



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.		
Well	Buffalo 35C-15HZ		
Field	Wattenberg		
County	Weld		
State	Colorado		
Location:	Company	Kerr-McGee Oil & Gas Onshore, L.P.	
	Well	Buffalo 35C-15HZ	
	Field	Wattenberg	
	County	Weld	
Location:	State	Colorado	
	API # :	05-123-36454	
	SEC	15	TWP 1N RGE 68W
	Permanent Datum	Ground Level	Elevation 5139'
Log Measured From	Kelly Bushing		
Drilling Measured From	Kelly Bushing		
Other Services			Gauge Ring MIT
Elevation			K.B. 5159' D.F. 5158' G.L. 5139'

Date	11-AUG-2015
Run Number	Two
Depth Driller	12,418 FT
Depth Logger	8,065 FT
Bottom Logged Interval	8,059 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	246°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	9:55 A.M.
Equipment Number	HD-0119
Location	Ft. Lupton, CO
Recorded By	A. Olmsted
Witnessed By	Steve Vigil

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	1,307 FT		
Intermediate #1	7	26	HCP 110 LTC	Surface	8,287 FT		
Intermediate #2							
Liner	4 1/2	11.6	P-110 LTC/DOX	7,300 FT	12,418 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 7,300 FT
Adjusted -34 FT to correlate to liner top
Gauge Ring/Junk Basket ran to 8,076 FT
Log ran from as deep as possible in heel to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of debris upon completion of operations

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

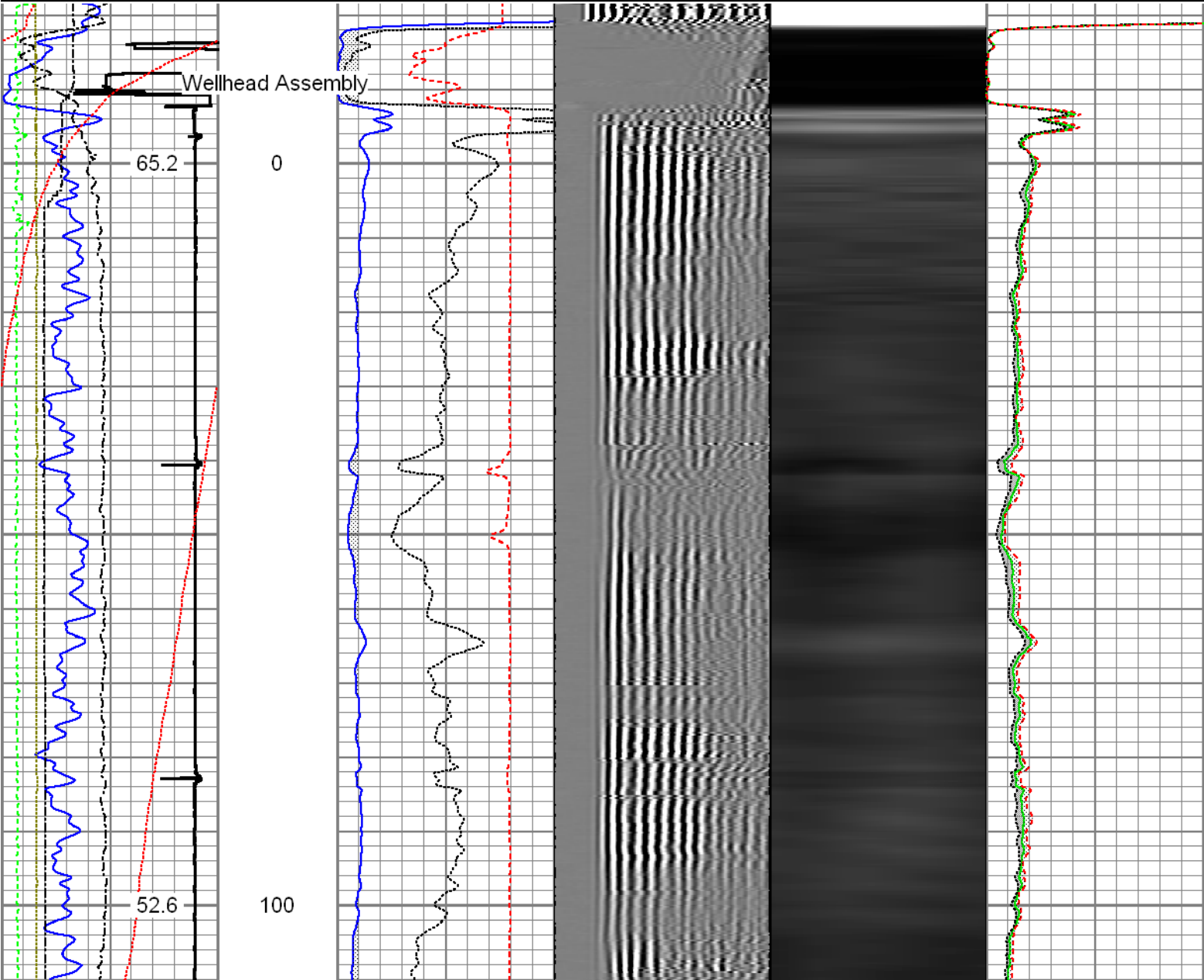


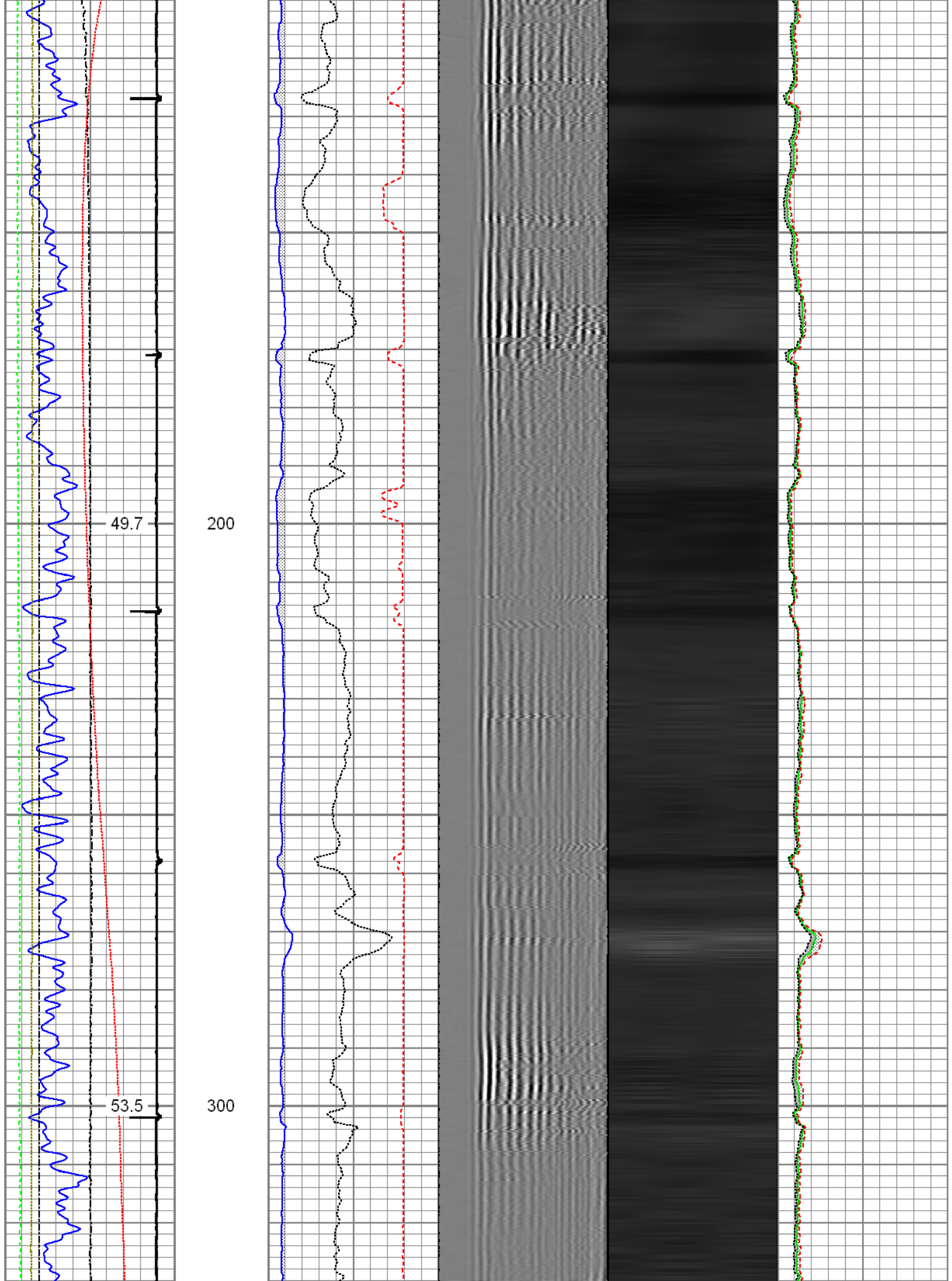
Main Pass

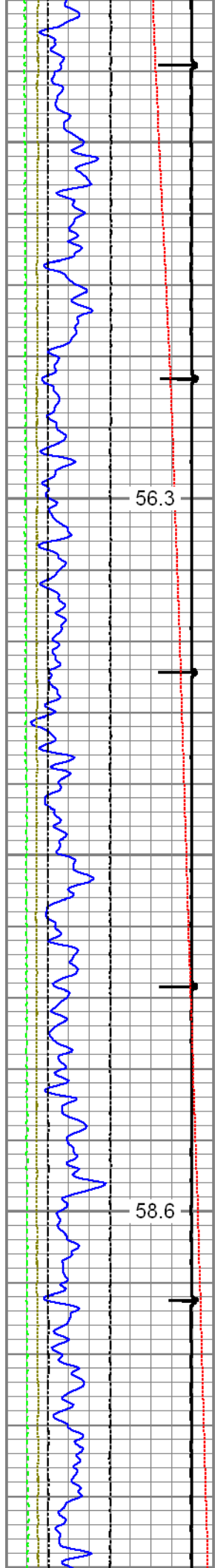
Recorded with 2800 PSI Surface Induced Pressure

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Dataset Pathname: pass4
Presentation Format: rbt4_mit
Dataset Creation: Tue Aug 11 09:55:37 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
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				
-10 Deviation (°) 90				
Temperature				
0 (degF) 20				

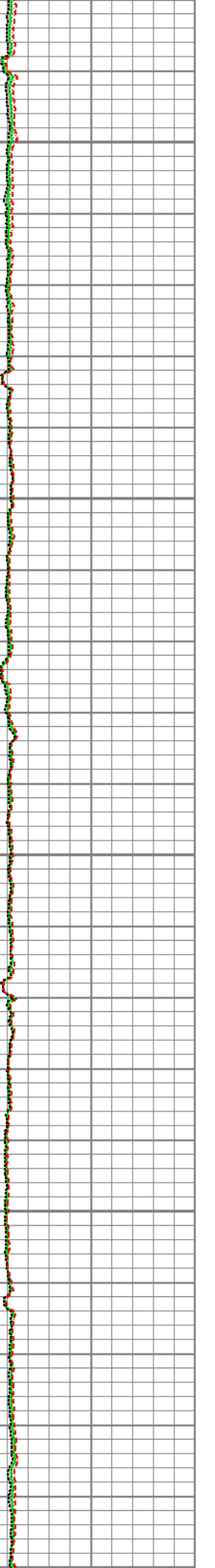
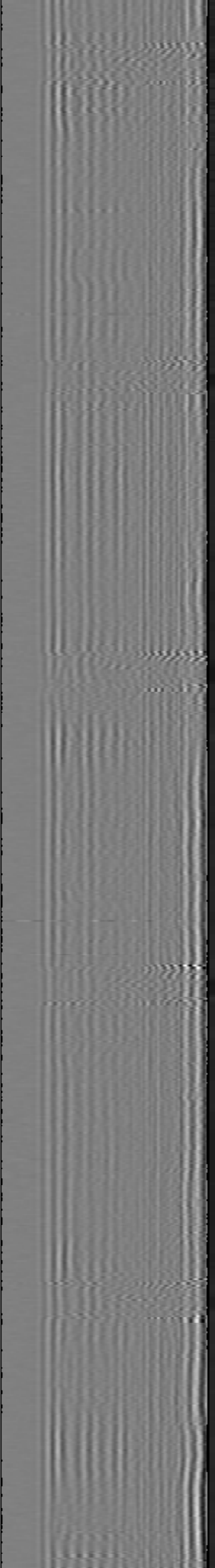
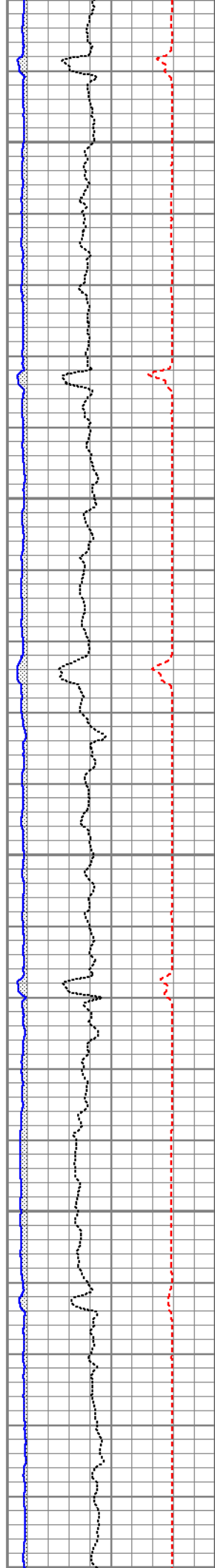


