



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Whiting Oil & Gas Corporation		Company Whiting Oil & Gas Corporation	
Well Razor Federal 12F-1307A		Well Razor Federal 12F-1307A	
Field Wildcat		Field Wildcat	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API #: 05-123-38724	
SEC 12 TWP 10N RGE 58W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		Elevation	
K.B. 4958'		D.F. 4957'	
G.L. 4937'		G.L. 4937'	
Date		16-Dec-2015	
Run Number		One	
Depth Driller		13831 FT	
Depth Logger		5500 FT	
Bottom Logged Interval		5500 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbs/gal	
Max. Recorded Temp.		214°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		9:30	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		Robert Fogarty	
Witnessed By		K. Lewis	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		7	
Intermediate #2		4 1/2	
Liner		11.6	
HCP-110		5186 FT	
13821 FT			

>>> Fold Here >>>

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 Liner Top at 5186 FT
Adjusted Log -3 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

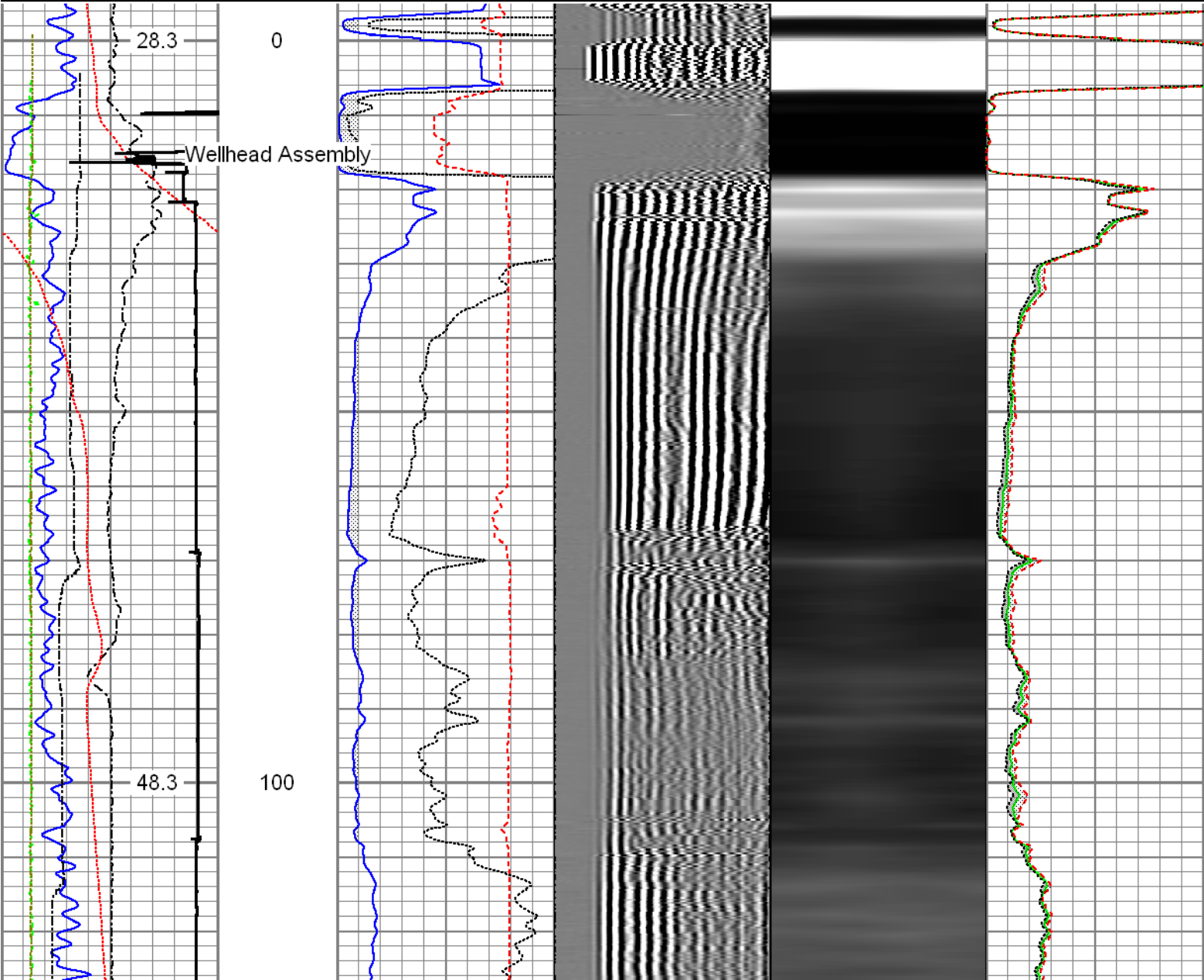
Thank you for choosing FMC Technologies Surface Integrated Services.

