



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Whiting Oil & Gas Corporation	Company	Whiting Oil & Gas Corporation
Well	Razor Federal 12F-1302B	Well	Razor Federal 12F-1302B
Field	Wildcat	Field	Wildcat
County	Weld	County	Weld
State	Colorado	State	Colorado
Location:		API # : 05-123-38718	Other Services
SEC 12 TWP 10N RGE 58W		CIL	
Permanent Datum	Ground Level	Elevation	4937'
Log Measured From	Kelly Bushing	21 FT	K.B. 4958'
Drilling Measured From	Kelly Bushing		D.F. 4957'
			G.L. 4937'

Date	17-Dec-2015
Run Number	One
Depth Driller	14064 FT
Depth Logger	5708 FT
Bottom Logged Interval	5708 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbs/gal
Max. Recorded Temp.	206°F
Estimated Cement Top	106 FT
Time Well Ready	ROA
Time Logger on Bottom	09:20
Equipment Number	HD-0343
Location	Fort Lupton, CO
Recorded By	W.Wacker
Witnessed By	K. Lewis

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	1873 FT		
Intermediate #1	7	32	HCL-80	Surface	6484 FT		
Intermediate #2							
Liner	4 1/2	11.6	HCP-110	5338 FT	14060 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 per customer request
Depth referenced to Casing Tally reported Tie Back Extension at 5338 FT
Adjusted Log +7 FT to correlate to Liner Top
Log ran from as deep as possible to surface
Recorded with 1500 PSI surface induced pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing FMC Technologies Surface Integrated Services.

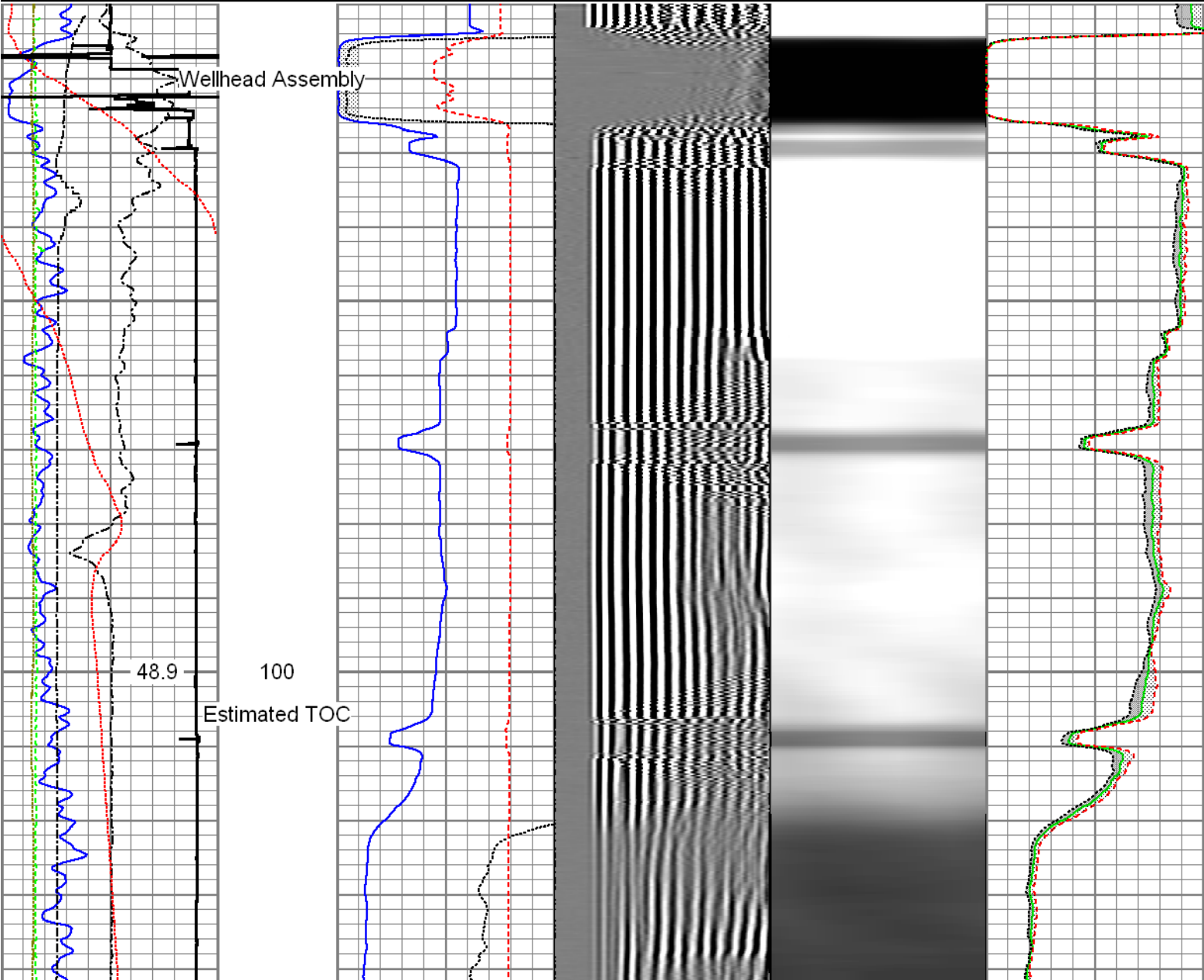


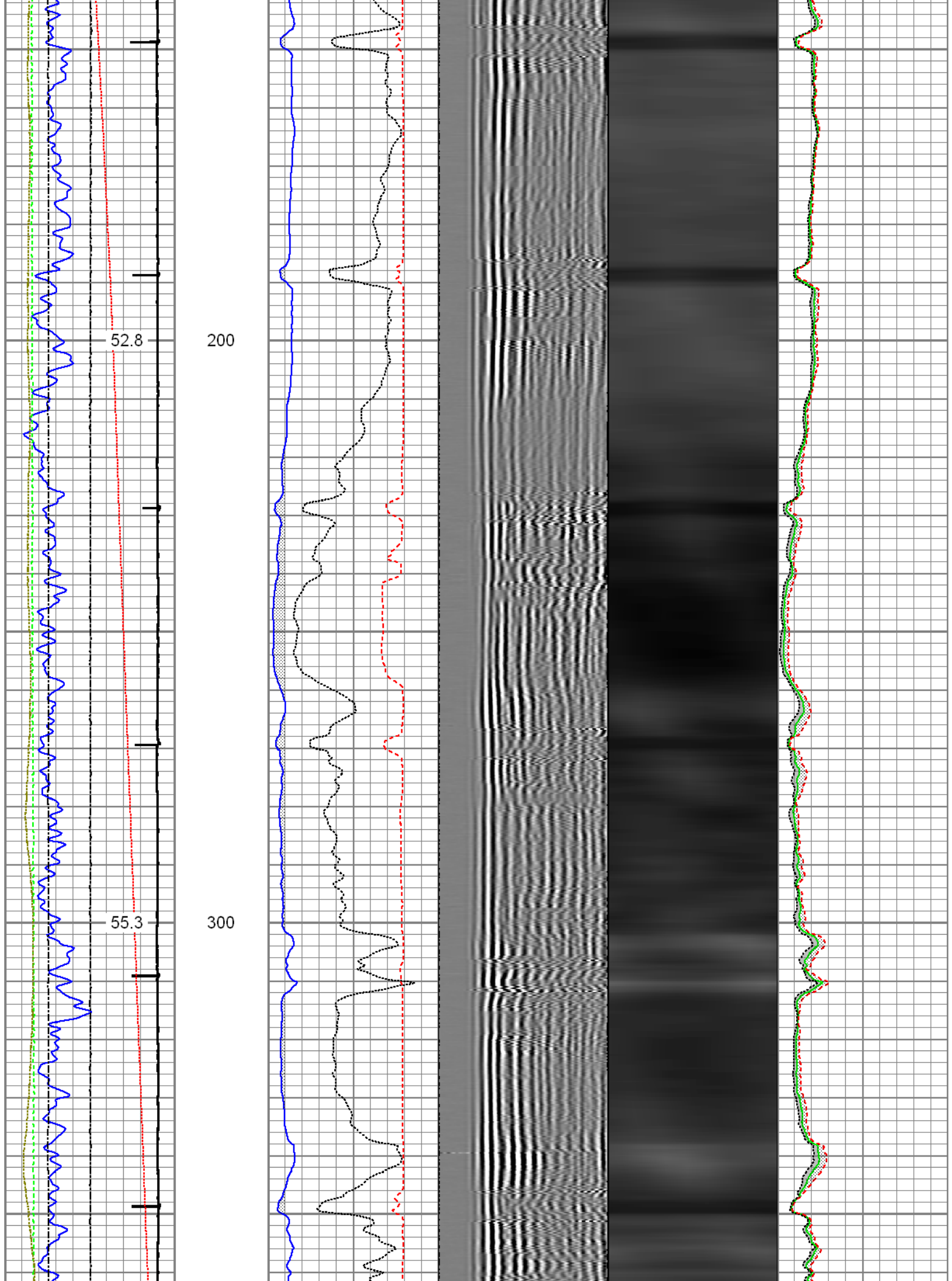
Main Pass

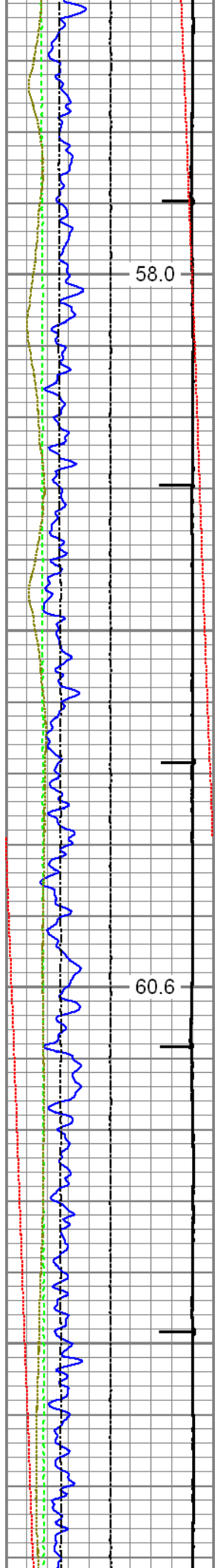
Recorded With 1500 PSI Surface Induced Pressure

Database File: 12-17-15_whiting_razor federal 12f-1302b_mit_rbl.db
Dataset Pathname: main
Presentation Format: rbt4_mit
Dataset Creation: Thu Dec 17 09:58:23 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			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				

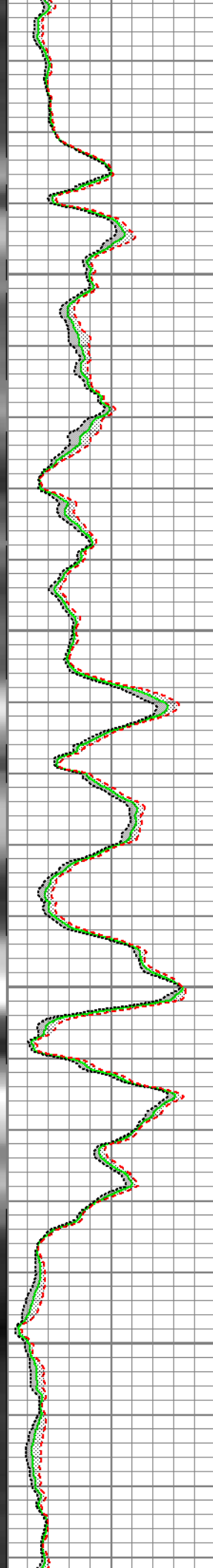
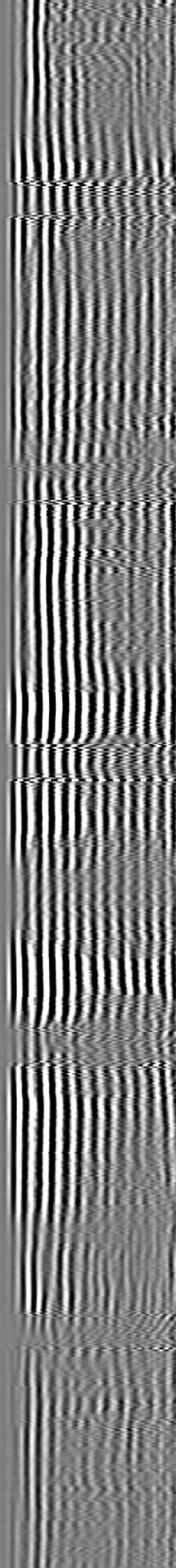
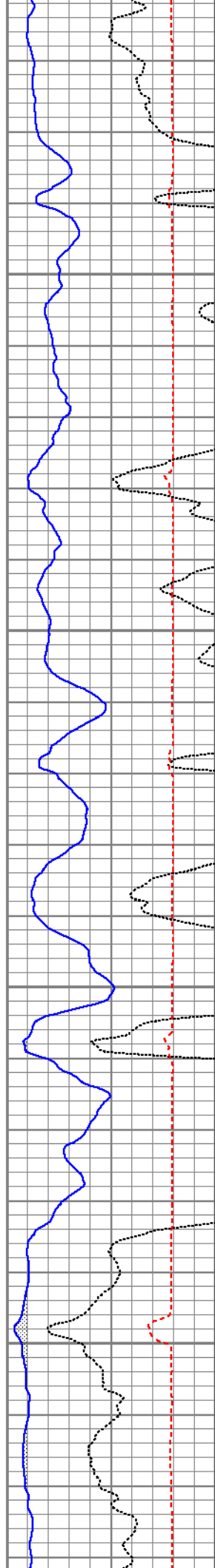