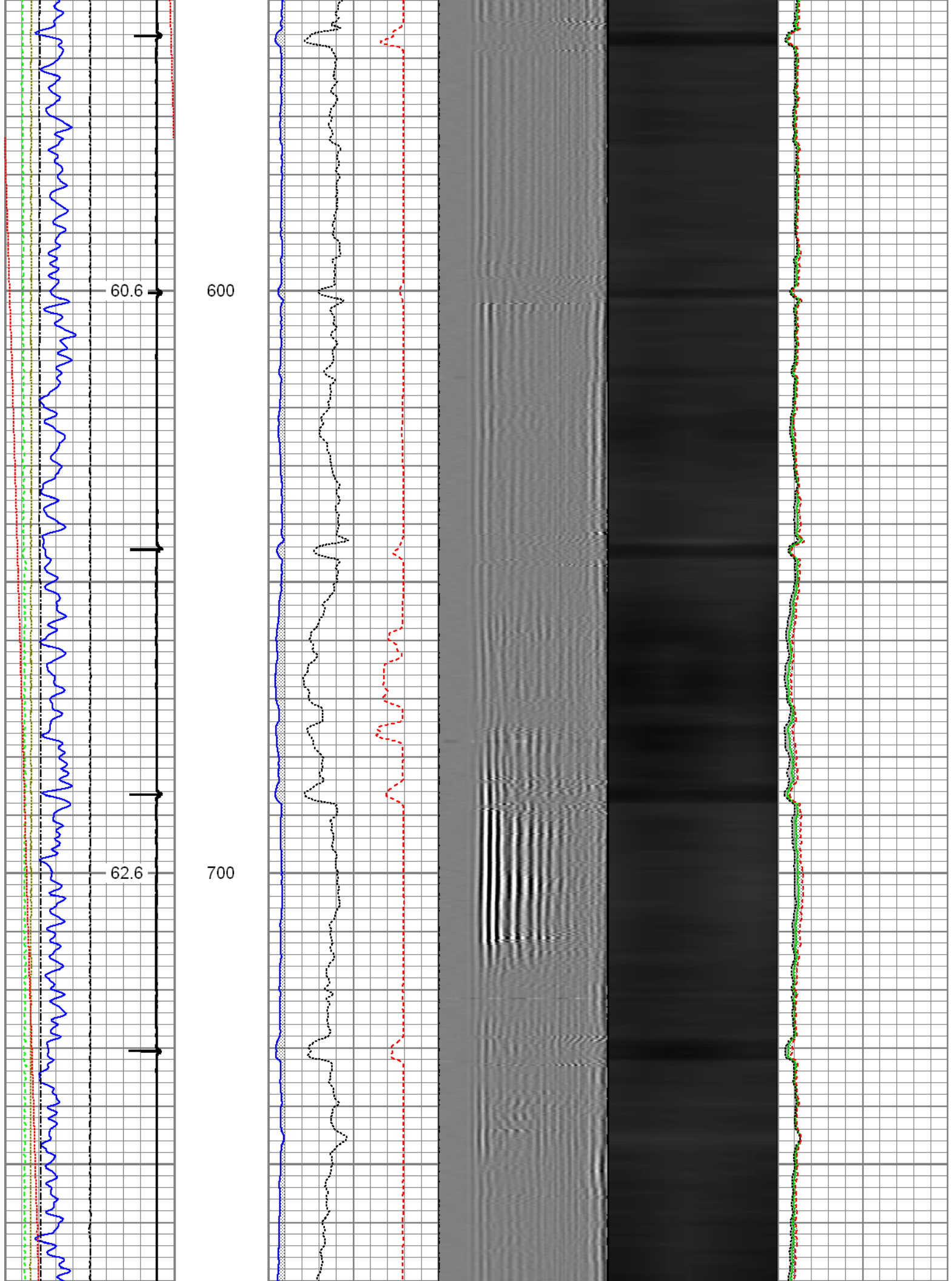


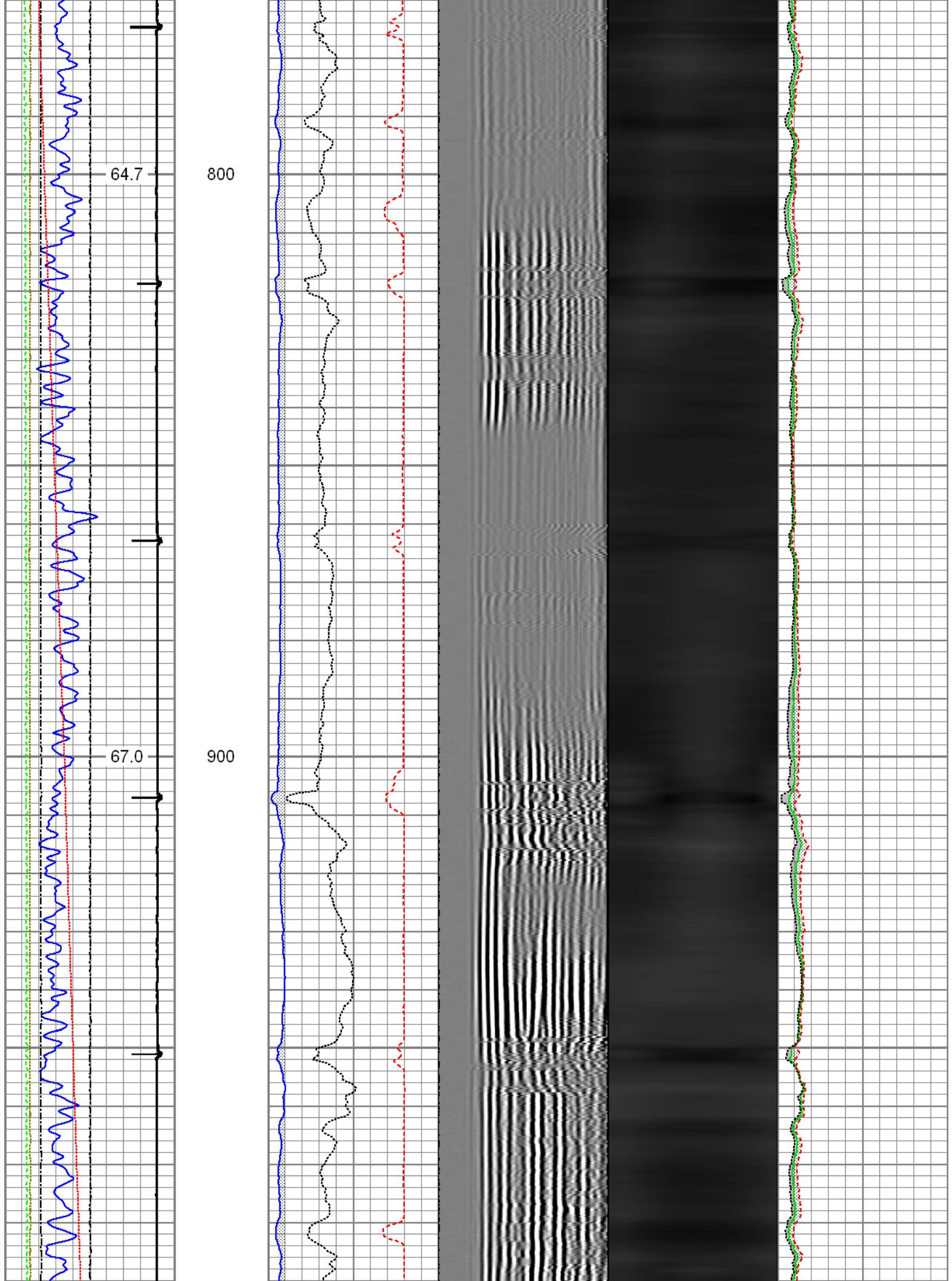


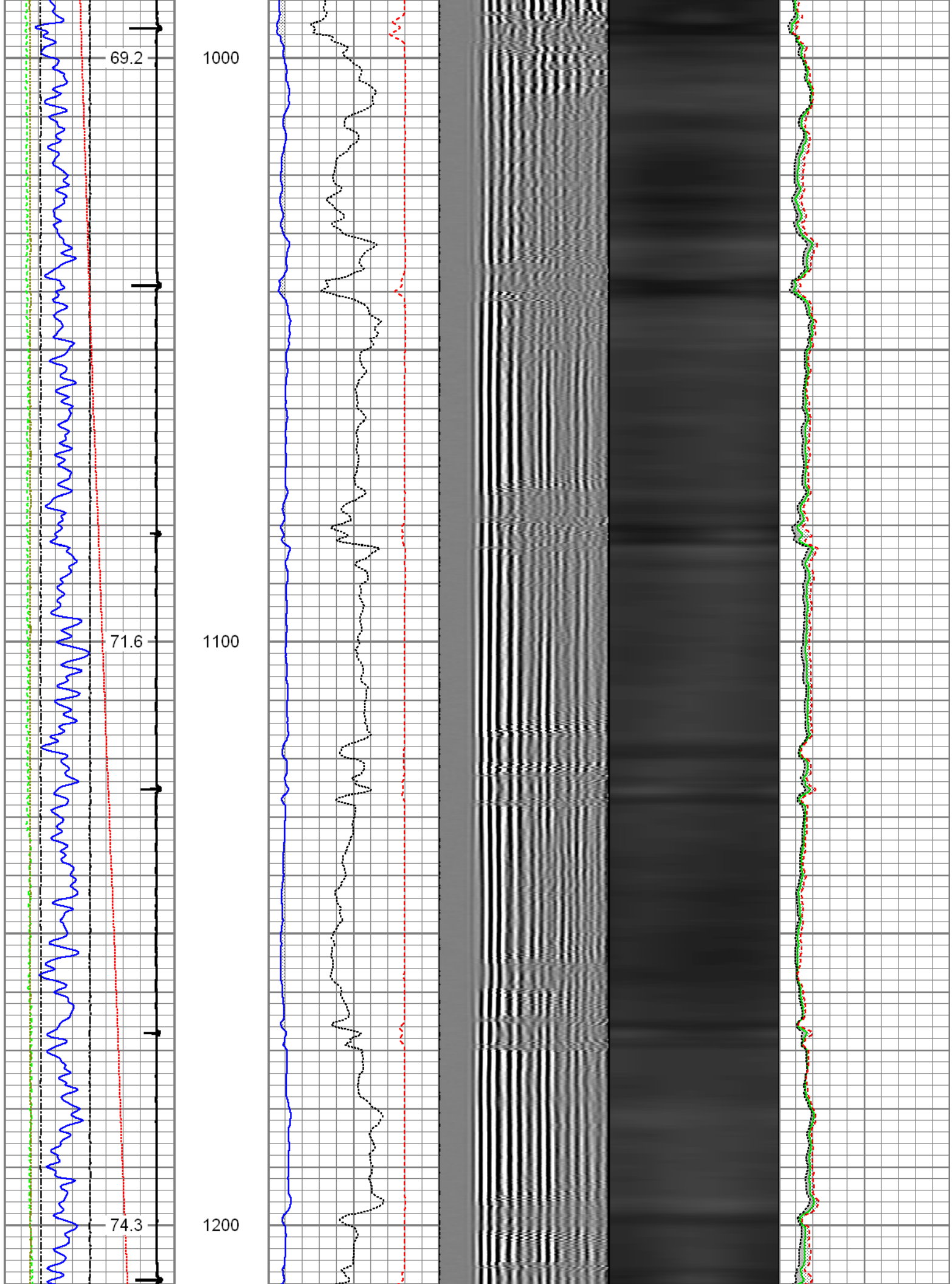
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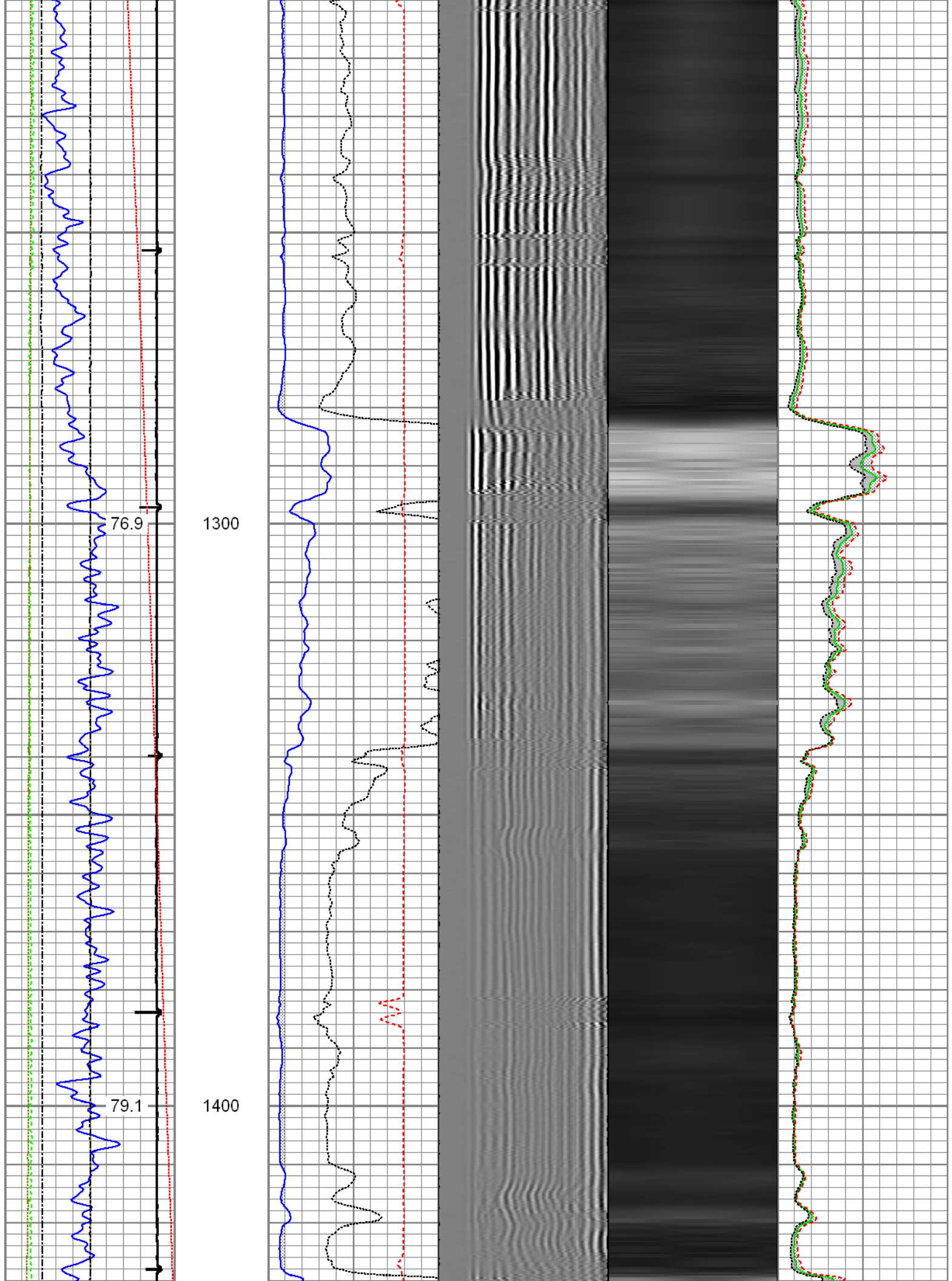
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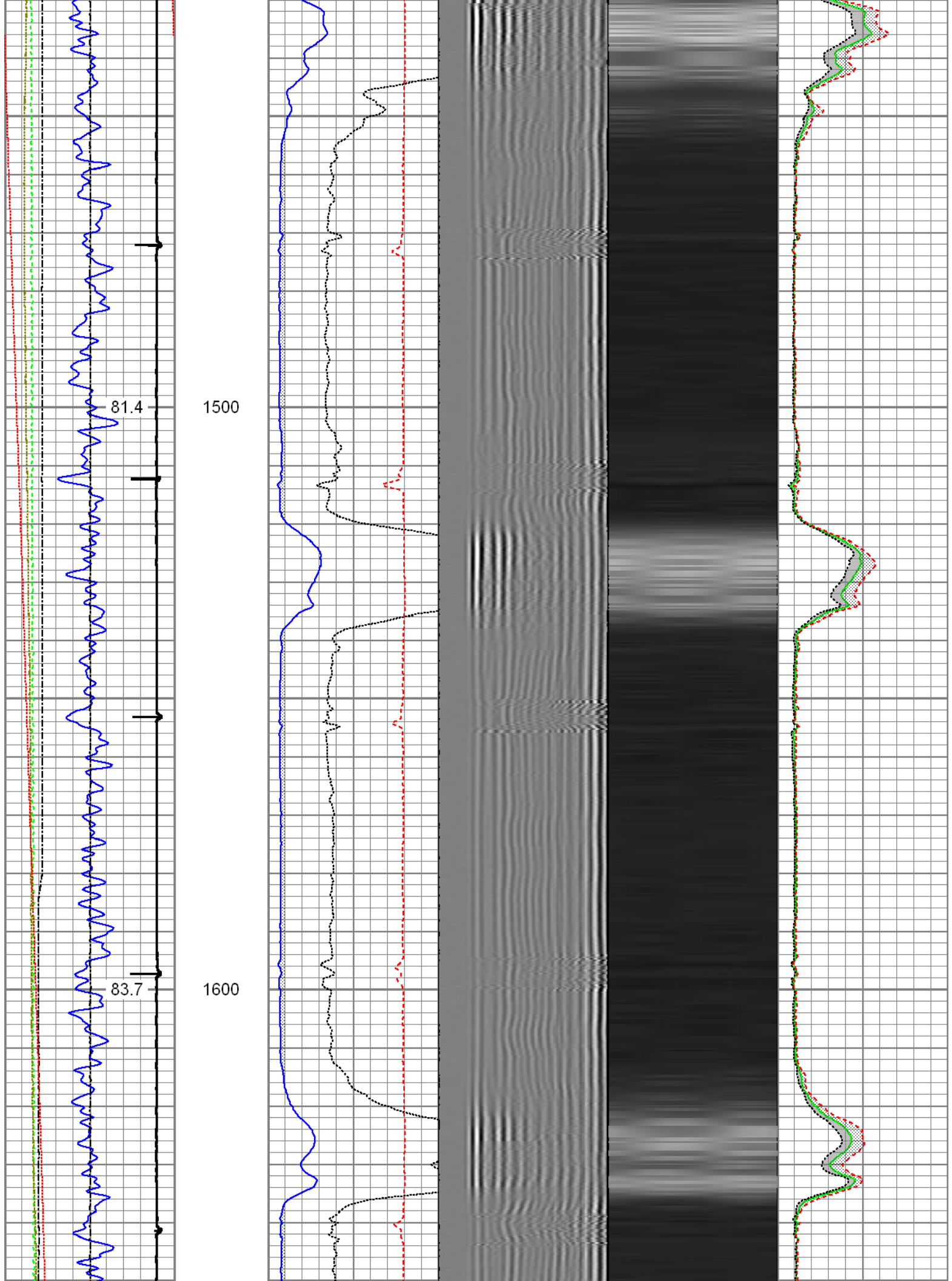


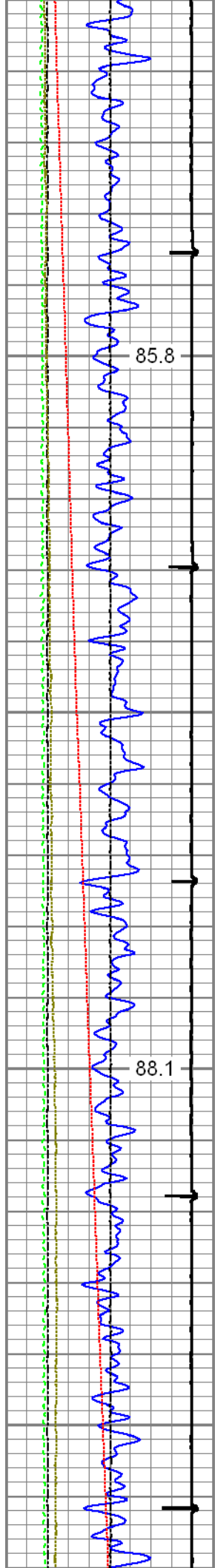






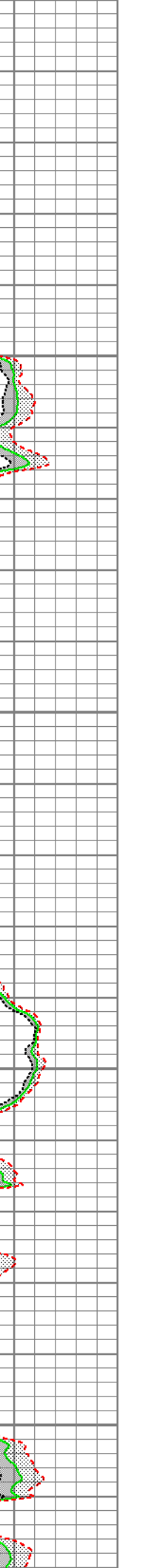
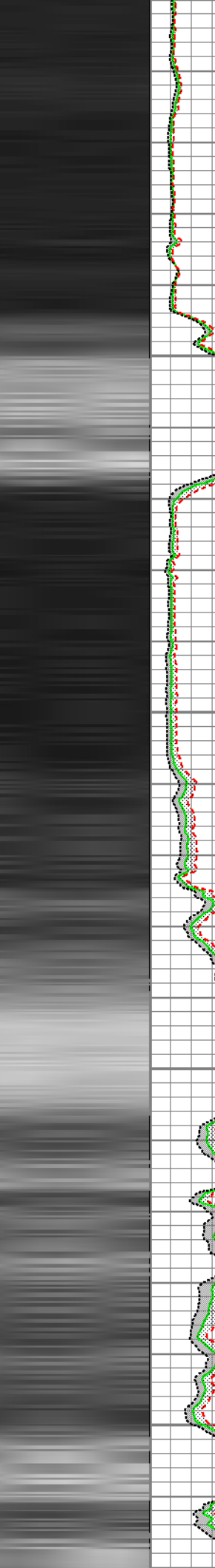
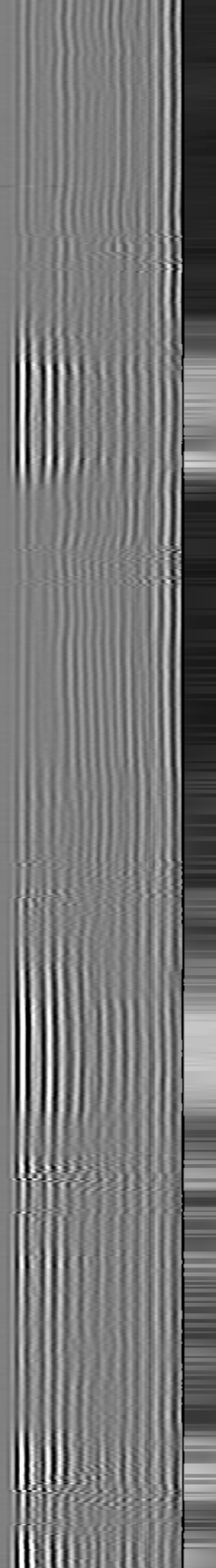
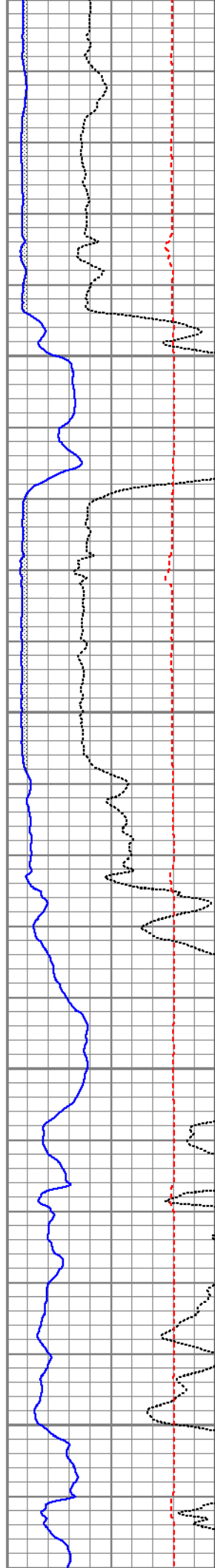