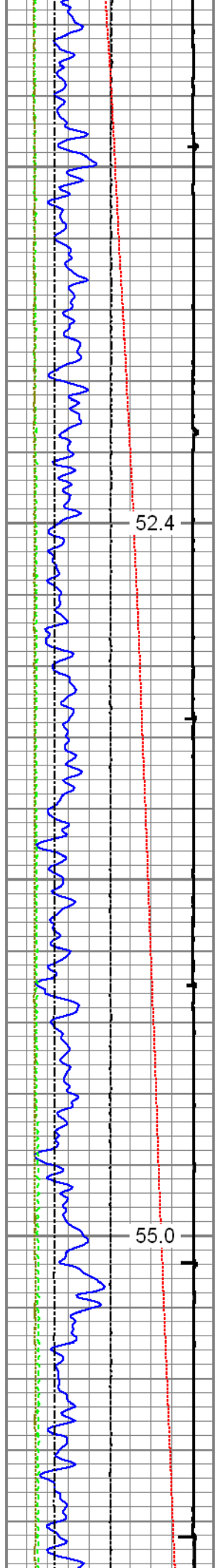


Main Pass

Recorded with 1500 PSI Surface Induced Pressure

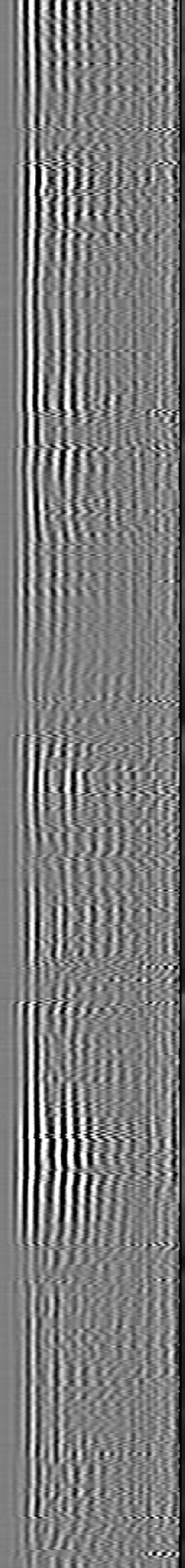
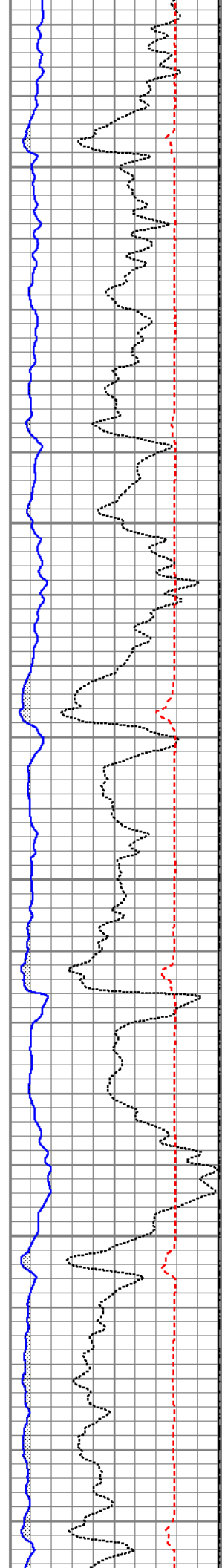
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-100 (ft/min) 100	0 (mV) 20			0 100
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	650 (usec) 150			0 100
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
-10 Deviation (°) 90				
Casing Collar Locator				

