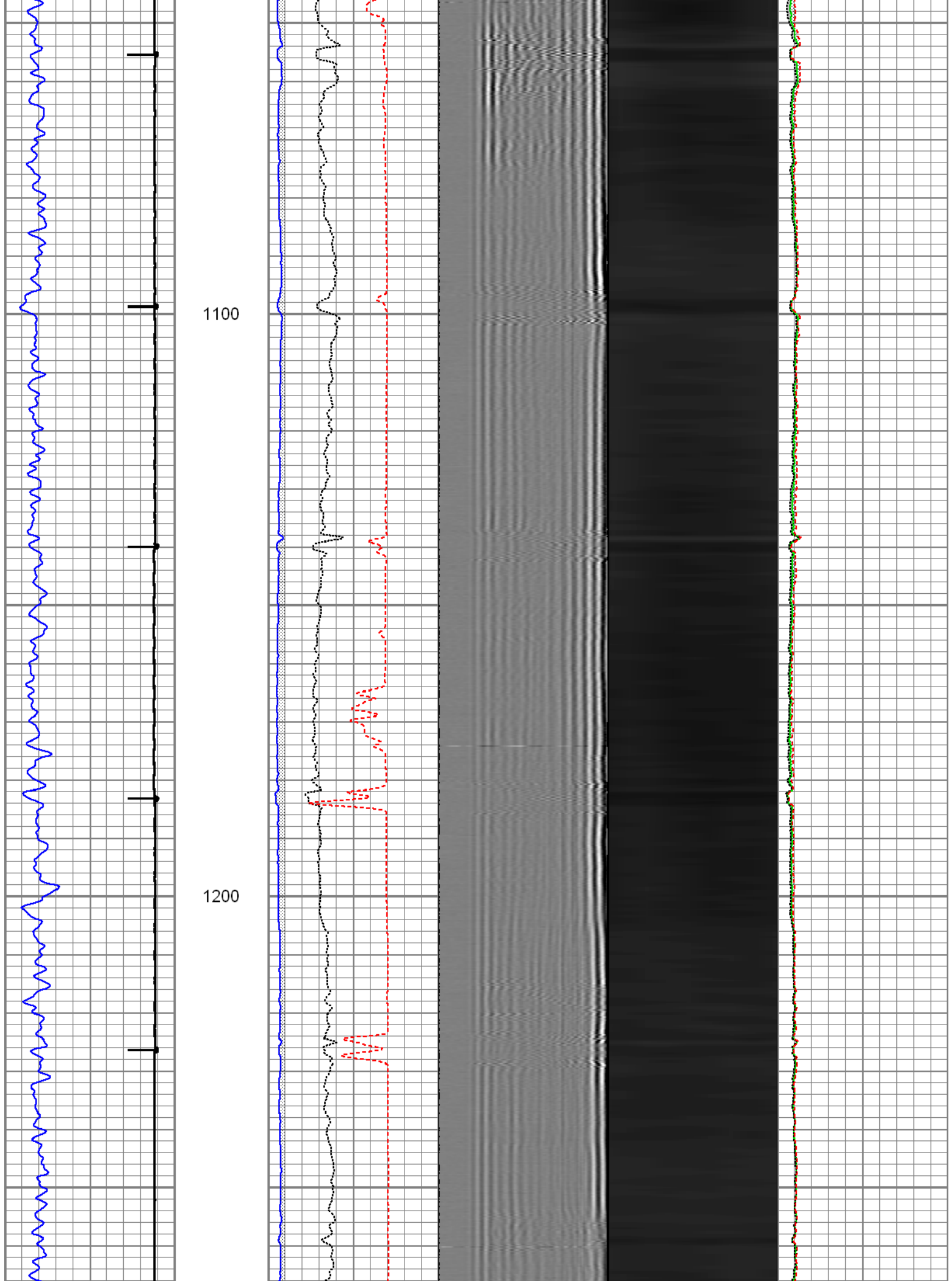


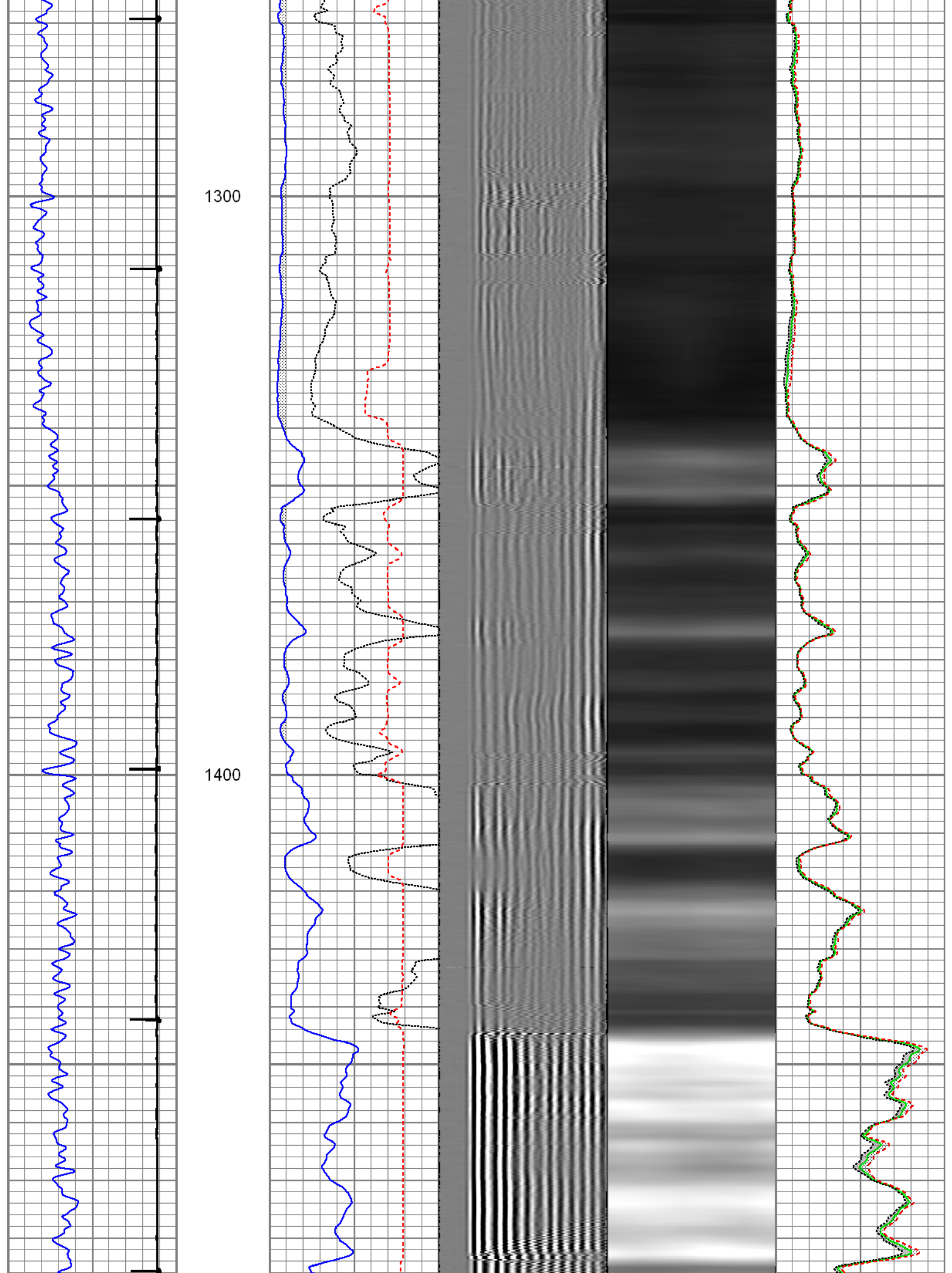


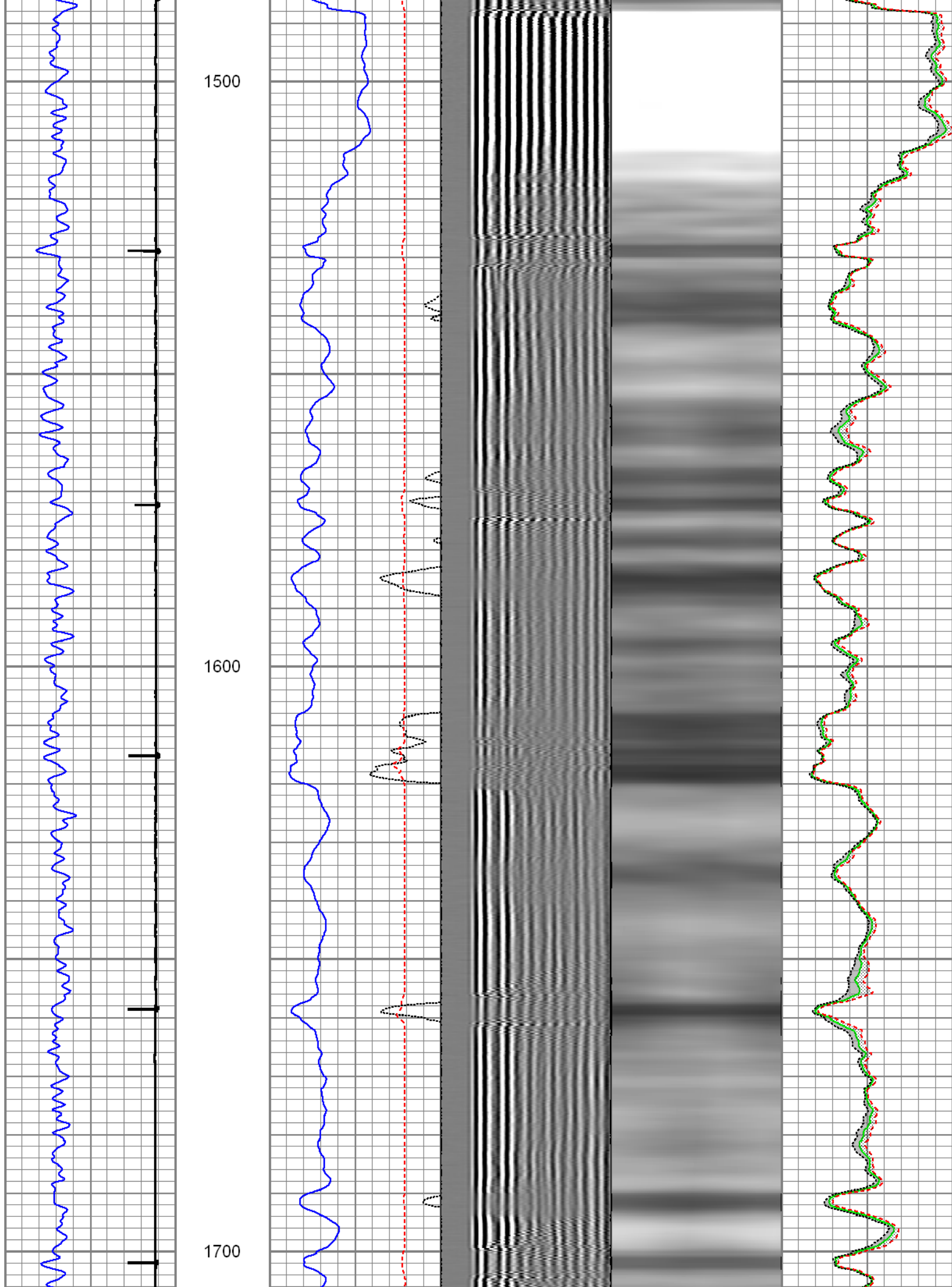


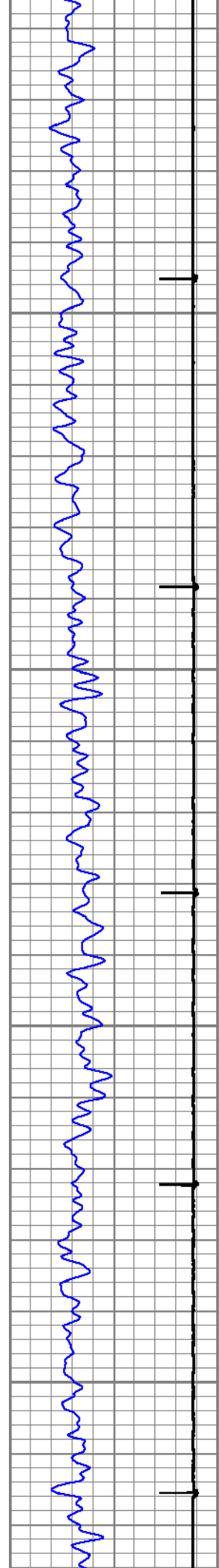






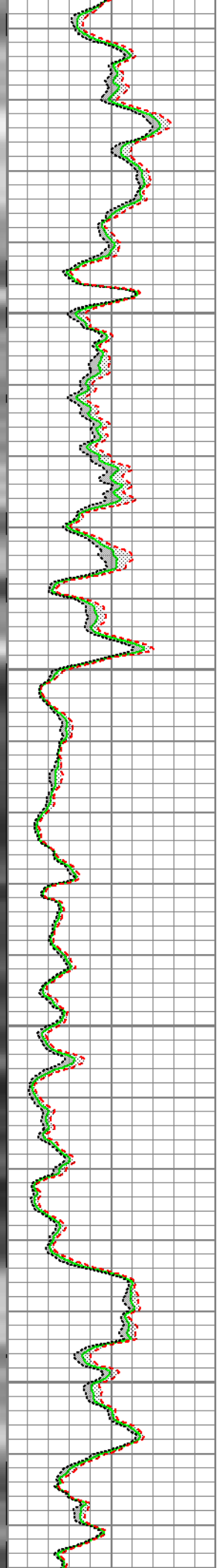
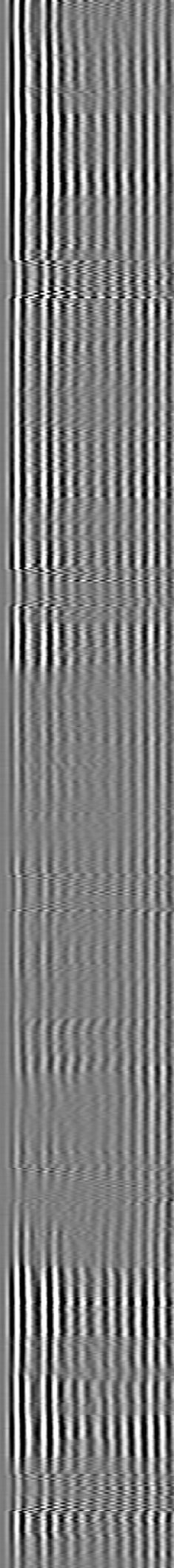
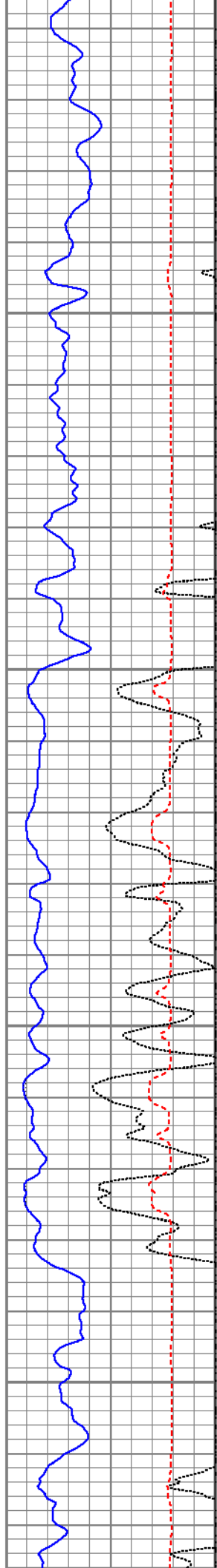