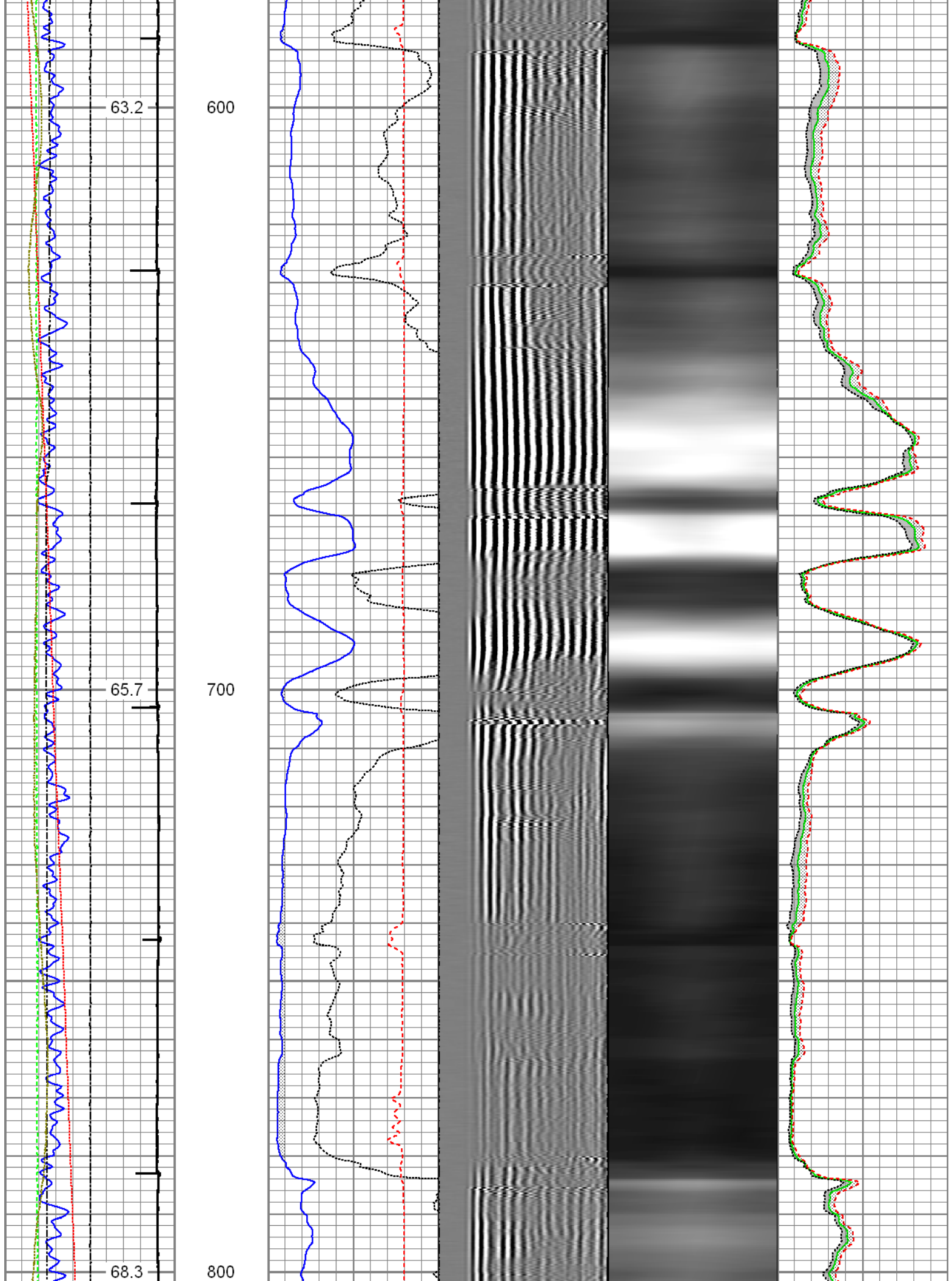


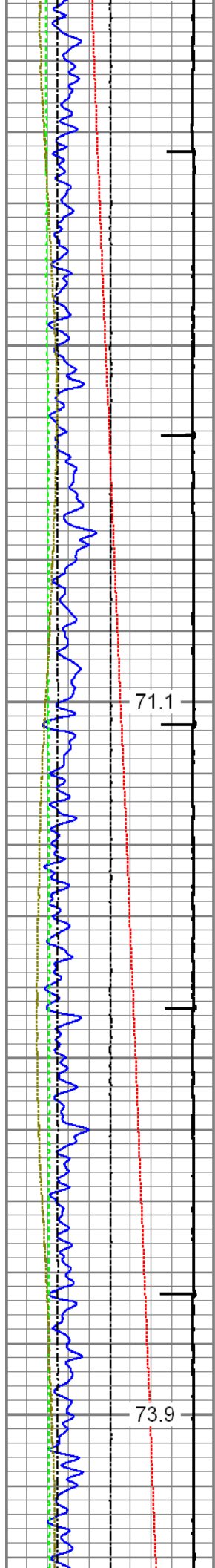


400

500

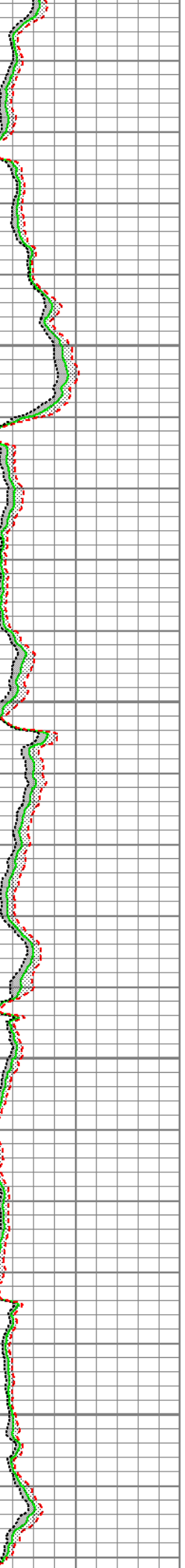
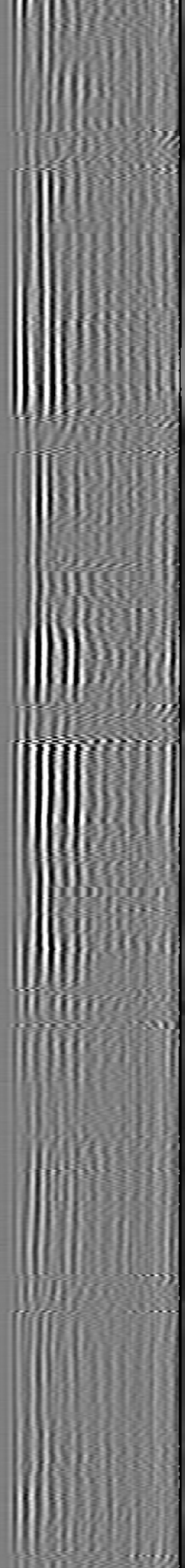
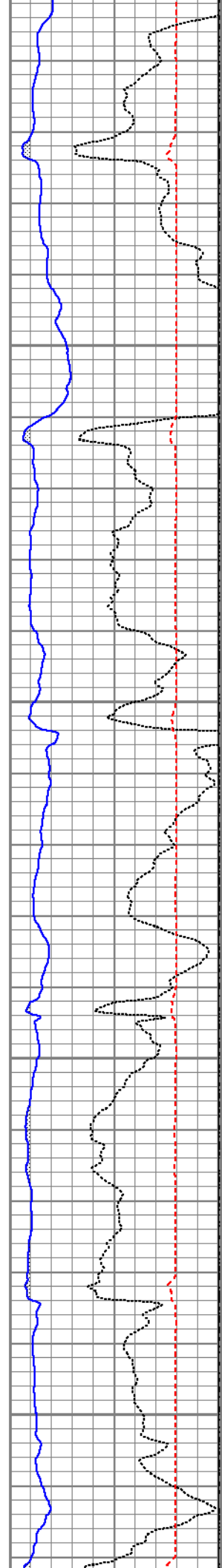


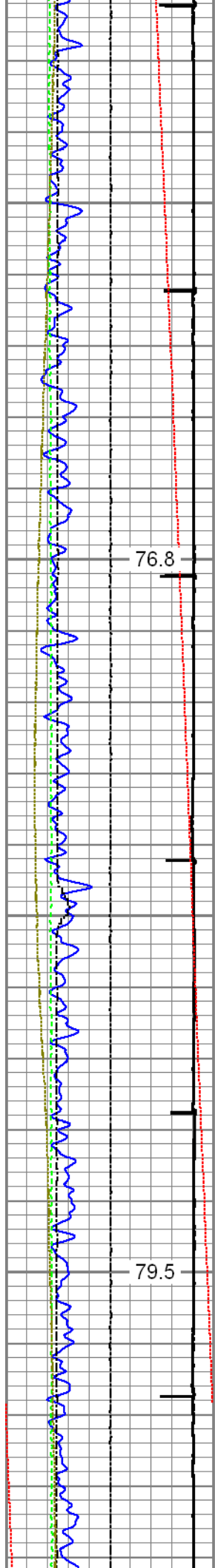




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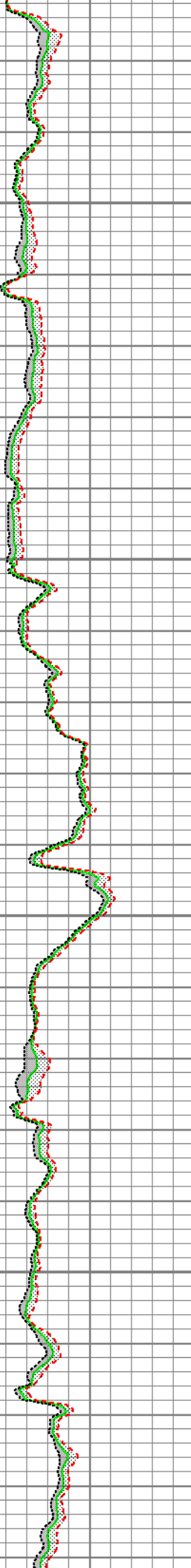
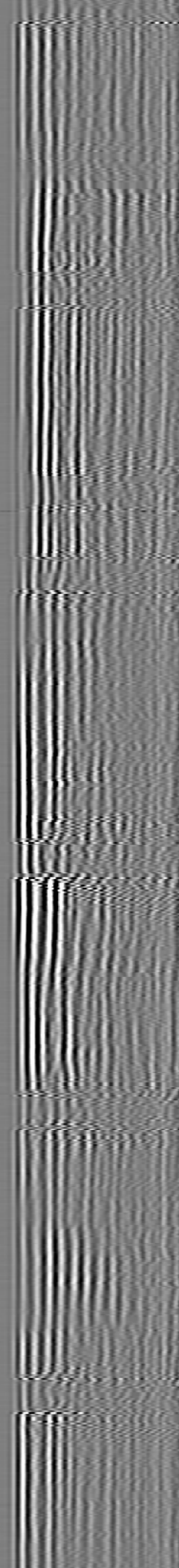
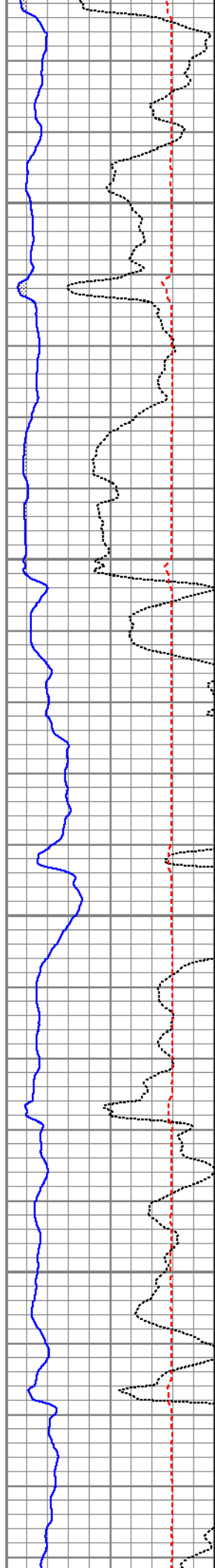
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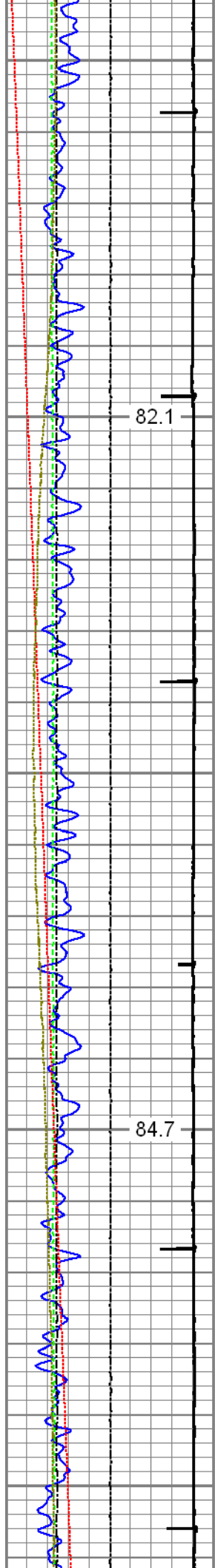




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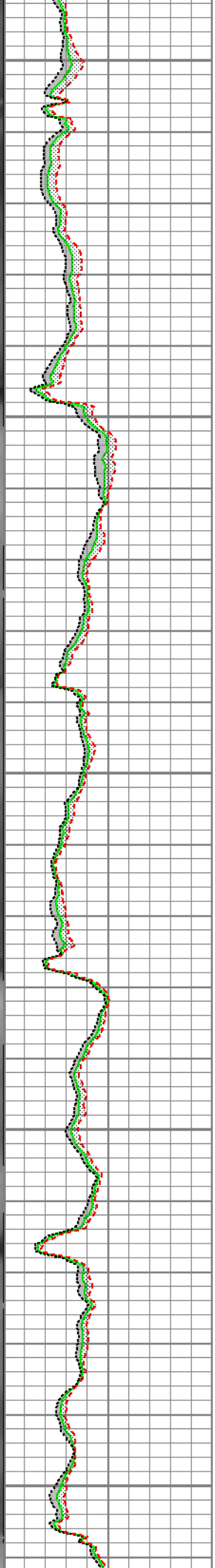
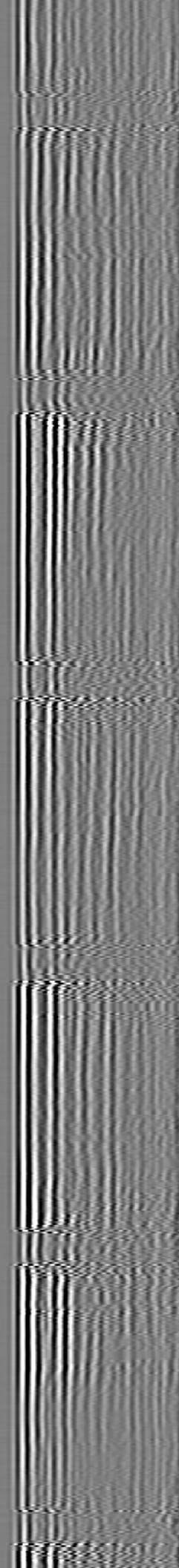
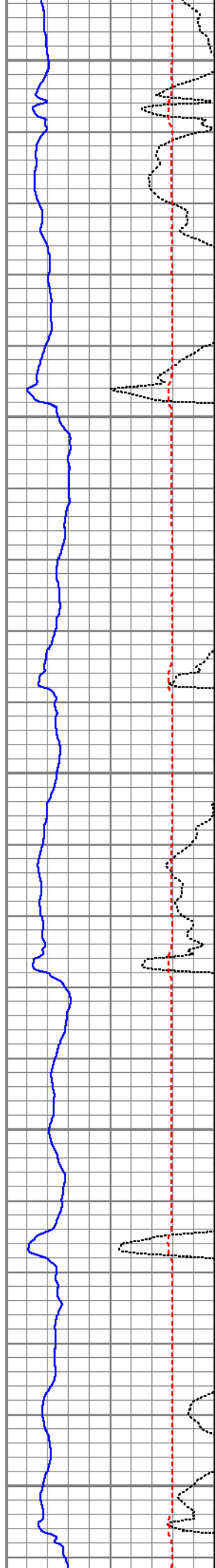
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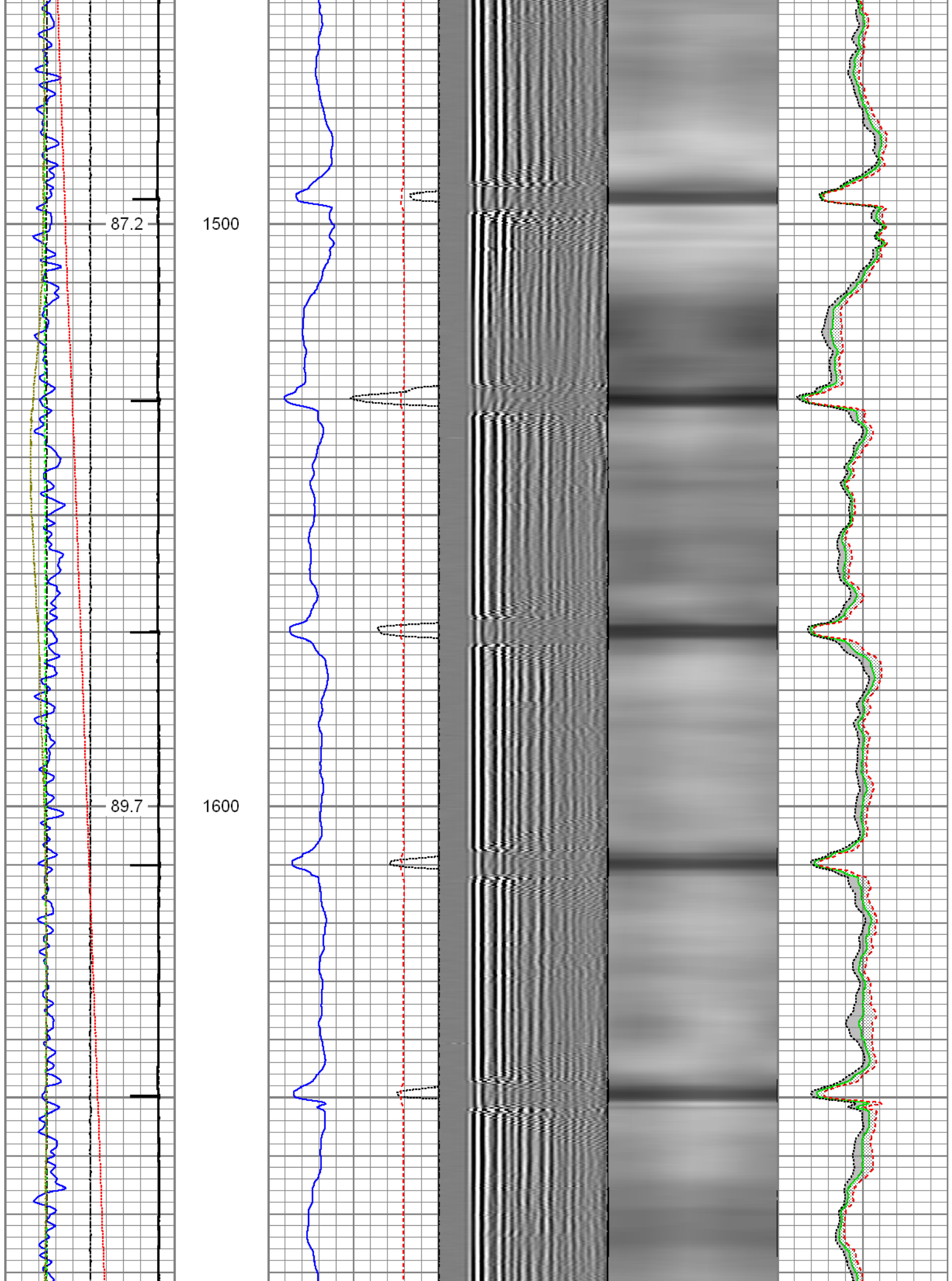