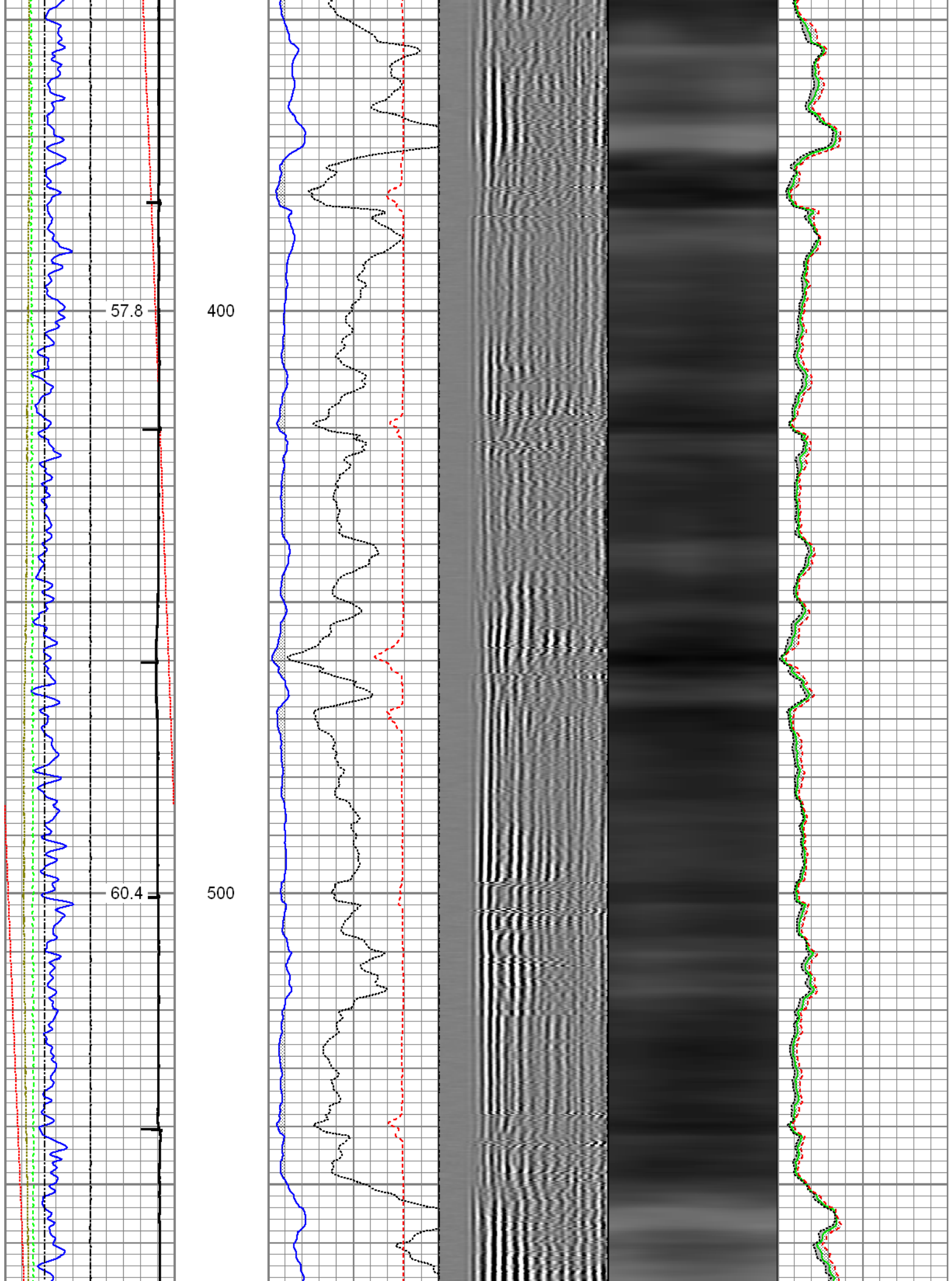


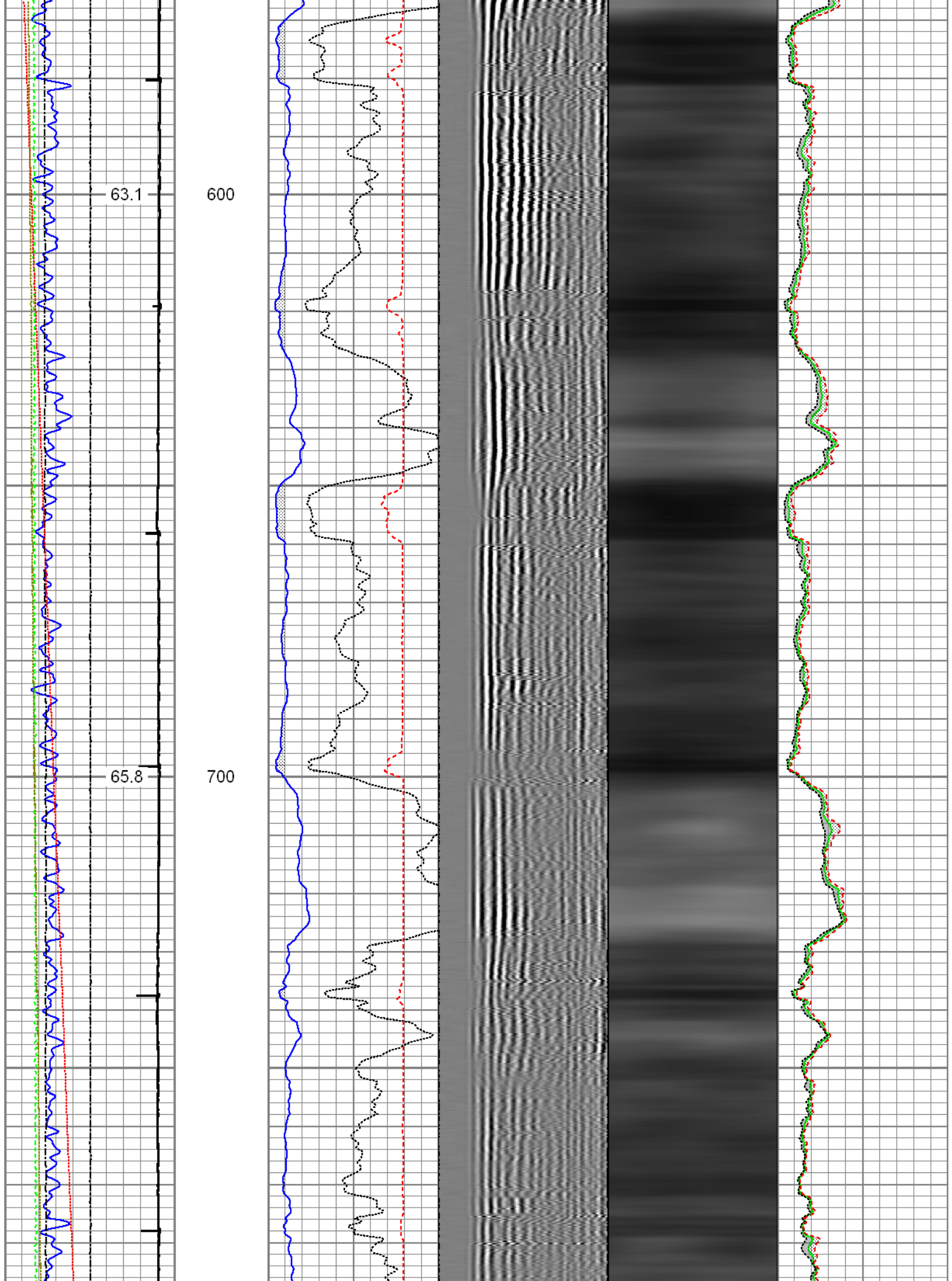