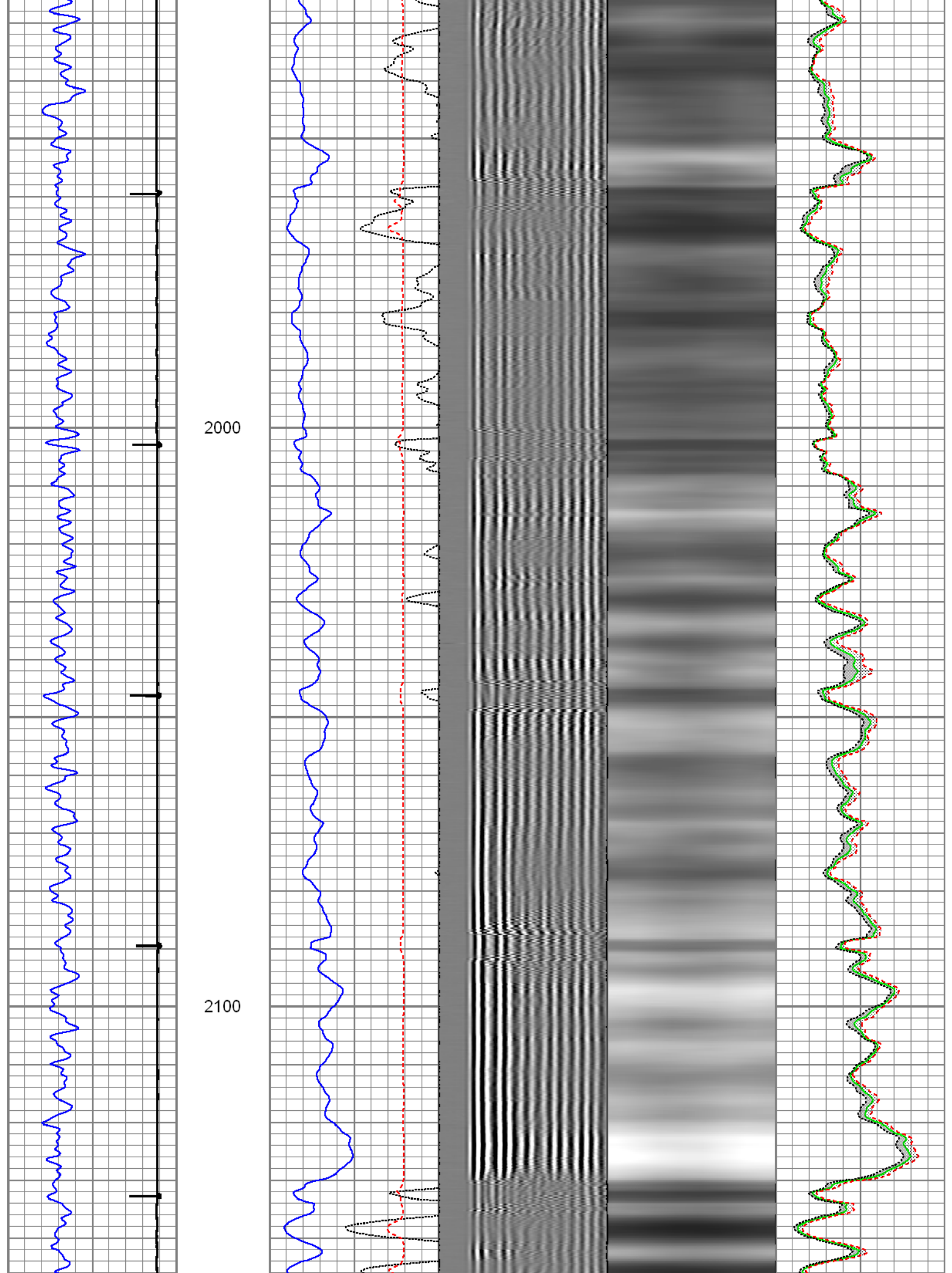




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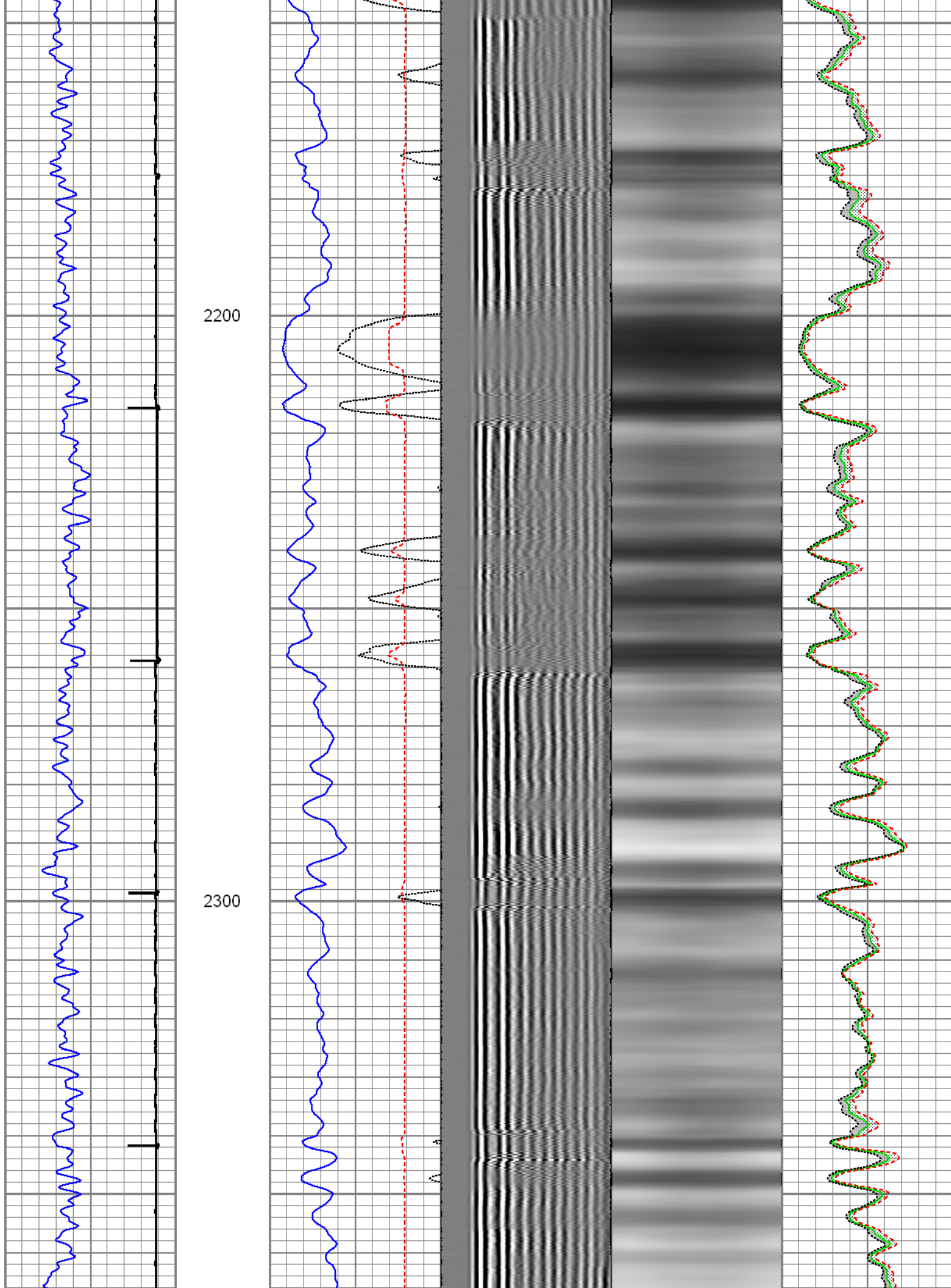
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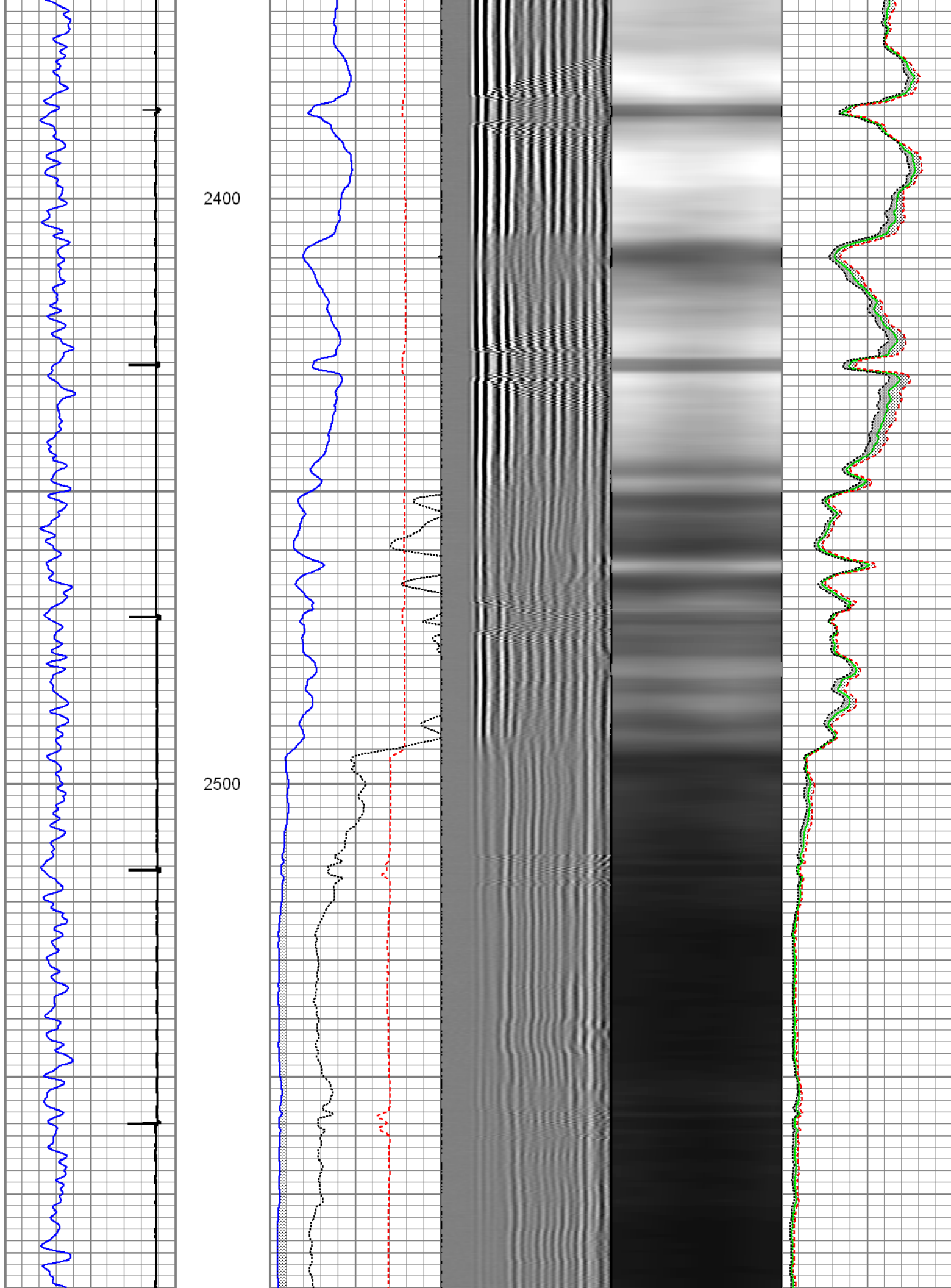
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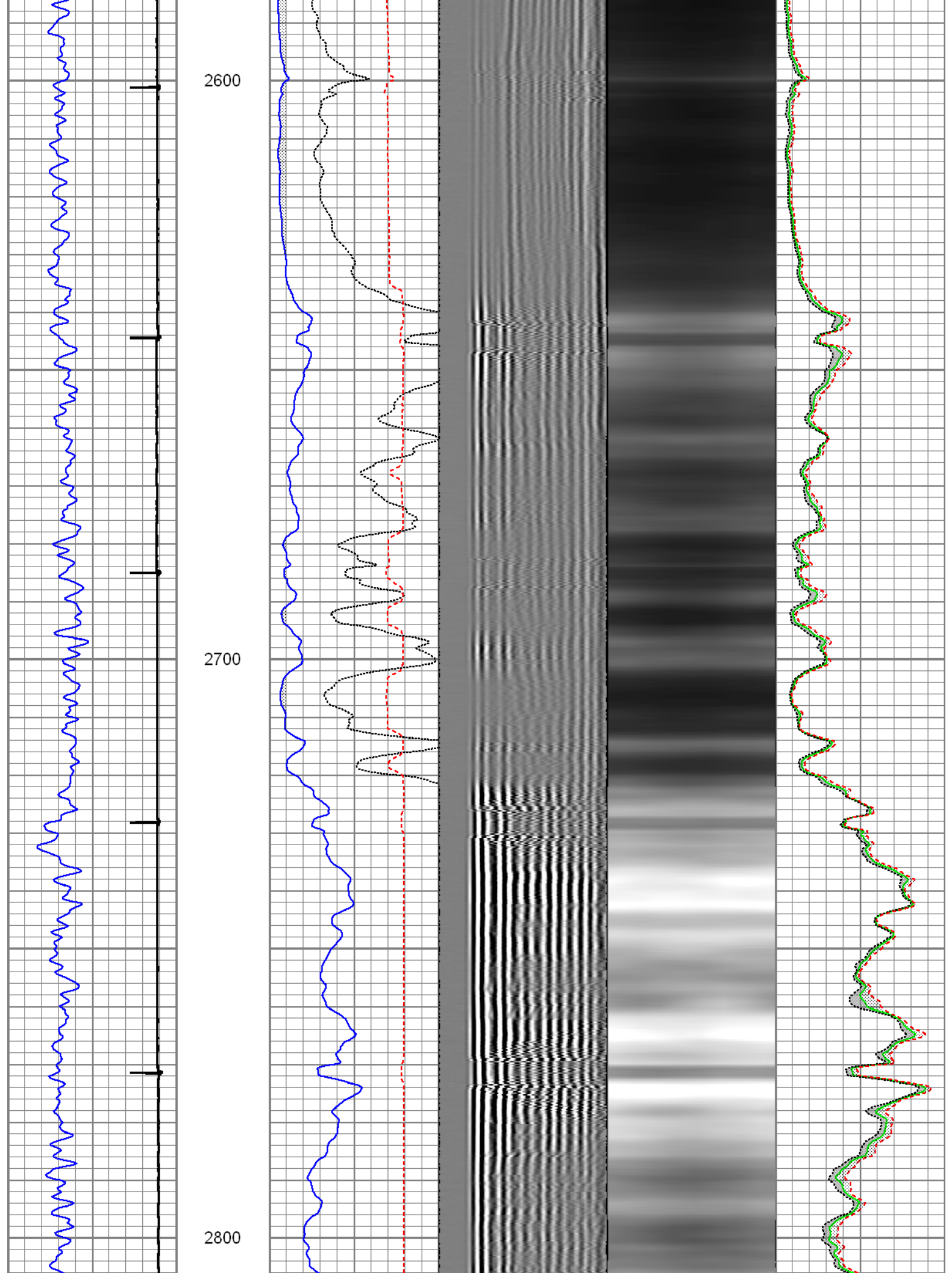
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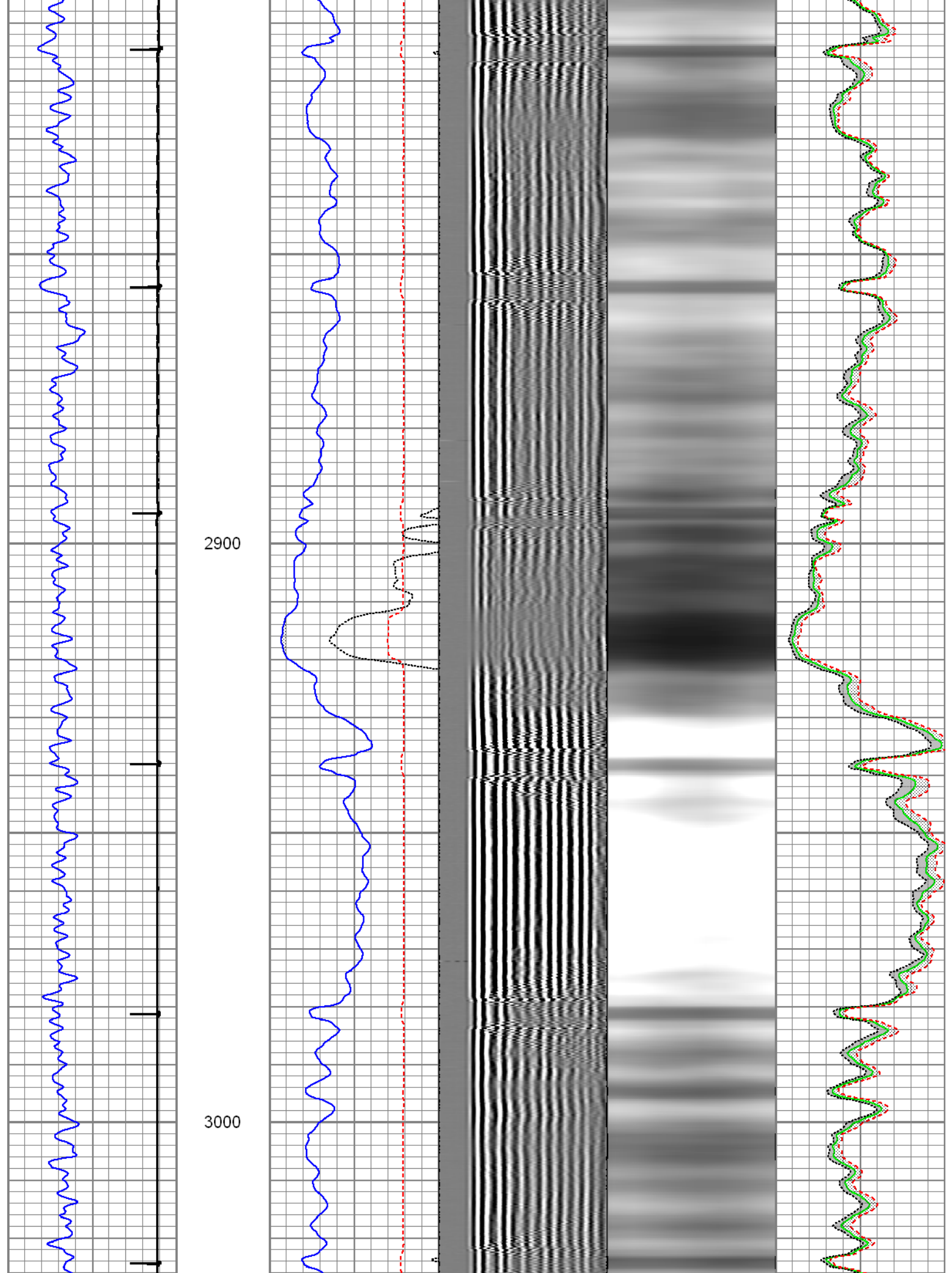