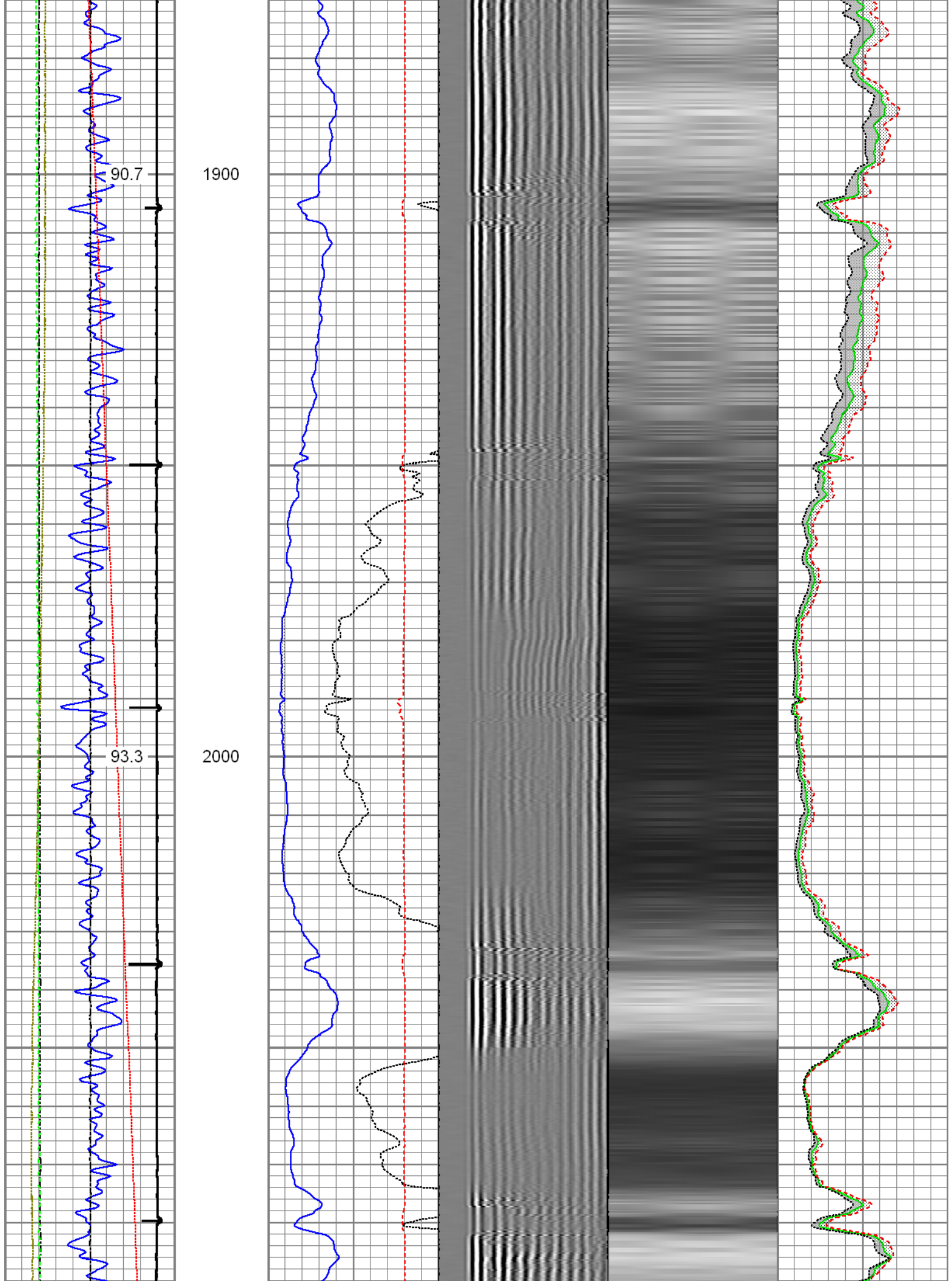


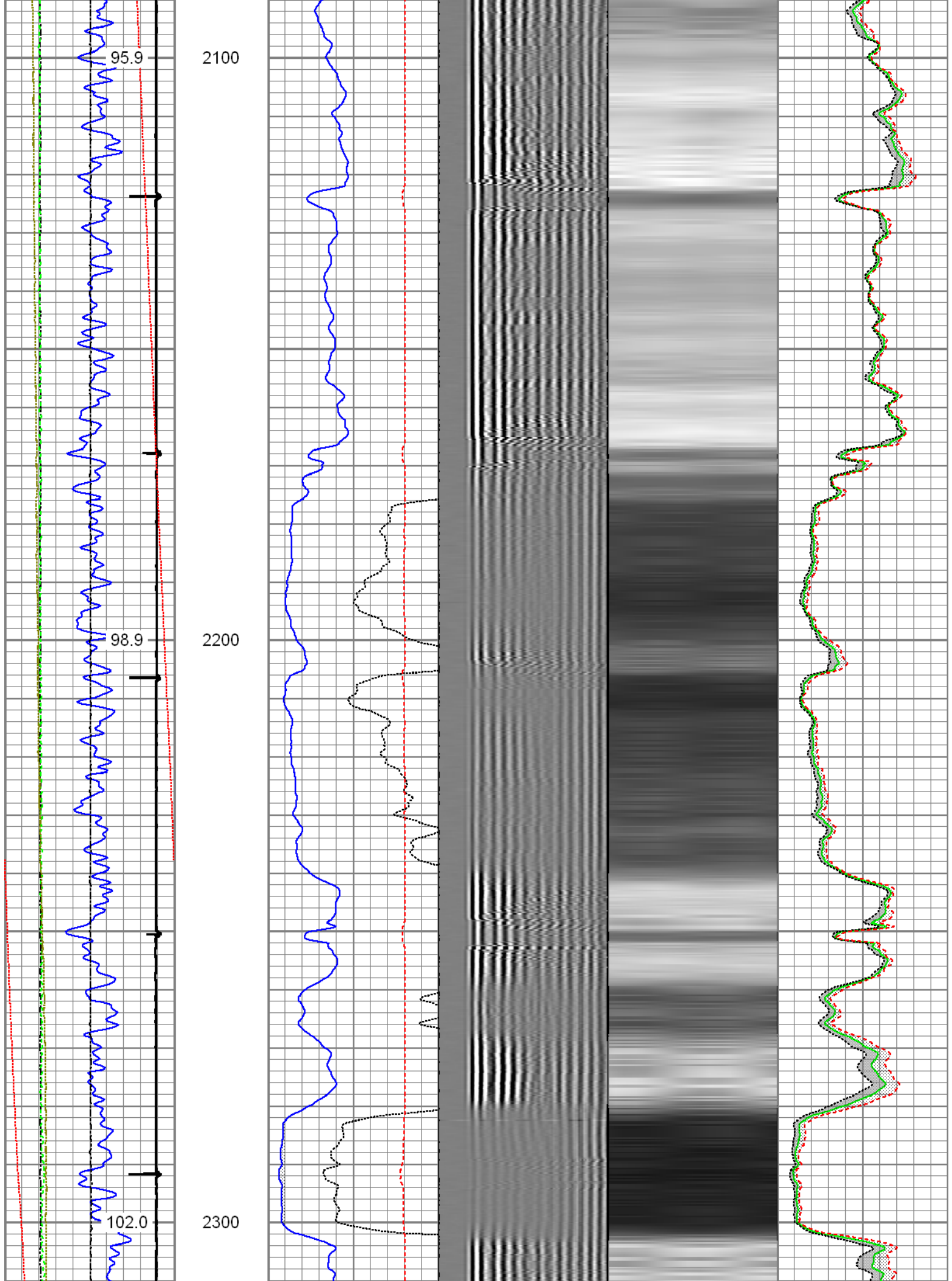


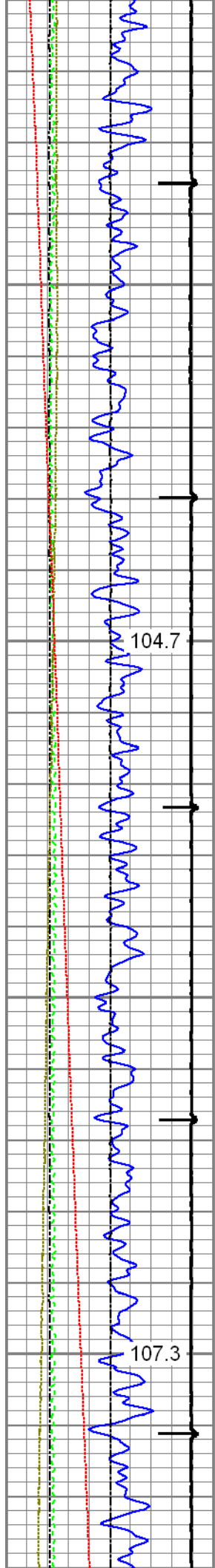
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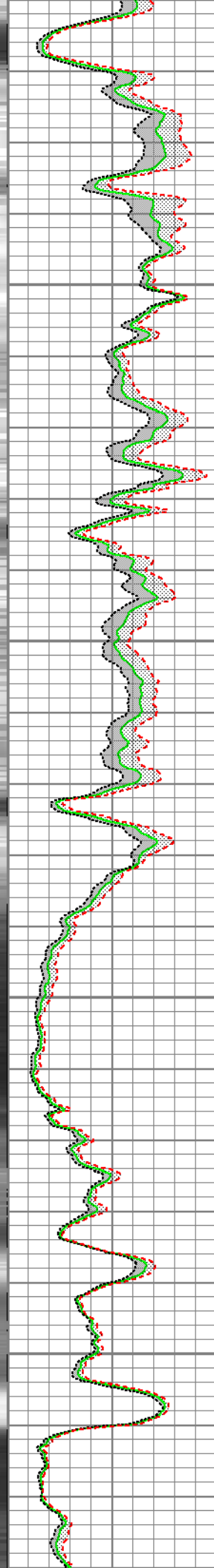
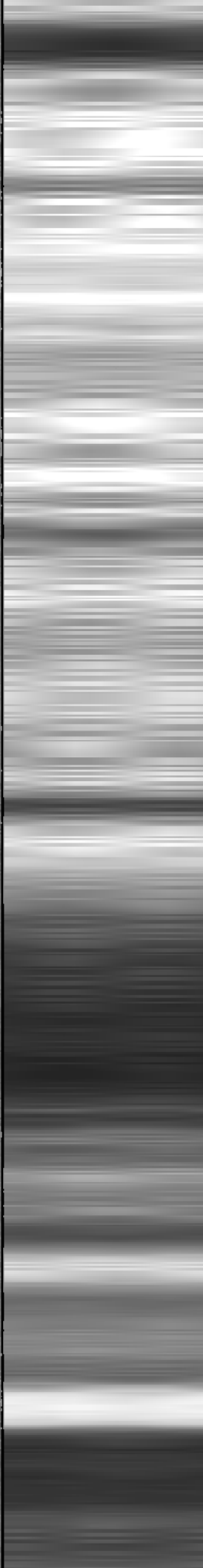
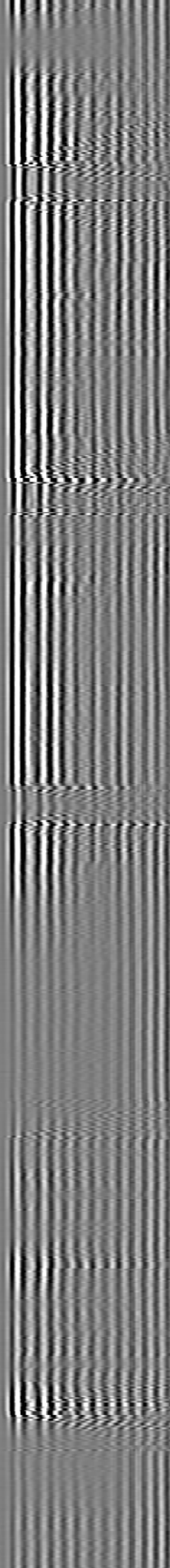
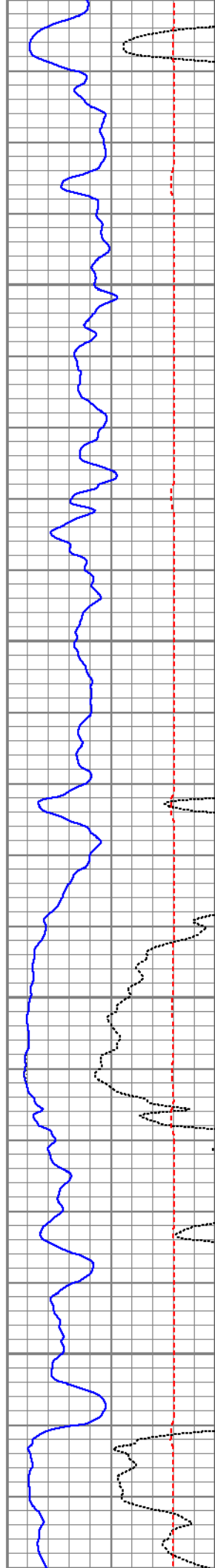


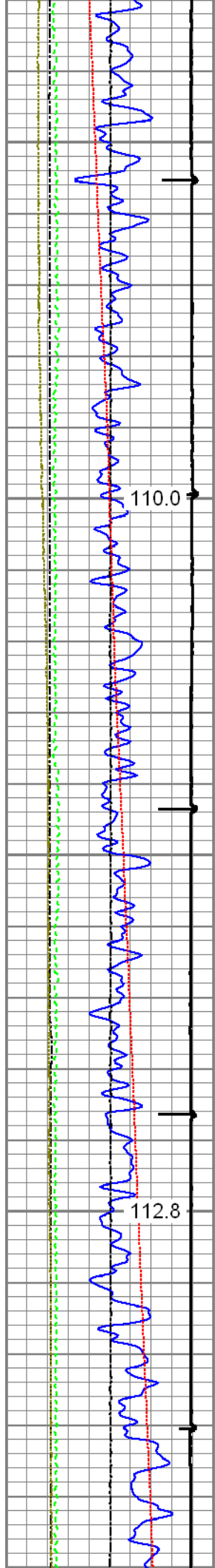




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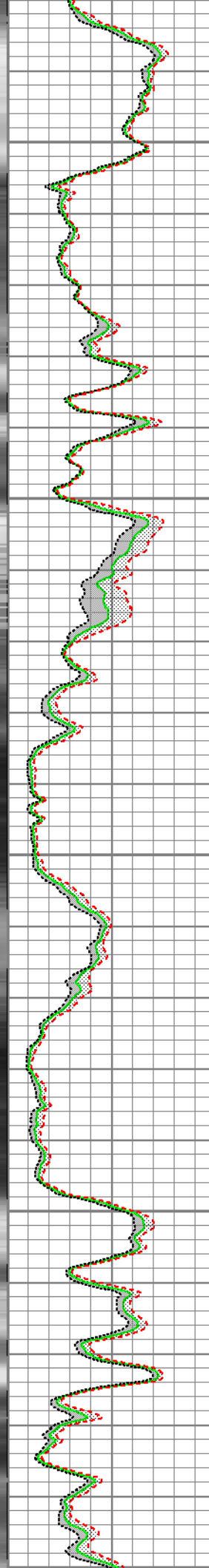
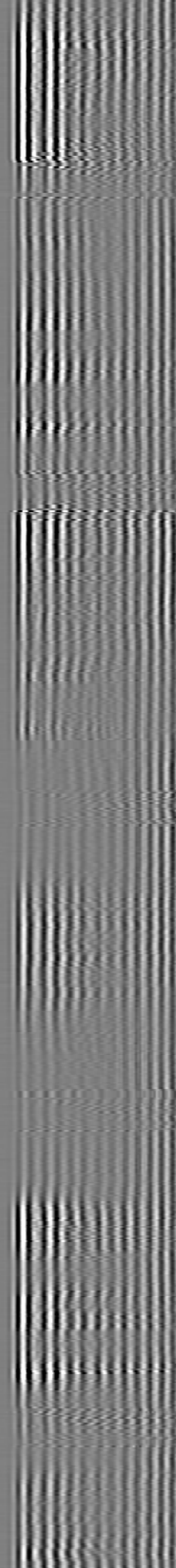
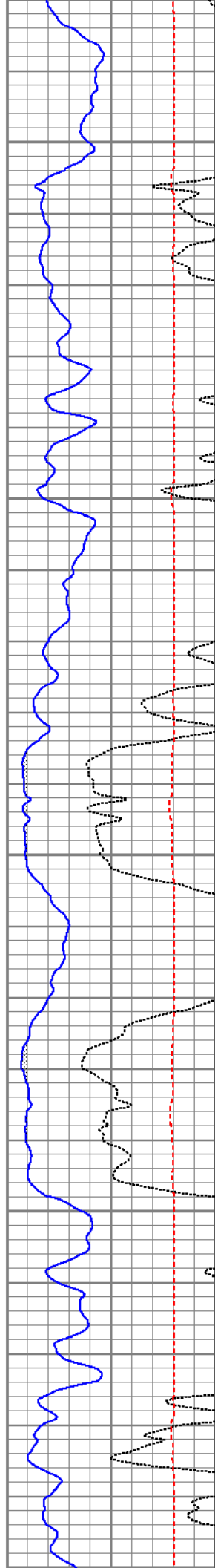
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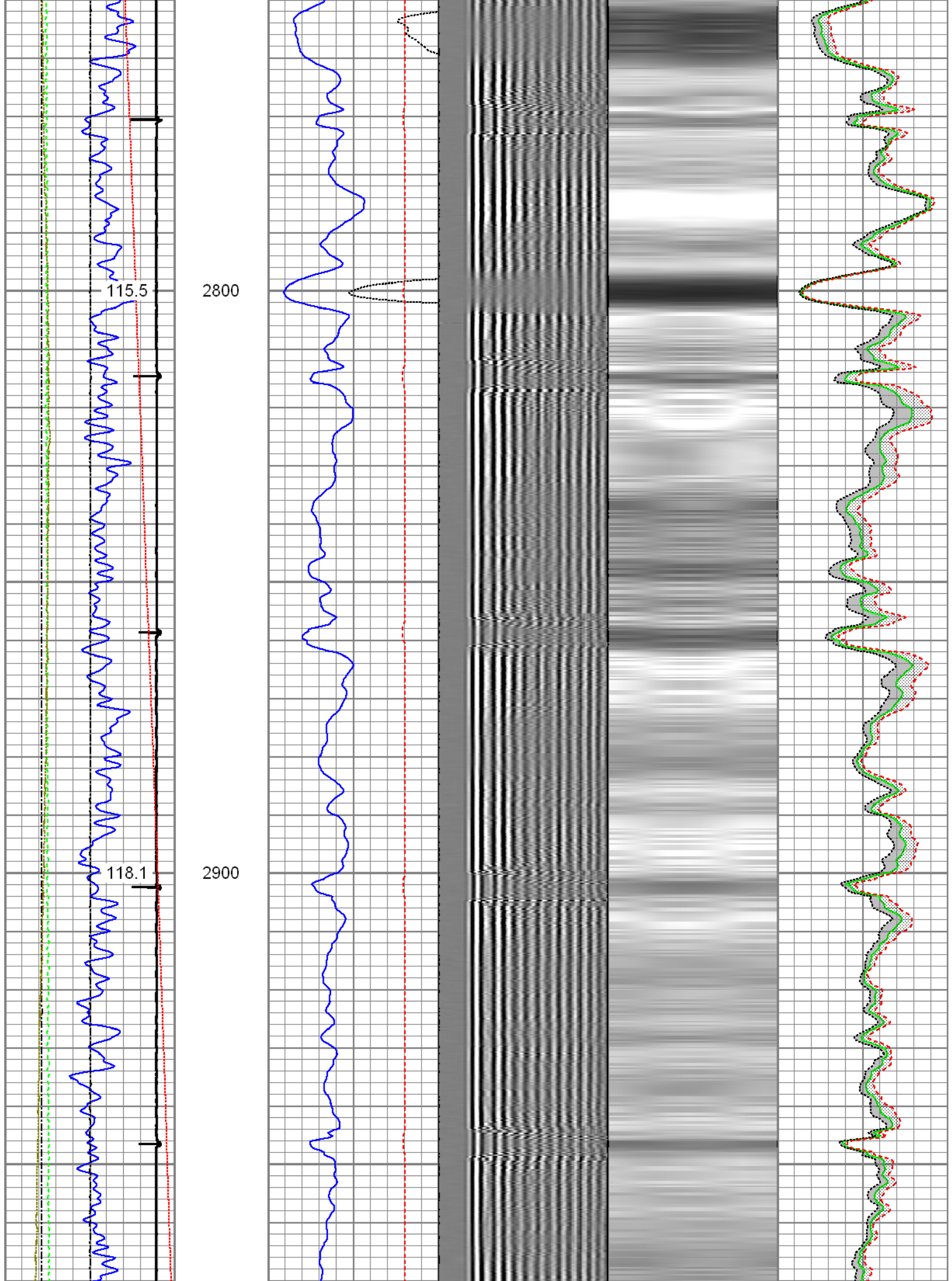