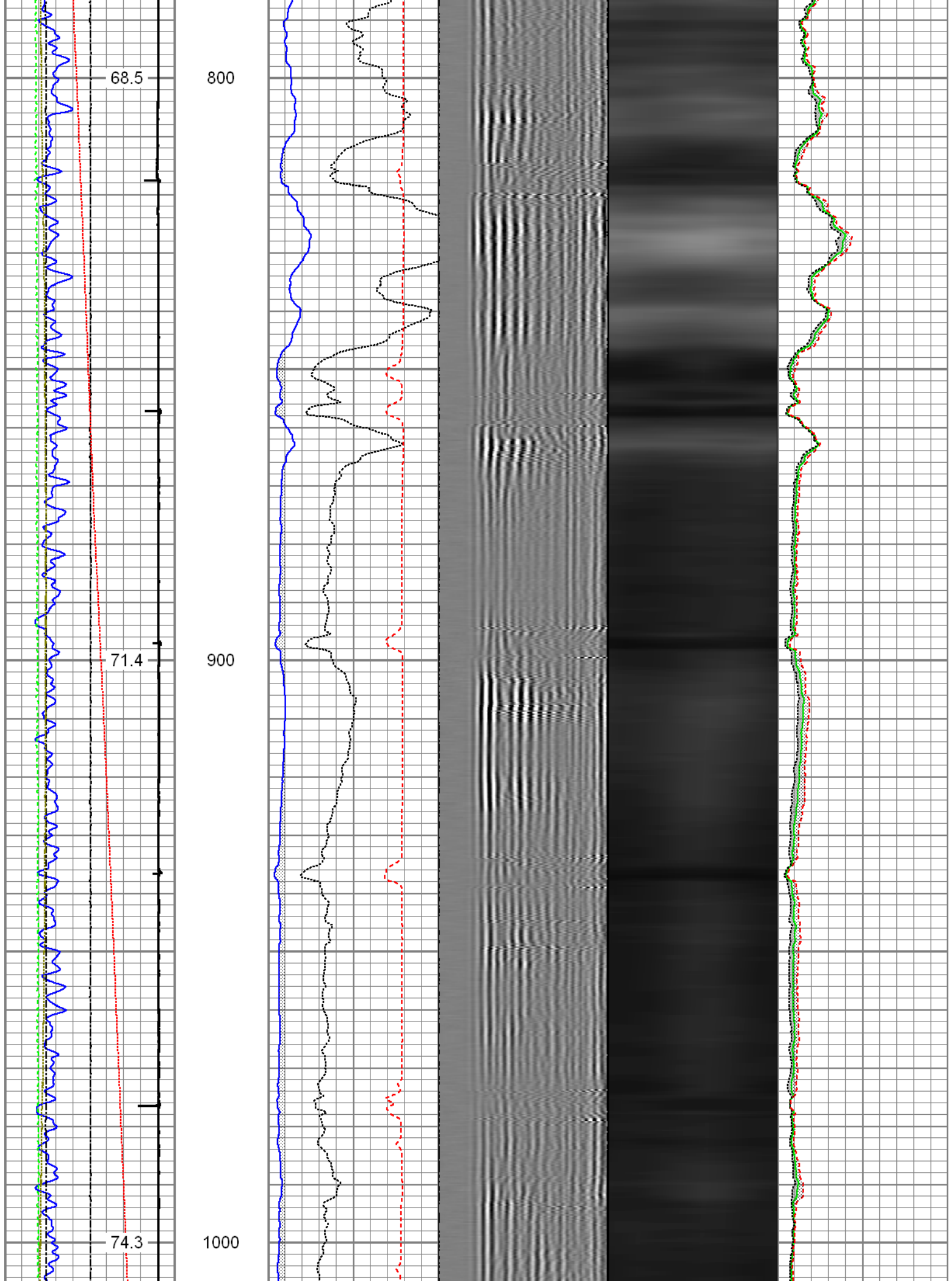
200

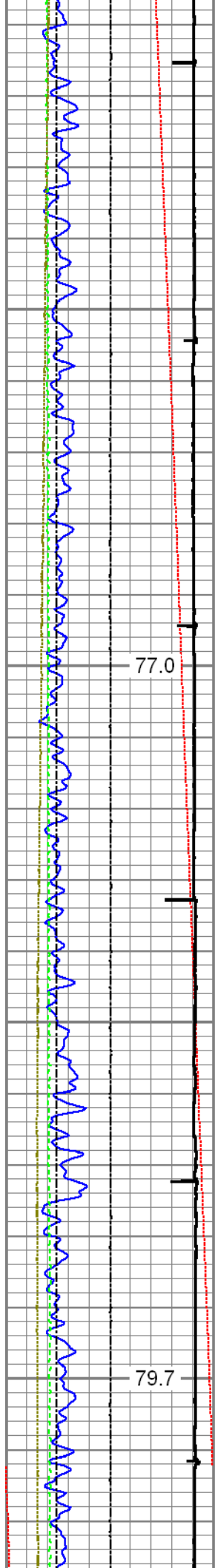
300









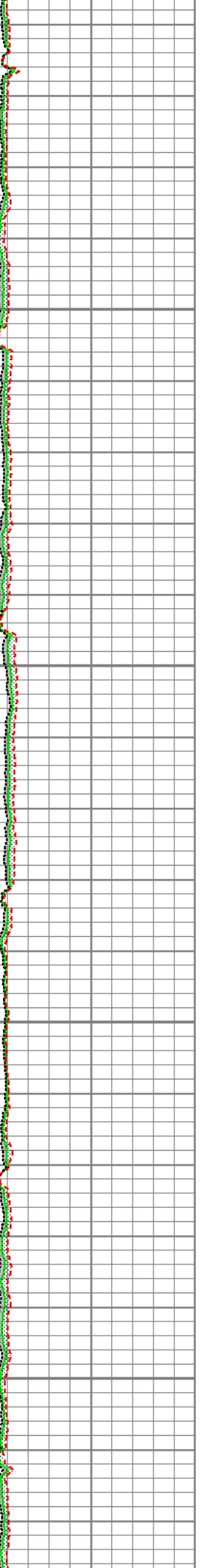