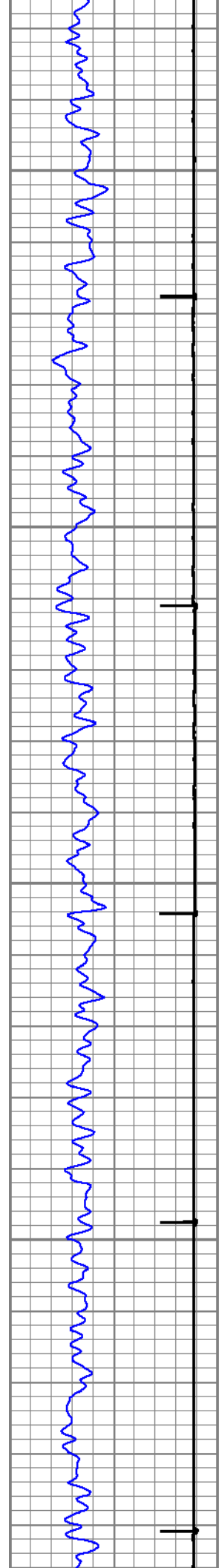
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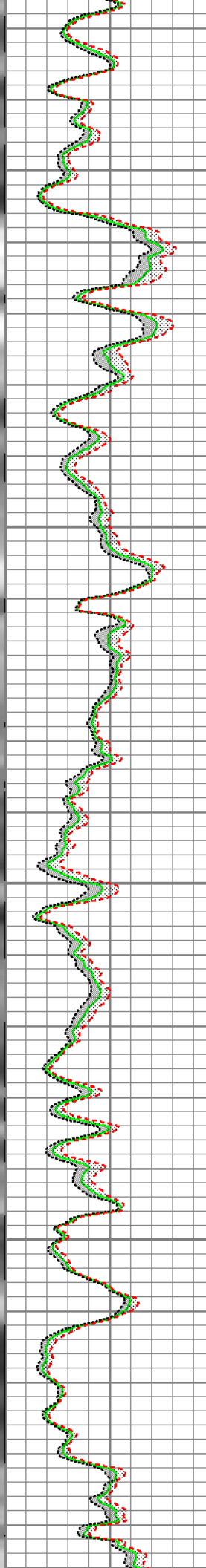
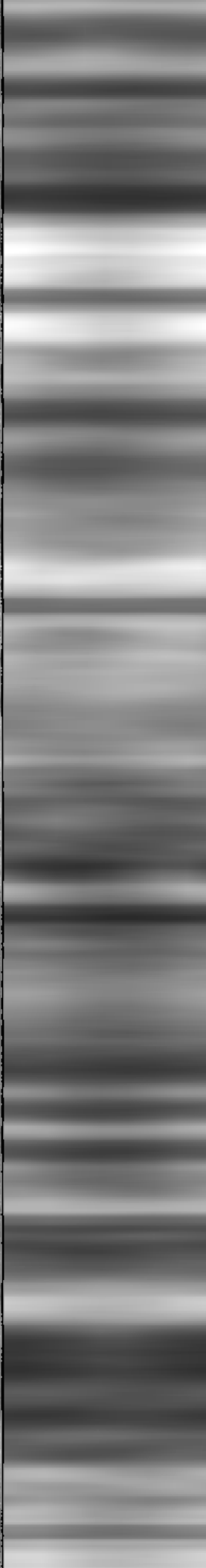
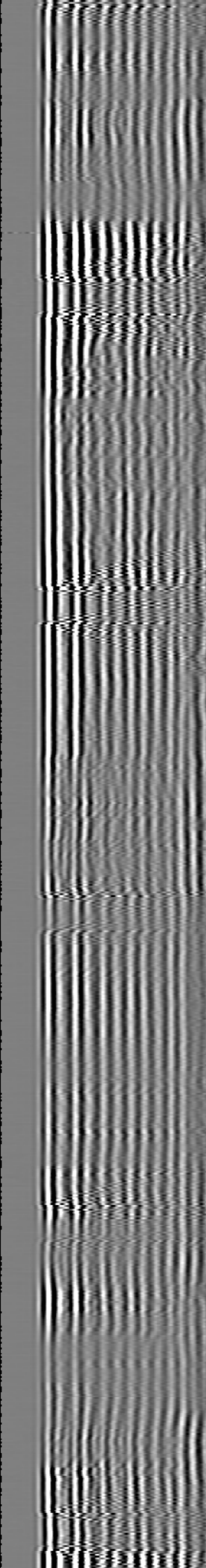
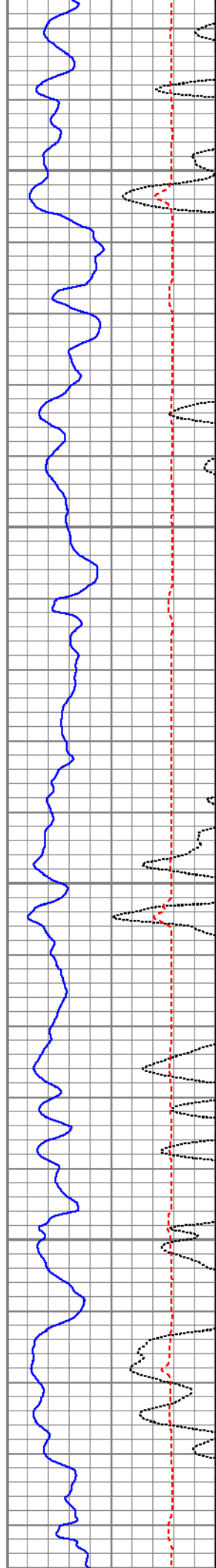


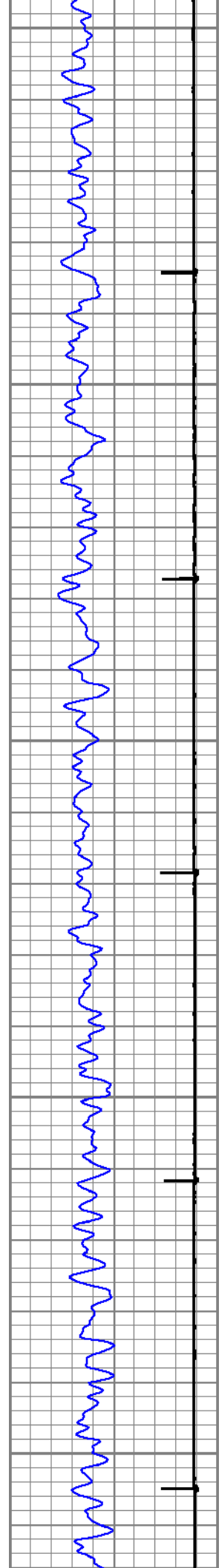




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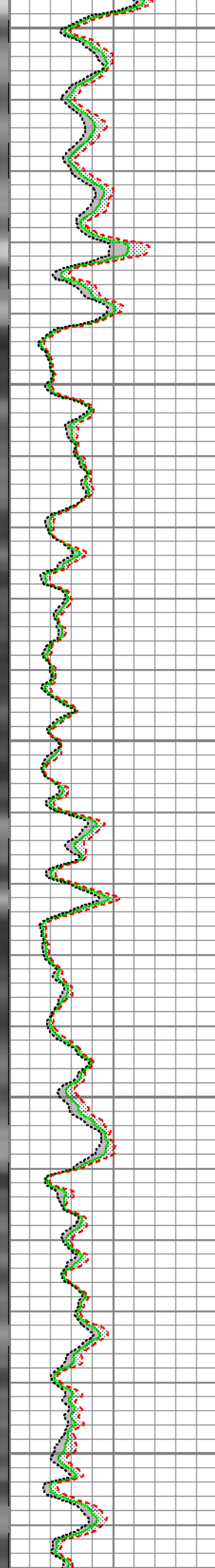
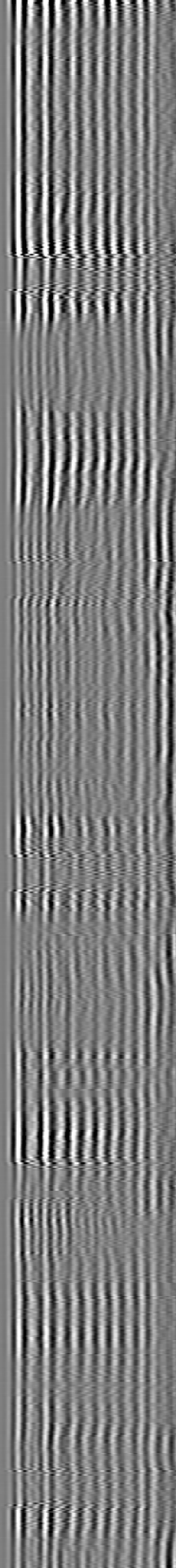
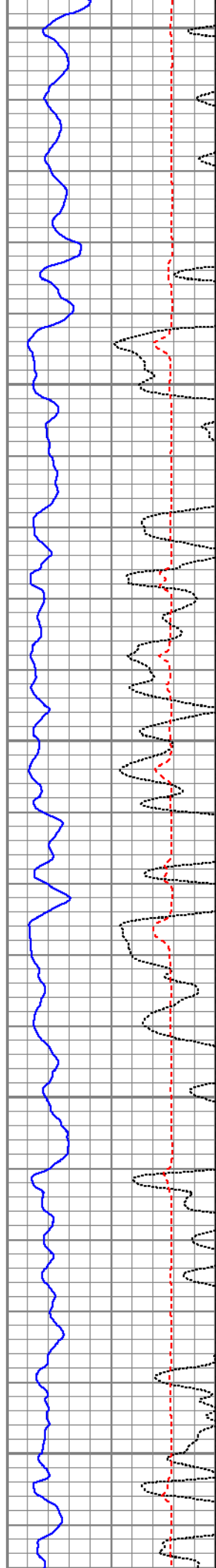
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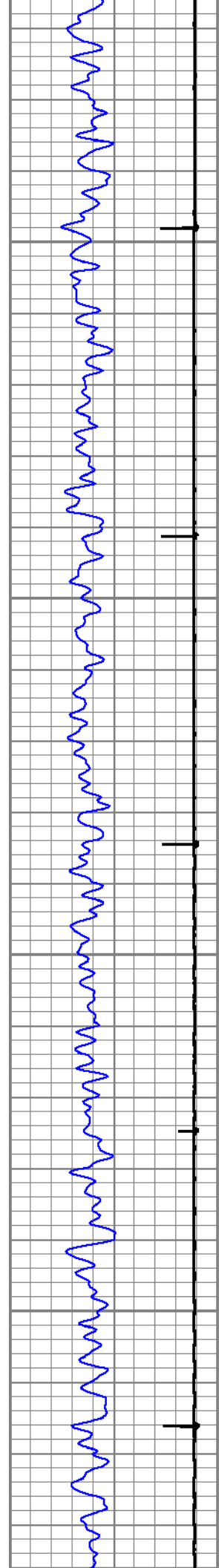