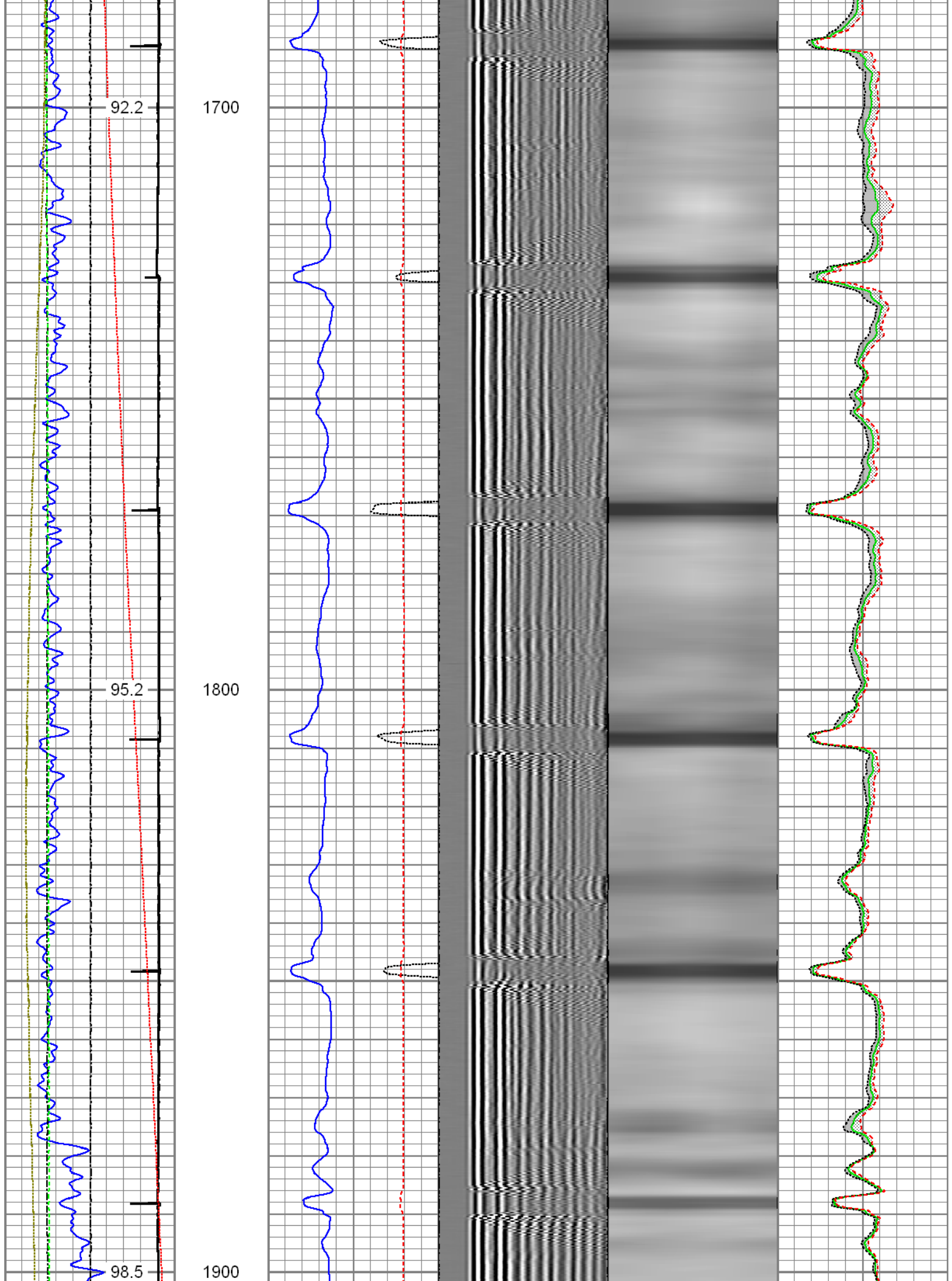


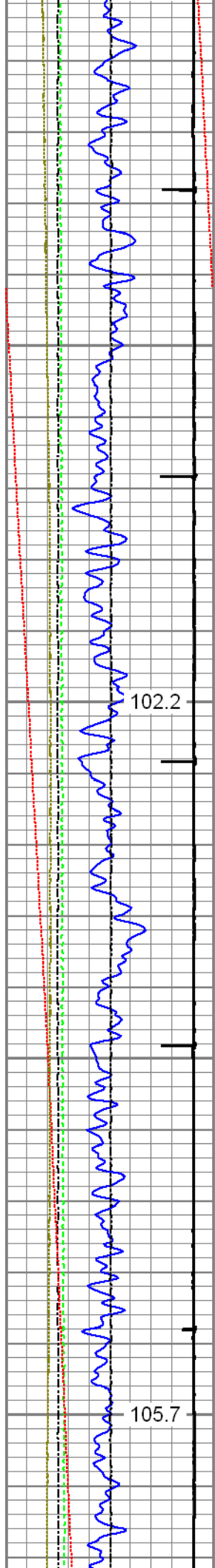
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1400



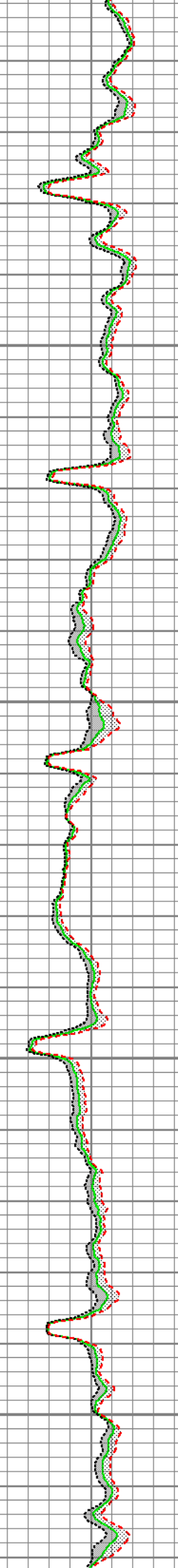
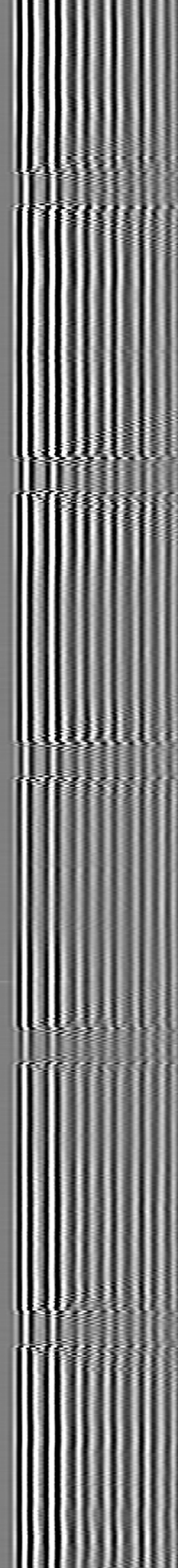
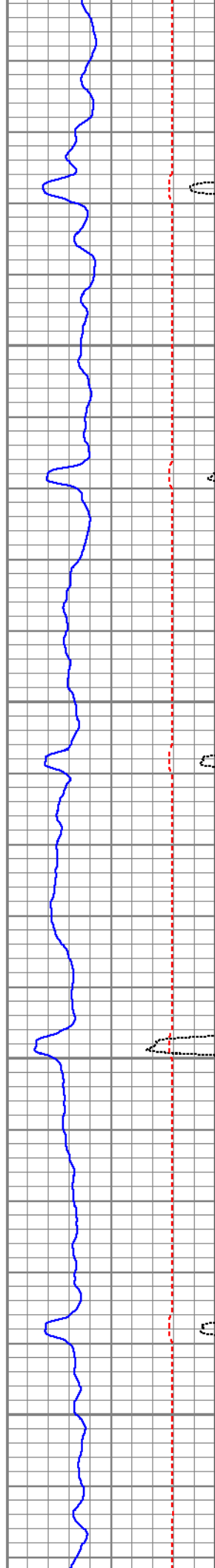


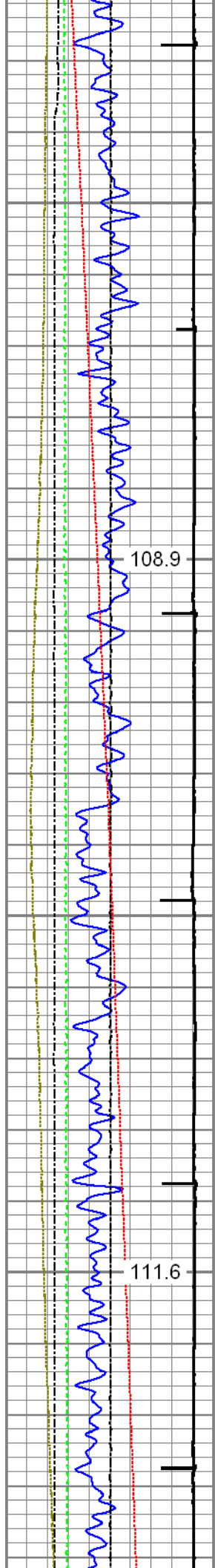




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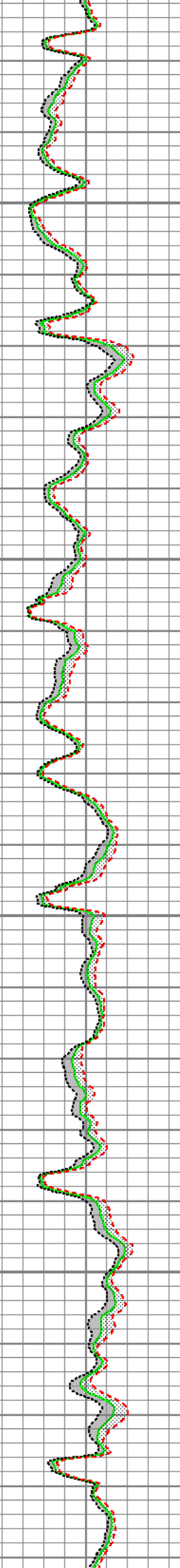
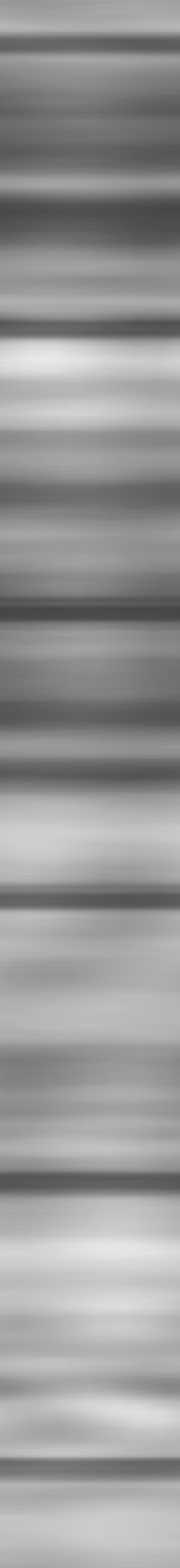
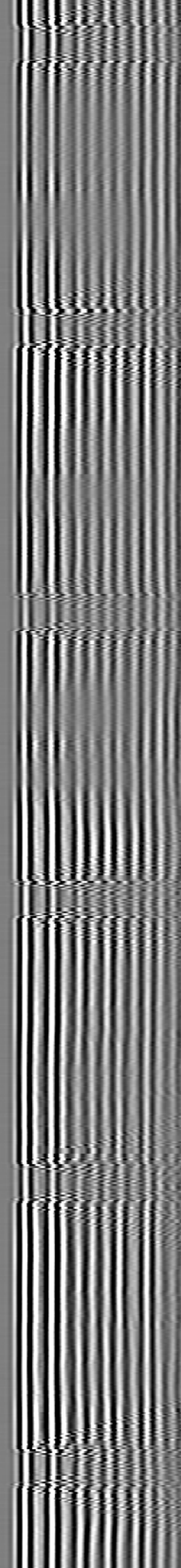
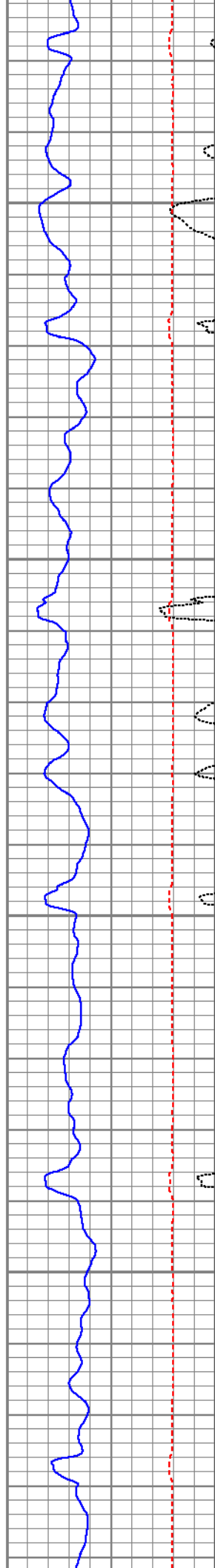
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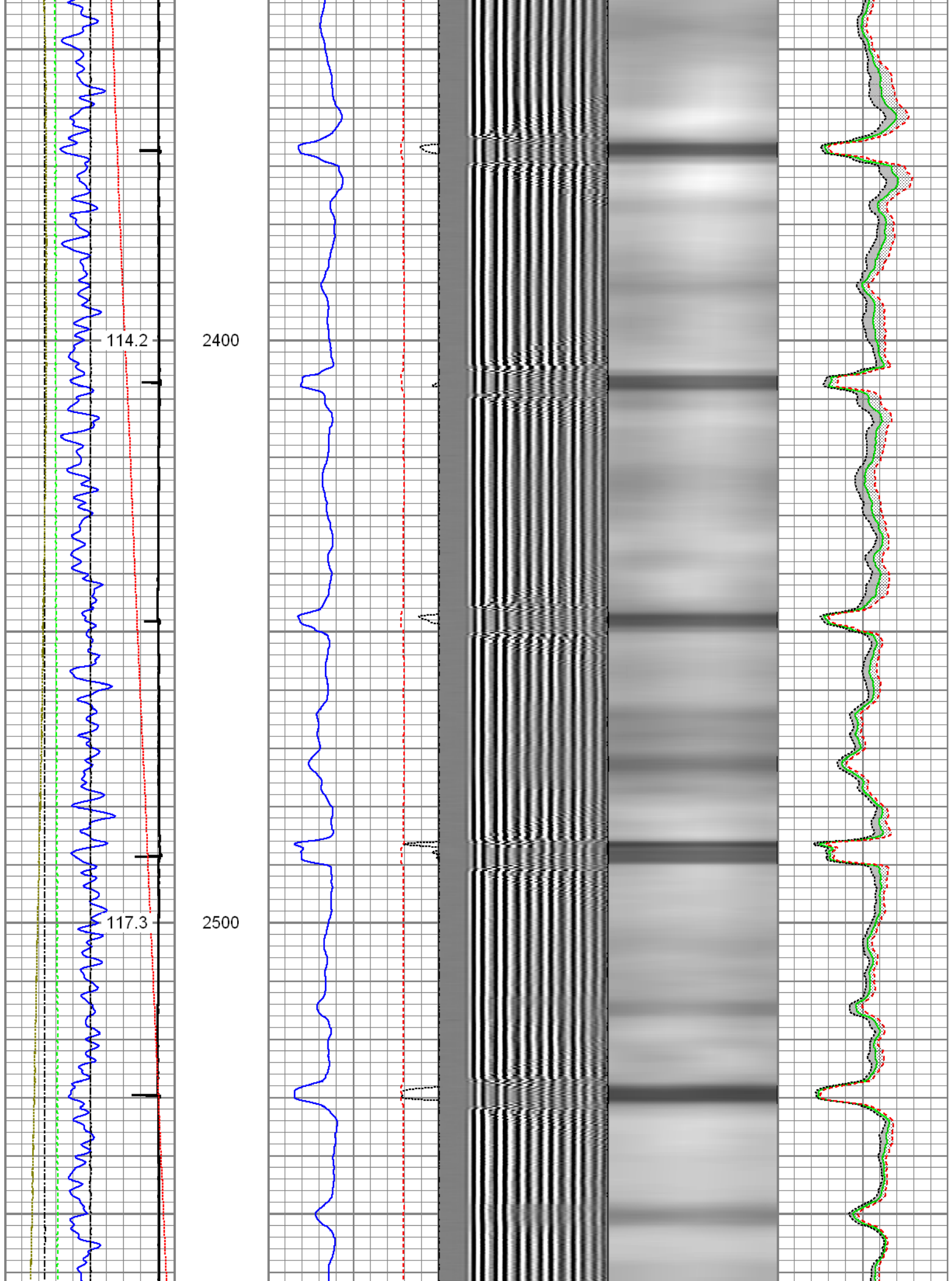