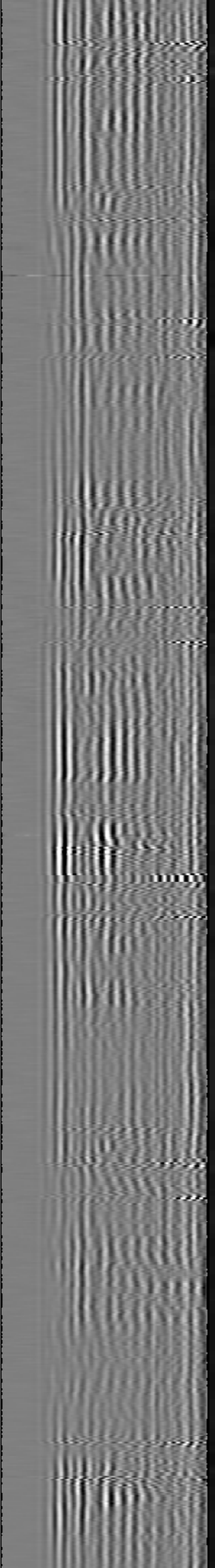
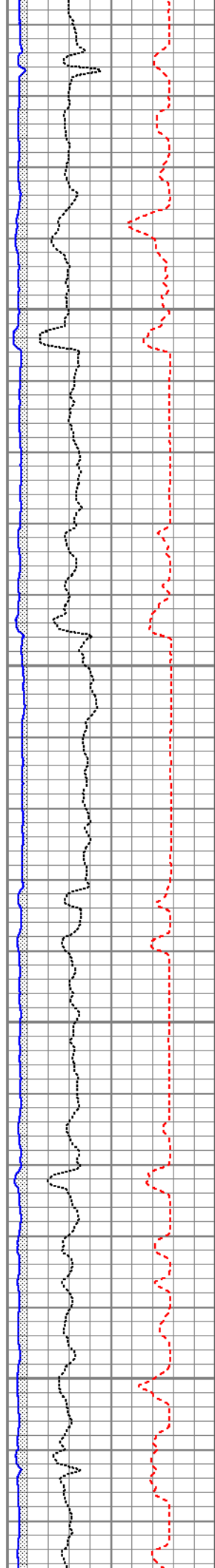