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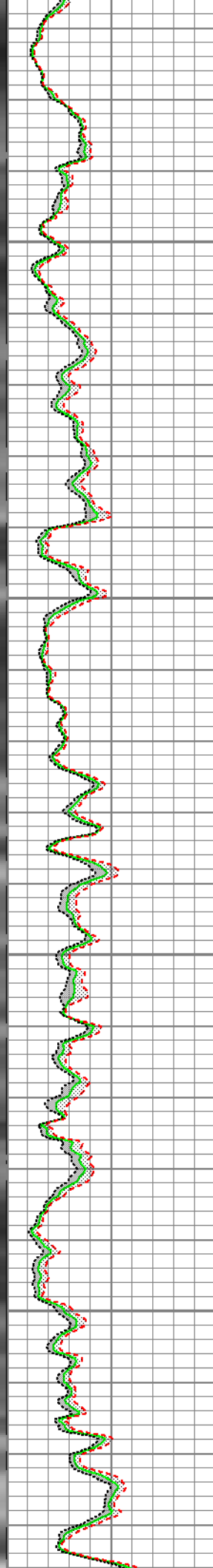
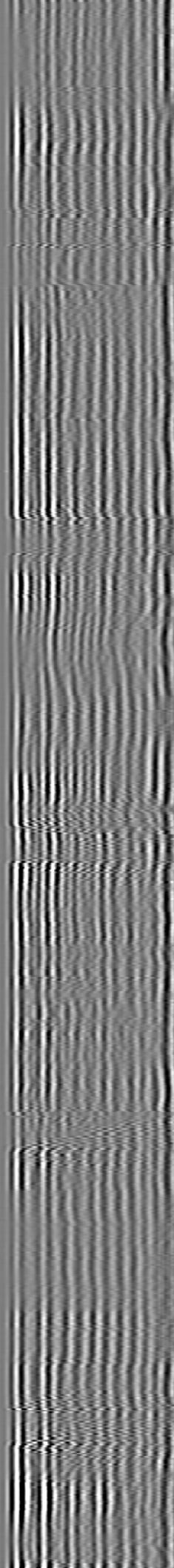
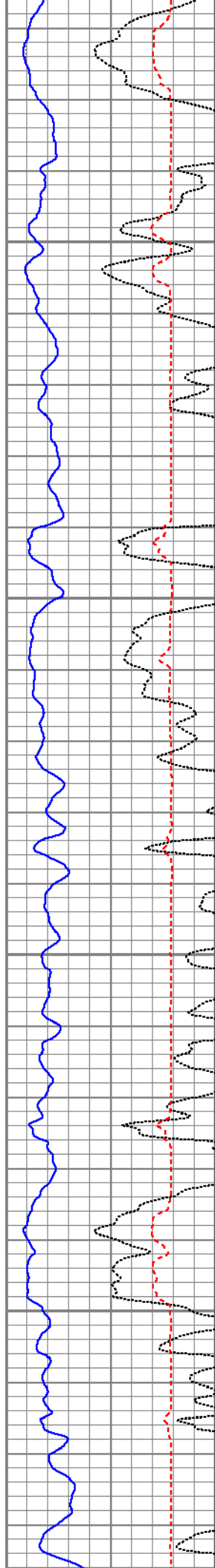
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3500

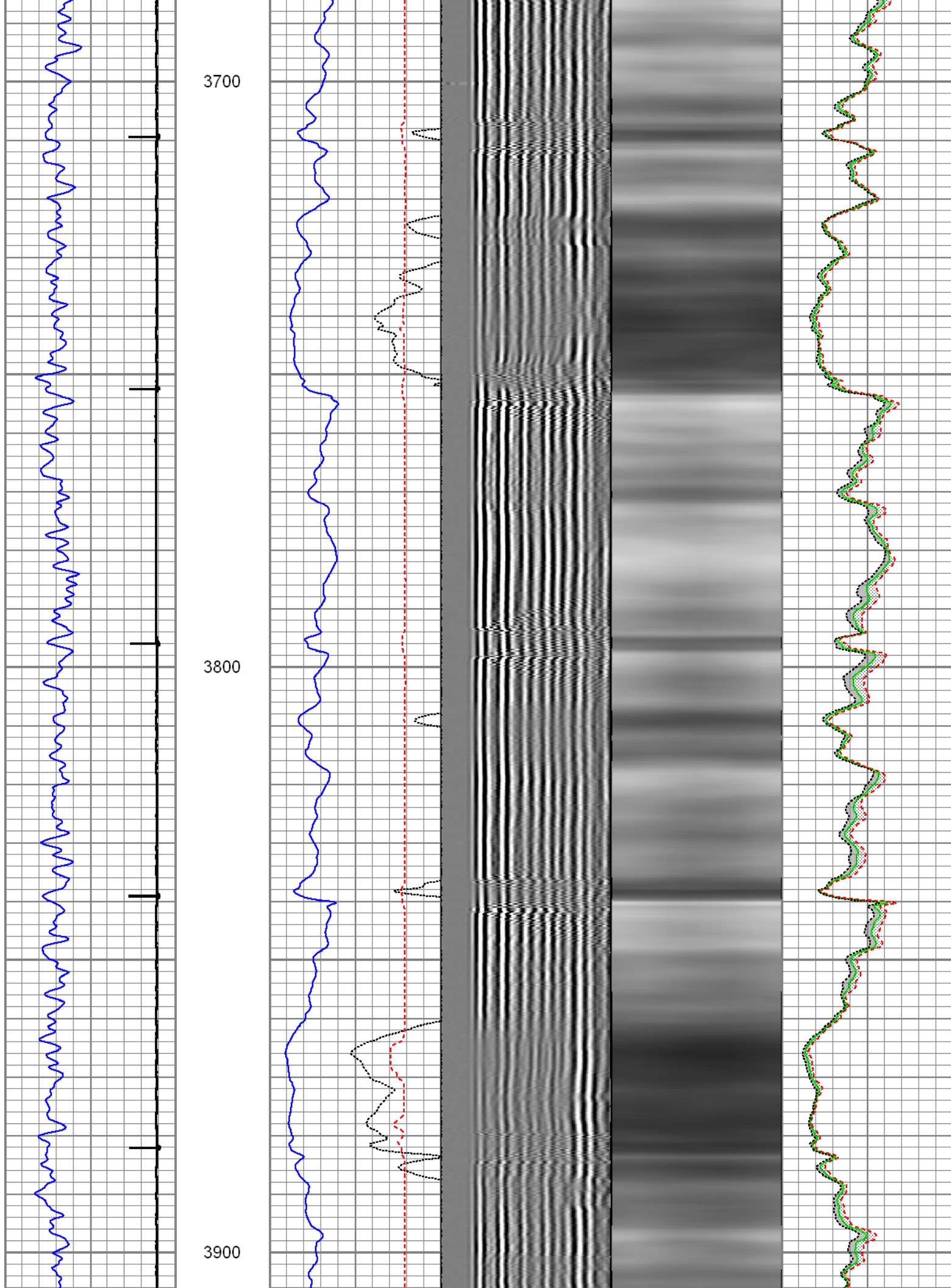
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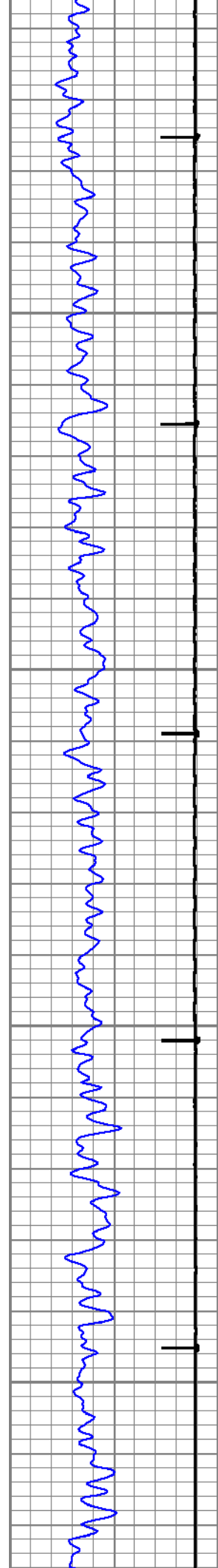


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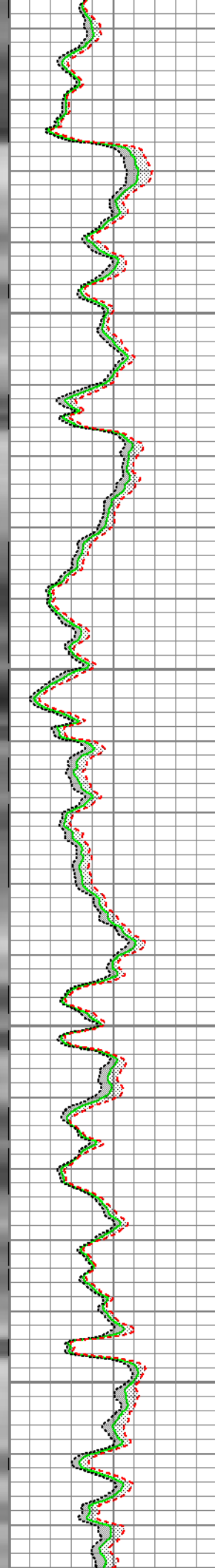
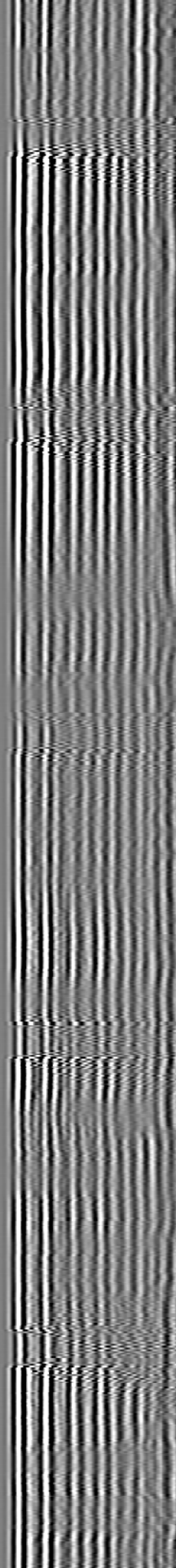
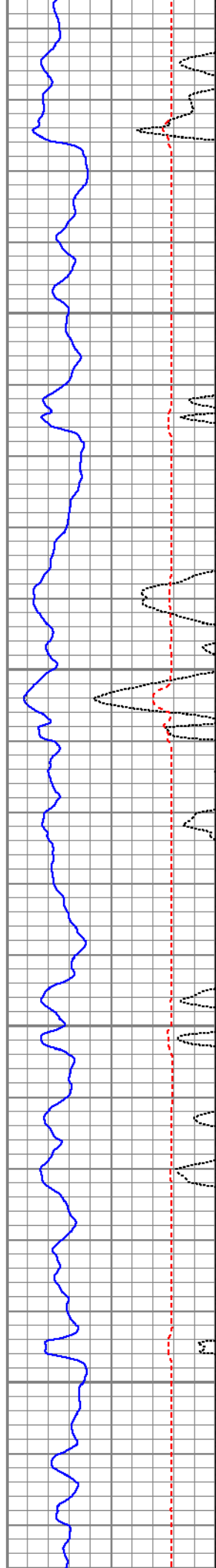
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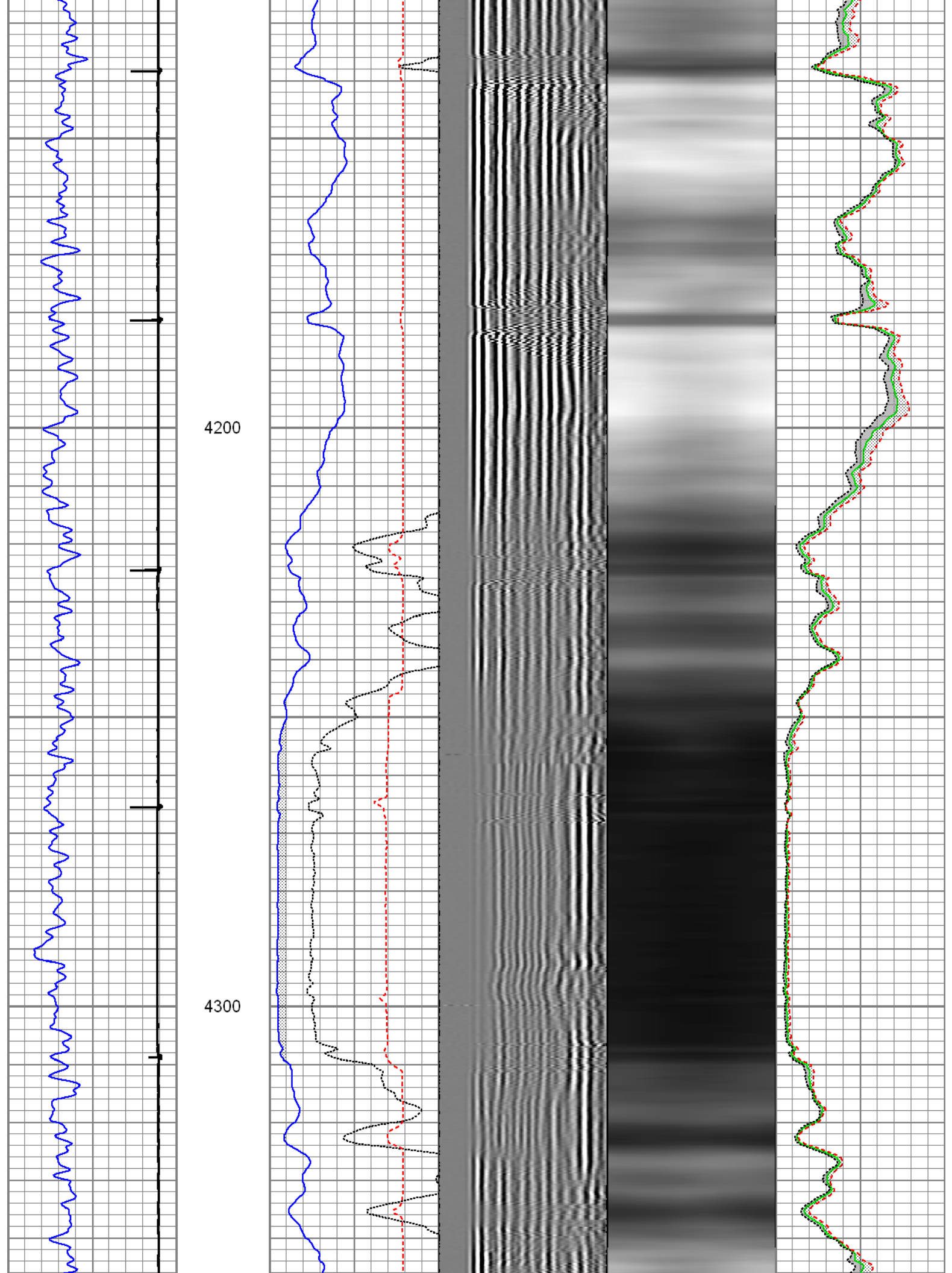