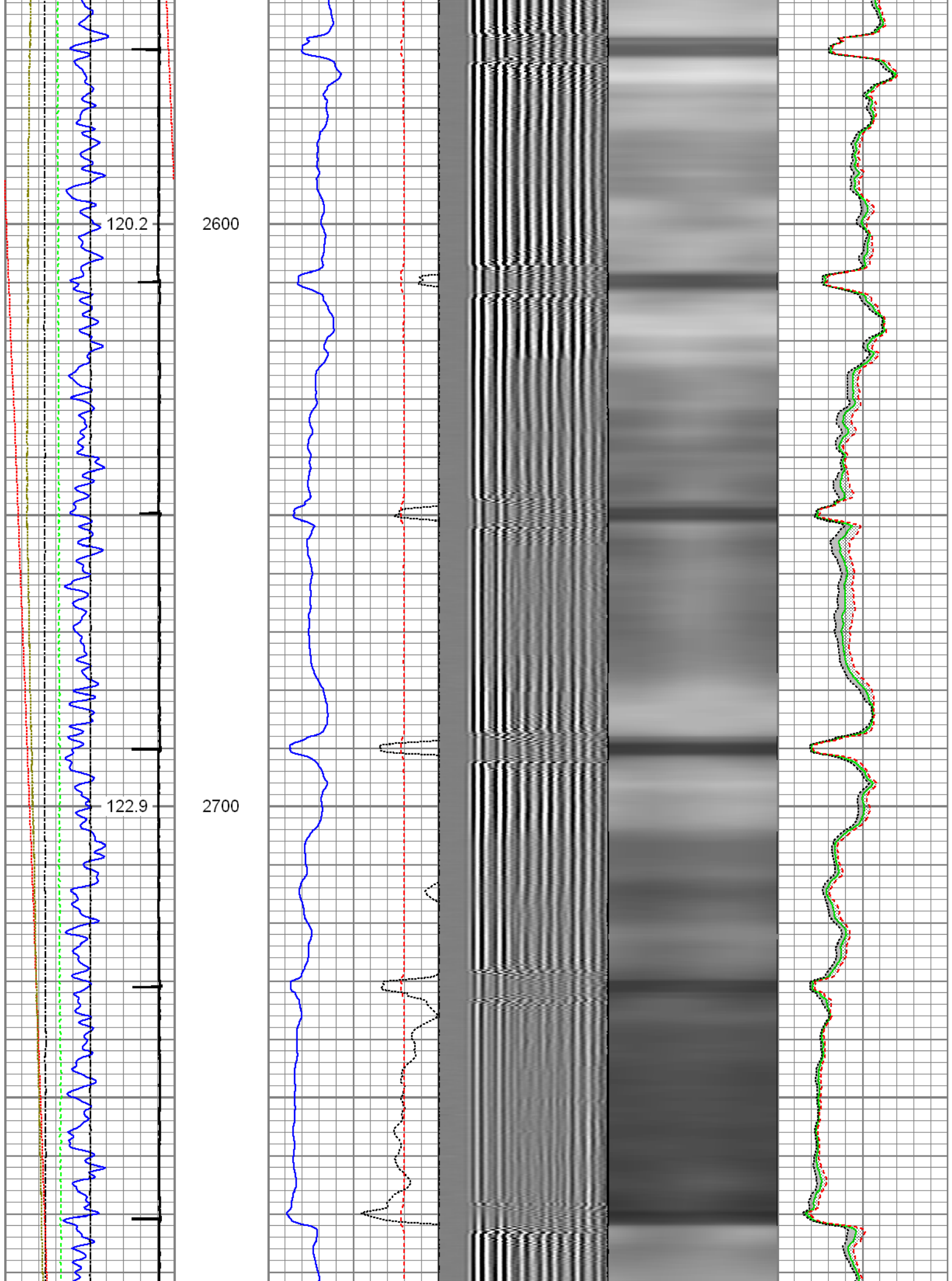


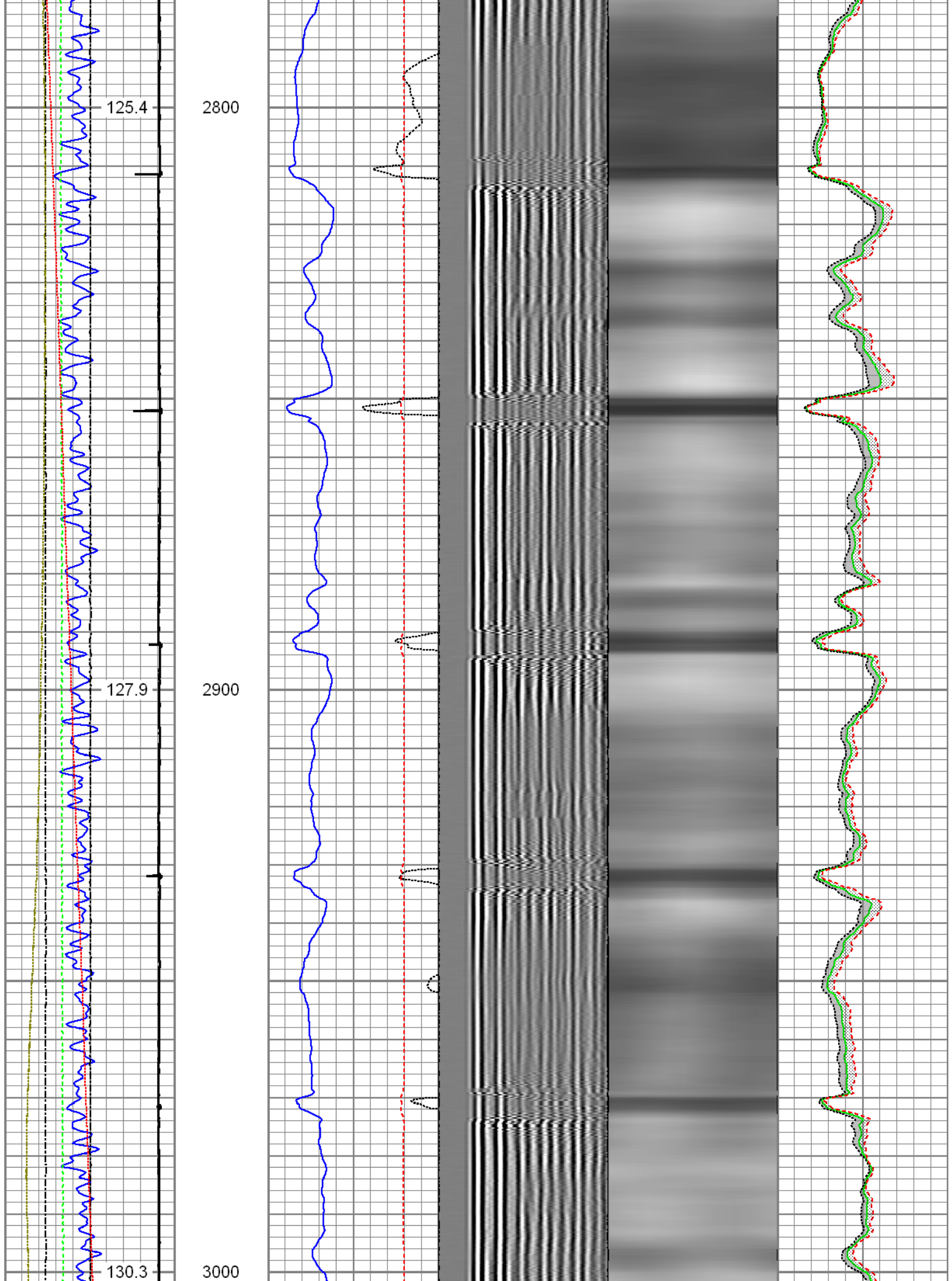
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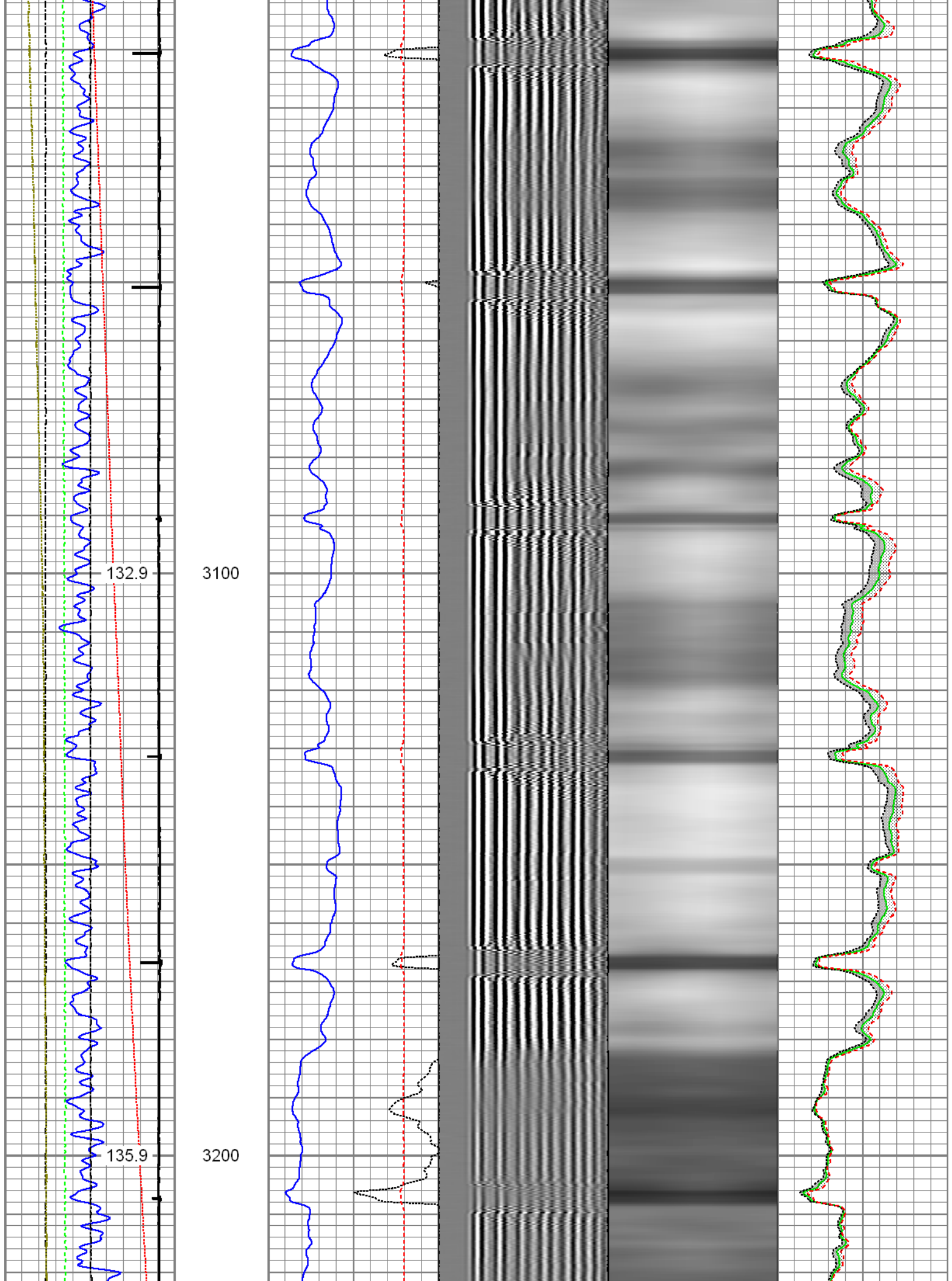
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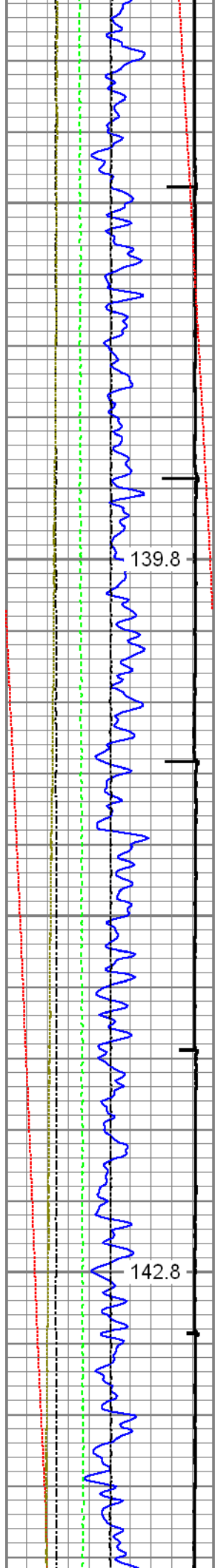