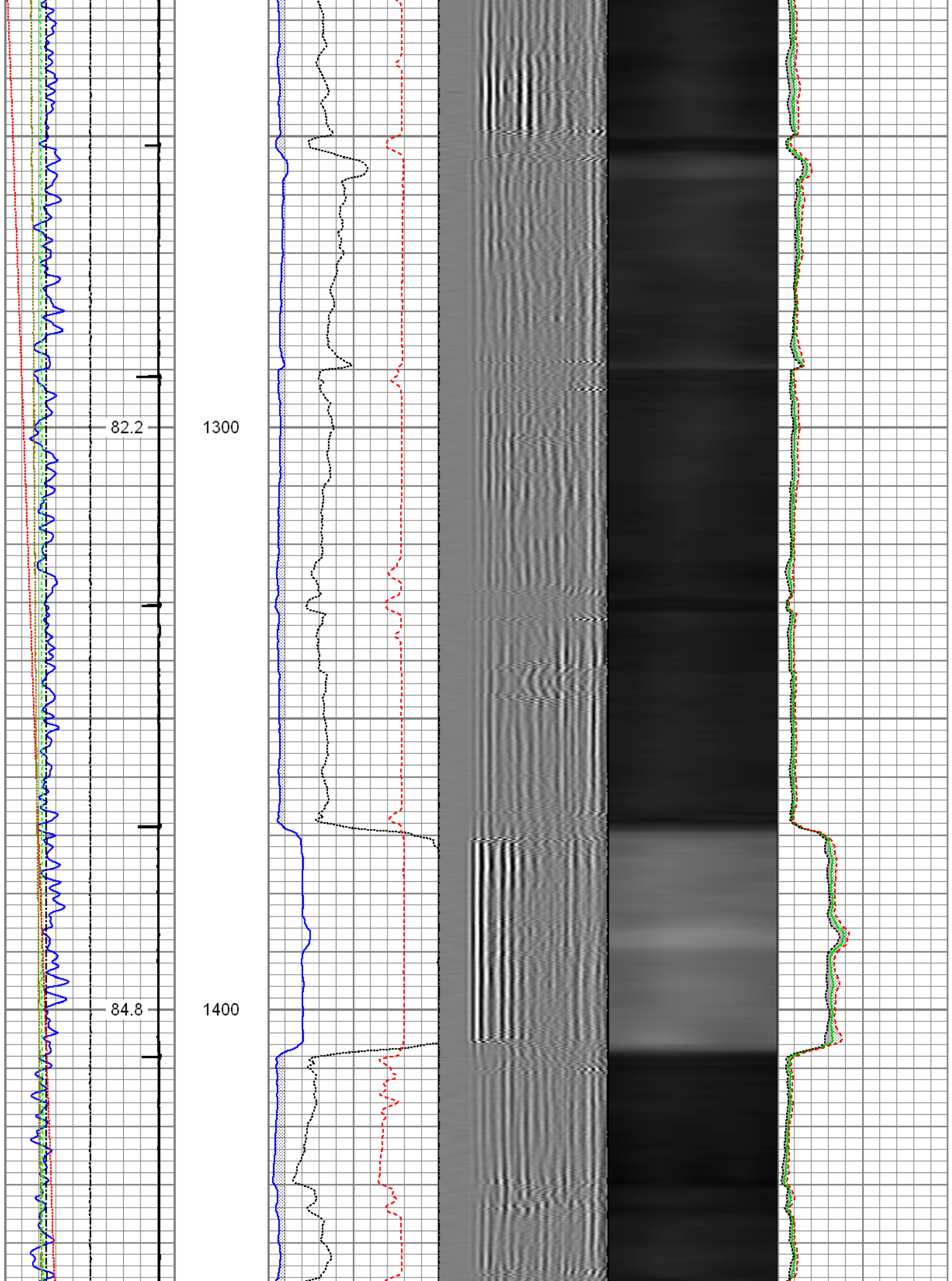
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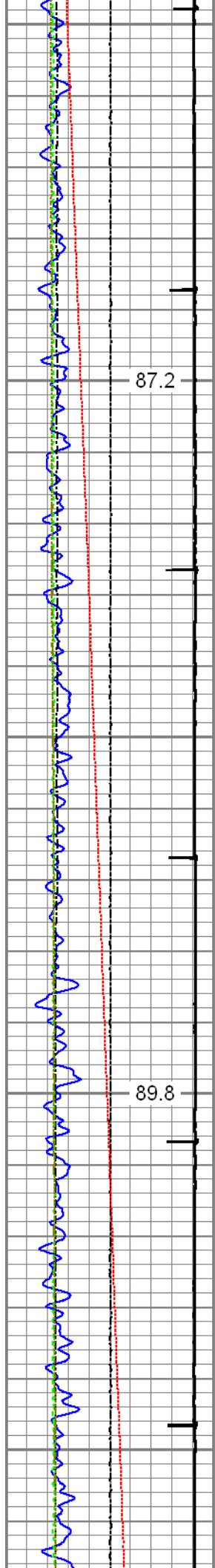
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1100