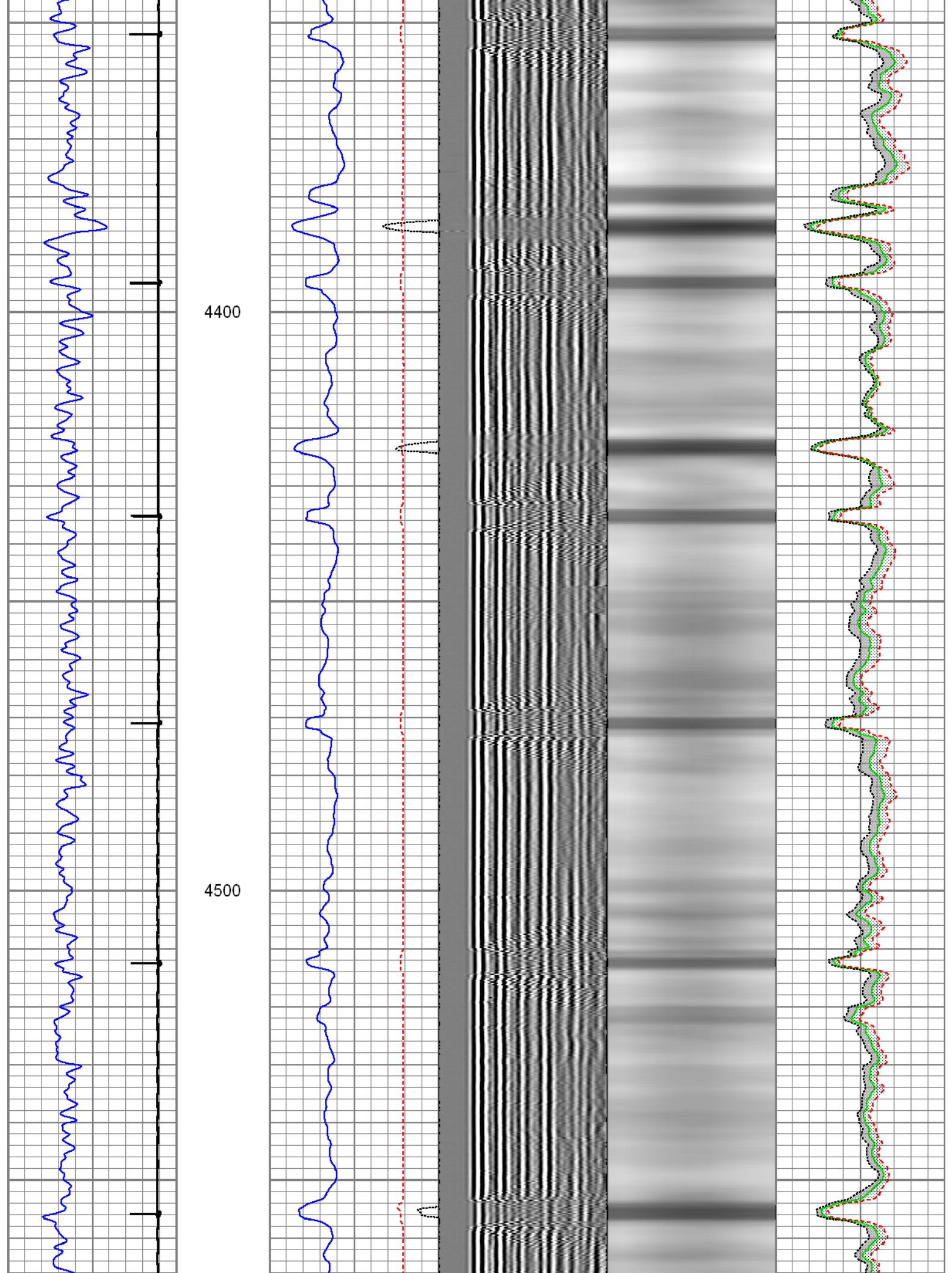


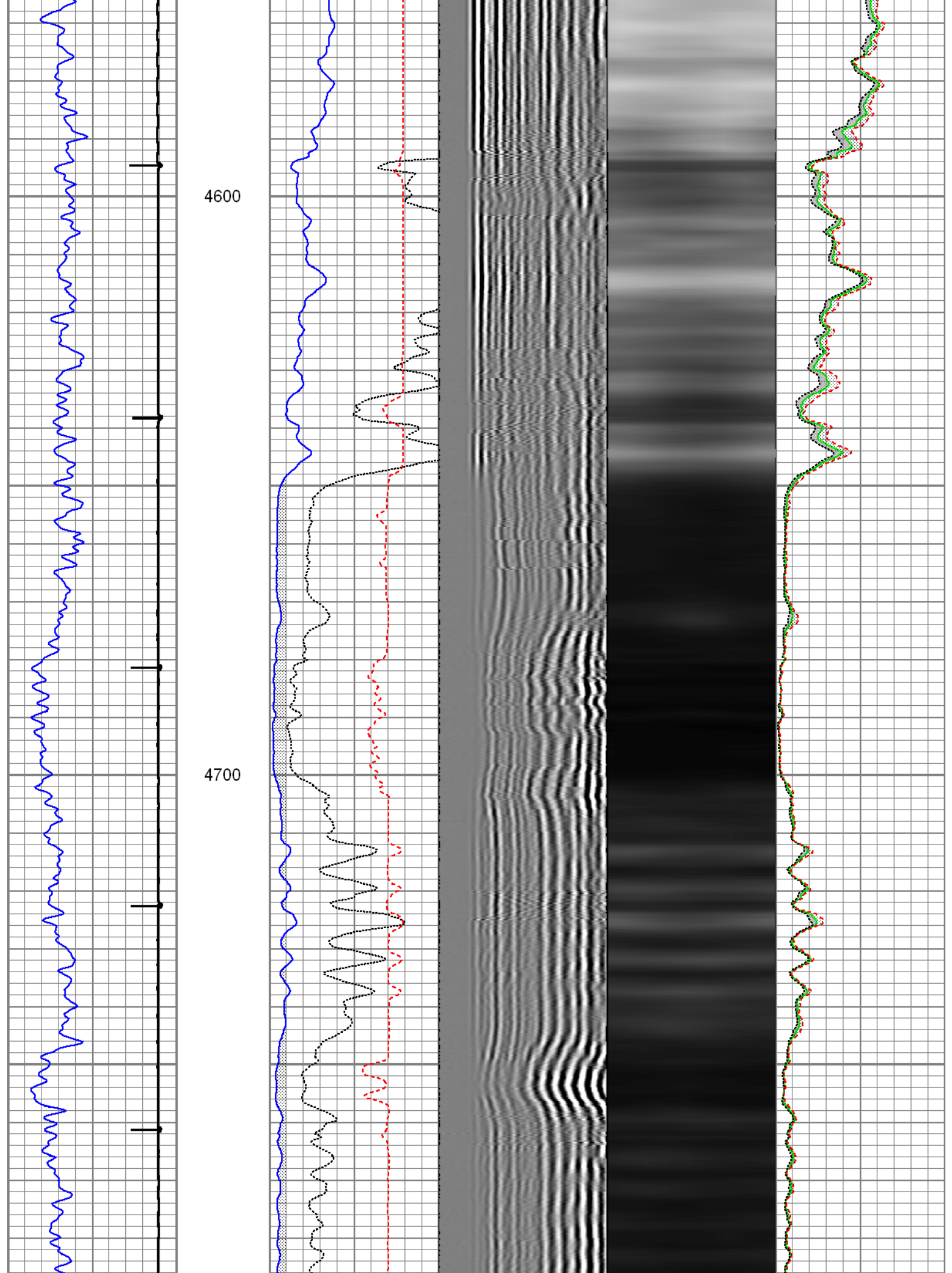
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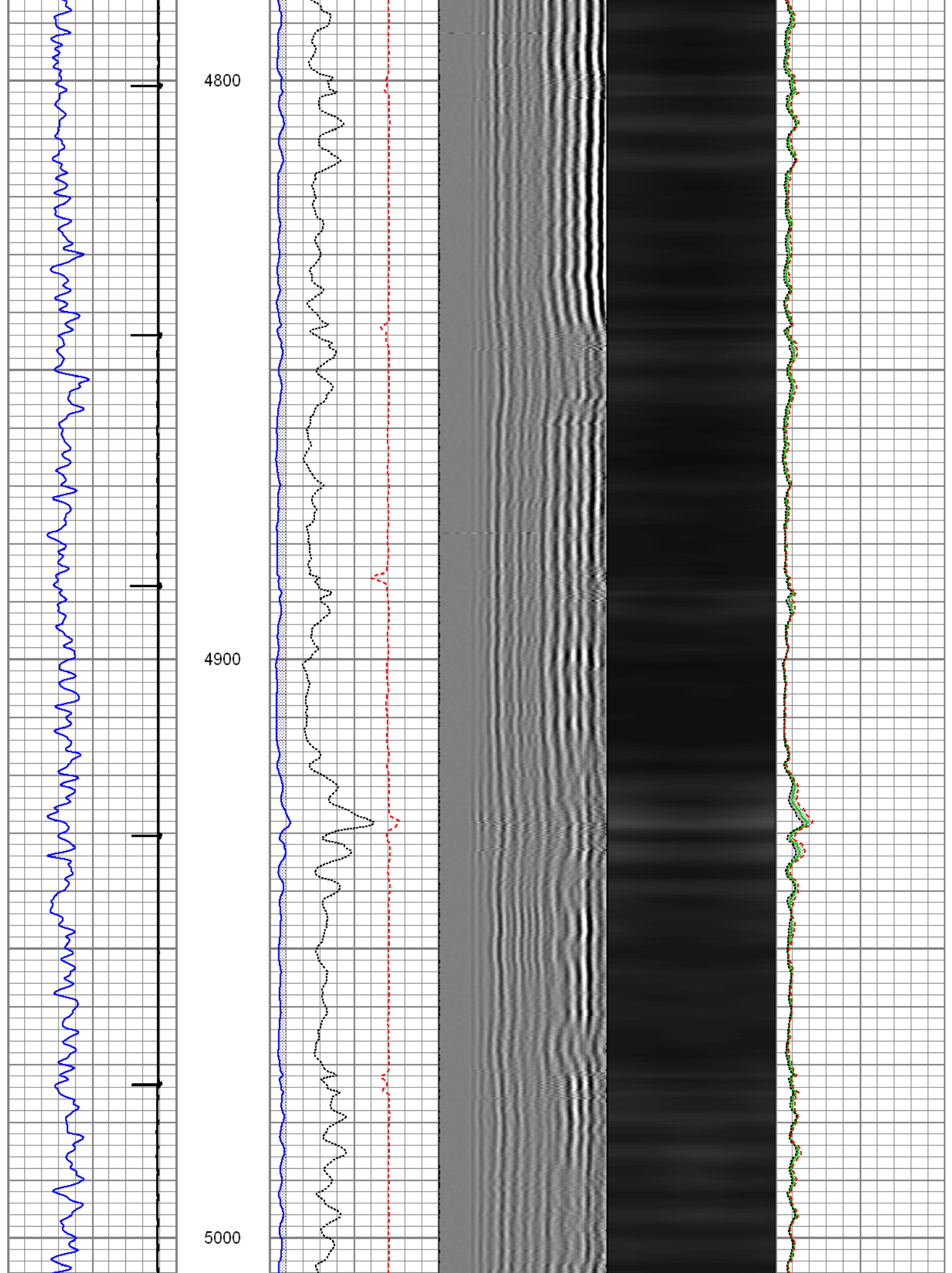
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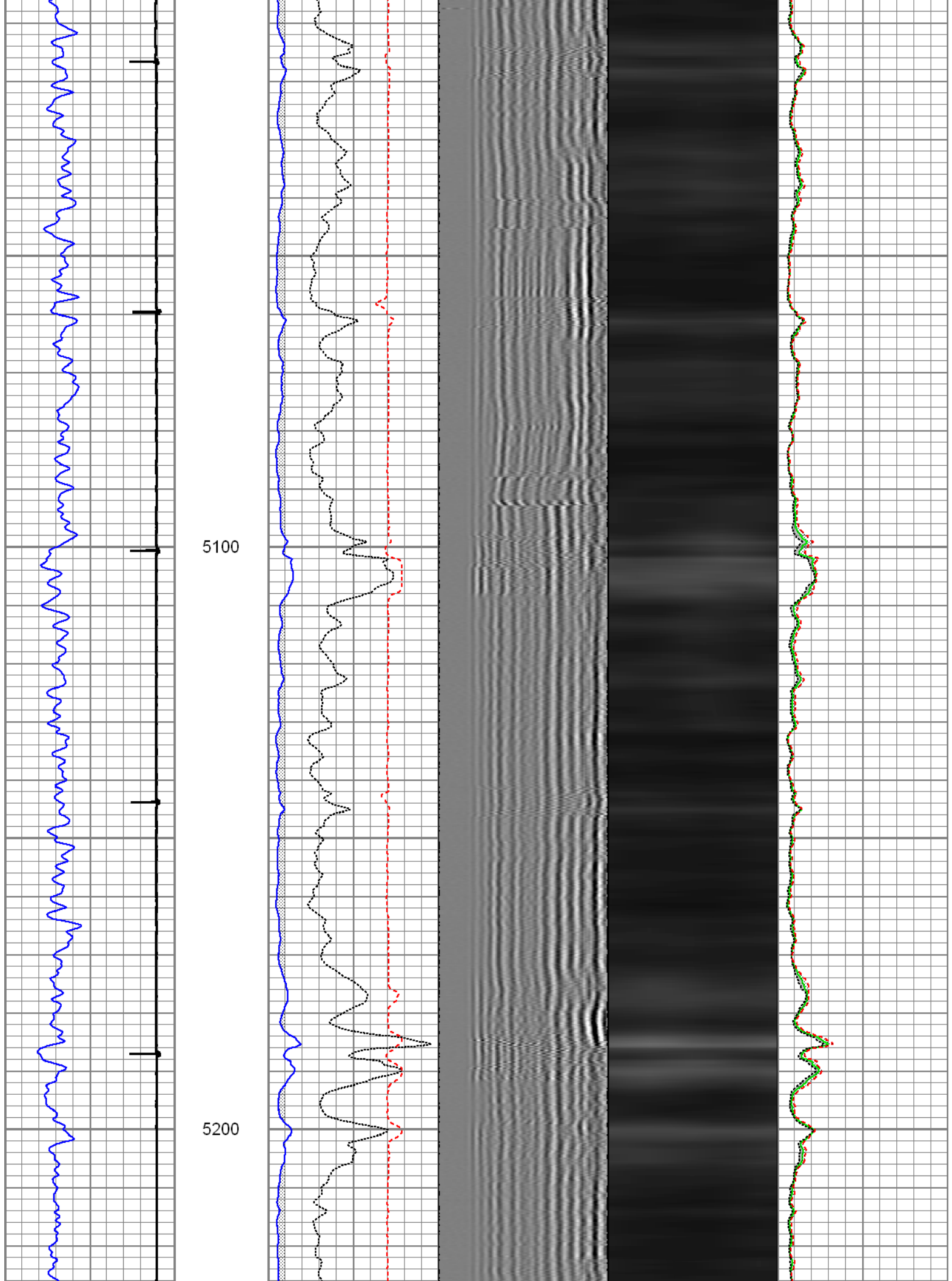