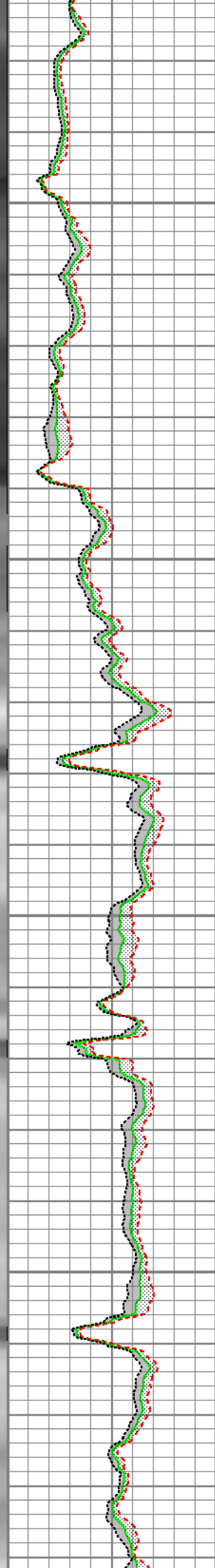
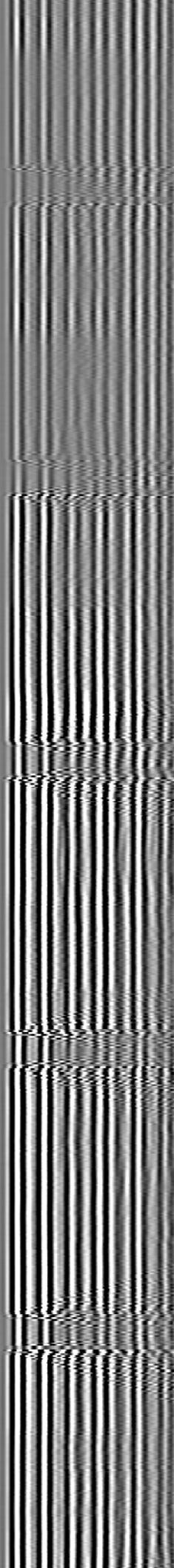
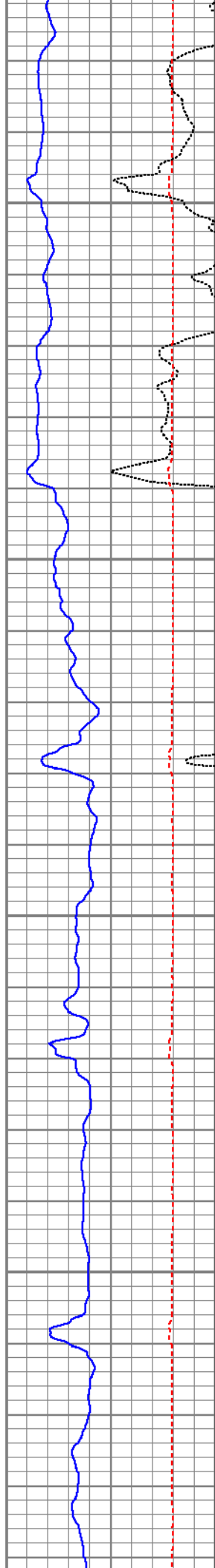