1200

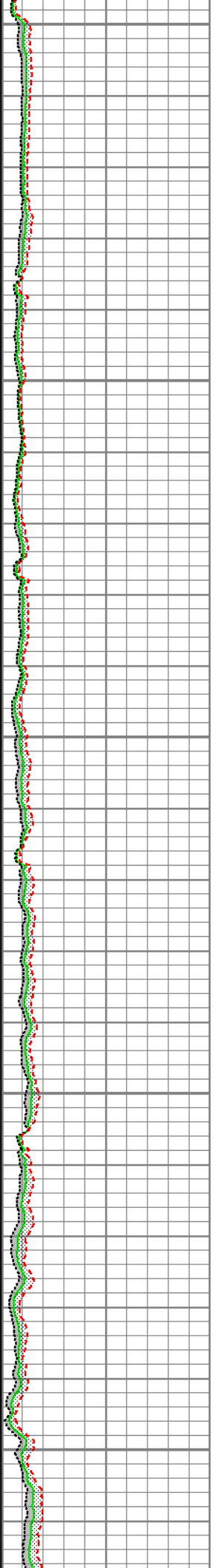
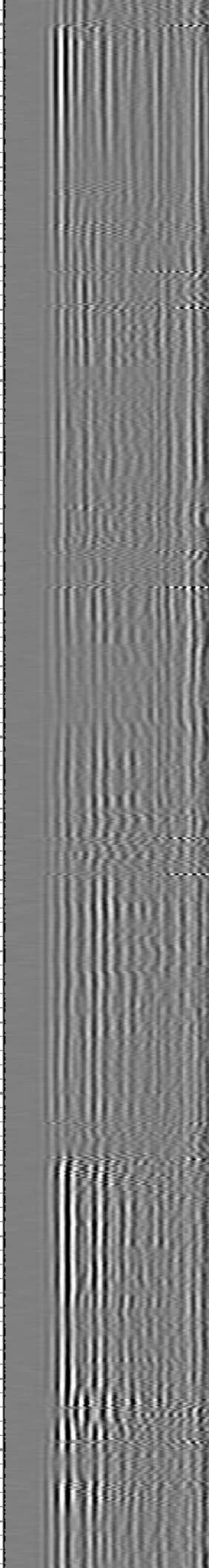
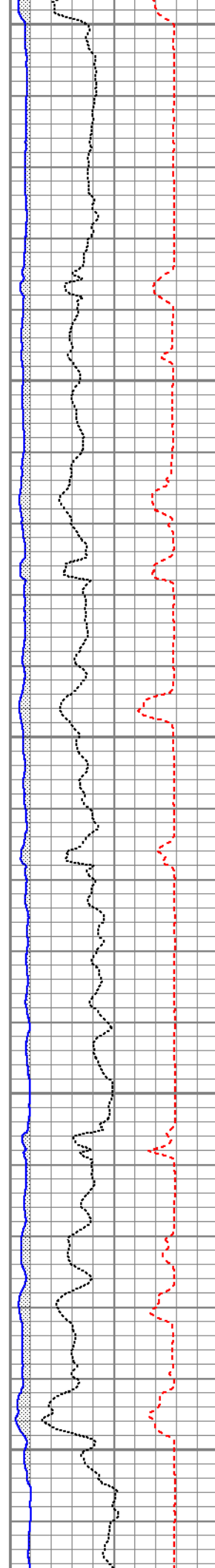