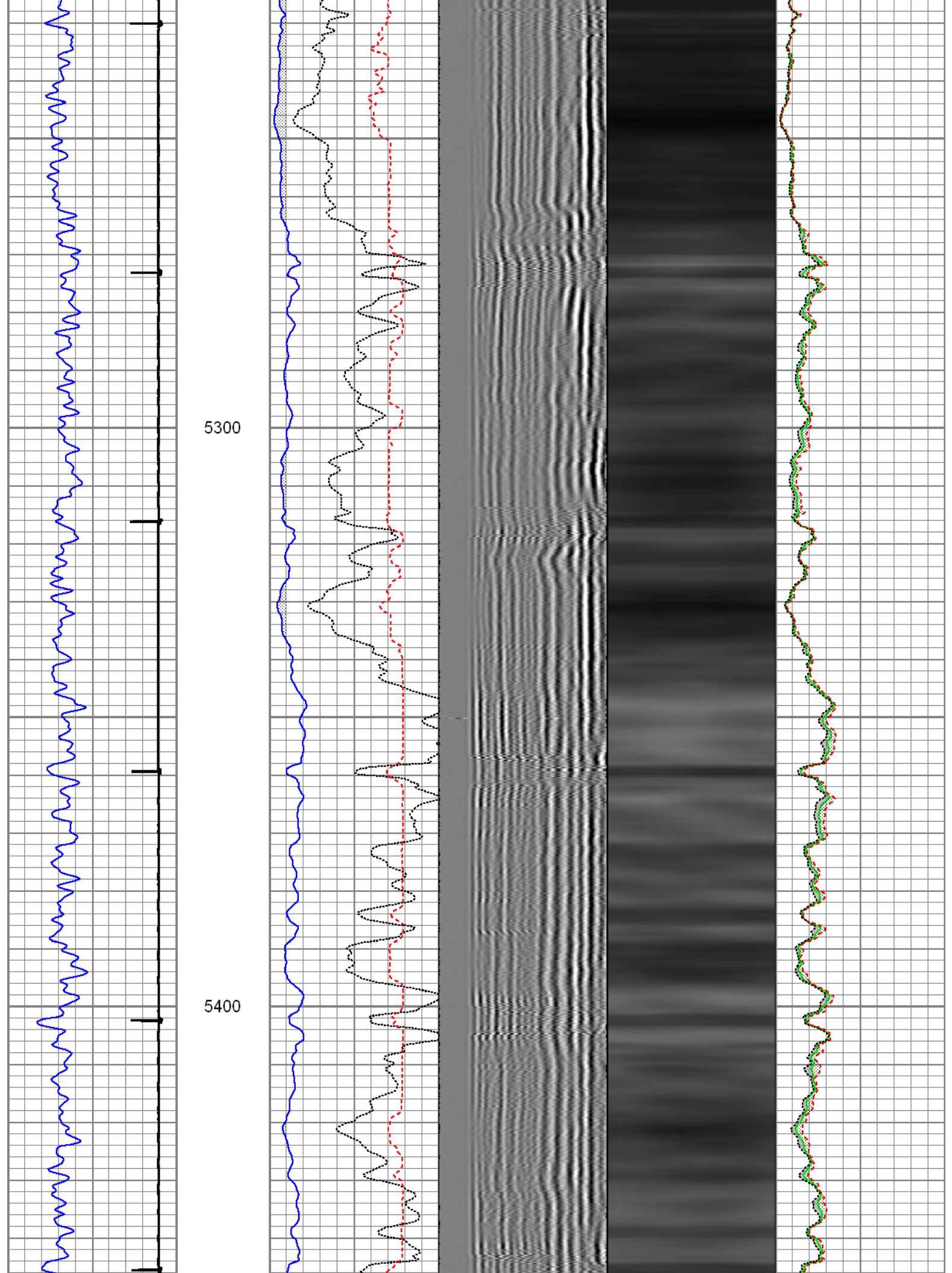


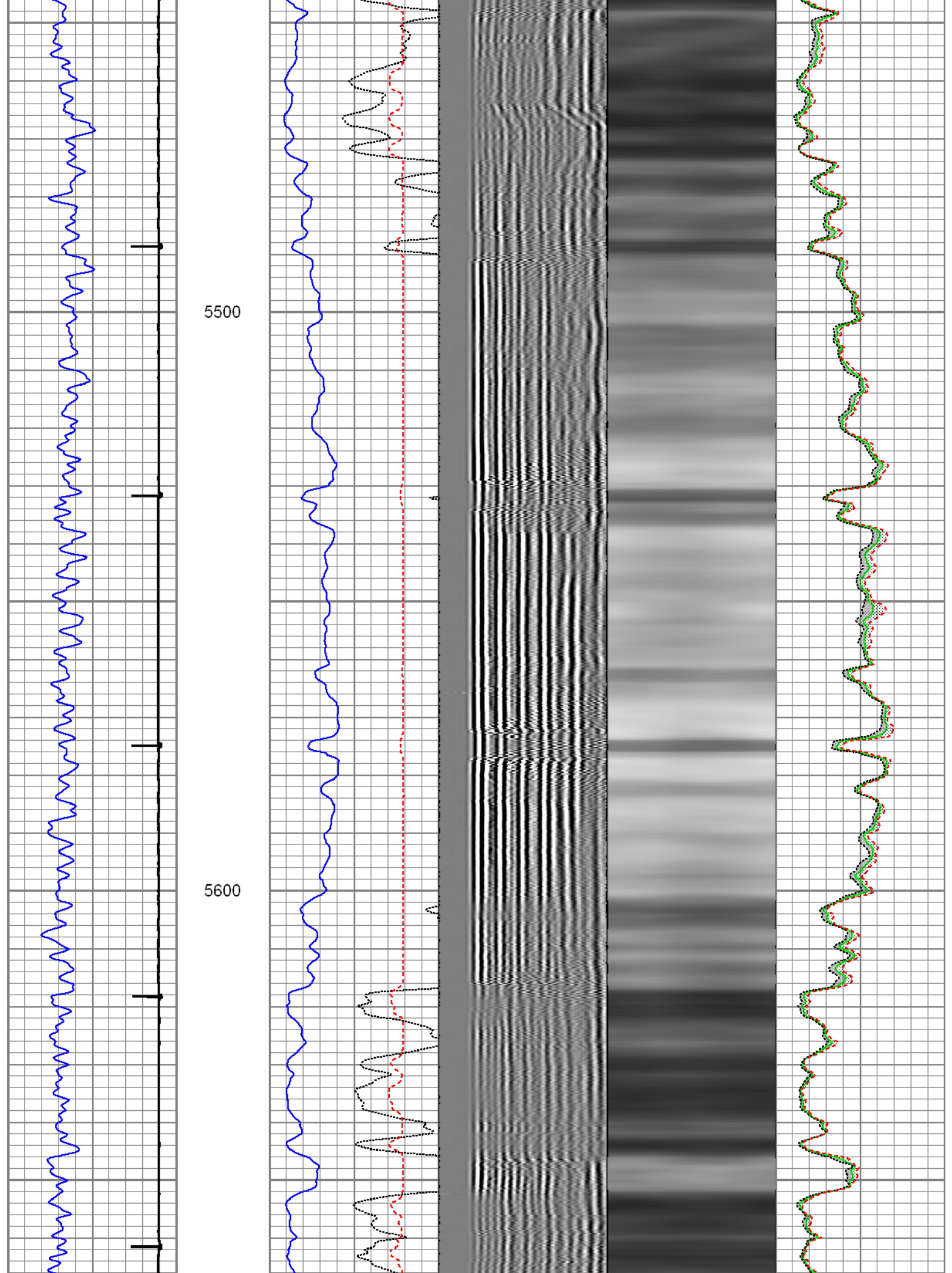






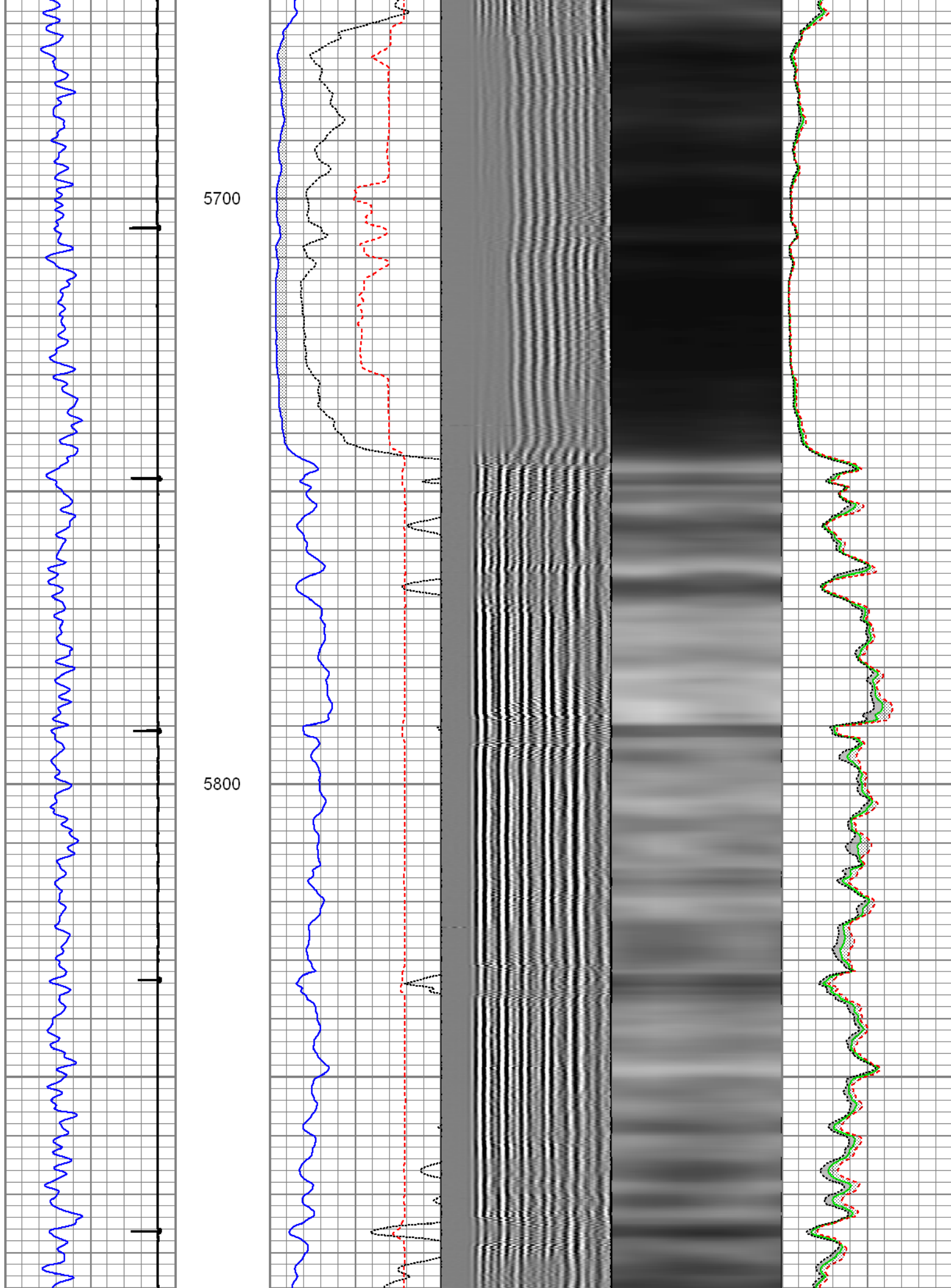






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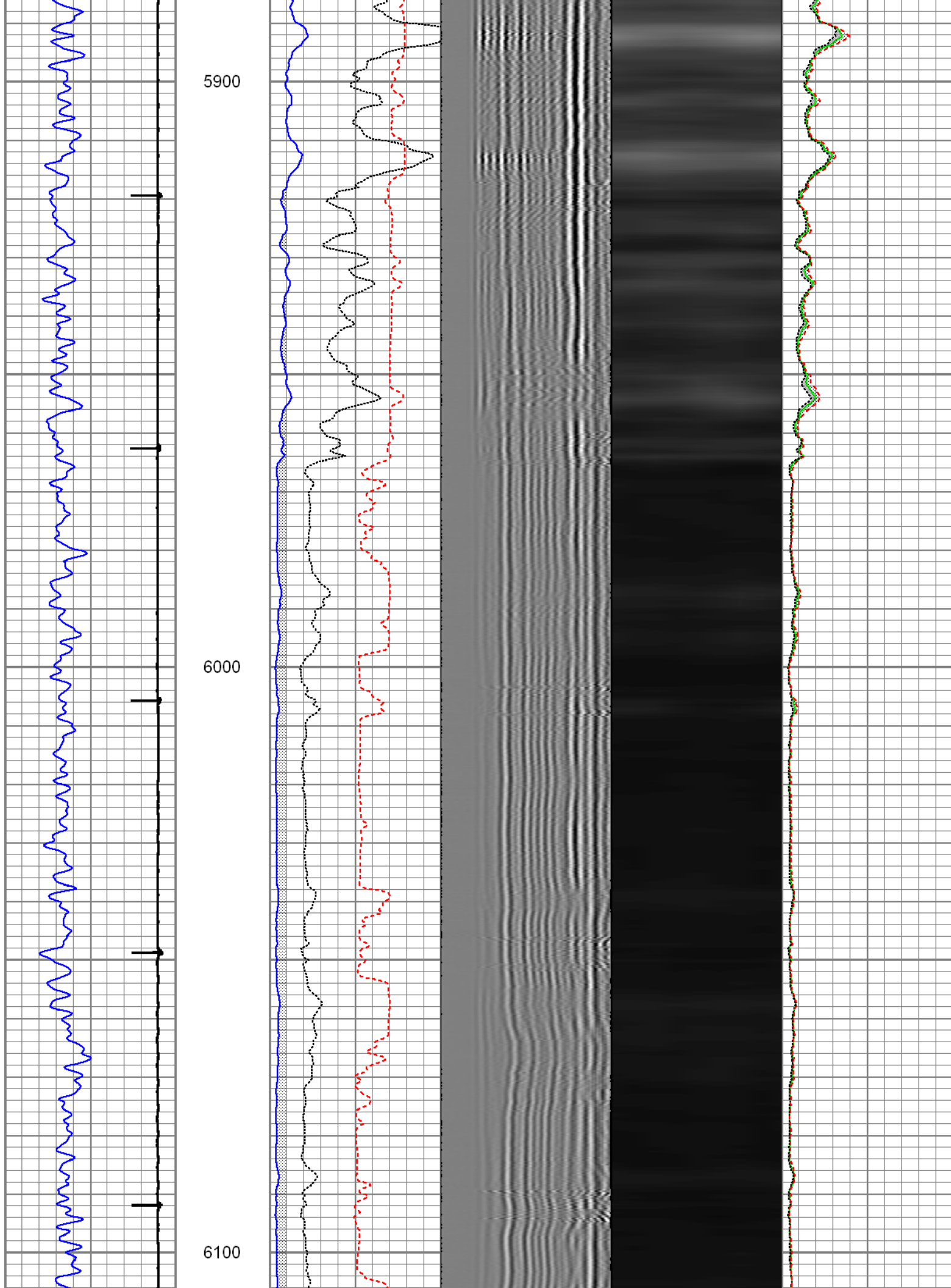
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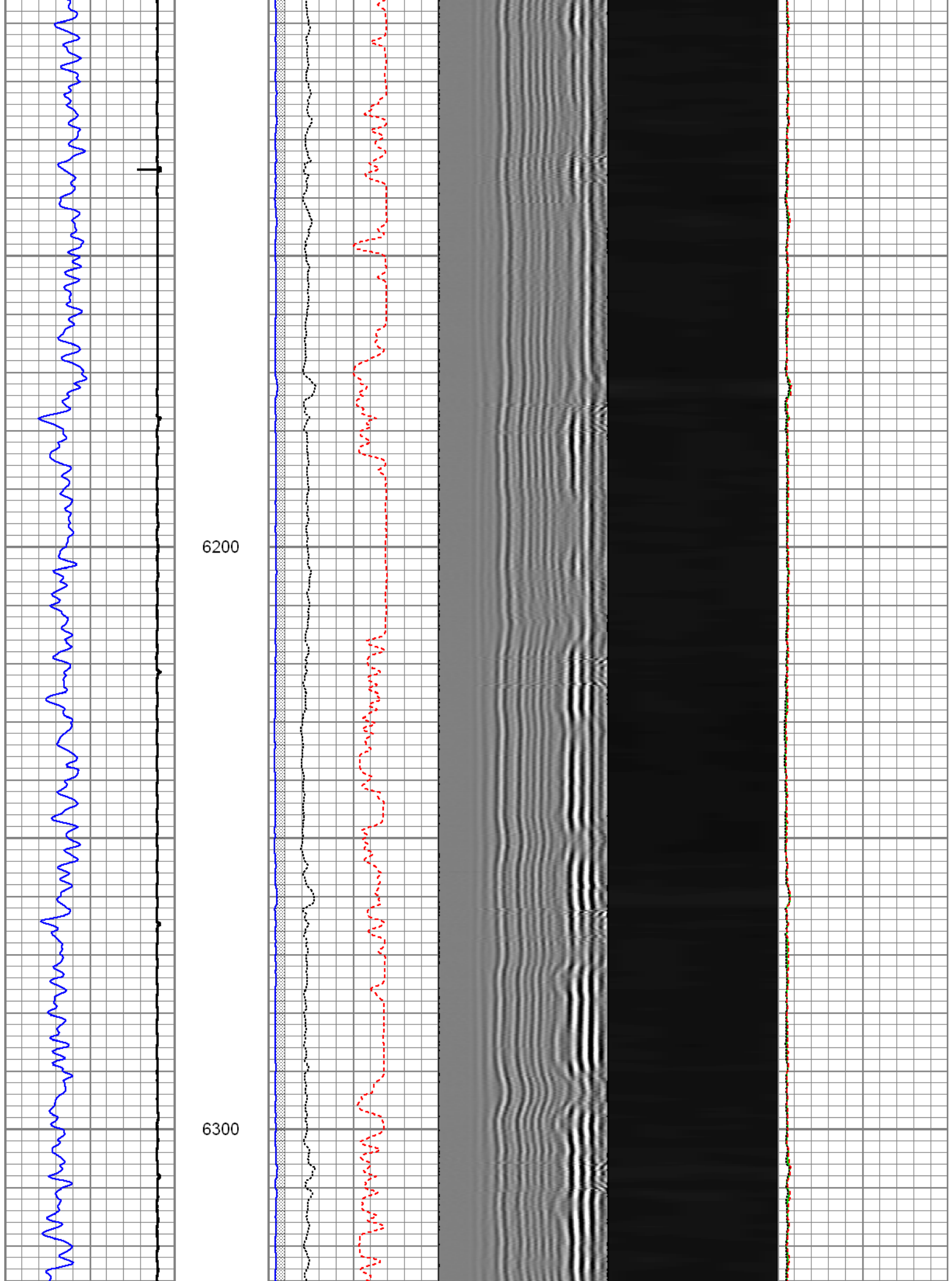