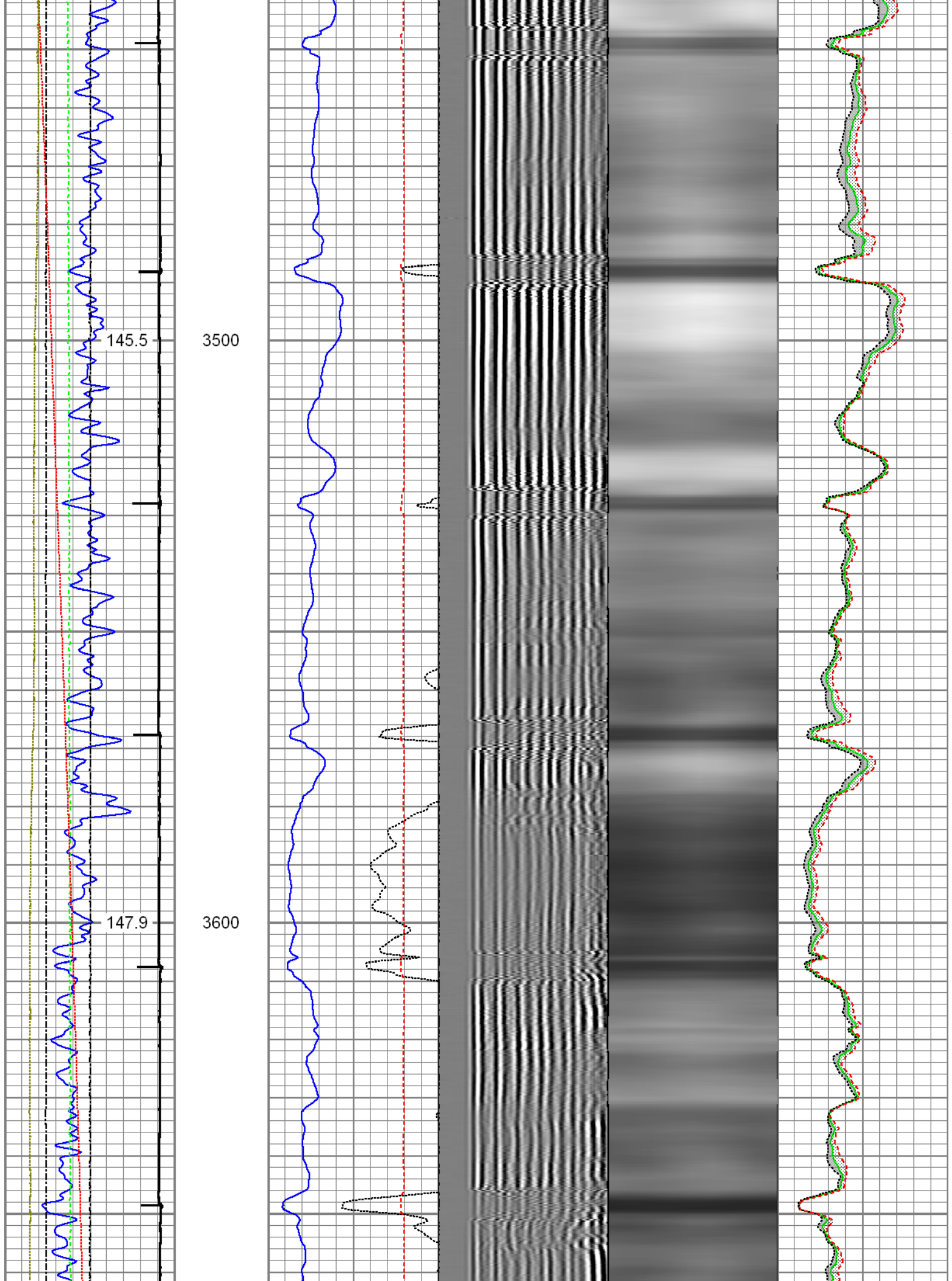


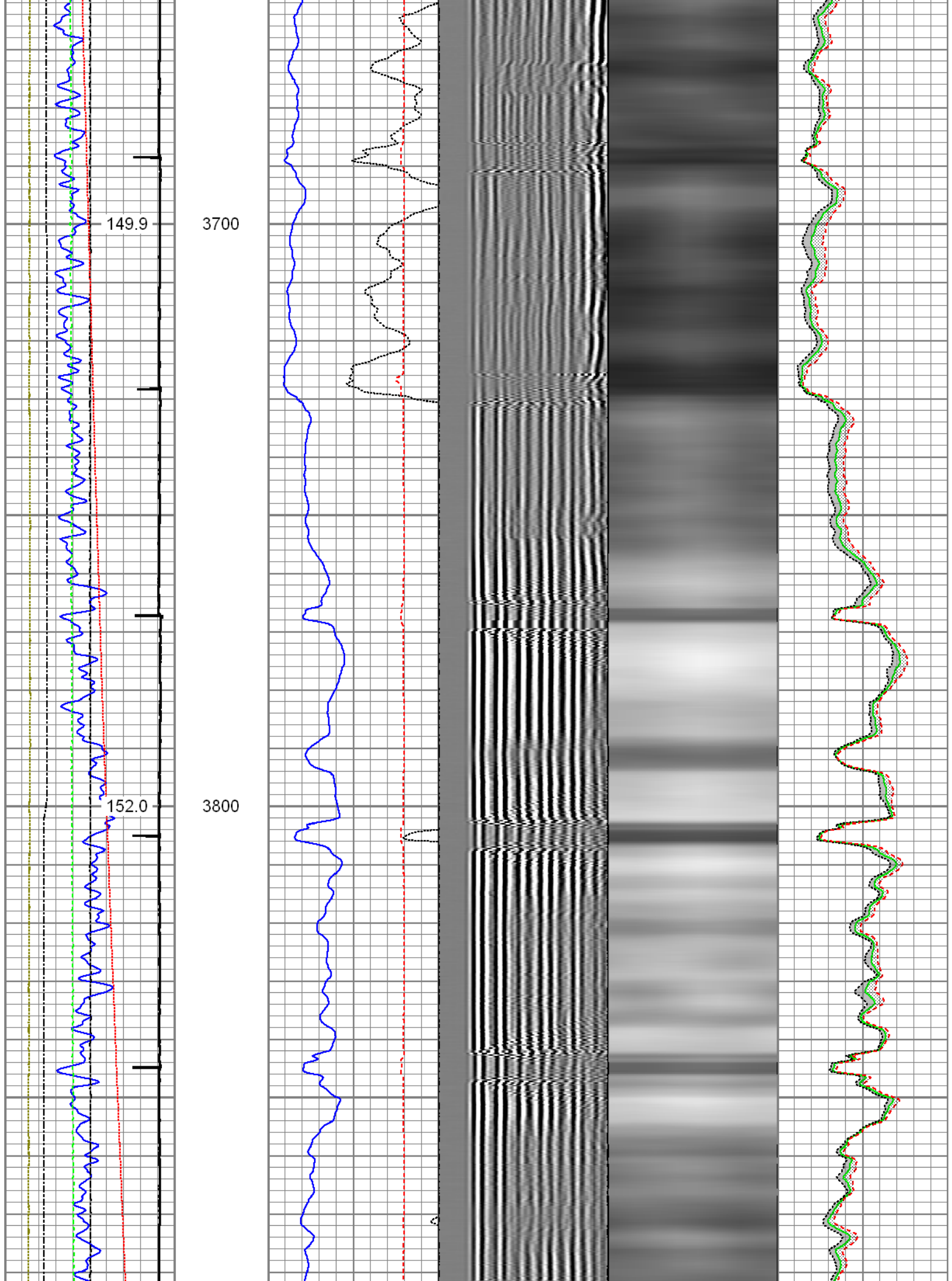


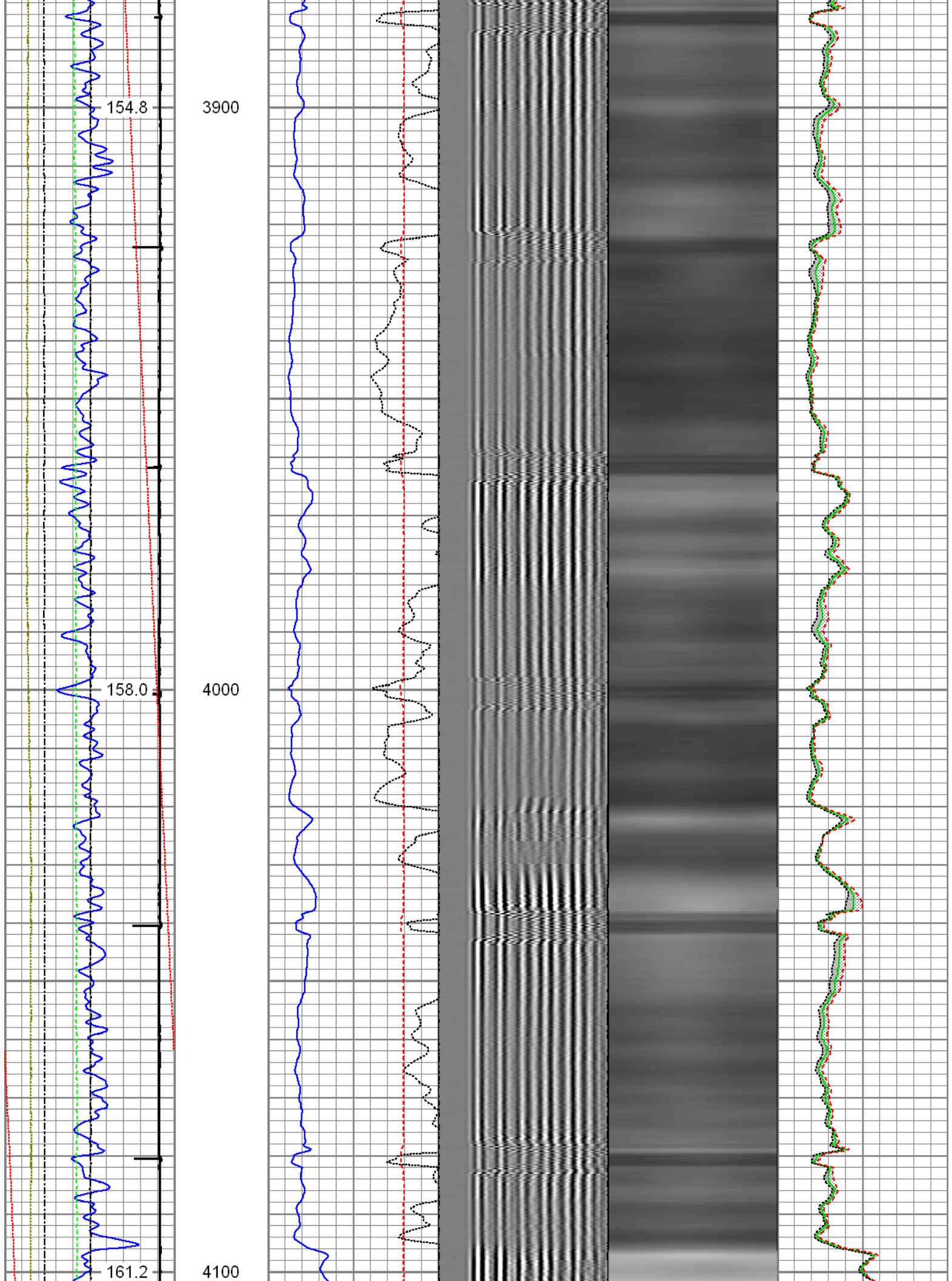
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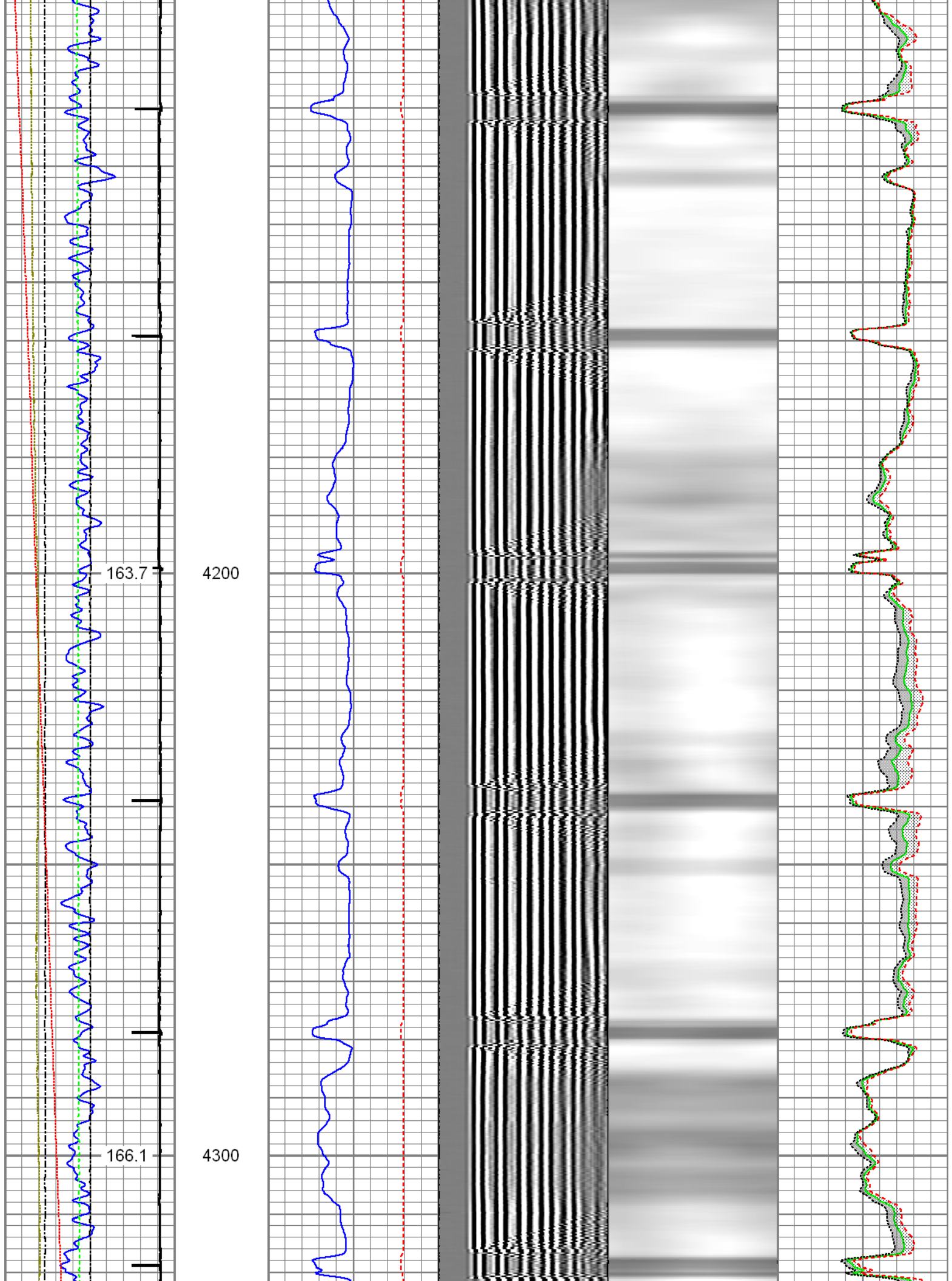
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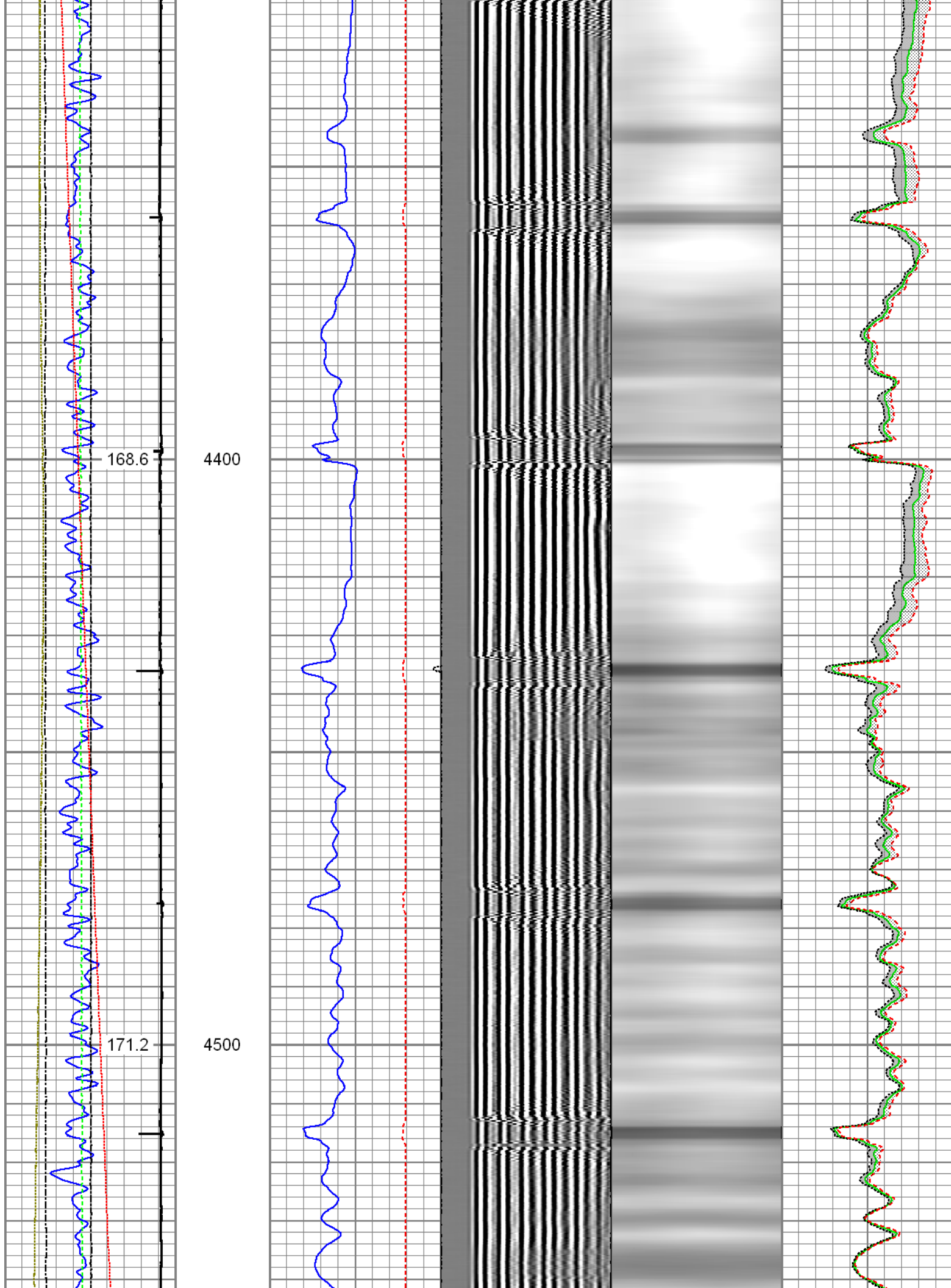


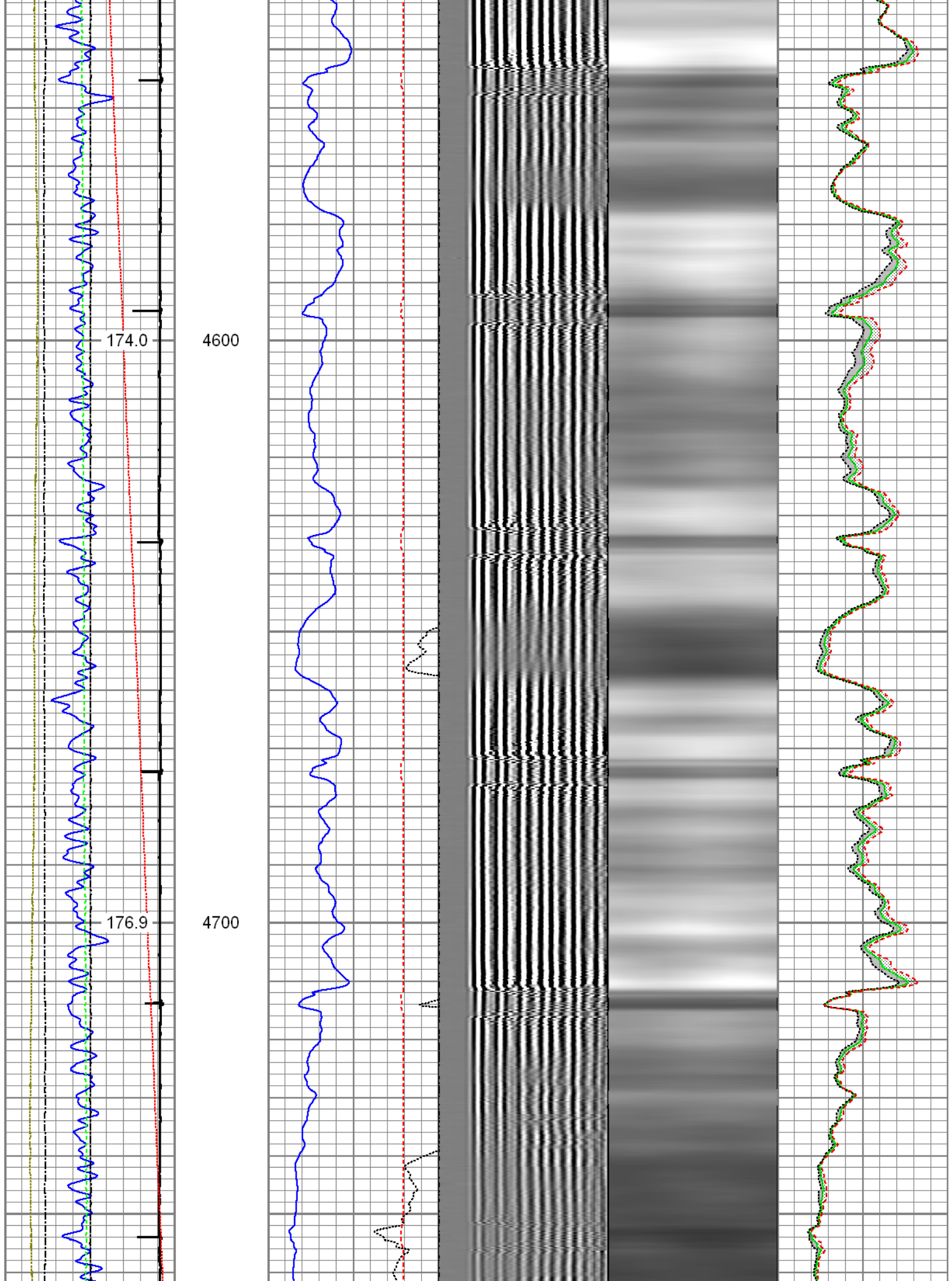


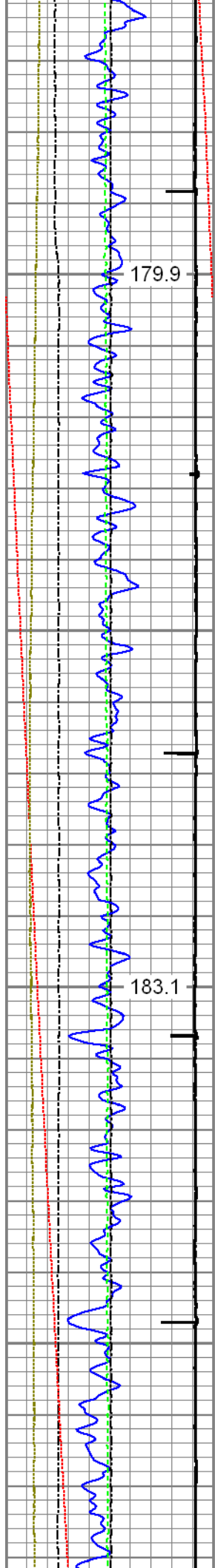










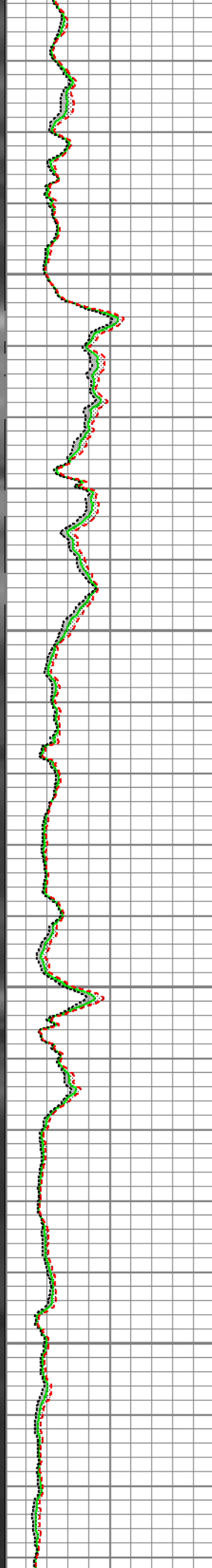
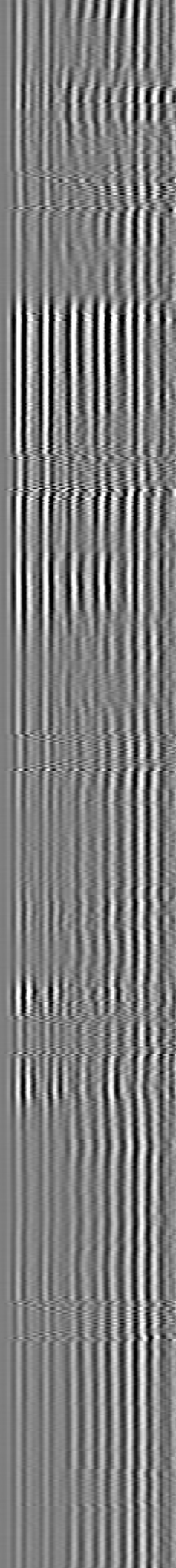
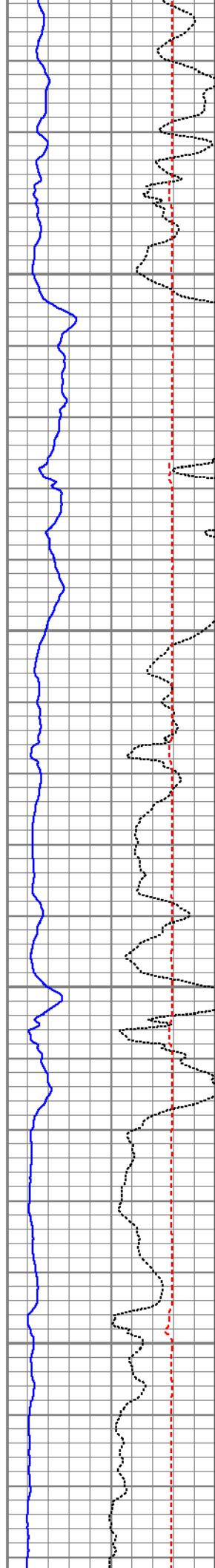