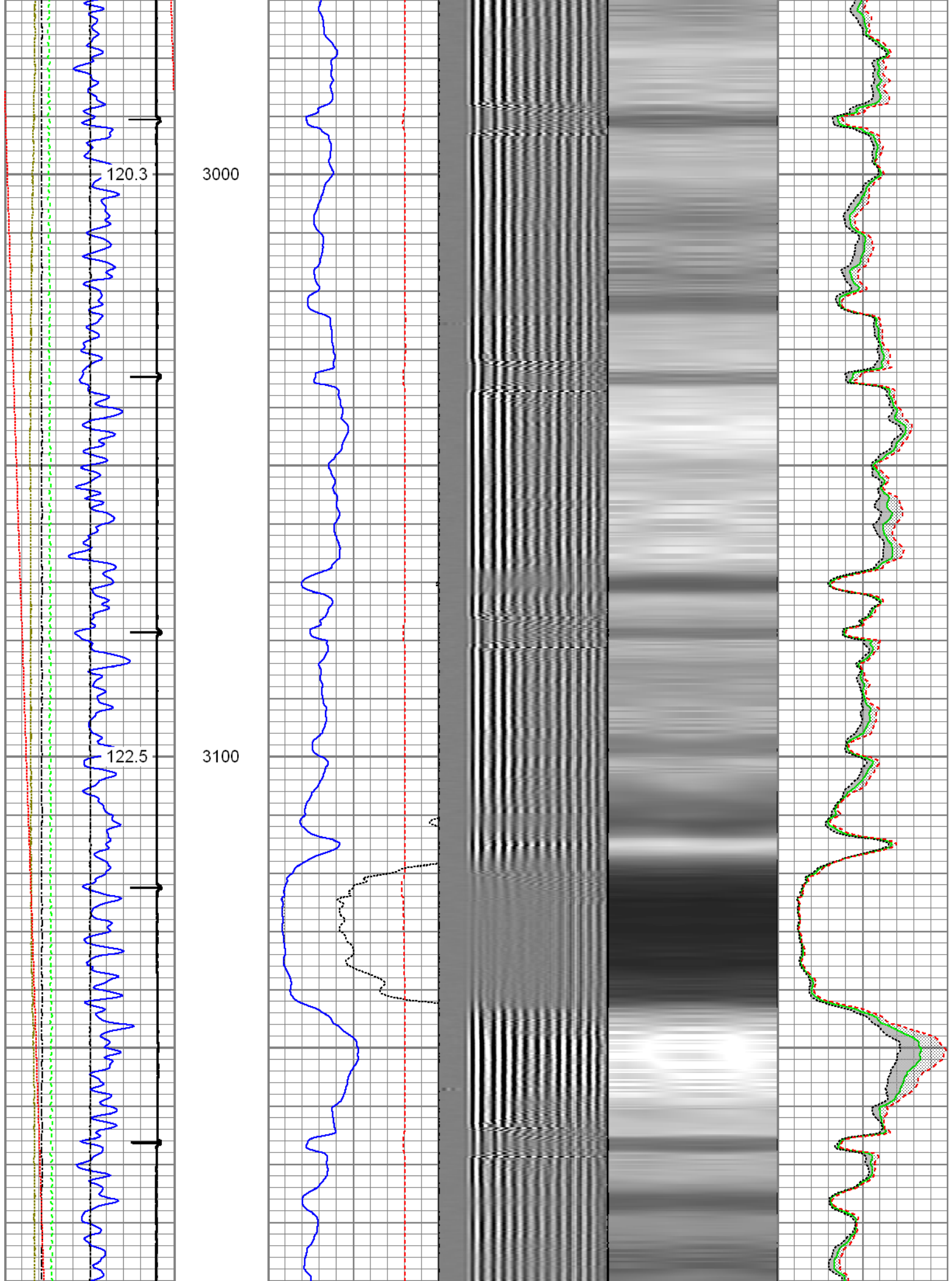


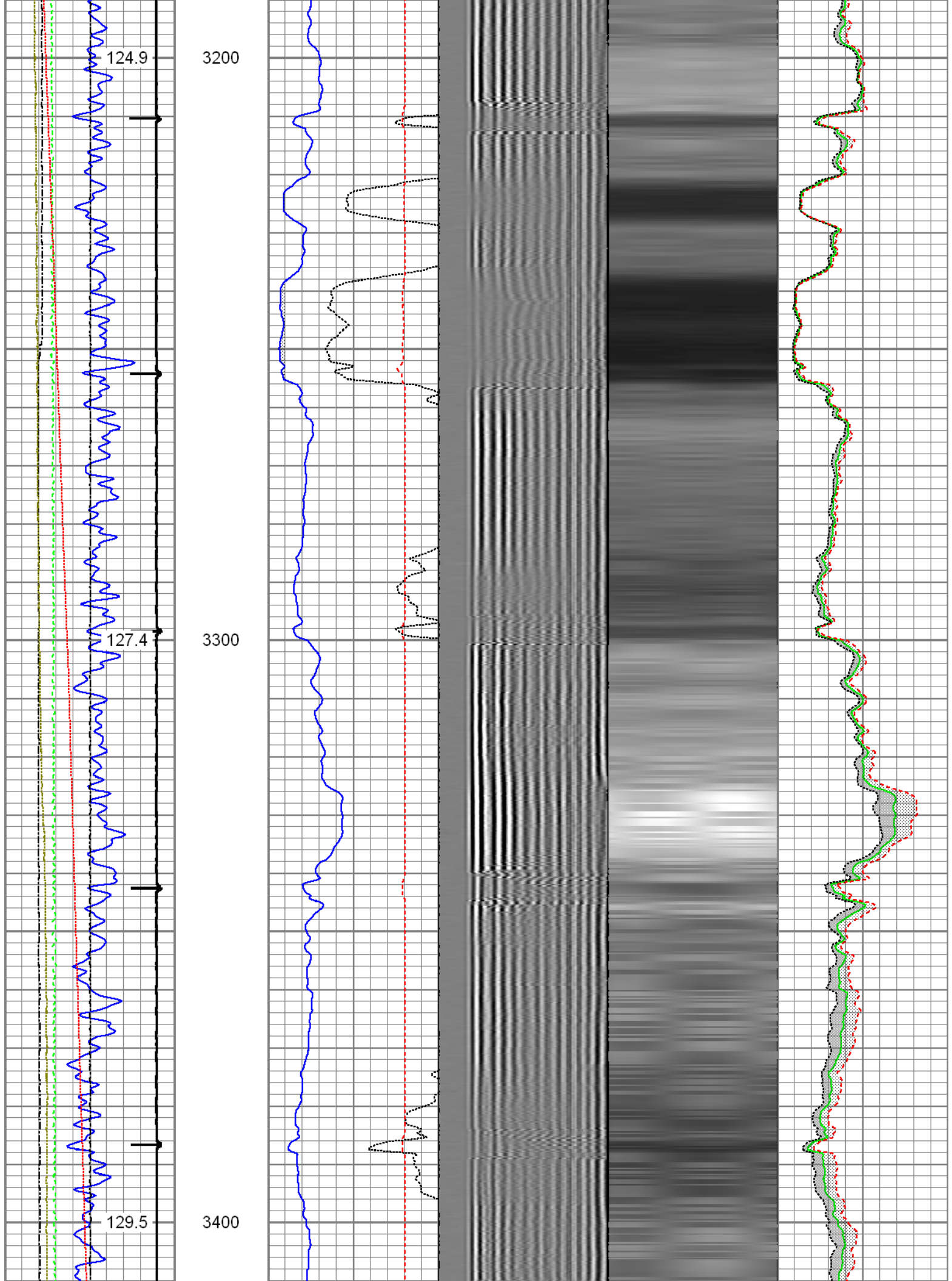
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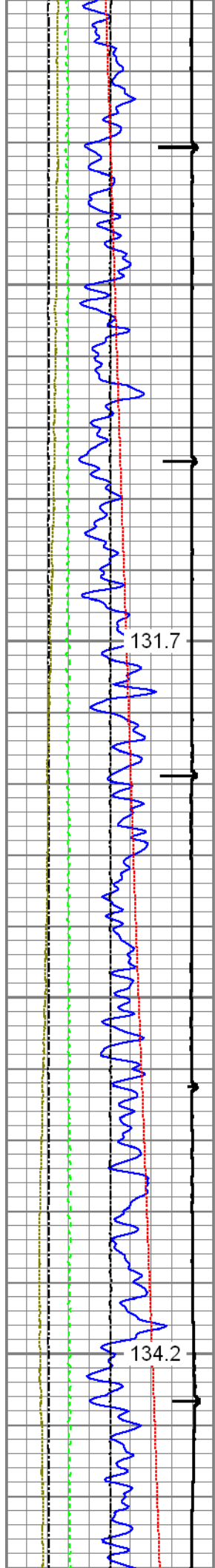
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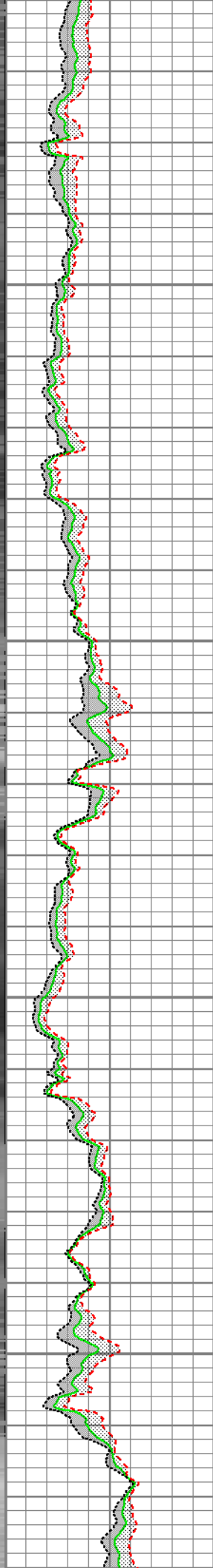
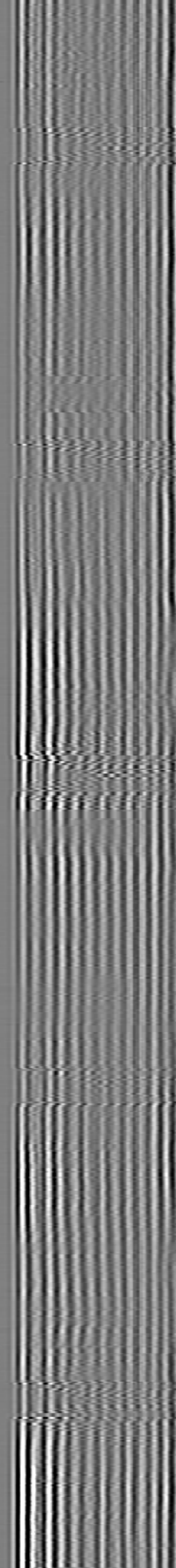
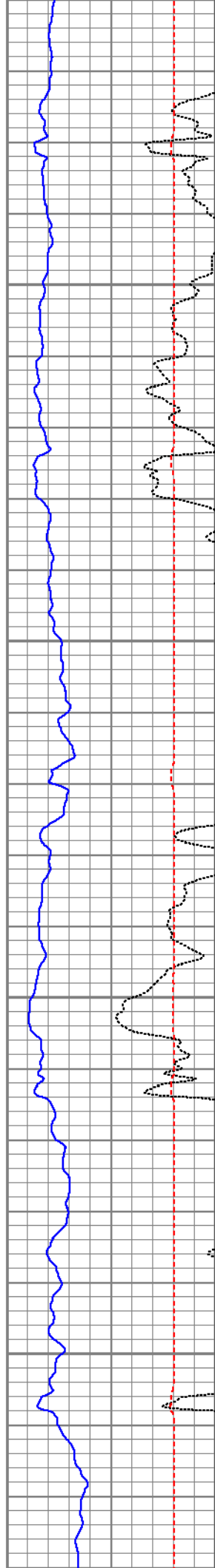


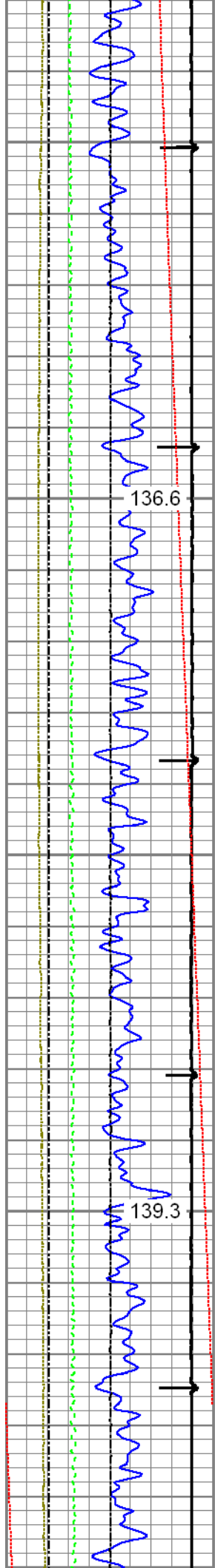




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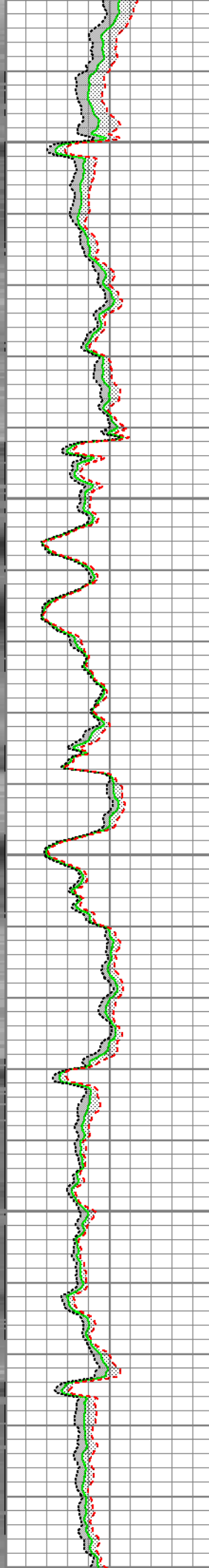
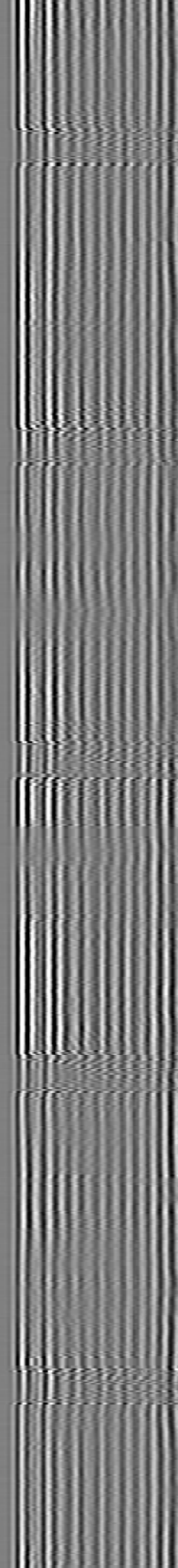
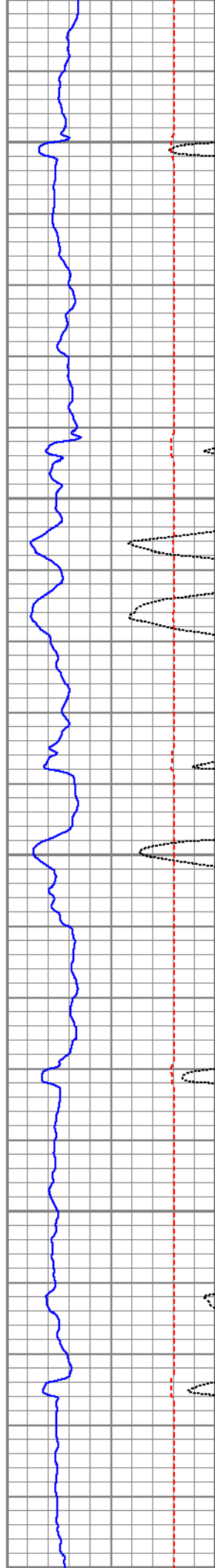
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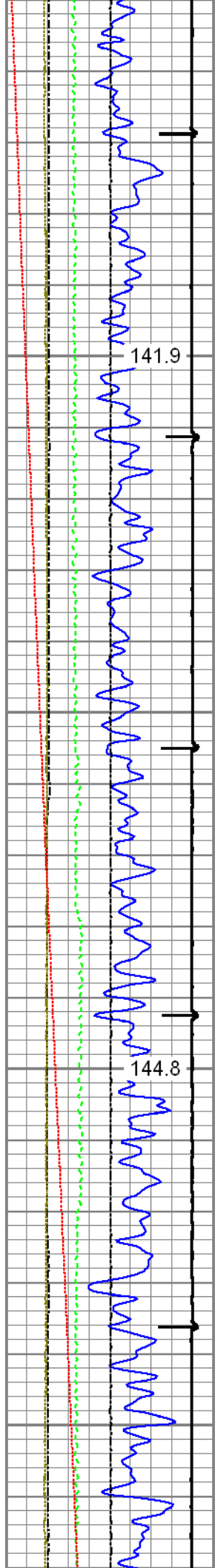




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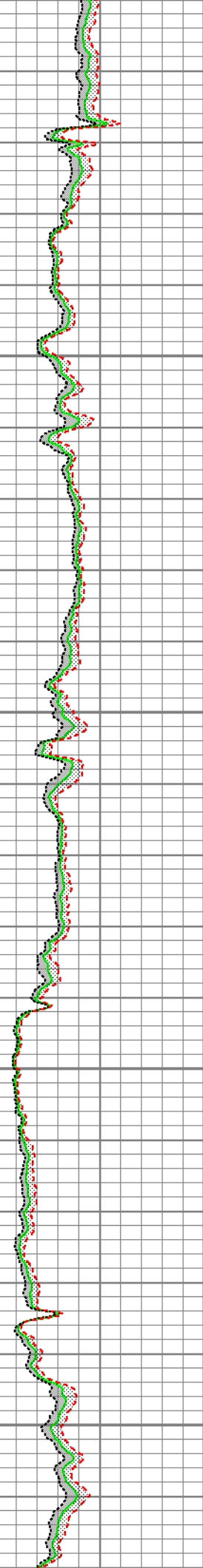
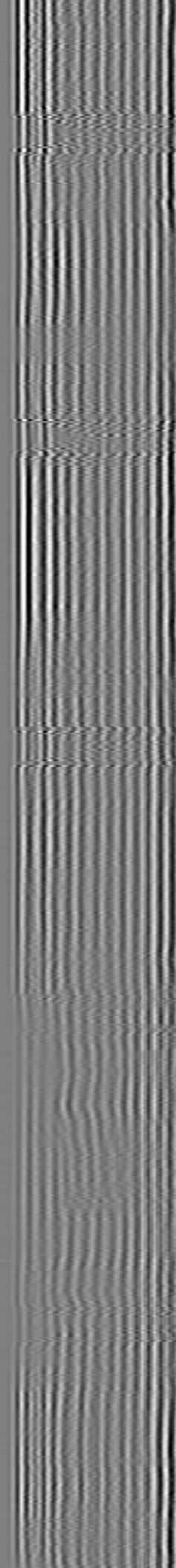
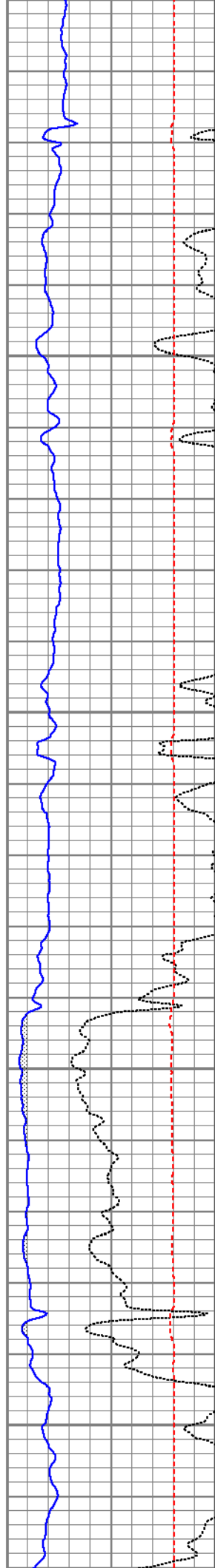
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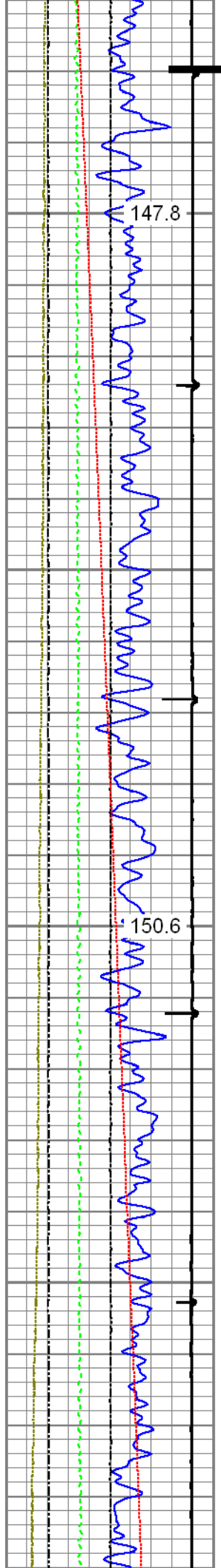




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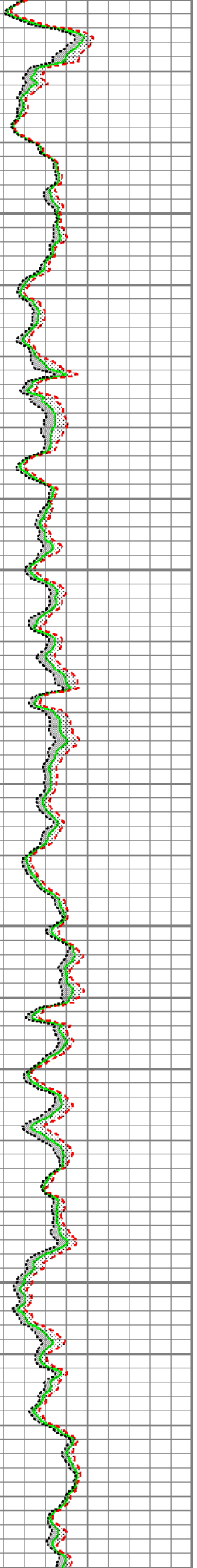
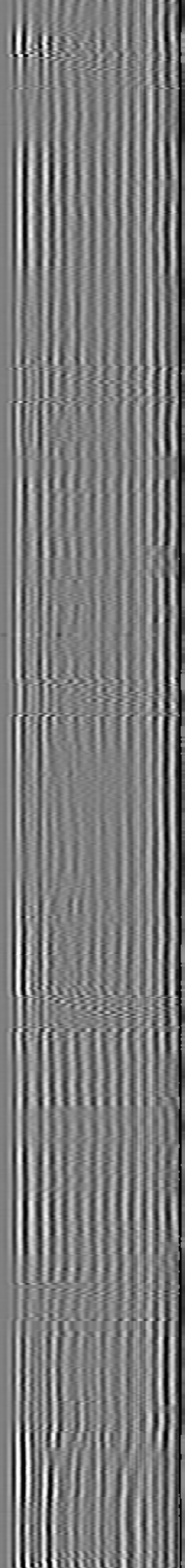
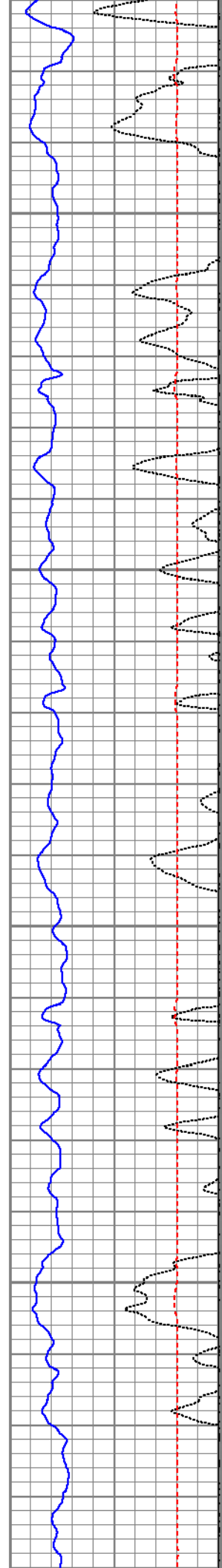