5900

6000

6100





6400

6500

GR

CCL

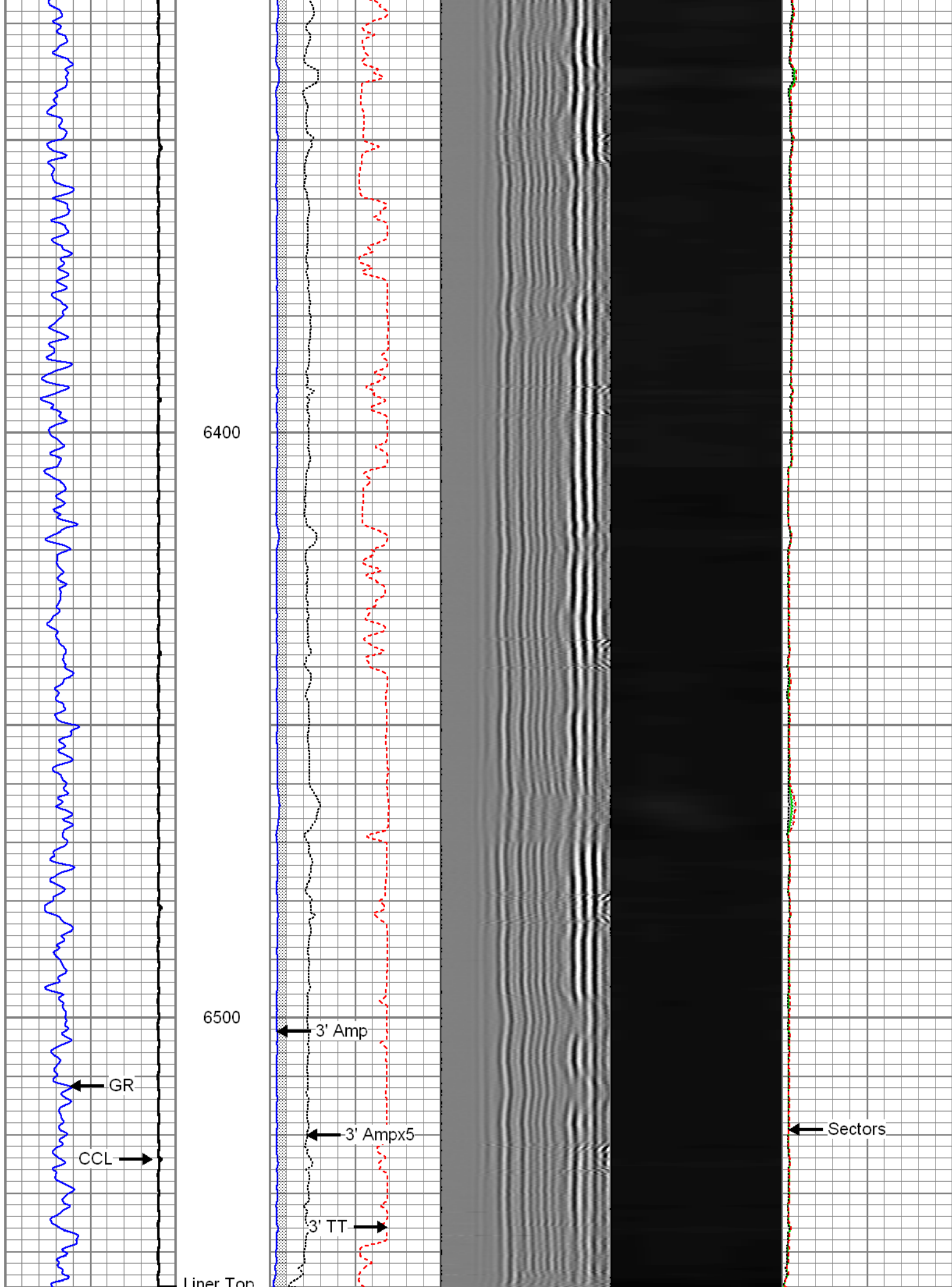
3' Amp

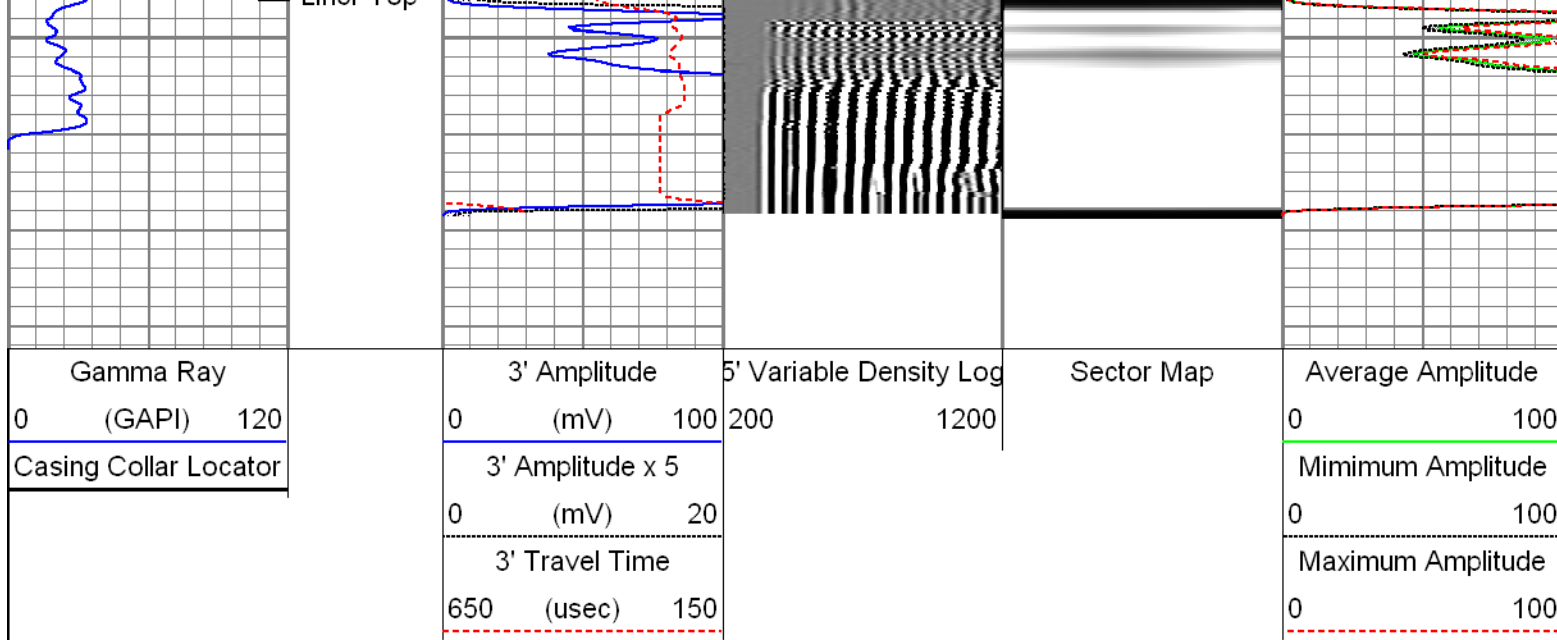
3' Ampx5

3' TT

Sectors

Liner Top



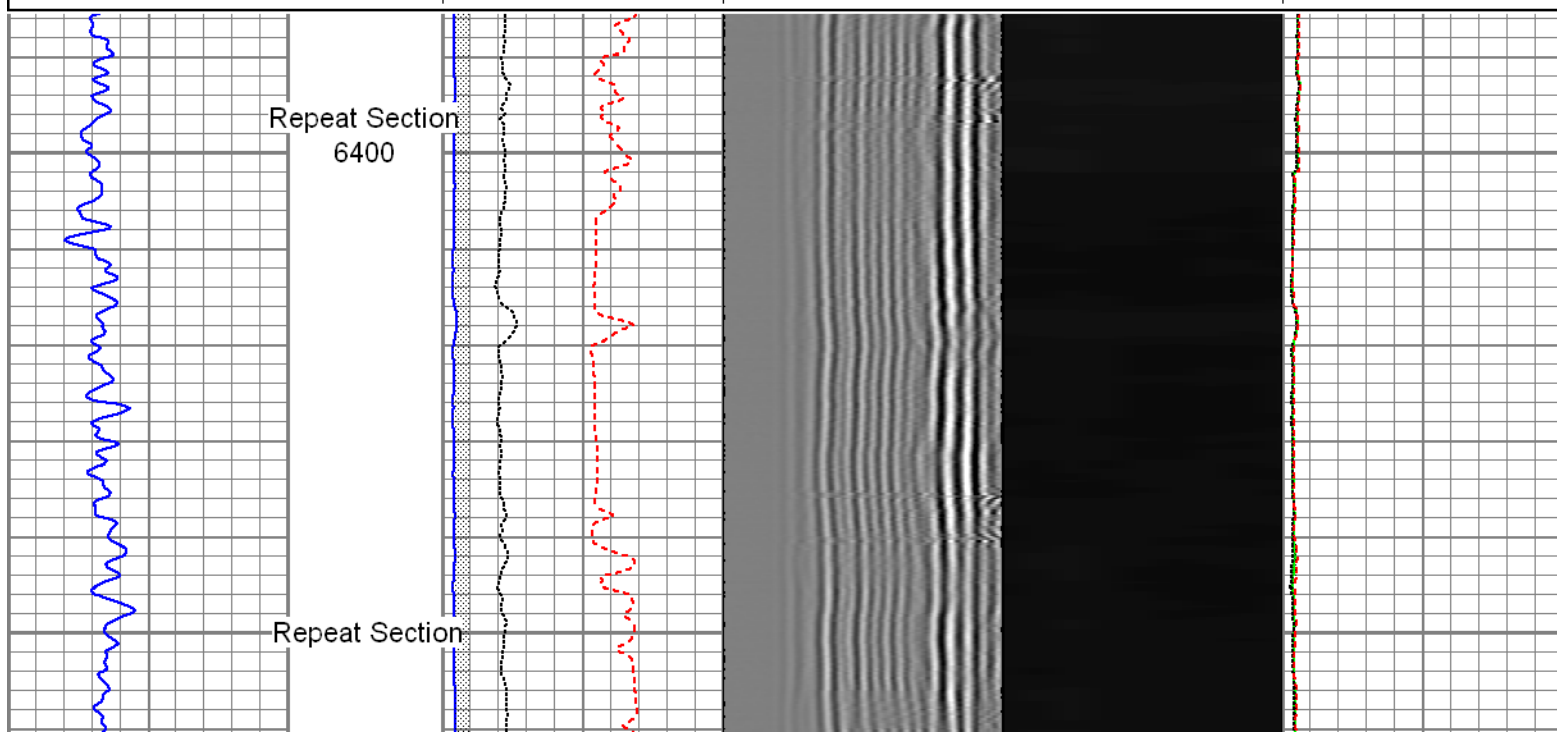
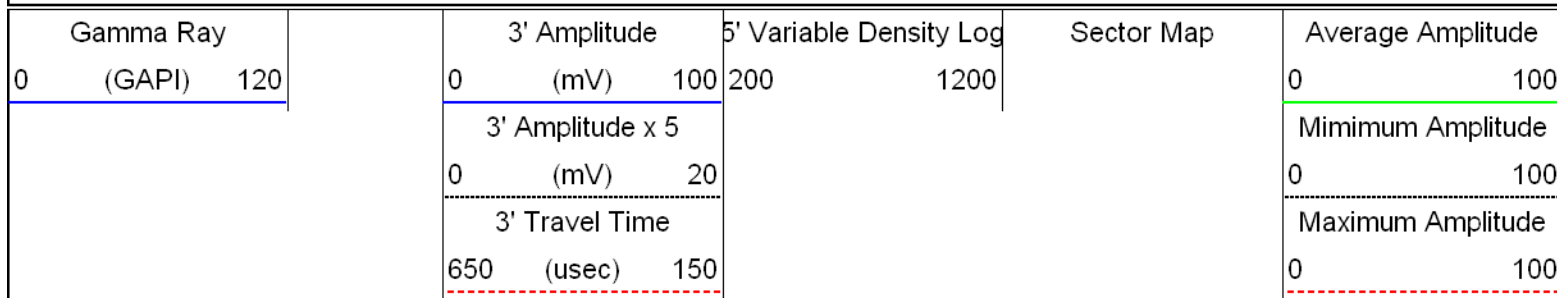