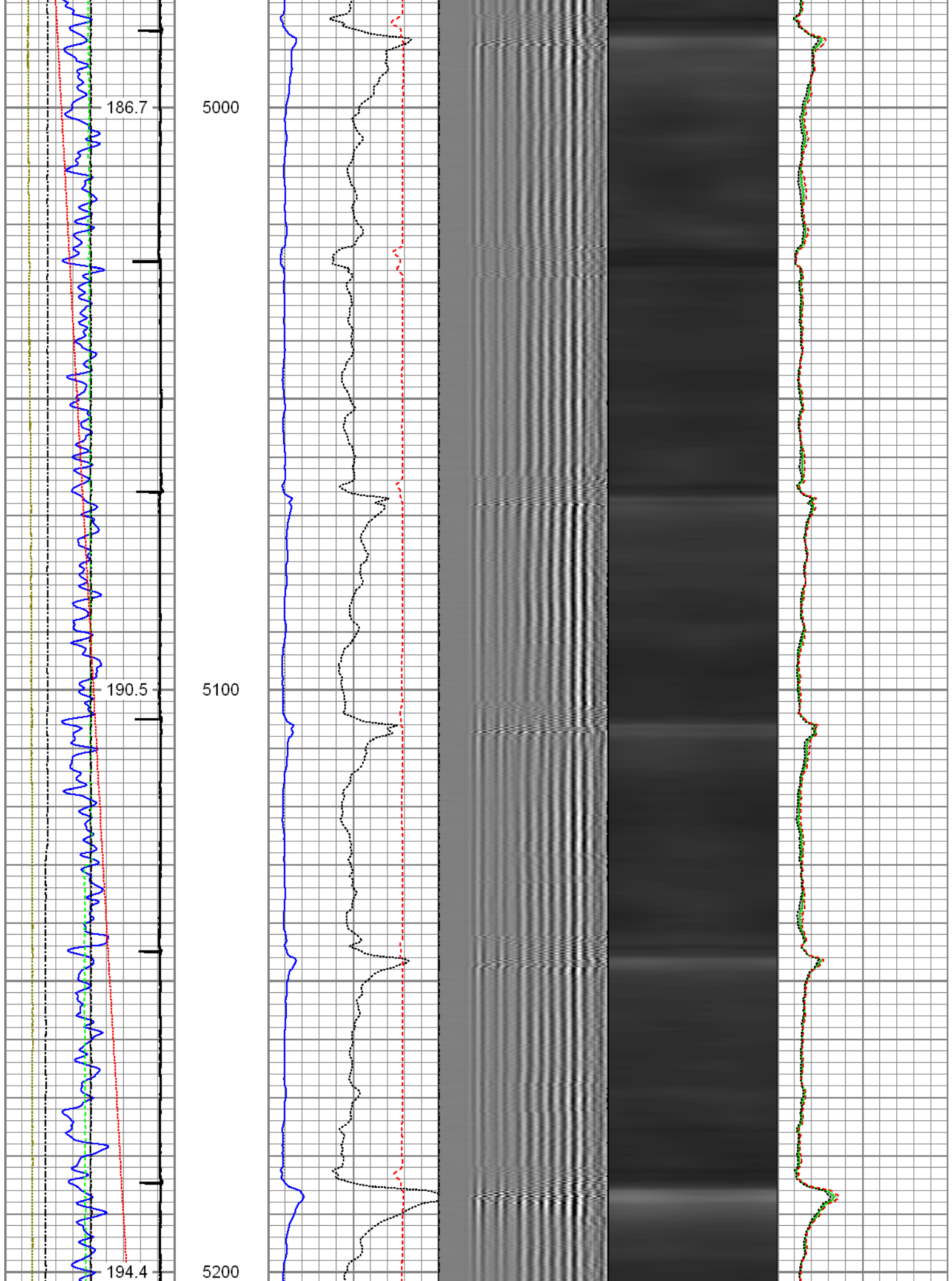
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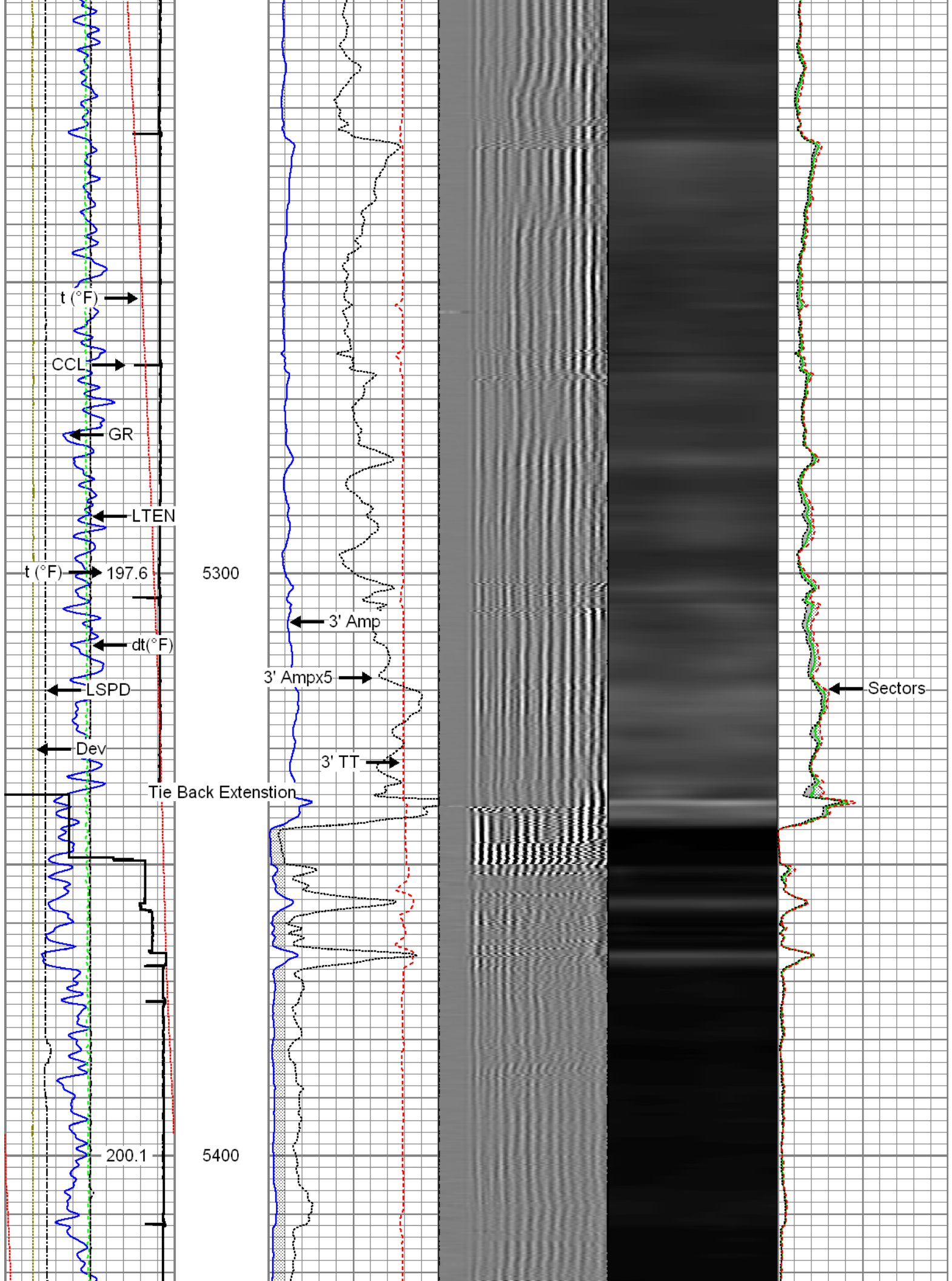
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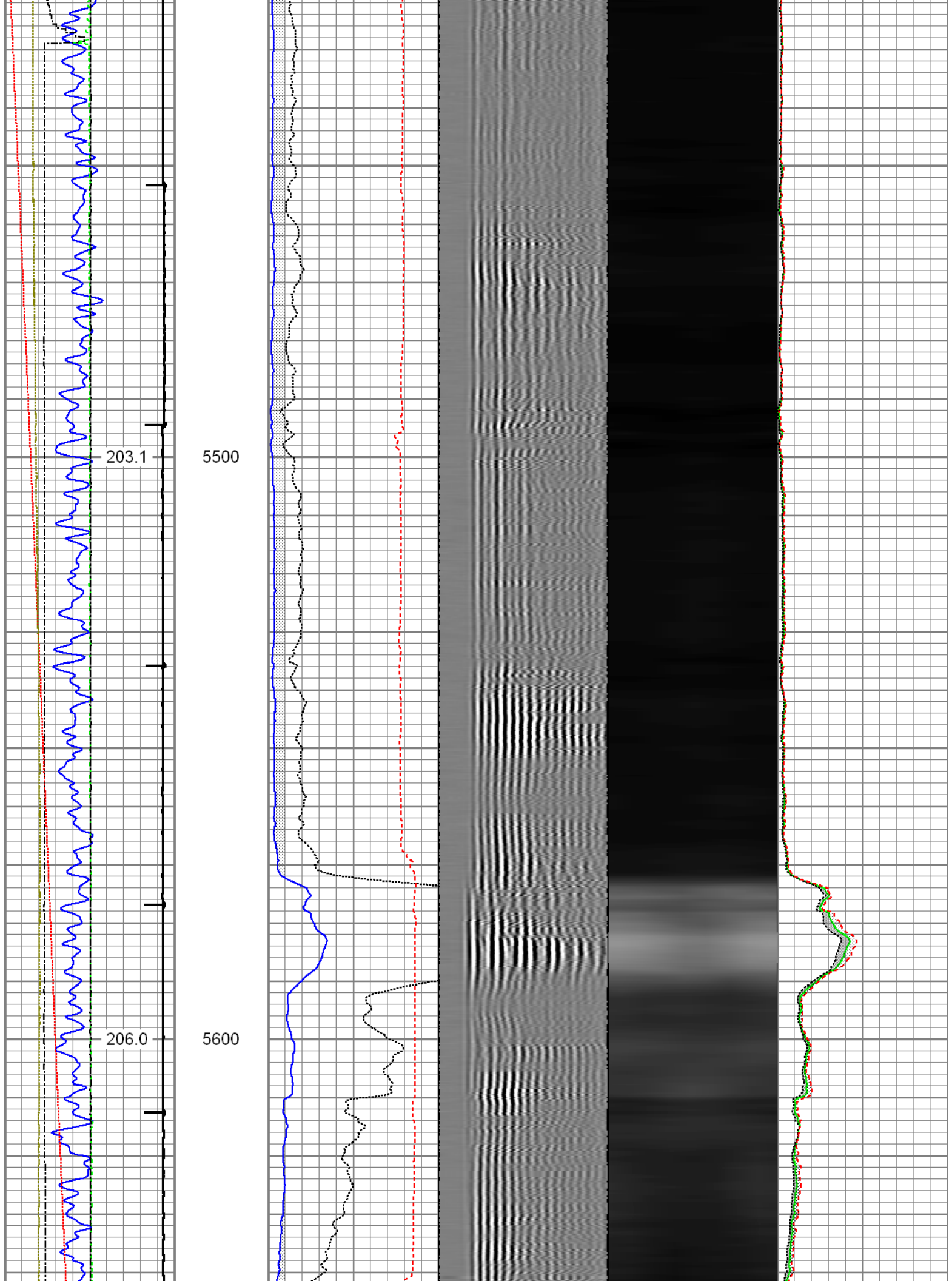
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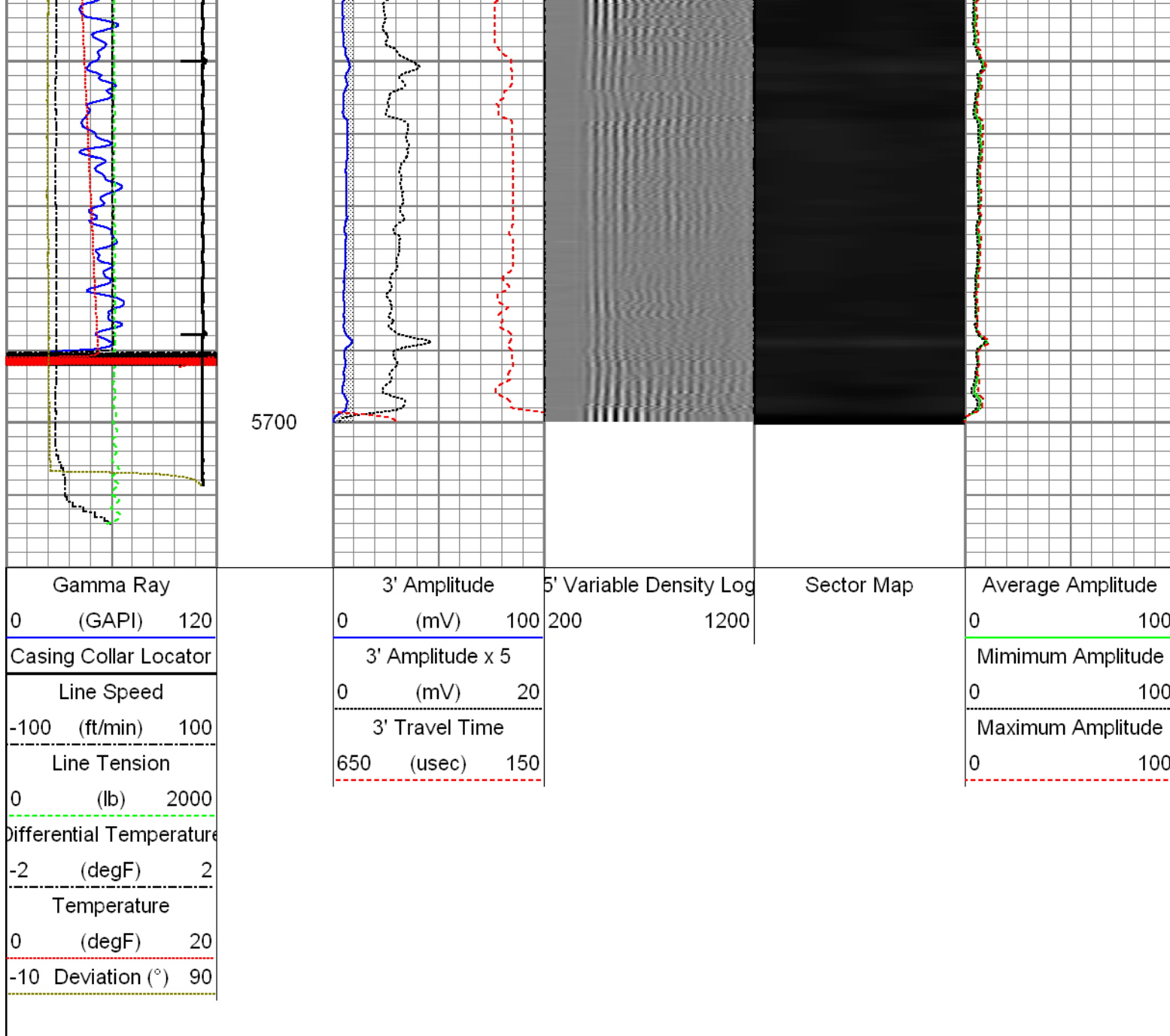
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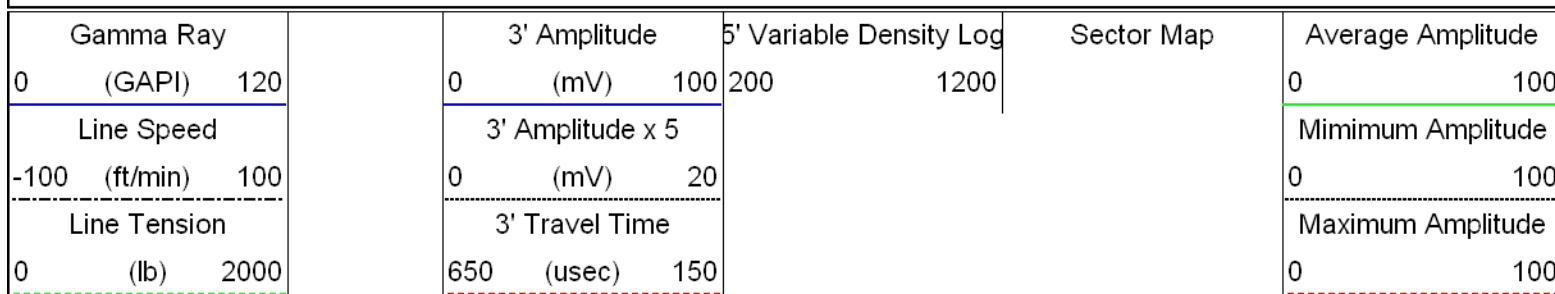