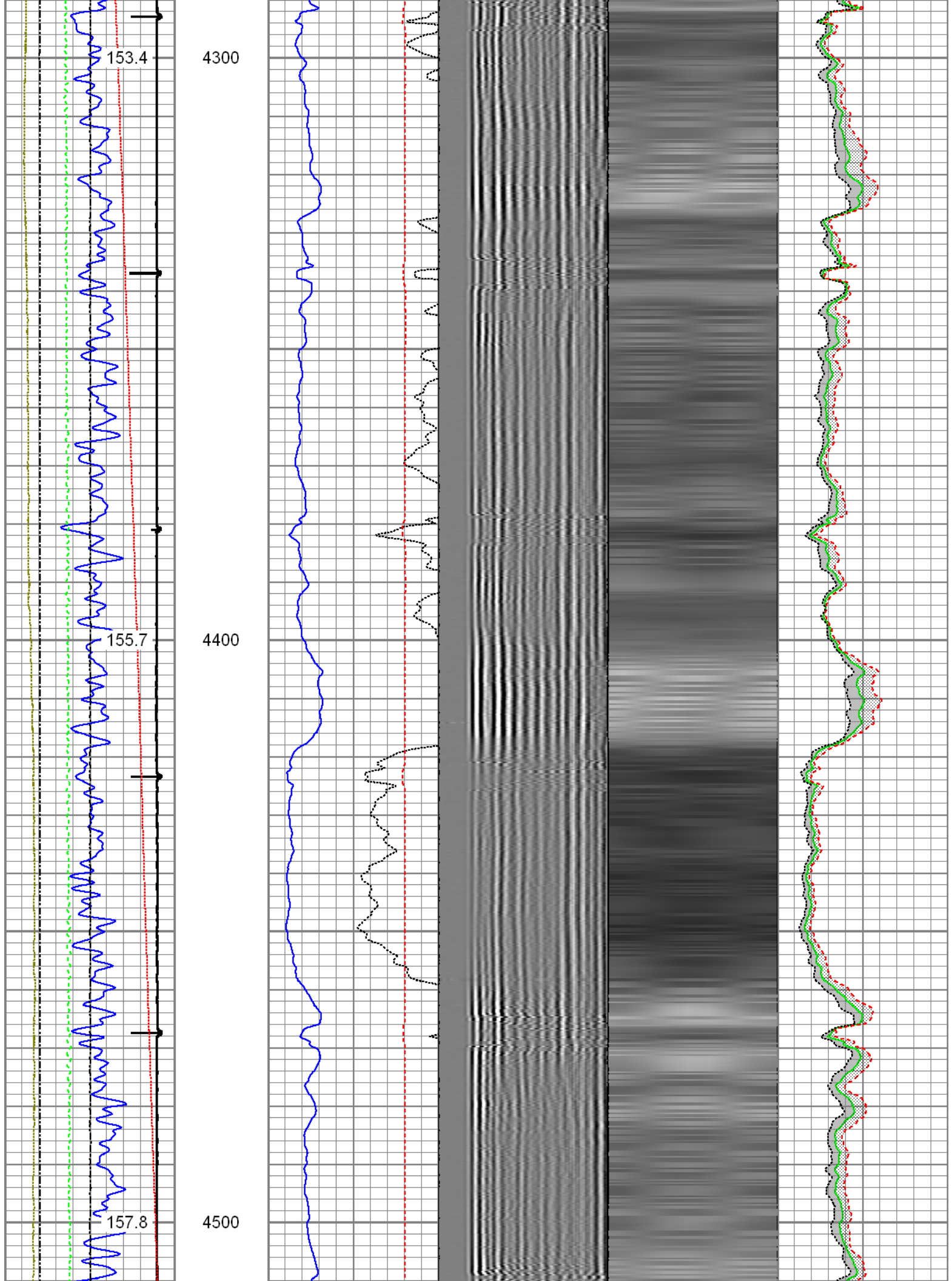
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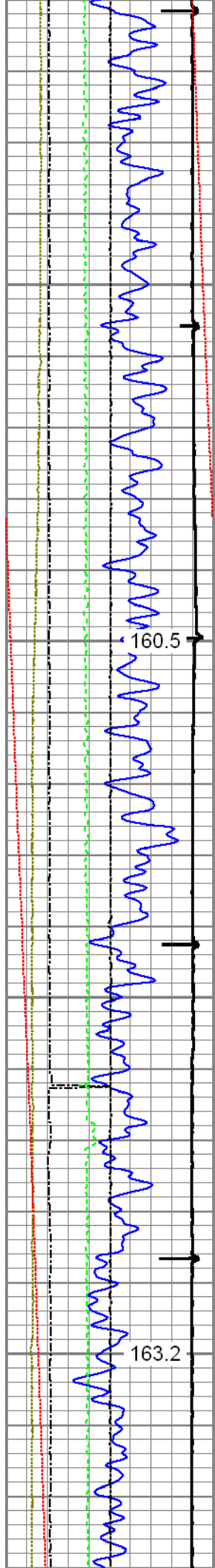
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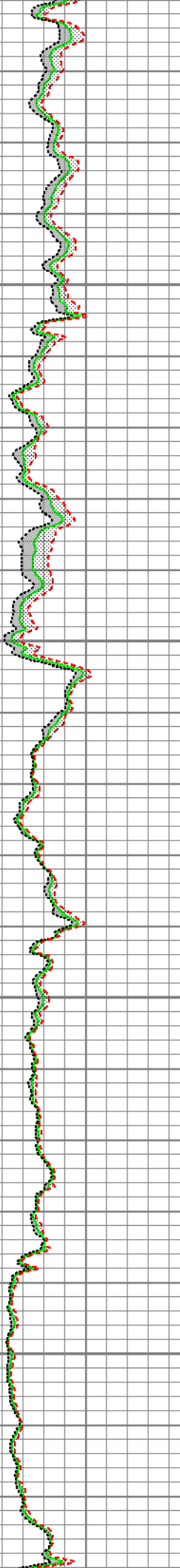
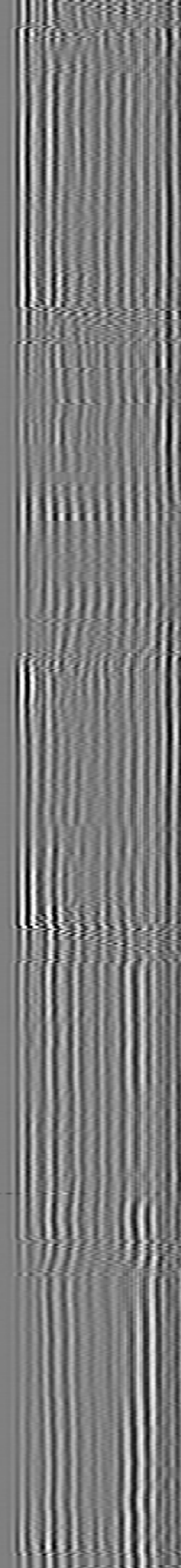
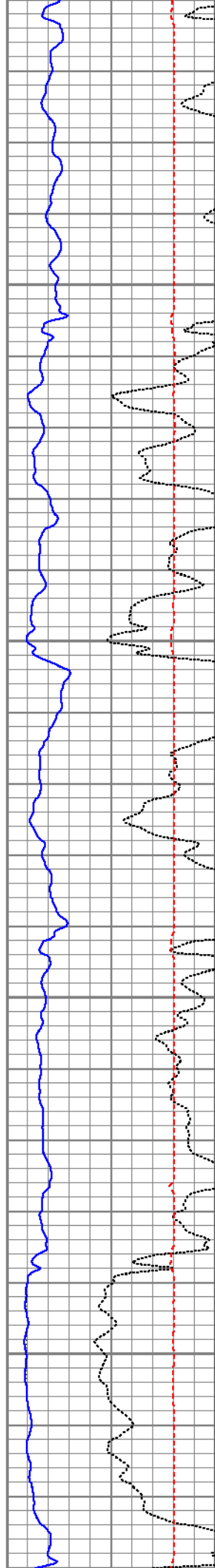


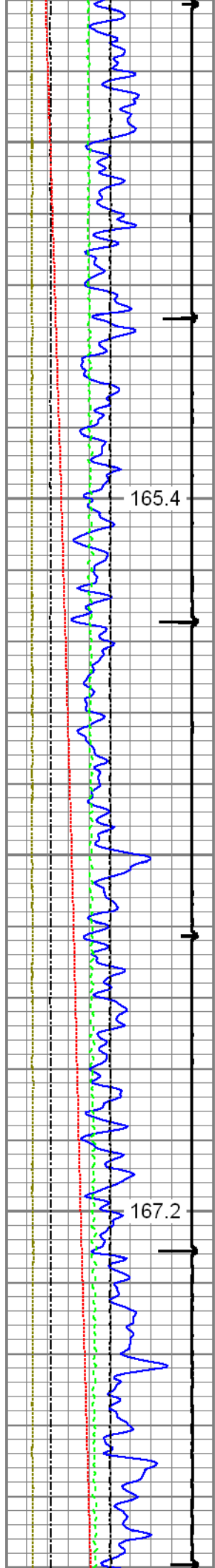




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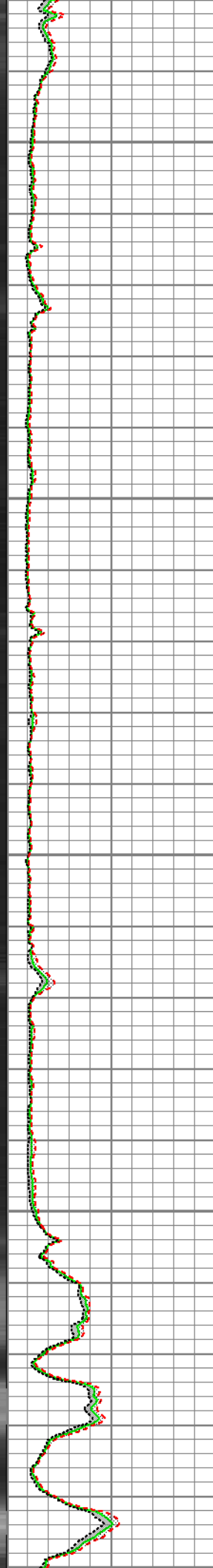
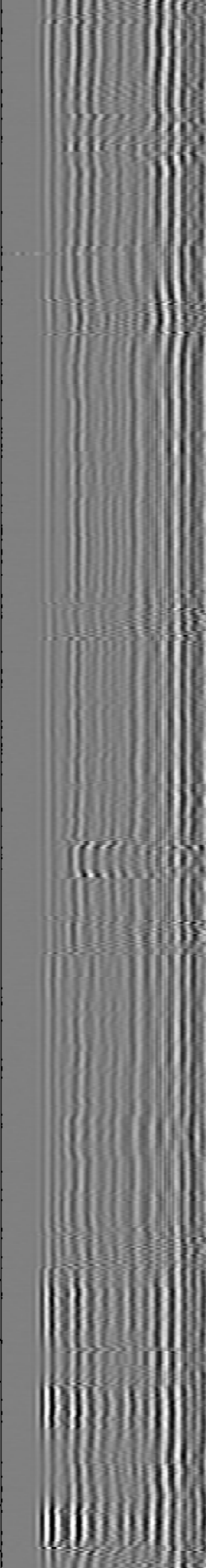
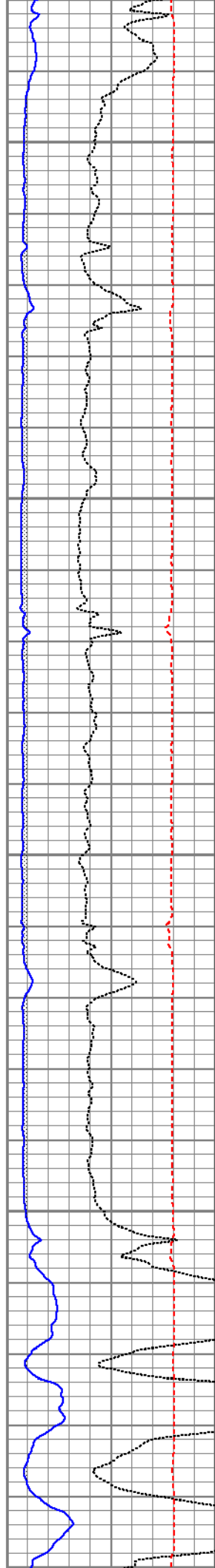
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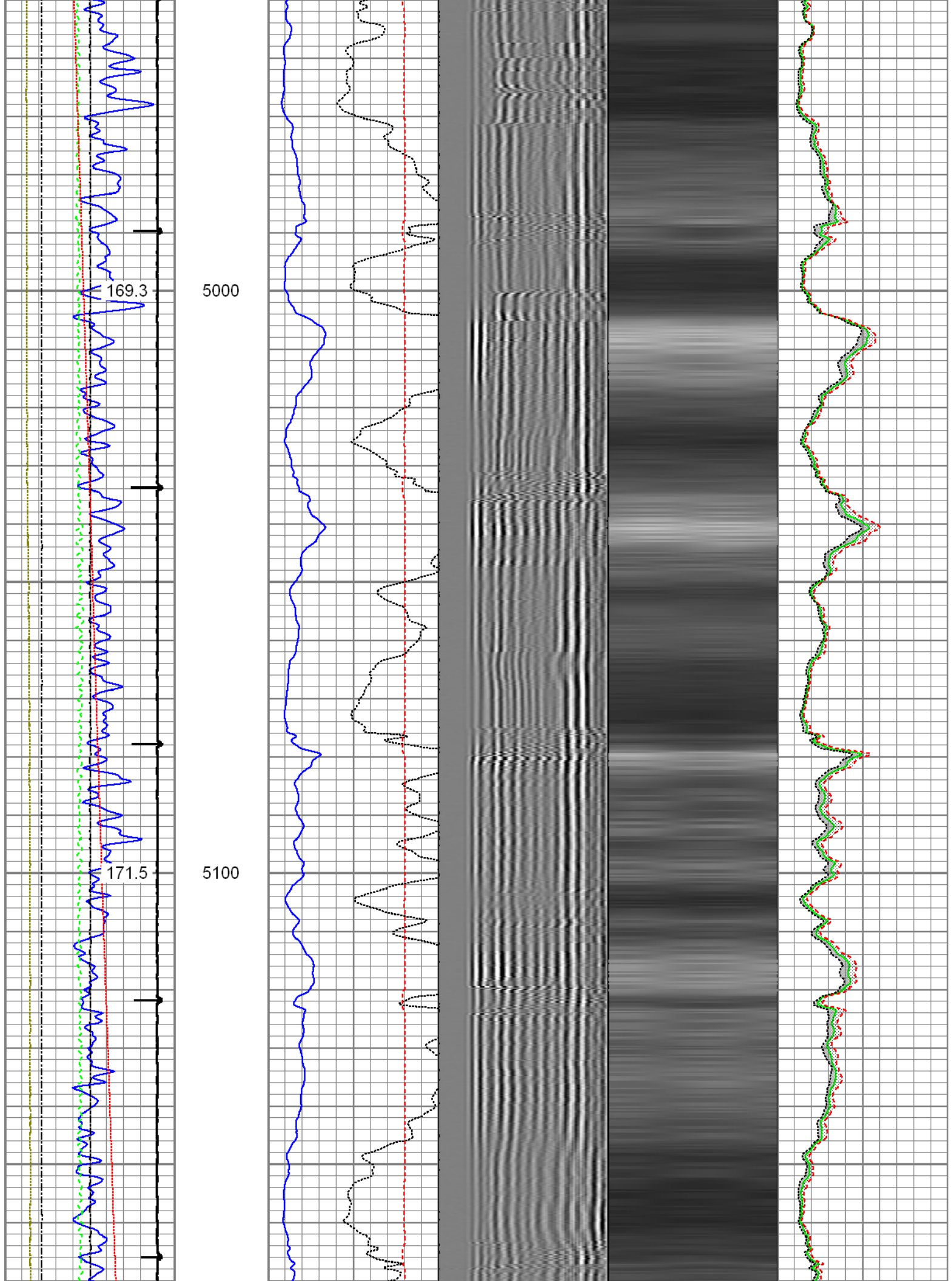