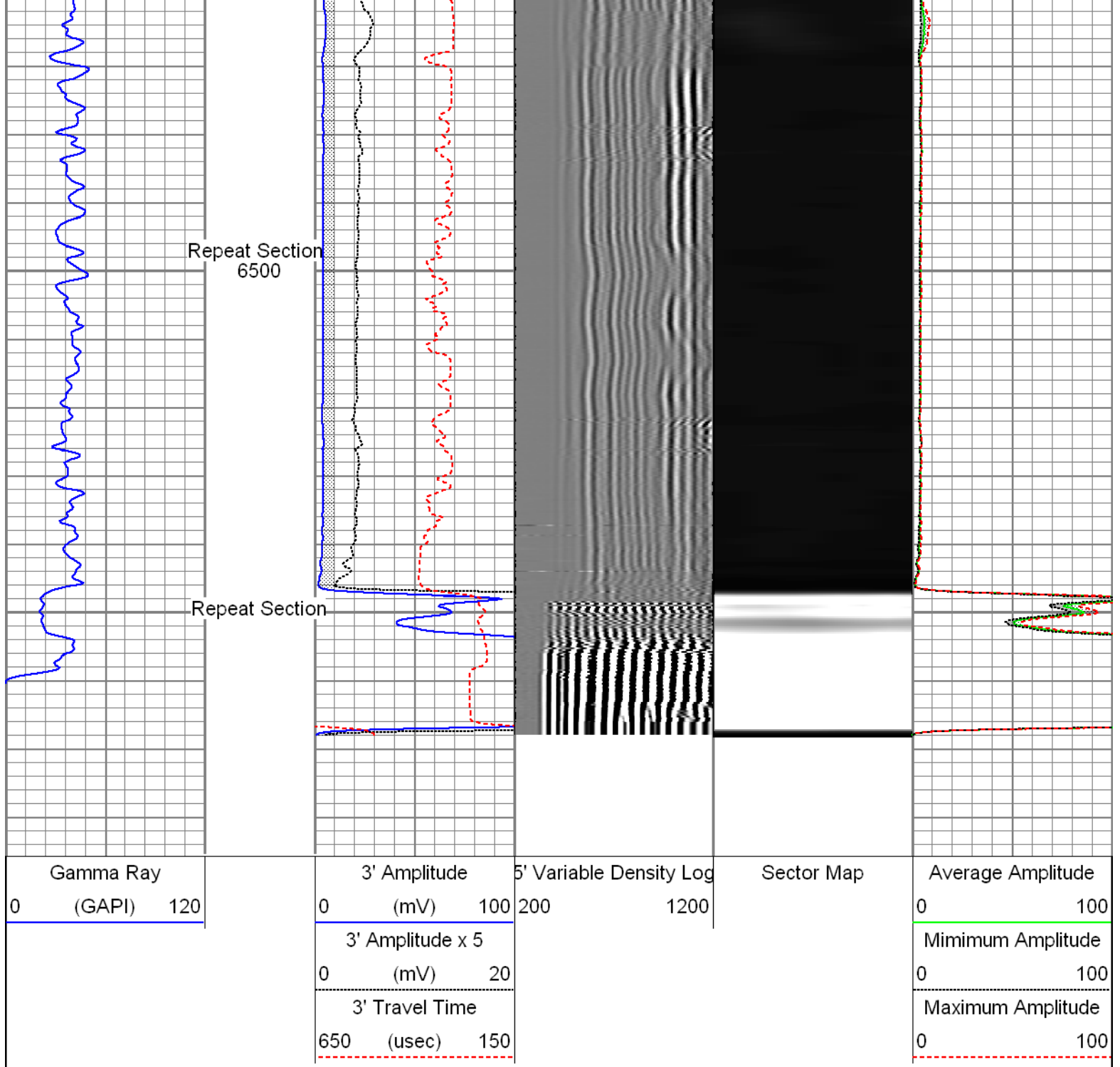


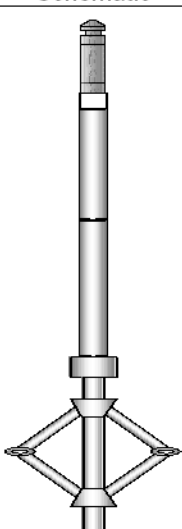
Repeat Section

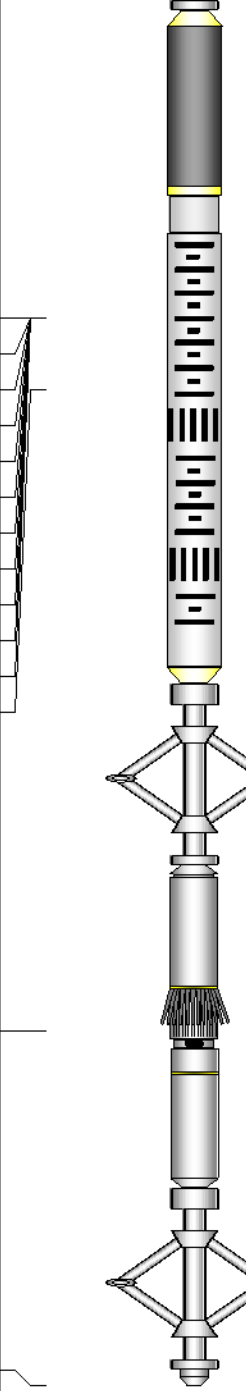
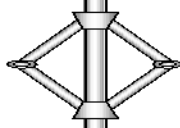
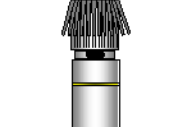
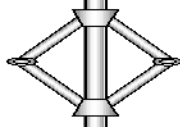

Recorded with 2800 PSI surface induced pressure.

Database File: 0512339135_anadarko_reynolds cattle 30n-23hz_07-27-14_mit_rbl.db
 Dataset Pathname: RepeatPas
 Presentation Format: rbt4_mit
 Dataset Creation: Sun Jul 27 12:09:24 2014 by Log SCH 111116
 Charted by: Depth in Feet scaled 1:240





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	22.37		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 (050836) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

WVF3FT	14.99		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3- 1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	14.99					
WVFS2	14.99					
WVFS3	14.99					
WVFS4	14.99					
WVFS5	14.99					
WVFS6	14.99					
WVFS7	14.99					
WVFS8	14.99					
CBLTEMP	14.99		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CBLROT	14.99					
WVF5FT	13.99					
MIT	4.97		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00		UW_PRC #3 -DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512339135_Anadarko_Reynolds Cattle 30N-23HZ_07-27-14_MIT_RBL.db: field/well/run1/7Main Total Length: 26.62 ft Total Weight: 319.30 lb O.D. 3.13 in						

Calibration Report	
Database File:	0512339135_Anadarko_Reynolds Cattle 30N-23HZ_07-27-14_MIT_RBL.db
Dataset Pathname:	CalReport
Dataset Creation:	Sun Jul 27 14:44:50 2014 by Log SCH 111116
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
Incl. X	Incl. Y

Vertical:		inc X	inc Y
Finger 1 up:		1963	1960
Finger 31 up:		1748	1727
Finger 21 up:		2195	1742
Finger 11 up:		2178	2188
		1727	2173
Sensitivity ratio:	1.00706		
X-axis angle:	132.825		
Deviation const.:	317.775		

Finger Calibration Report
Performed: Sun Jul 27 11:39:34 2014

Ring size: (in)	4		5		6		7
		Sens		Sens		Sens	
Finger 01:	1209	342.0	1551	375.0	1926	384.0	2310
Finger 02:	1152	356.0	1508	396.0	1904	414.0	2318
Finger 03:	1157	345.0	1502	377.0	1879	399.0	2278
Finger 04:	1105	362.0	1467	402.0	1869	431.0	2300
Finger 05:	1119	345.0	1464	369.0	1833	398.0	2231
Finger 06:	1122	361.0	1483	383.0	1866	417.0	2283
Finger 07:	1144	355.0	1499	367.0	1866	403.0	2269
Finger 08:	1102	362.0	1464	381.0	1845	422.0	2267
Finger 09:	1178	368.0	1546	369.0	1915	401.0	2316
Finger 10:	1118	360.0	1478	367.0	1845	405.0	2250
Finger 11:	1118	365.0	1483	371.0	1854	416.0	2270
Finger 12:	1191	364.0	1555	354.0	1909	385.0	2294
Finger 13:	1139	365.0	1504	370.0	1874	415.0	2289
Finger 14:	1111	377.0	1488	386.0	1874	428.0	2302
Finger 15:	1073	378.0	1451	392.0	1843	437.0	2280
Finger 16:	1146	373.0	1519	378.0	1897	415.0	2312
Finger 17:	1154	366.0	1520	375.0	1895	401.0	2296
Finger 18:	1202	366.0	1568	374.0	1942	400.0	2342
Finger 19:	1151	373.0	1524	385.0	1909	410.0	2319
Finger 20:	1063	374.0	1437	400.0	1837	424.0	2261
Finger 21:	1147	364.0	1511	386.0	1897	407.0	2304
Finger 22:	1141	367.0	1508	394.0	1902	408.0	2310
Finger 23:	1235	345.0	1580	371.0	1951	378.0	2329
Finger 24:	1150	371.0	1521	406.0	1927	410.0	2337
Finger 25:	1150	361.0	1511	405.0	1916	412.0	2328
Finger 26:	1186	361.0	1547	399.0	1946	396.0	2342
Finger 27:	1192	347.0	1539	395.0	1934	394.0	2328
Finger 28:	1158	360.0	1518	414.0	1932	407.0	2339
Finger 29:	1136	359.0	1495	422.0	1917	415.0	2332
Finger 30:	1137	353.0	1490	415.0	1905	412.0	2317
Finger 31:	1193	345.0	1538	398.0	1936	385.0	2321
Finger 32:	1138	354.0	1492	412.0	1904	408.0	2312
Finger 33:	1144	351.0	1495	412.0	1907	405.0	2312
Finger 34:	1131	352.0	1483	420.0	1903	411.0	2314
Finger 35:	1191	338.0	1529	392.0	1921	387.0	2308
Finger 36:	1131	349.0	1480	411.0	1891	408.0	2299
Finger 37:	1198	333.0	1531	383.0	1914	384.0	2298
Finger 38:	1227	337.0	1564	381.0	1945	384.0	2329
Finger 39:	1129	344.0	1473	395.0	1868	405.0	2273
Finger 40:	1083	359.0	1442	413.0	1855	431.0	2286

Post Survey Calibration Check
Performed: Sun Jul 27 14:44:42 2014

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.997	-0.002	5.001	0.000	6.001	0.001	7.002	0.001
Finger 02:	3.996	-0.002	5.003	0.002	6.003	0.001	7.001	0.000
Finger 03:	4.000	0.000	5.002	0.001	5.997	-0.001	6.999	-0.001
Finger 04:	3.995	-0.002	4.999	-0.000	5.994	-0.003	6.996	-0.002
Finger 05:	4.000	-0.000	4.999	-0.001	5.998	-0.001	7.002	0.001

Finger 06:	3.993	-0.004	4.996	-0.002	5.997	-0.001	7.000	-0.000
Finger 07:	3.995	-0.003	5.000	-0.000	5.999	-0.001	7.001	0.000
Finger 08:	3.997	-0.002	5.001	0.000	5.998	-0.001	6.999	-0.000
Finger 09:	3.996	-0.002	4.993	-0.003	5.997	-0.001	7.000	0.000
Finger 10:	3.994	-0.003	4.996	-0.002	5.997	-0.001	7.000	-0.000
Finger 11:	3.993	-0.004	4.996	-0.002	6.002	0.001	7.002	0.001
Finger 12:	3.996	-0.002	4.993	-0.004	5.997	-0.002	7.001	0.000
Finger 13:	3.996	-0.002	4.995	-0.002	6.000	0.000	7.001	0.001
Finger 14:	4.000	-0.000	5.000	-0.000	6.002	0.001	7.005	0.002
Finger 15:	4.001	0.001	4.999	-0.000	6.004	0.002	7.004	0.002
Finger 16:	3.999	-0.000	4.997	-0.001	6.001	0.001	7.002	0.001
Finger 17:	3.996	-0.002	4.990	-0.005	5.975	-0.012	6.986	-0.007
Finger 18:	3.991	-0.005	4.995	-0.003	5.999	-0.001	7.003	0.002
Finger 19:	3.996	-0.002	4.998	-0.001	6.000	0.000	7.003	0.001
Finger 20:	3.999	-0.000	5.002	0.001	6.004	0.002	7.002	0.001
Finger 21:	3.991	-0.005	4.996	-0.002	5.997	-0.001	7.000	-0.000
Finger 22:	3.996	-0.002	4.999	-0.000	5.999	-0.001	7.003	0.002
Finger 23:	3.994	-0.003	5.001	0.000	6.000	0.000	7.003	0.002
Finger 24:	3.997	-0.001	5.002	0.001	6.003	0.002	7.001	0.001
Finger 25:	3.998	-0.001	5.001	0.000	6.004	0.002	7.003	0.001
Finger 26:	3.991	-0.005	4.992	-0.004	5.993	-0.004	6.995	-0.002
Finger 27:	4.000	-0.000	5.003	0.002	6.000	0.000	7.001	0.000
Finger 28:	4.001	0.000	5.002	0.001	5.998	-0.001	7.000	-0.000
Finger 29:	3.999	-0.000	4.998	-0.001	5.999	-0.000	7.001	0.001
Finger 30:	3.995	-0.002	4.994	-0.003	5.996	-0.002	7.001	0.001
Finger 31:	3.991	-0.004	4.995	-0.003	5.997	-0.002	6.997	-0.001
Finger 32:	3.993	-0.003	4.989	-0.005	5.994	-0.003	7.000	0.000
Finger 33:	4.002	0.001	4.998	-0.001	5.998	-0.001	6.999	-0.000
Finger 34:	3.997	-0.002	4.999	-0.001	5.999	-0.001	7.001	0.001
Finger 35:	3.996	-0.002	4.996	-0.002	6.001	0.001	7.003	0.001
Finger 36:	3.997	-0.002	4.996	-0.002	5.997	-0.001	6.997	-0.002
Finger 37:	3.992	-0.004	4.996	-0.002	5.997	-0.002	7.004	0.002
Finger 38:	3.995	-0.003	4.994	-0.003	5.998	-0.001	7.004	0.002
Finger 39:	4.001	0.001	4.999	-0.001	6.000	0.000	7.003	0.002
Finger 40:	3.991	-0.005	4.994	-0.003	6.000	0.000	7.000	-0.000
Average:	3.996	-0.002	4.997	-0.001	5.998	-0.001	7.001	0.000

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454
Tool Model: UW_RBT_004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 231.353 ft

Master Calibration, performed Sun Jul 27 07:47:56 2014.

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.719	0.800	62.165	85.324	0.800
5FT	-0.001	0.796	0.800	62.165	76.934	0.894
S1	0.000	0.732	0.000	100.000	136.570	0.000
S2	0.007	0.721	0.000	100.000	140.174	-1.027
S3	0.002	0.702	0.000	100.000	142.895	-0.260
S4	-0.002	0.697	0.000	100.000	143.027	0.339
S5	0.007	0.703	0.000	100.000	143.689	-1.040
S6	-0.001	0.719	0.000	100.000	138.933	0.170
S7	-0.000	0.729	0.000	100.000	137.162	0.028
S8	0.001	0.736	0.000	100.000	136.042	-0.141

Gamma Ray Calibration Report

Serial Number: 050836
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.
Well Reynolds Cattle 30N-23HZ
Field Wattenberg
County Weld
State Colorado