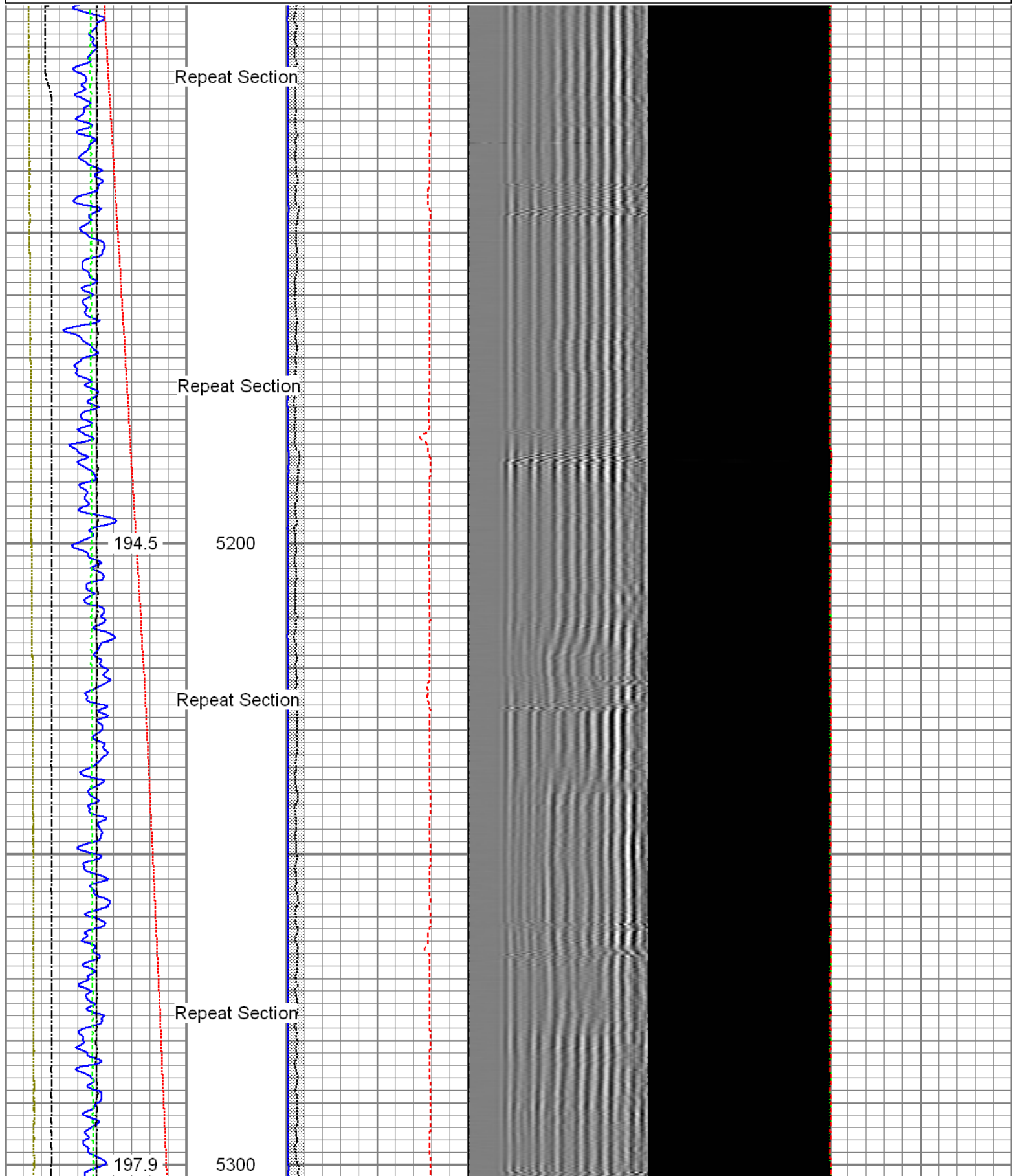
Repeat Section

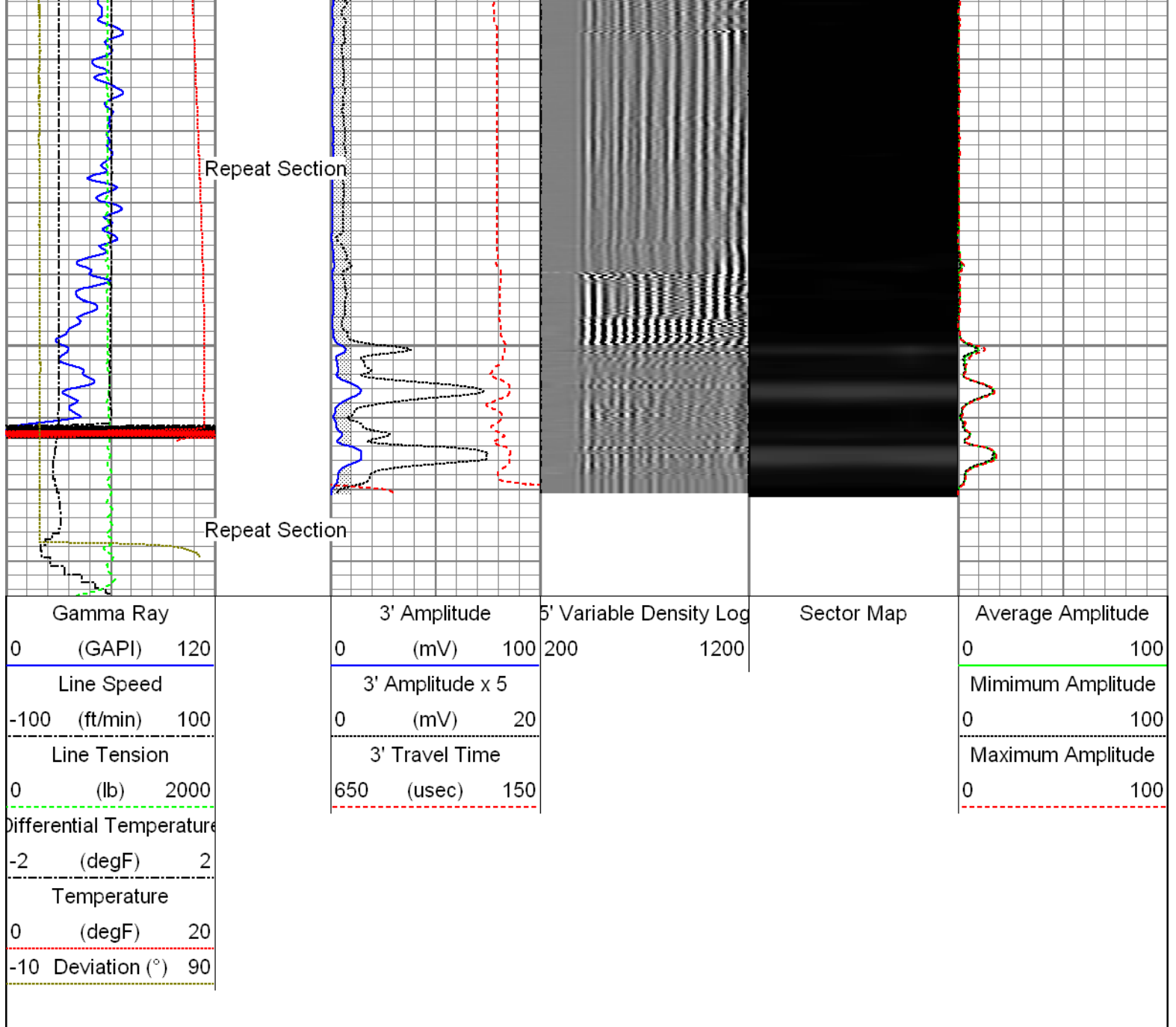
Recorded With 1500 PSI Surface Induced Pressure


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 Dataset Pathname: repeat
 Presentation Format: rbt4_mit
 Dataset Creation: Thu Dec 17 09:44:11 2015 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

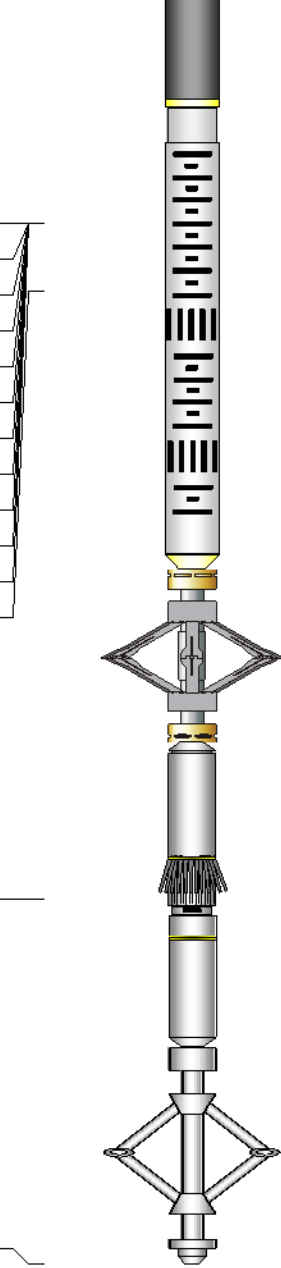


Differential Temperature		
-2	(degF)	2
Temperature		
0	(degF)	20
-10	Deviation (°)	90





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 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	22.45		UW_PRC #4 -DSSRAC (081) 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 (218949) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC-UW_PRC_057 (1102) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 12-17-15_Whiting_Razor Federal 12F-1302B_MIT_RBL.db: field/well/run1/main Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report			
Database File:	12-17-15_Whiting_Razor Federal 12F-1302B_MIT_RBL.db		
Dataset Pathname:	main		
Dataset Creation:	Thu Dec 17 09:58:23 2015 by Log 7.0 B1		
Multi-finger Imaging Tool Calibration Report			
Serial Number:		218949	
Number of Fingers:		40	
Tool Model:		UW_MIT40_027	
Inclinometer Calibration Report			
Performed:		Mon, Oct, 06 14:03:04 2008	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738
Finger 31 up:		2235	1756

Finger 21 up:	2216	2228
Finger 11 up:	1736	2196
Sensitivity ratio:	1.0062	
X-axis angle:	131.534	
Deviation const.:	331.322	

Finger Calibration Report

Performed: Thu Dec 17 08:20:18 2015

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1406	274.0	1680	296.0	1976	310.0	2286
Finger 02:	1457	273.0	1730	286.0	2016	303.0	2319
Finger 03:	1695	272.0	1967	282.0	2249	286.0	2535
Finger 04:	1667	273.0	1940	276.0	2216	282.0	2498
Finger 05:	1550	259.0	1809	269.0	2078	281.0	2359
Finger 06:	1535	253.0	1788	261.0	2049	270.0	2319
Finger 07:	1373	283.0	1656	279.0	1935	297.0	2232
Finger 08:	1545	257.0	1802	261.0	2063	273.0	2336
Finger 09:	1423	273.0	1696	278.0	1974	293.0	2267
Finger 10:	1474	267.0	1741	271.0	2012	283.0	2295
Finger 11:	1479	261.0	1740	268.0	2008	278.0	2286
Finger 12:	1326	281.0	1607	295.0	1902	310.0	2212
Finger 13:	1600	282.0	1882	283.0	2165	290.0	2455
Finger 14:	1445	286.0	1731	294.0	2025	306.0	2331
Finger 15:	1554	266.0	1820	271.0	2091	280.0	2371
Finger 16:	1395	288.0	1683	292.0	1975	307.0	2282
Finger 17:	1628	278.0	1906	278.0	2184	286.0	2470
Finger 18:	1411	300.0	1711	306.0	2017	322.0	2339
Finger 19:	1642	267.0	1909	258.0	2167	261.0	2428
Finger 20:	1543	268.0	1811	277.0	2088	288.0	2376
Finger 21:	1603	256.0	1859	259.0	2118	269.0	2387
Finger 22:	1571	276.0	1847	284.0	2131	295.0	2426
Finger 23:	1373	278.0	1651	291.0	1942	302.0	2244
Finger 24:	1698	263.0	1961	271.0	2232	278.0	2510
Finger 25:	1396	291.0	1687	311.0	1998	325.0	2323
Finger 26:	1538	286.0	1824	302.0	2126	311.0	2437
Finger 27:	1455	266.0	1721	276.0	1997	285.0	2282
Finger 28:	1644	276.0	1920	291.0	2211	295.0	2506
Finger 29:	1481	271.0	1752	292.0	2044	299.0	2343
Finger 30:	1447	272.0	1719	302.0	2021	299.0	2320
Finger 31:	1531	264.0	1795	287.0	2082	286.0	2368
Finger 32:	1348	261.0	1609	282.0	1891	293.0	2184
Finger 33:	1631	293.0	1924	314.0	2238	320.0	2558
Finger 34:	1548	263.0	1811	280.0	2091	290.0	2381
Finger 35:	1442	260.0	1702	283.0	1985	297.0	2282
Finger 36:	1596	270.0	1866	291.0	2157	299.0	2456
Finger 37:	1603	267.0	1870	286.0	2156	296.0	2452
Finger 38:	1503	268.0	1771	289.0	2060	300.0	2360
Finger 39:	1465	274.0	1739	296.0	2035	310.0	2345
Finger 40:	1607	279.0	1886	298.0	2184	307.0	2491

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454
Tool Model: UW_RBT_004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 21.926 ft

Master Calibration, performed Wed Dec 16 12:16:09 2015:

Raw (v)		Calibrated (mv)		Results	
Zero	Cal	Zero	Cal	Gain	Offset

3FT	0.001	0.780	0.800	62.165	78.752	0.707
5FT	-0.002	0.746	0.800	62.165	81.990	1.000
S1	0.001	0.759	0.000	100.000	132.021	-0.161
S2	0.000	0.784	0.000	100.000	127.590	0.000
S3	0.000	0.795	0.000	100.000	125.847	-0.040
S4	0.000	0.804	0.000	100.000	124.308	0.000
S5	0.001	0.792	0.000	100.000	126.414	-0.154
S6	0.000	0.773	0.000	100.000	129.389	0.000
S7	0.000	0.748	0.000	100.000	133.667	-0.028
S8	0.000	0.745	0.000	100.000	134.236	-0.031

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: 211727
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 Whiting Oil & Gas Corporation
Well Razor Federal 12F-1302B
Field Wildcat
County Weld
State Colorado