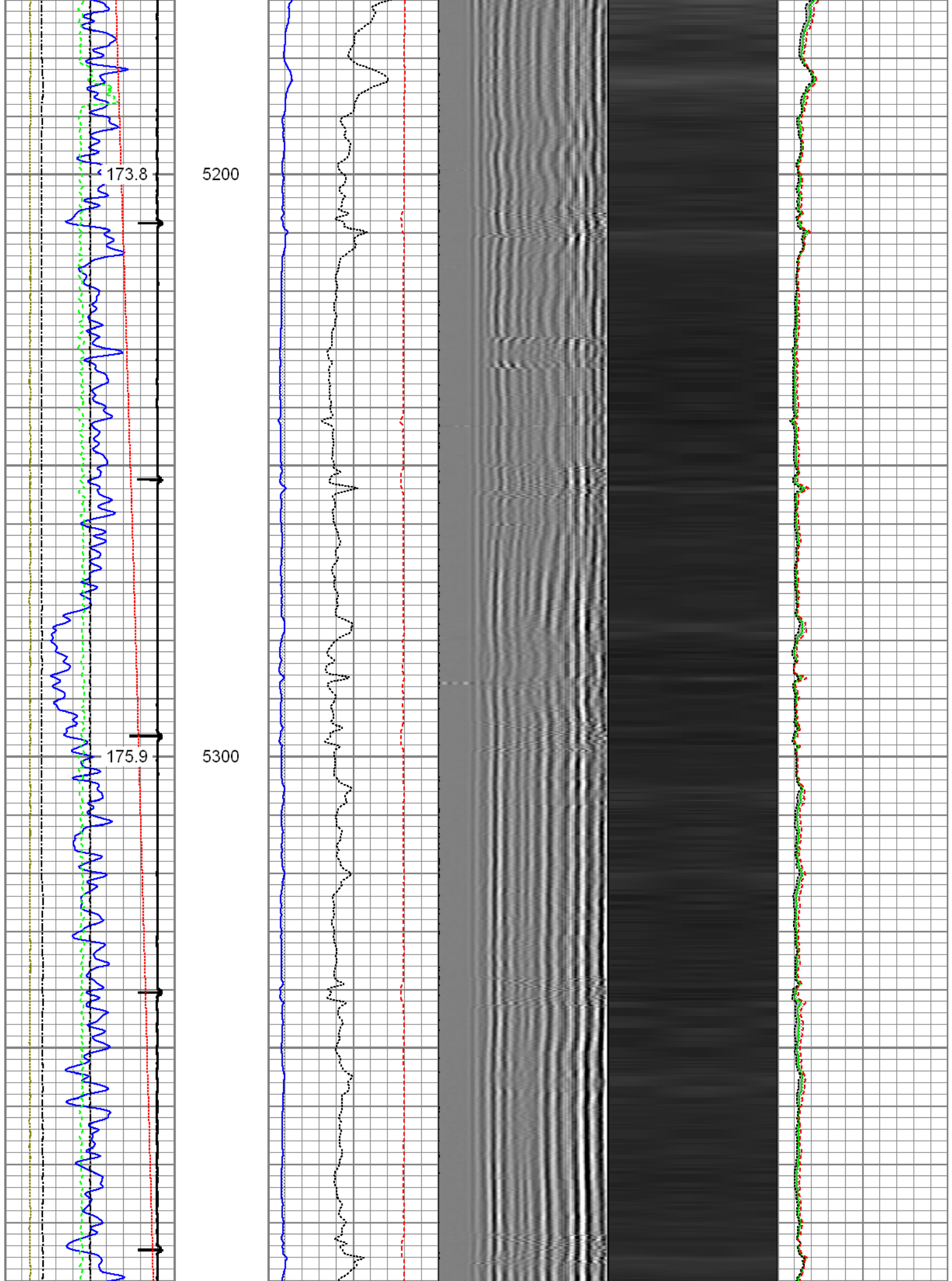


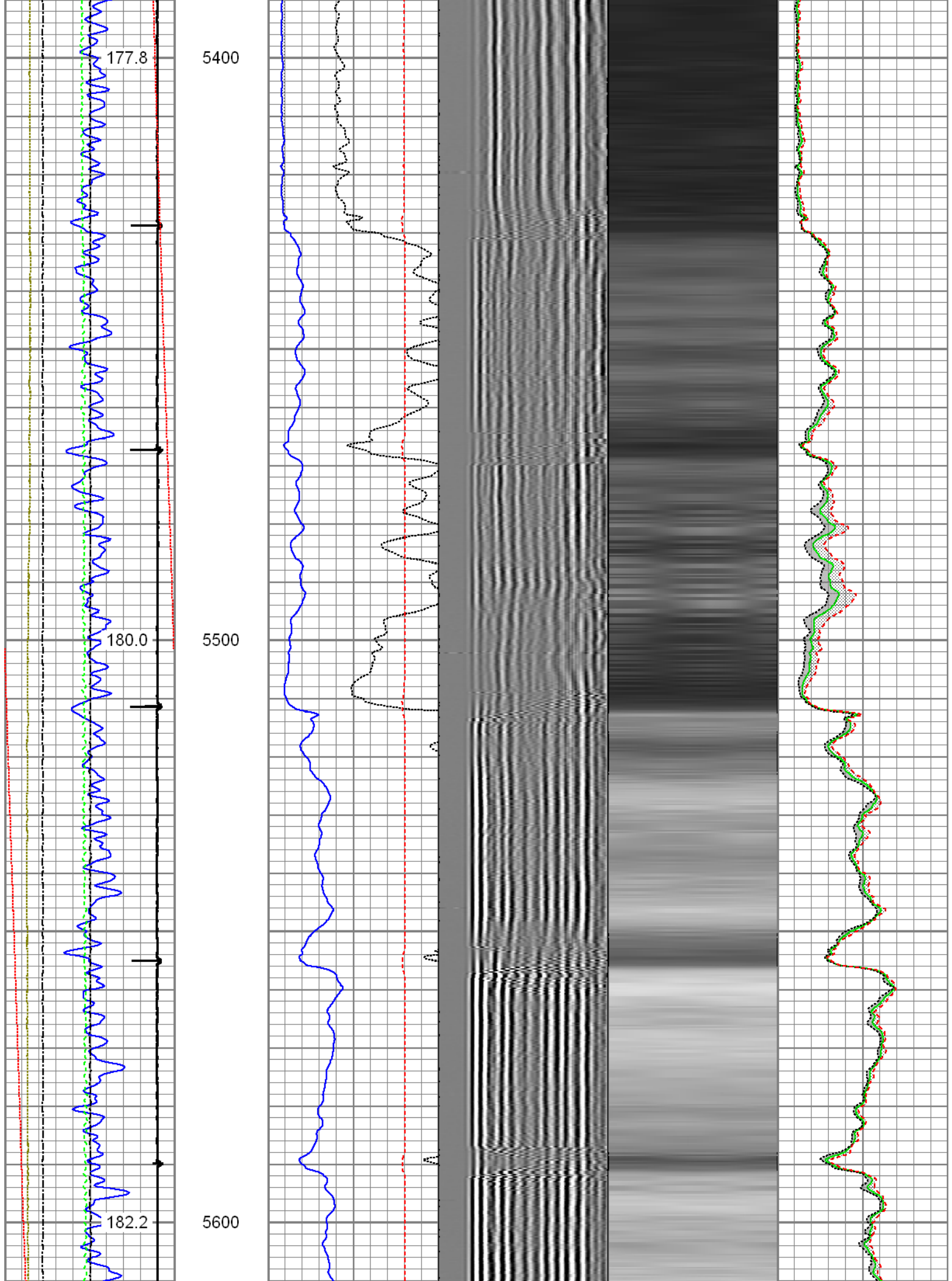
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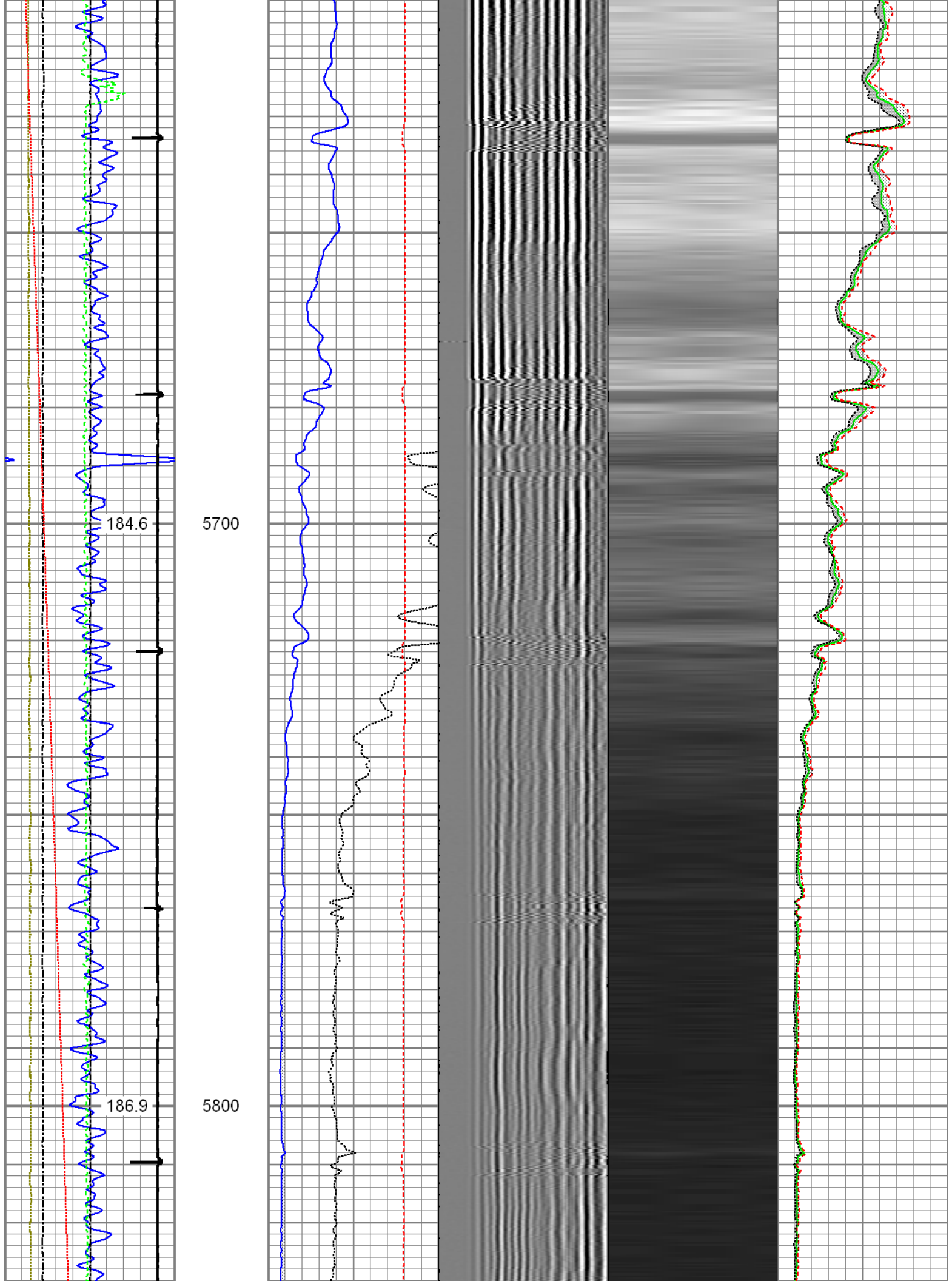
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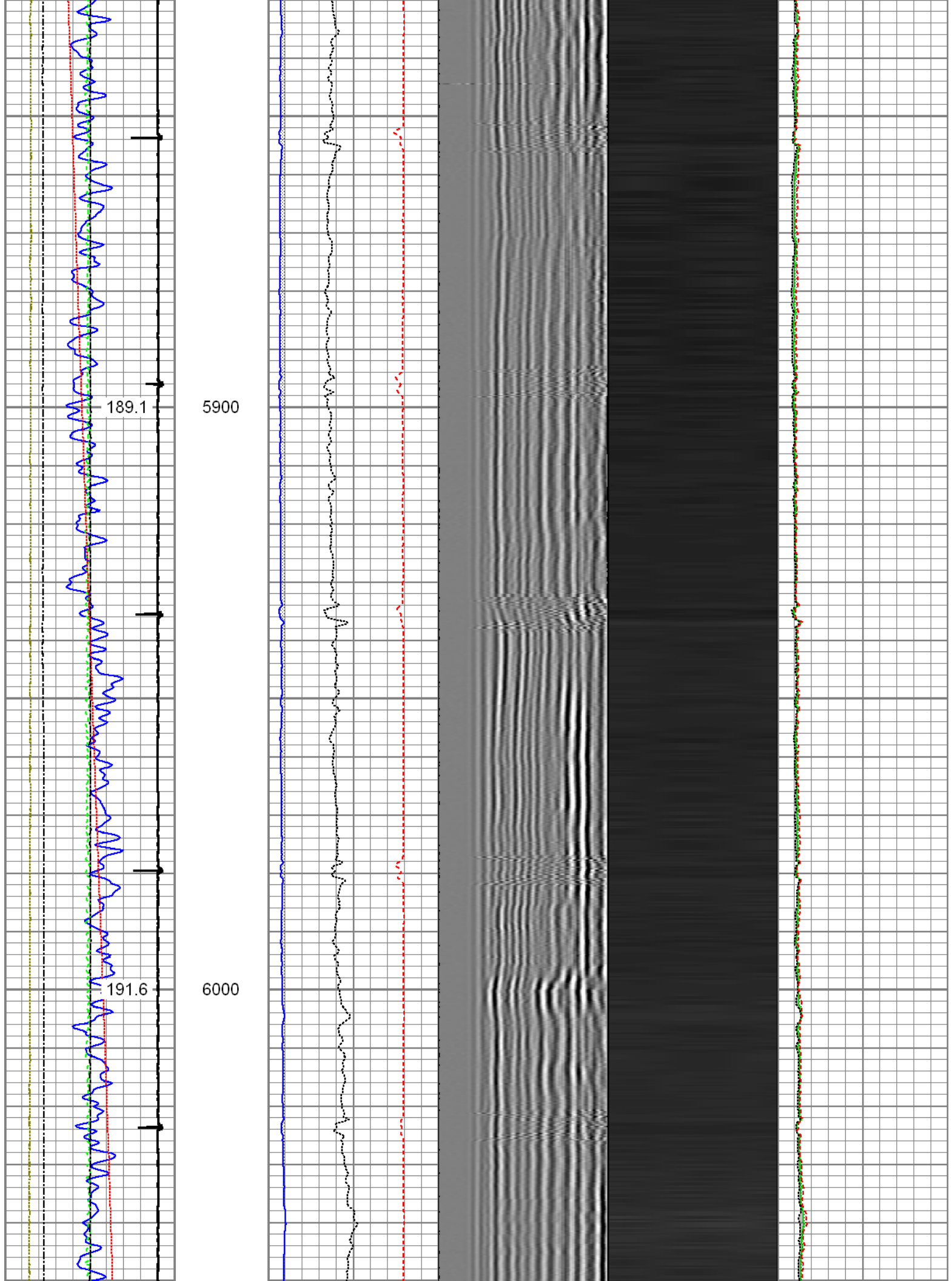


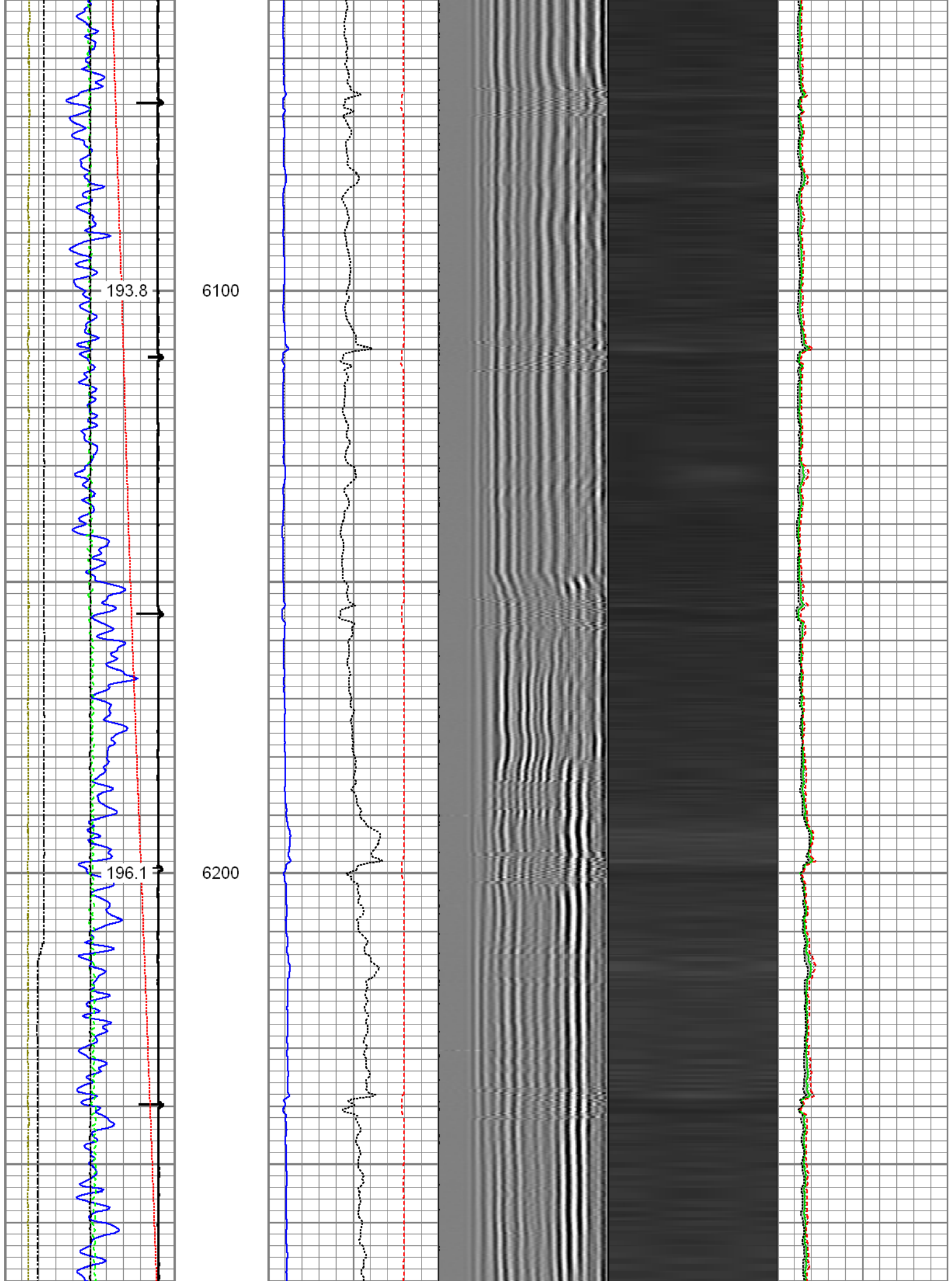


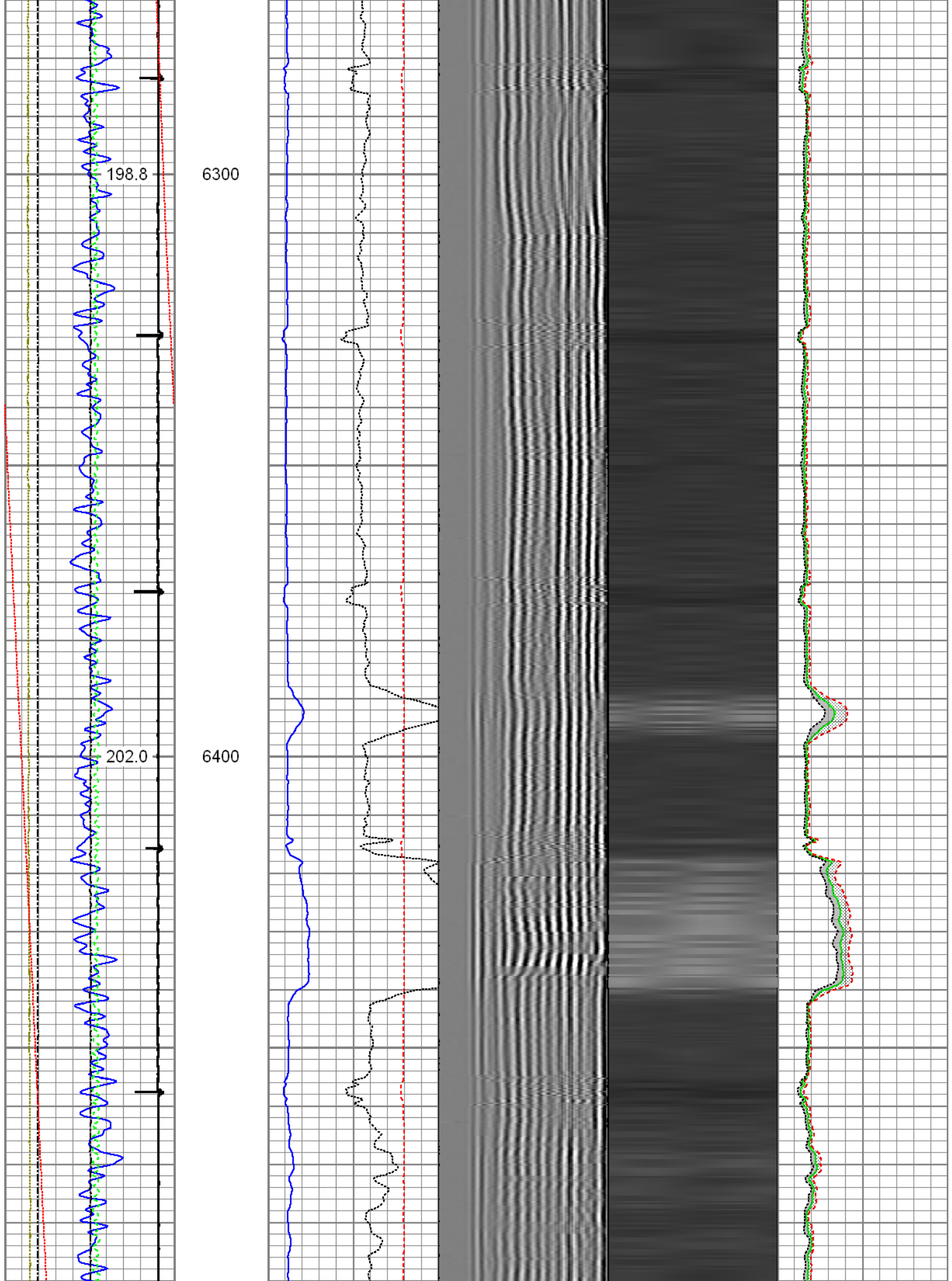


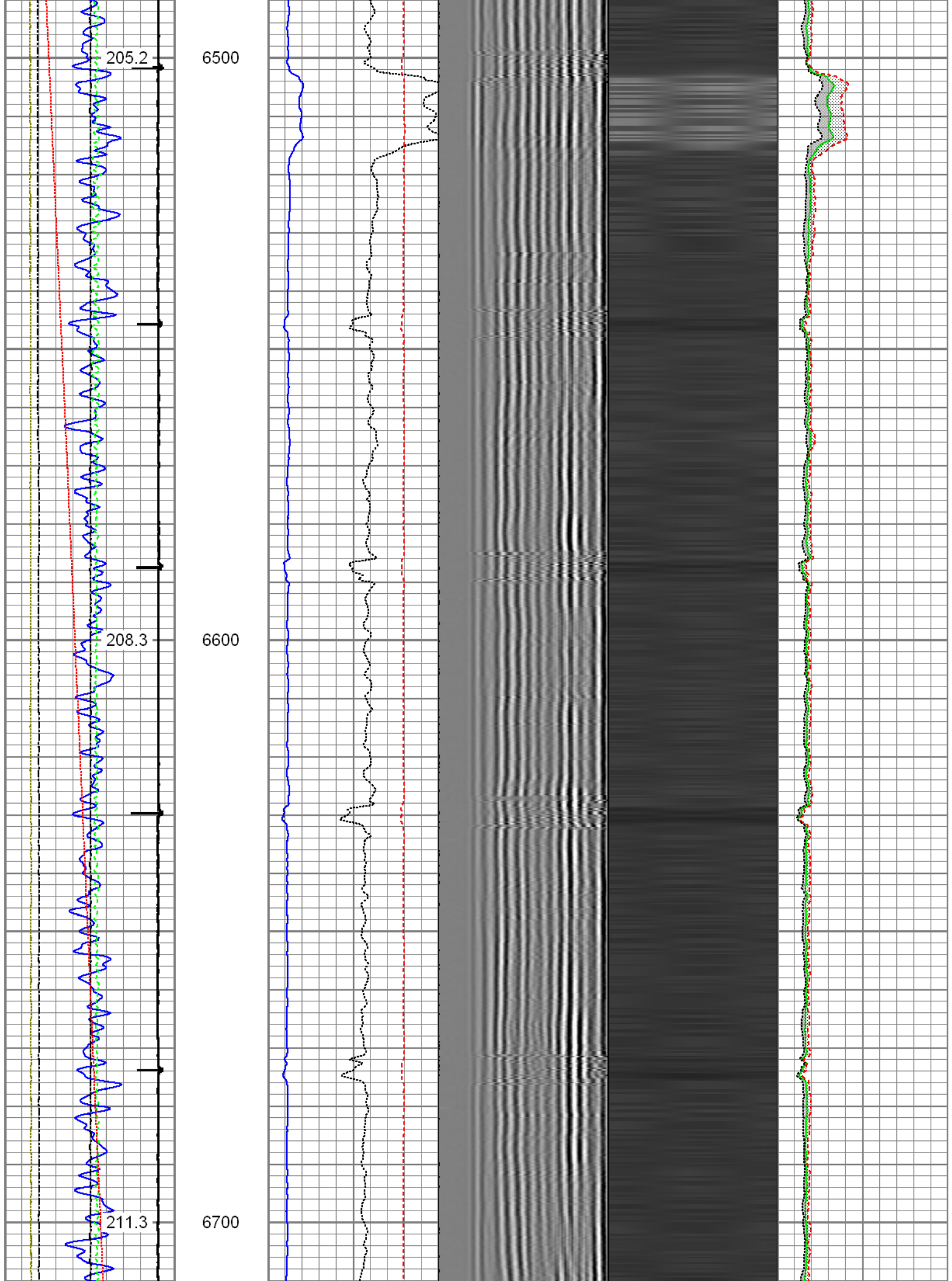


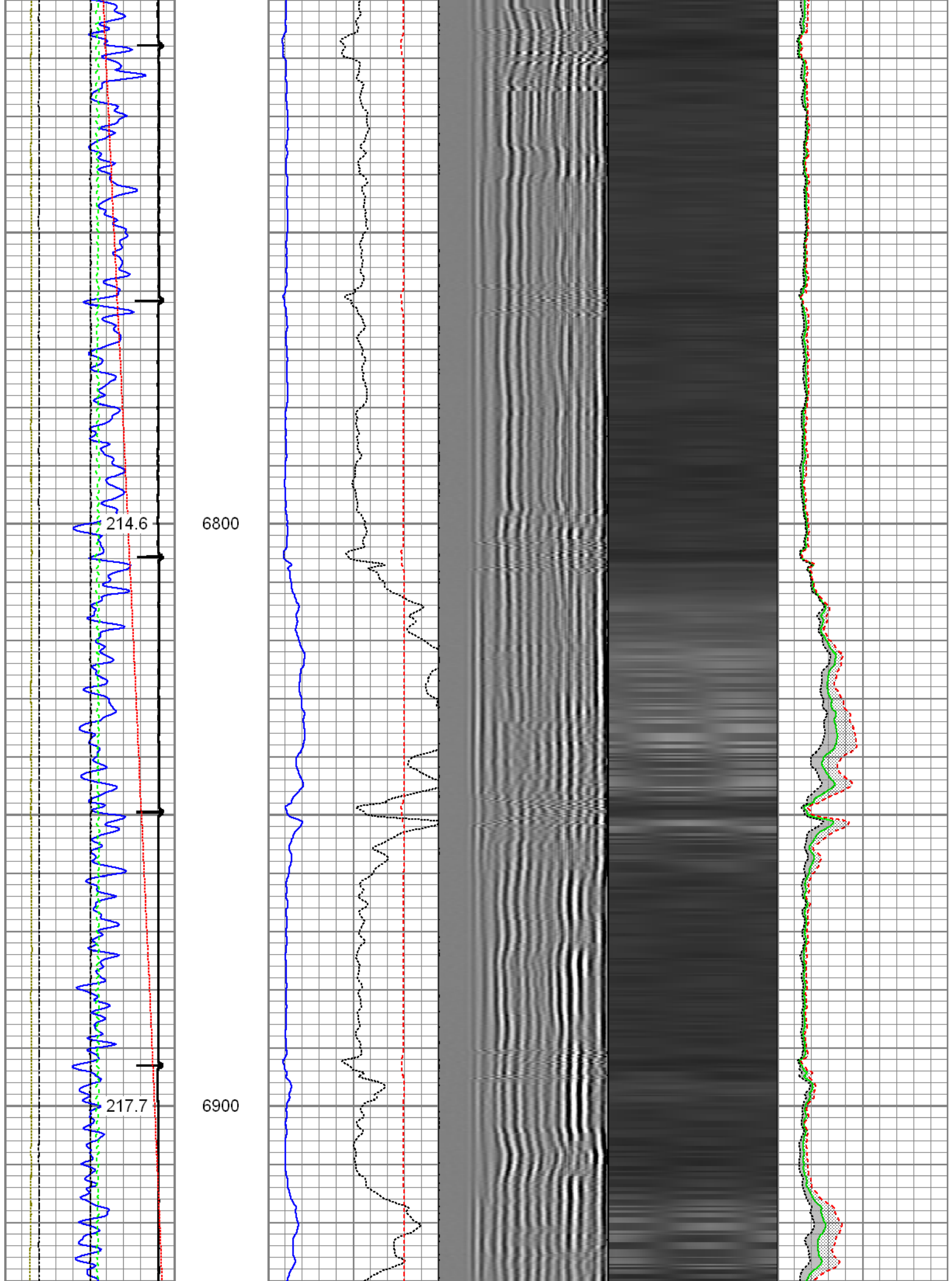


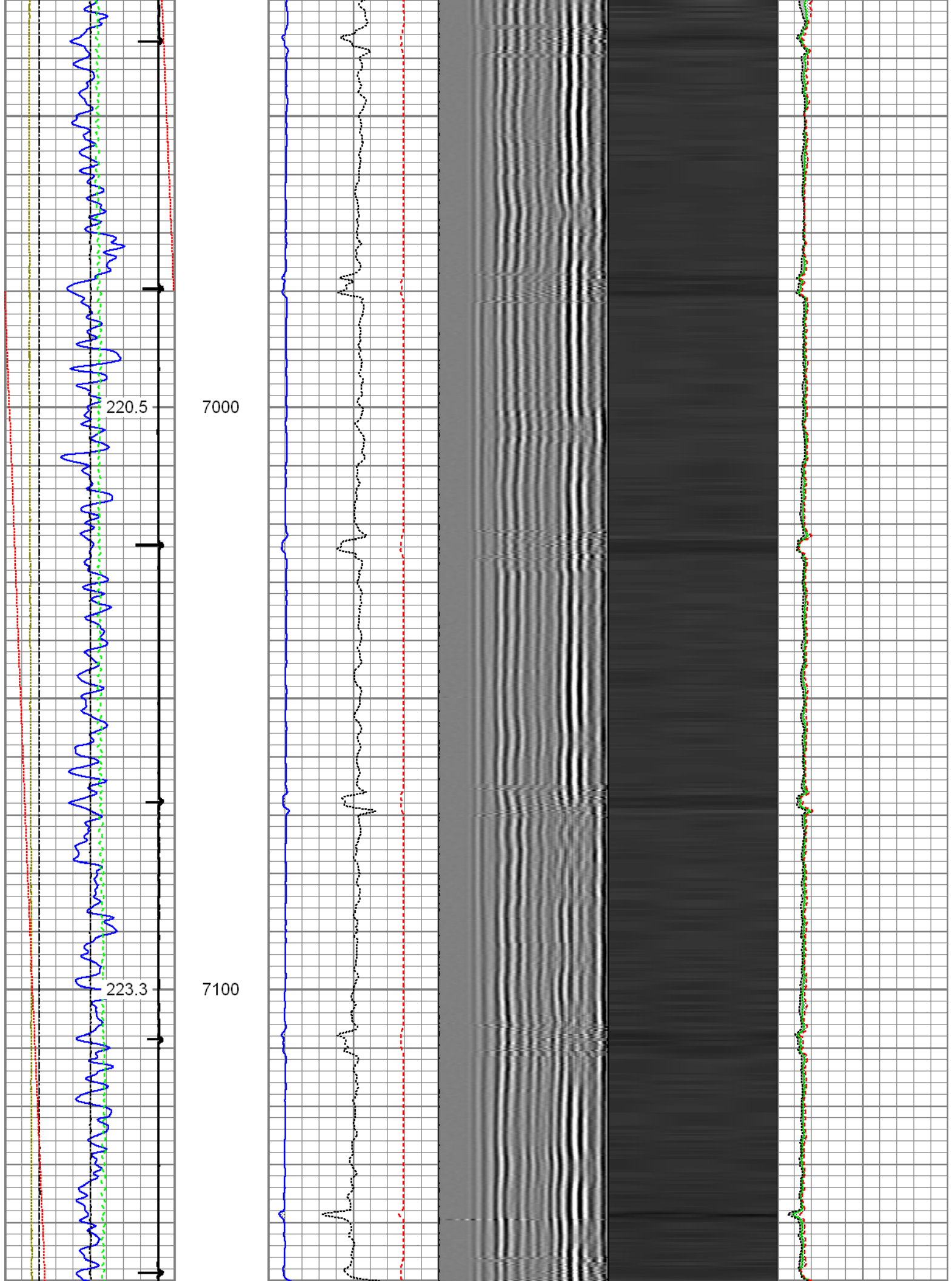


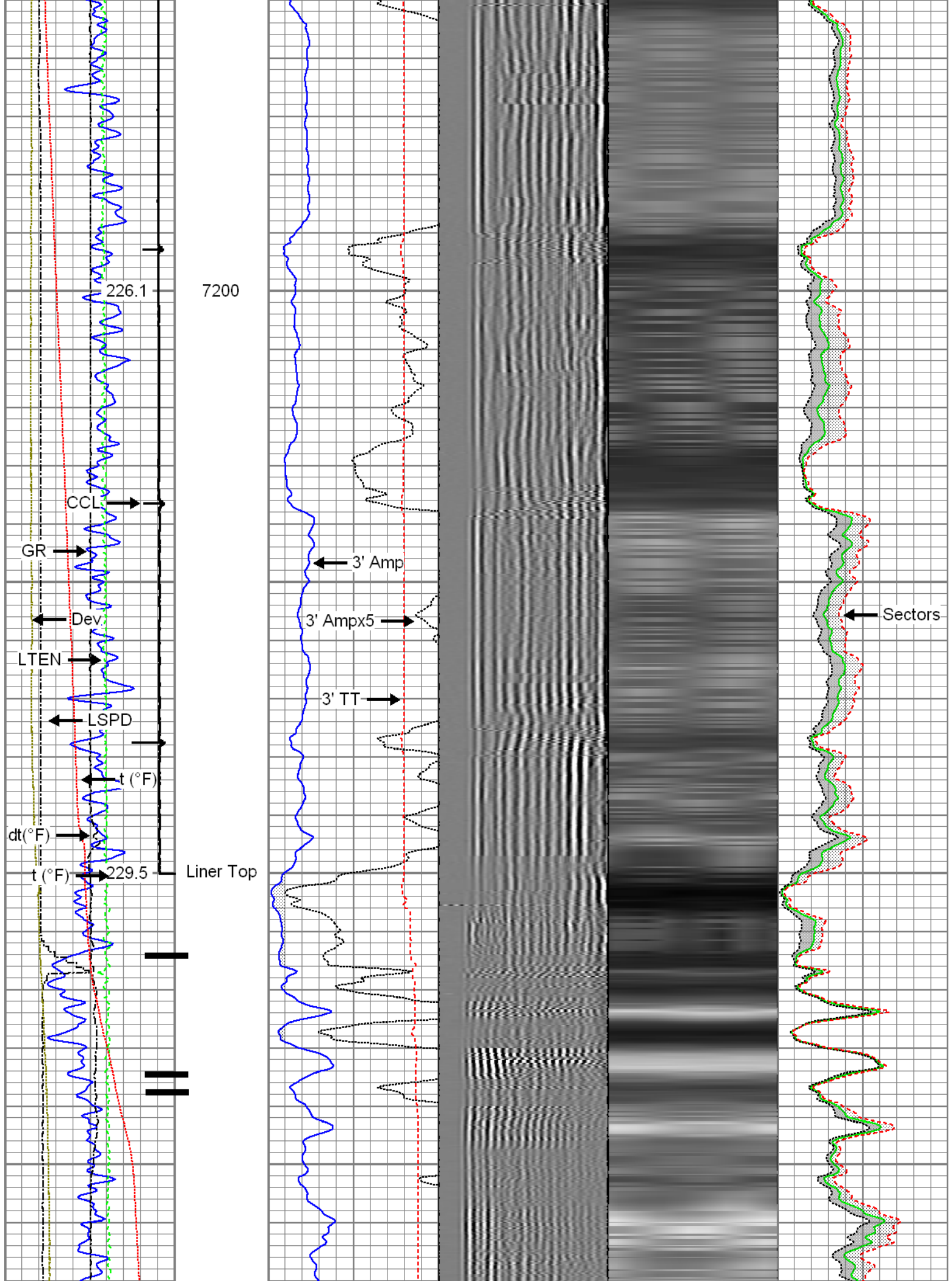


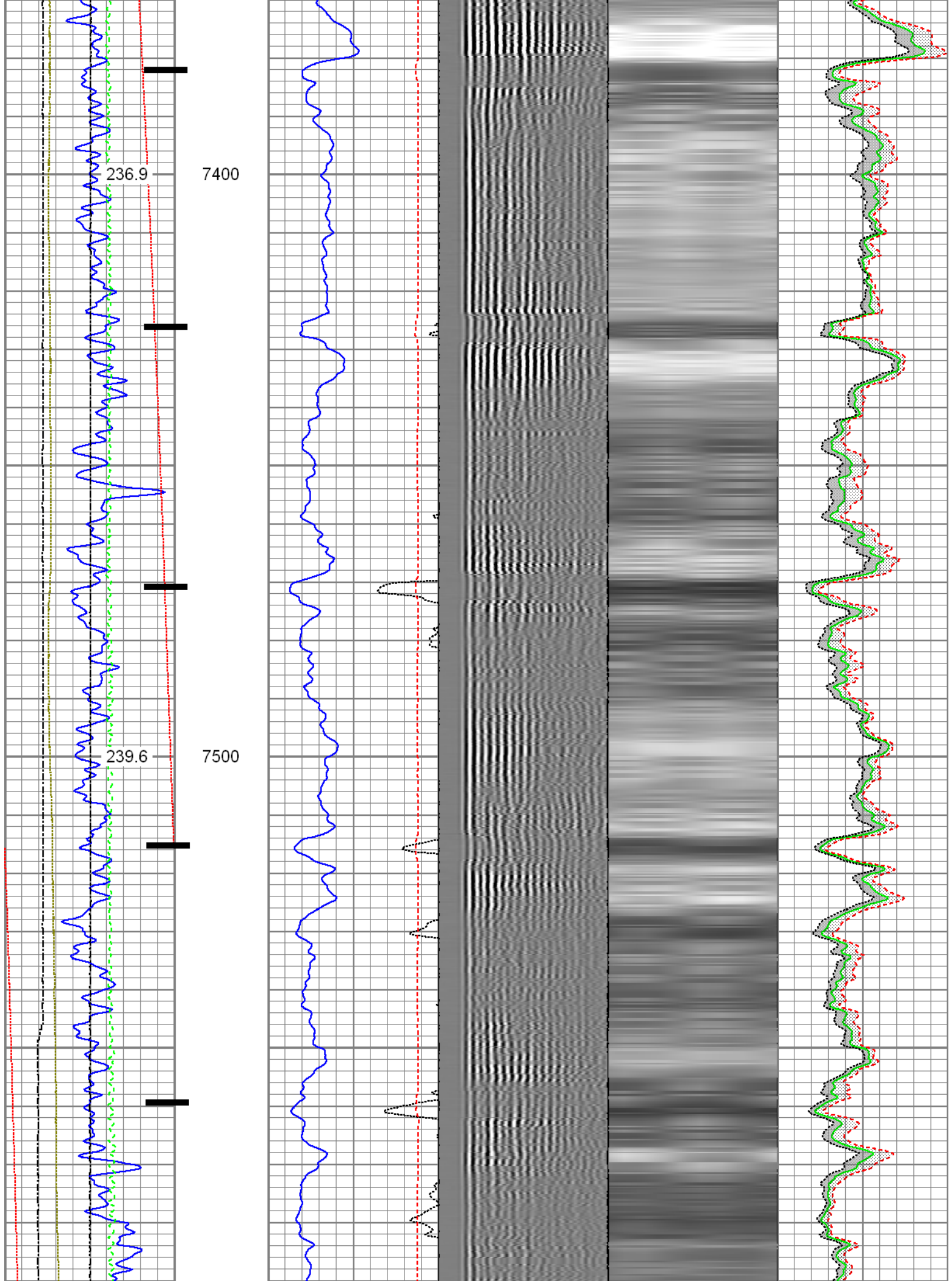


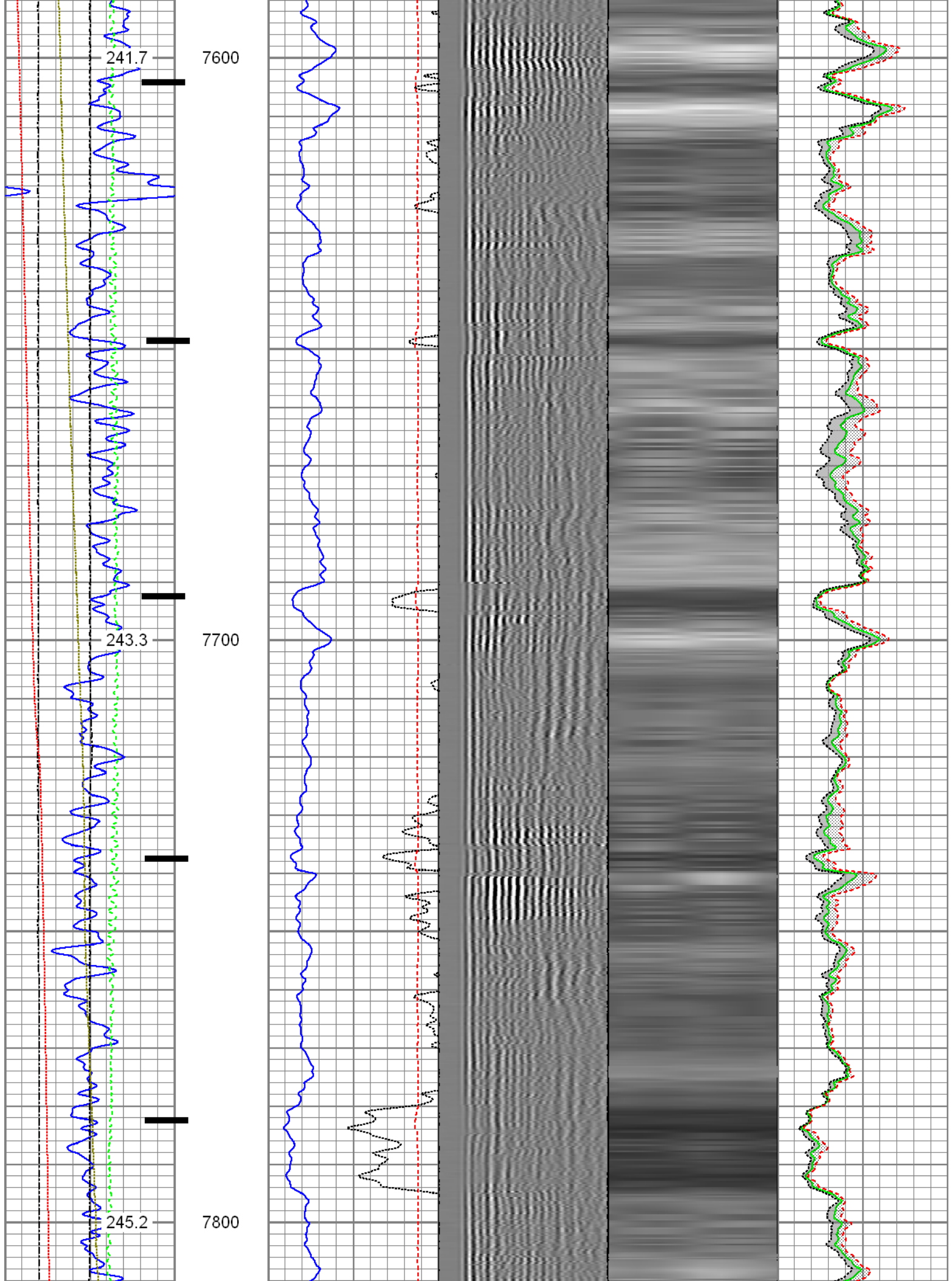


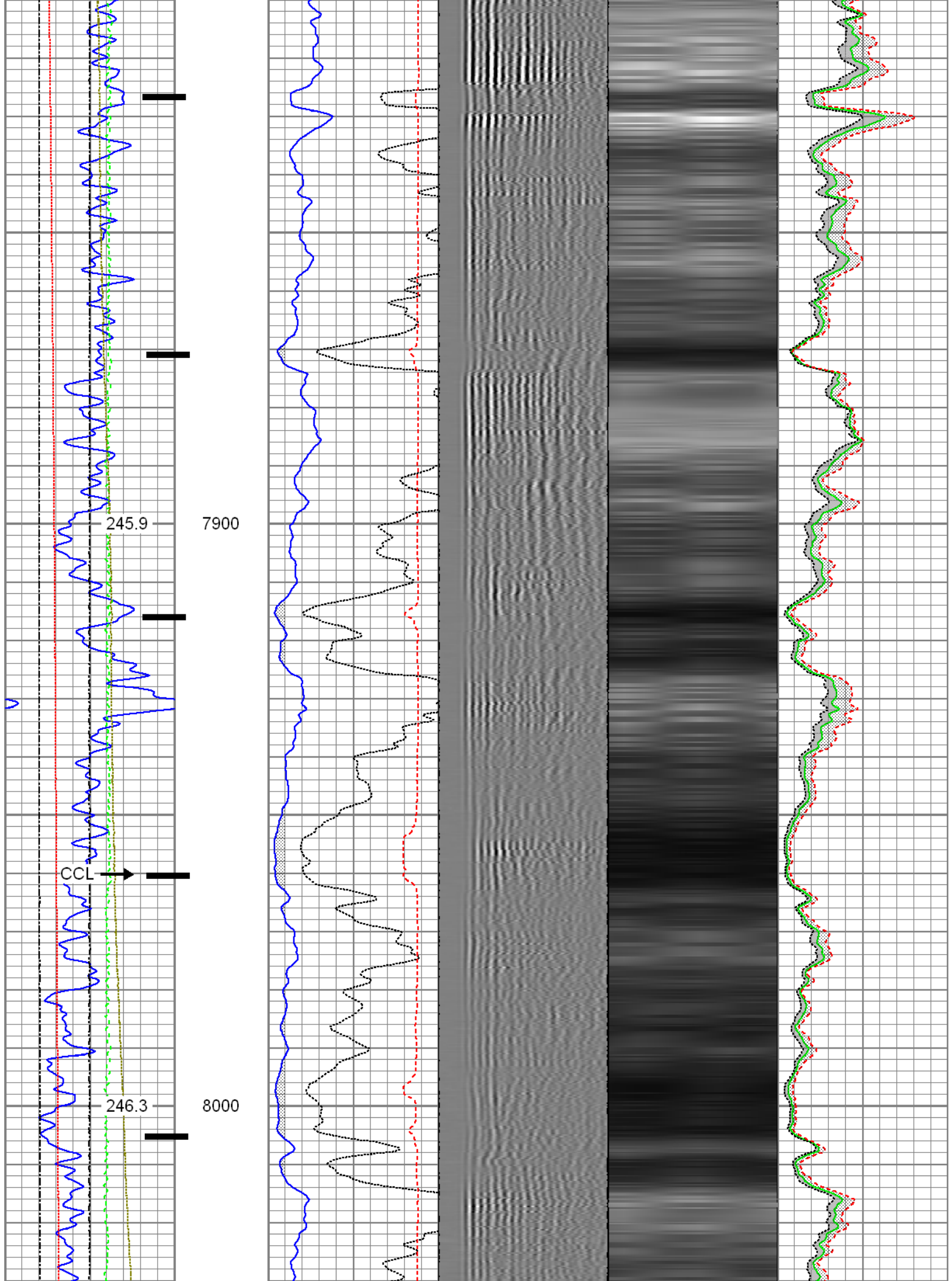


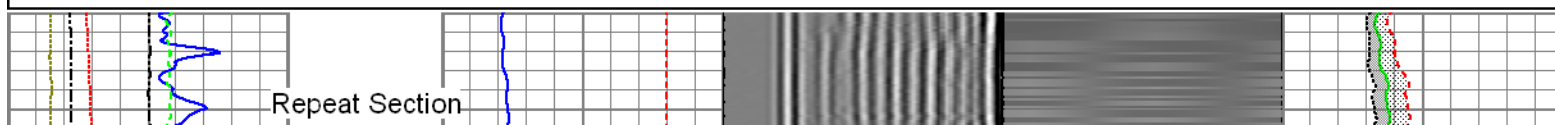
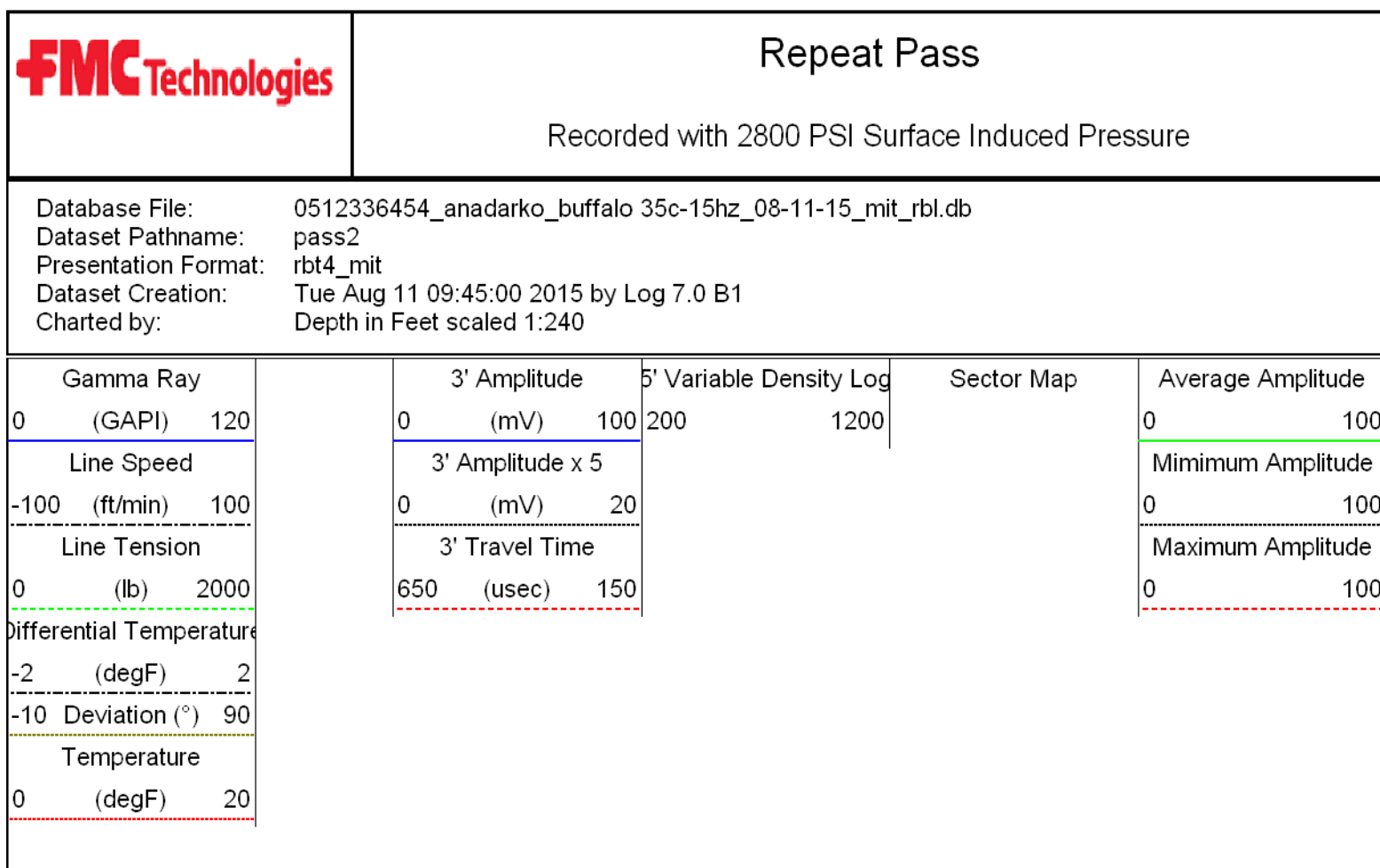
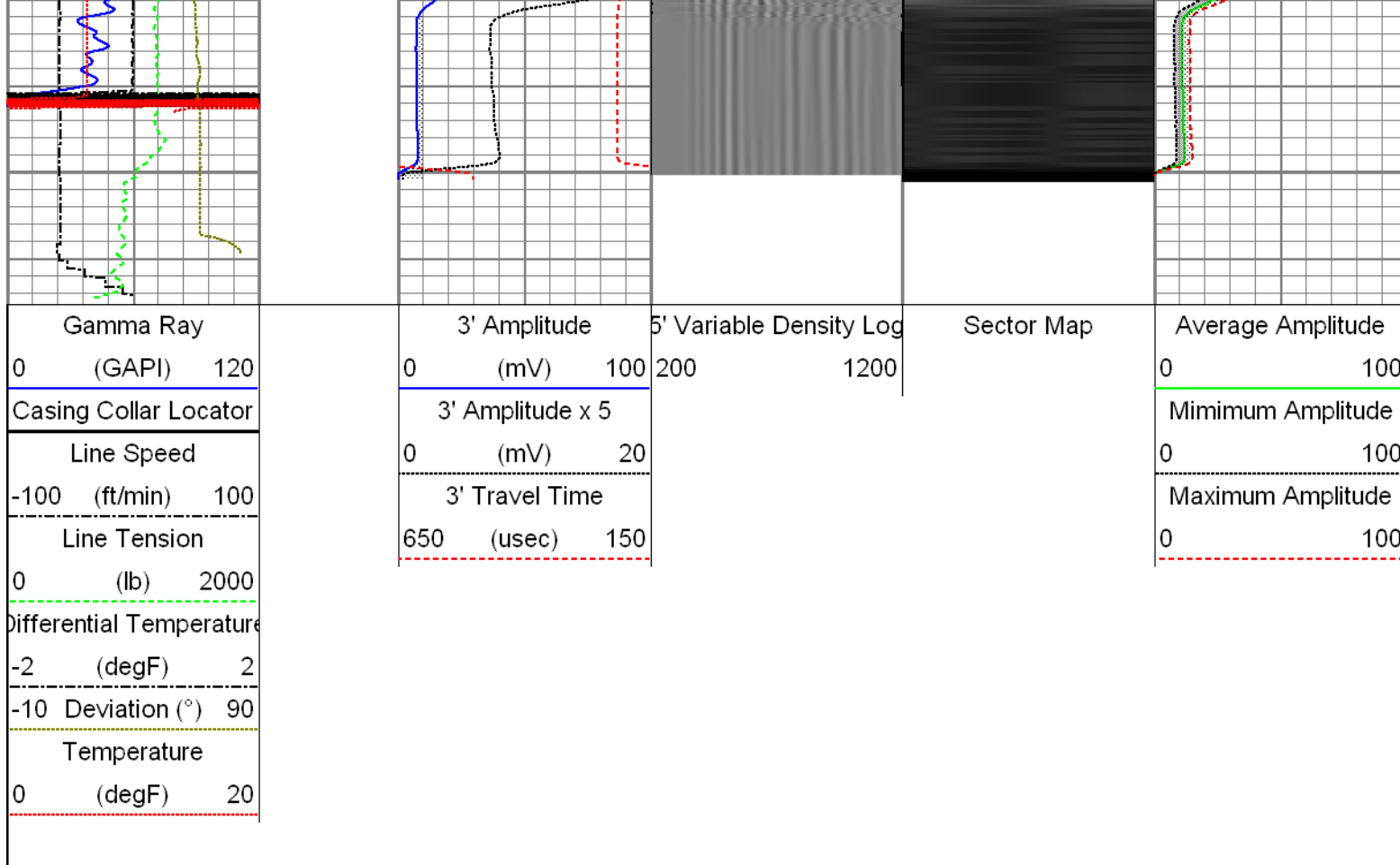


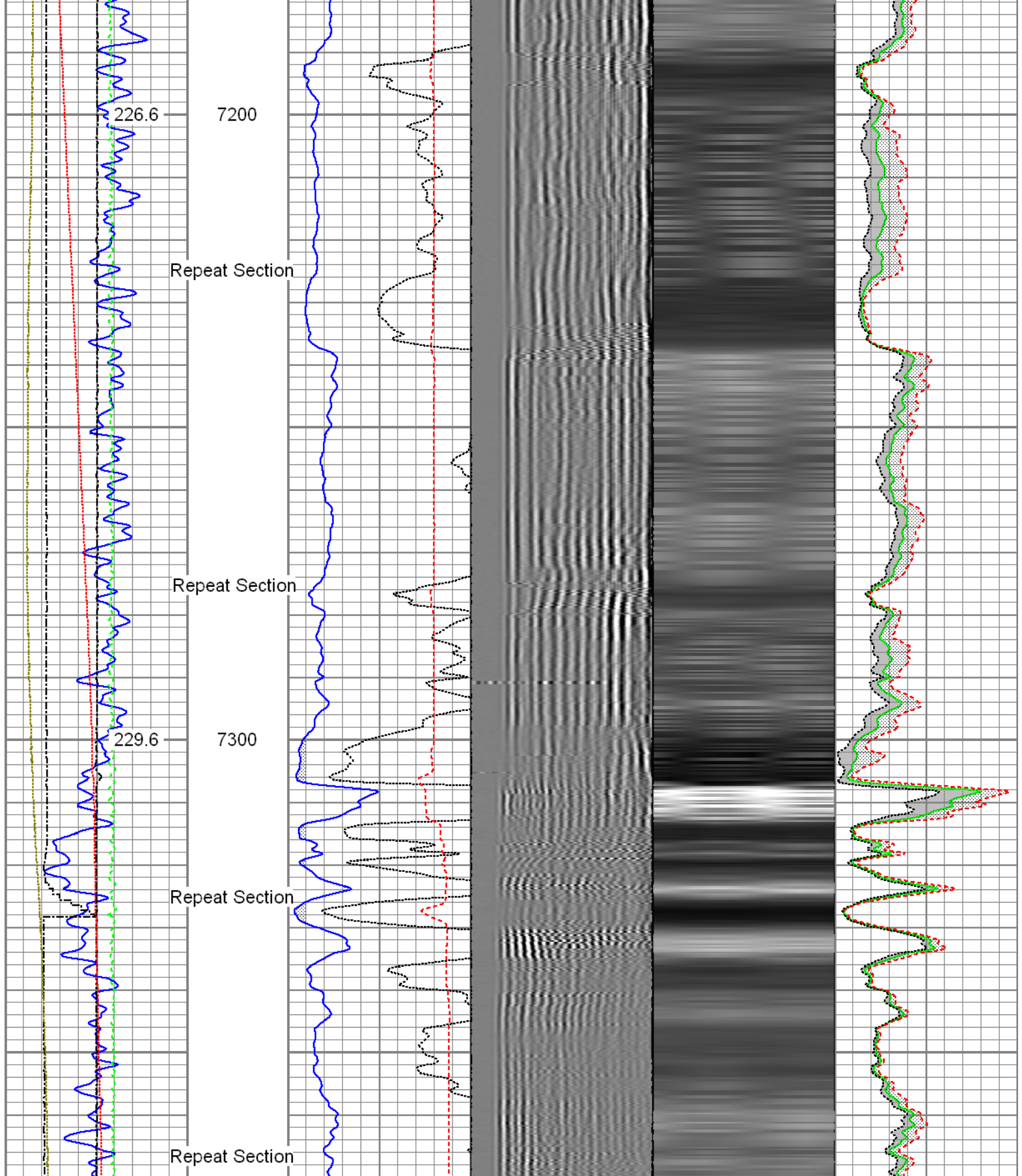








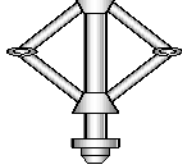




<div>Gamma Ray</div> <div>0 (GAPI) 120</div>	<div>3' Amplitude</div> <div>0 (mV) 100</div>	<div>5' Variable Density Log</div> <div>200 1200</div>	<div>Sector Map</div>	<div>Average Amplitude</div> <div>0 100</div>
<div>Line Speed</div> <div>-100 (ft/min) 100</div>	<div>3' Amplitude x 5</div> <div>0 (mV)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

Differential Temperature		
-2	(degF)	2
-10	Deviation (°)	90
Temperature		
0	(degF)	20

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)			
GR	23.85		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00			
			UW_AGS-UW_AGS_001 (218874) 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 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20			
WVFS3FT WVFS1 WVFS2 WVFS3 WVFS4 WVFS5 WVFS6 WVFS7 WVFS8 CBLTEMP CBLROT WVF5FT	15.42 15.42 15.42 15.42 15.42 15.42 15.42 15.42 15.42 15.42 15.42 14.42		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00			
			UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00			
				UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00		
					UW_MIT-UW_MIT40_042 (10020664) 40 Multifinger Imaging Tool	4.54	2.75	61.10	
						MIT	5.41		

TSTAMP	0.00		UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512336454_Anadarko_Buffalo 35C-15HZ_08-11-15_MIT_RBL.db: field/well/run1/pass4 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512336454_anadarko_buffalo 35c-15hz_08-11-15_mit_rbl.db		
Dataset Pathname:	pass4		
Dataset Creation:	Tue Aug 11 09:55:37 2015 by Log 7.0 B1		
Multi-finger Imaging Tool Calibration Report			
Serial Number:	10020664		
Number of Fingers:	40		
Tool Model:	UW_MIT40_042		
Inclinometer Calibration Report			
Performed:	Wed Nov 26 12:28:41 2014		
Calibration Angle:	45		
	Inc X	Inc Y	
Vertical:	1946	1932	
Finger 1 up:	1712	1699	
Finger 31 up:	2180	1700	
Finger 21 up:	2165	2167	
Finger 11 up:	1708	2156	
Sensitivity ratio:	1.00121		
X-axis angle:	134.04		
Deviation const.:	327.106		

Finger Calibration Report						
Performed:			Tue Aug 11 09:11:46 2015			
Ring size:	4	5	6	7		
(in)						
	Sens	Sens	Sens			
Finger 01:	1116 386.0	1502 375.0	1877 391.0	2268		
Finger 02:	1129 393.0	1522 382.0	1904 396.0	2300		
Finger 03:	1078 388.0	1466 377.0	1843 396.0	2239		
Finger 04:	1088 404.0	1492 395.0	1887 410.0	2297		
Finger 05:	1075 400.0	1475 389.0	1864 405.0	2269		
Finger 06:	1109 400.0	1509 381.0	1890 391.0	2281		
Finger 07:	1018 414.0	1432 403.0	1835 427.0	2262		
Finger 08:	1077 403.0	1480 387.0	1867 406.0	2273		
Finger 09:	1044 414.0	1458 395.0	1853 411.0	2264		
Finger 10:	967 416.0	1383 410.0	1793 435.0	2228		
Finger 11:	1057 409.0	1466 378.0	1844 392.0	2236		
Finger 12:	1033 417.0	1450 390.0	1840 409.0	2249		
Finger 13:	1009 412.0	1421 384.0	1805 401.0	2206		
Finger 14:	985 411.0	1396 387.0	1783 406.0	2189		
Finger 15:	1051 414.0	1465 368.0	1833 378.0	2211		
Finger 16:	1005 417.0	1422 377.0	1799 395.0	2194		
Finger 17:	1009 422.0	1431 383.0	1814 399.0	2213		
Finger 18:	956 423.0	1379 392.0	1771 409.0	2180		
Finger 19:	961 420.0	1381 386.0	1767 406.0	2173		
Finger 20:	1000 426.0	1426 386.0	1812 403.0	2215		
Finger 21:	1017 416.0	1433 375.0	1808 395.0	2203		
Finger 22:	1019 423.0	1442 383.0	1825 398.0	2223		
Finger 23:	1126 409.0	1535 347.0	1882 364.0	2246		
Finger 24:	986 421.0	1407 383.0	1790 408.0	2198		

Finger 24:	988	421.0	1407	383.0	1790	408.0	2198
Finger 25:	963	418.0	1381	386.0	1767	411.0	2178
Finger 26:	1032	418.0	1450	380.0	1830	400.0	2230
Finger 27:	1063	419.0	1482	386.0	1868	403.0	2271
Finger 28:	1045	417.0	1462	383.0	1845	412.0	2257
Finger 29:	988	430.0	1418	377.0	1795	423.0	2218
Finger 30:	1087	408.0	1495	377.0	1872	396.0	2268
Finger 31:	1083	406.0	1489	380.0	1869	397.0	2266
Finger 32:	1122	399.0	1521	370.0	1891	387.0	2278
Finger 33:	1125	403.0	1528	373.0	1901	386.0	2287
Finger 34:	1087	405.0	1492	390.0	1882	409.0	2291
Finger 35:	1113	399.0	1512	389.0	1901	406.0	2307
Finger 36:	1154	392.0	1546	376.0	1922	393.0	2315
Finger 37:	1083	400.0	1483	394.0	1877	416.0	2293
Finger 38:	1043	406.0	1449	407.0	1856	427.0	2283
Finger 39:	1072	395.0	1467	394.0	1861	418.0	2279
Finger 40:	1105	396.0	1501	385.0	1886	402.0	2288

Segmented Cement Bond Log Calibration Report

Serial Number:	1066
Tool Model:	UW_RBT_004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	-8.817 ft

Master Calibration, performed Tue Aug 11 09:05:00 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.005	0.693	0.800	62.165	89.211	0.383
5FT	-0.001	0.653	0.800	62.165	93.804	0.915
S1	0.005	0.666	0.000	100.000	151.357	-0.739
S2	0.003	0.677	0.000	100.000	148.527	-0.519
S3	0.004	0.686	0.000	100.000	146.474	-0.542
S4	0.004	0.701	0.000	100.000	143.335	-0.525
S5	0.004	0.705	0.000	100.000	142.755	-0.626
S6	0.004	0.712	0.000	100.000	141.101	-0.517
S7	0.004	0.715	0.000	100.000	140.778	-0.629
S8	0.005	0.688	0.000	100.000	146.409	-0.668

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_RBT_004

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	Buffalo 35C-15HZ
Field	Wattenberg
County	Weld
State	Colorado