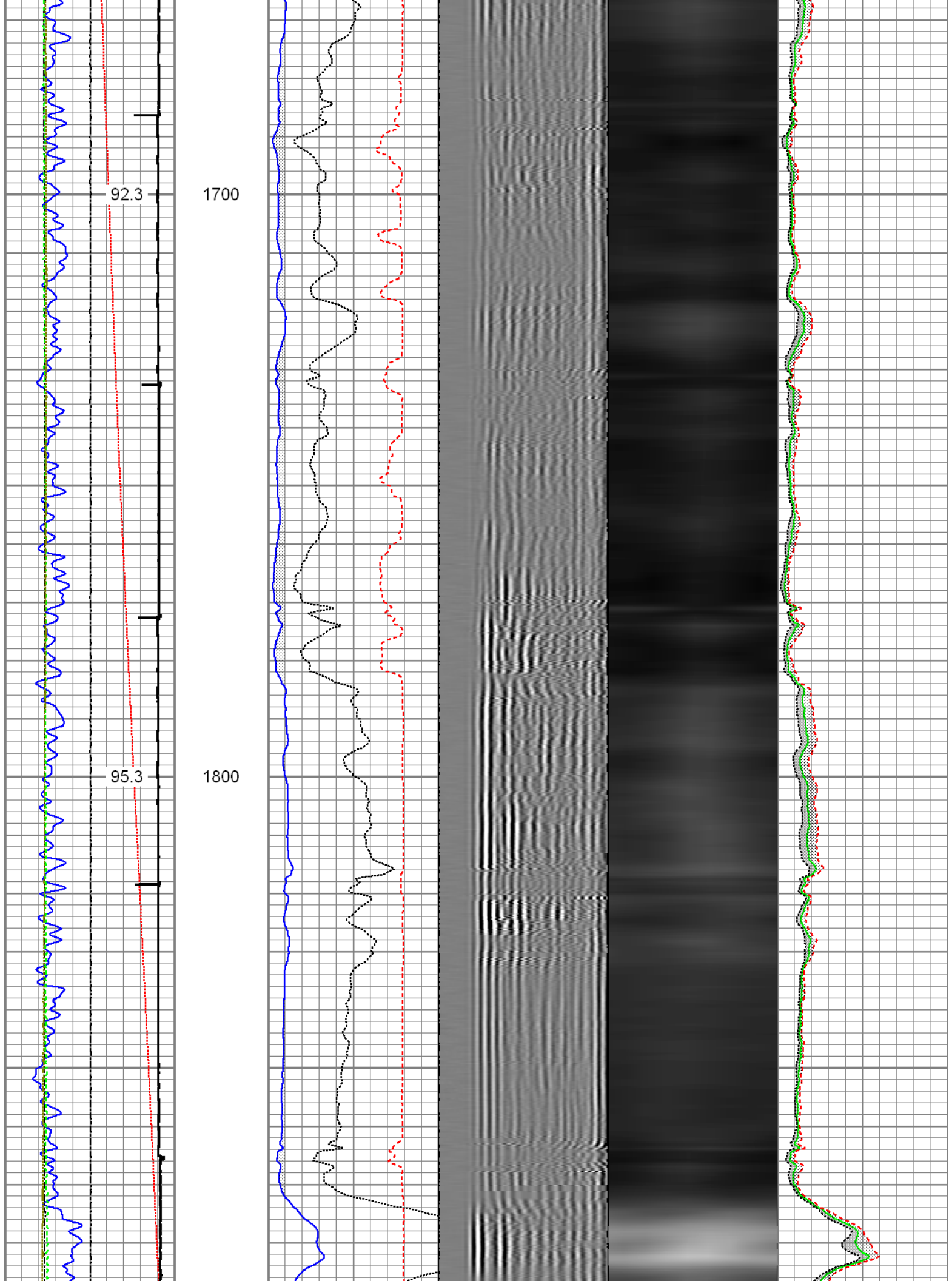


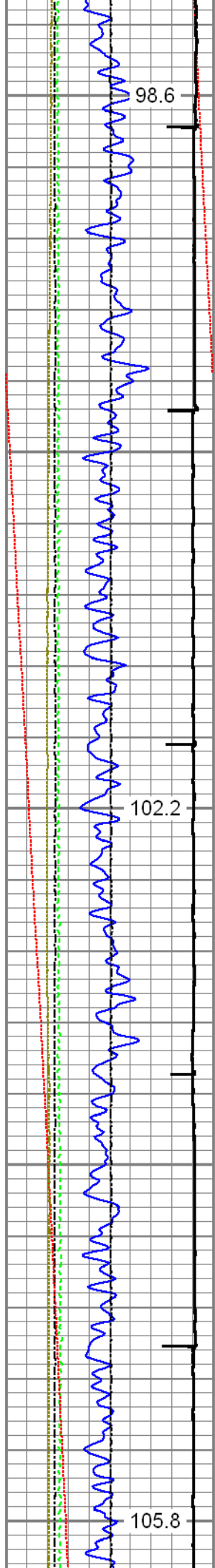


1500

1600



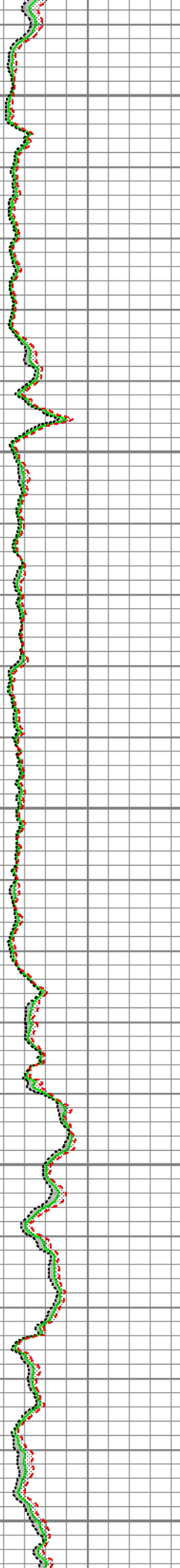
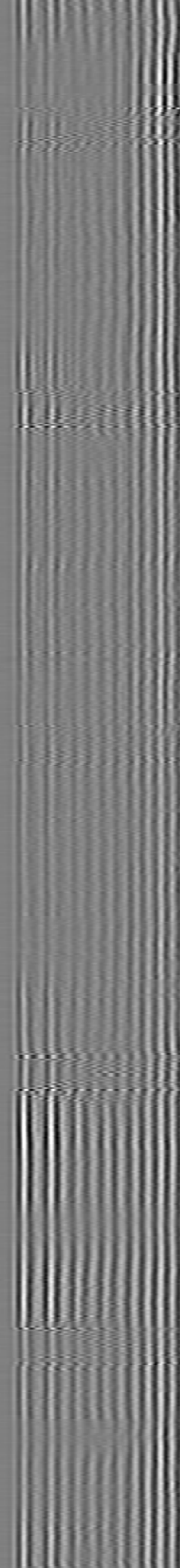
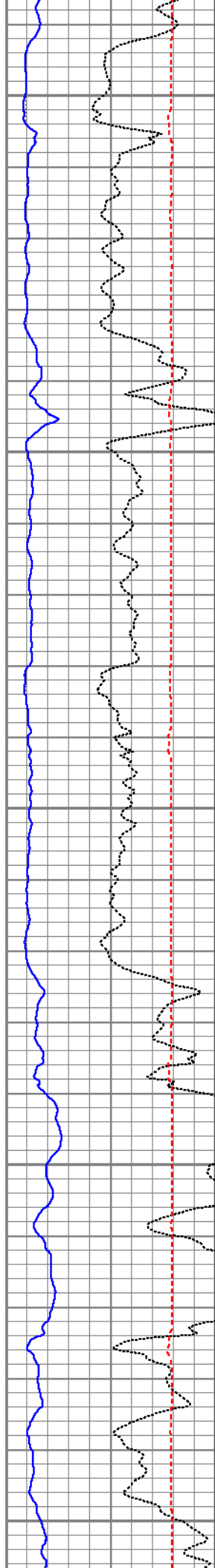


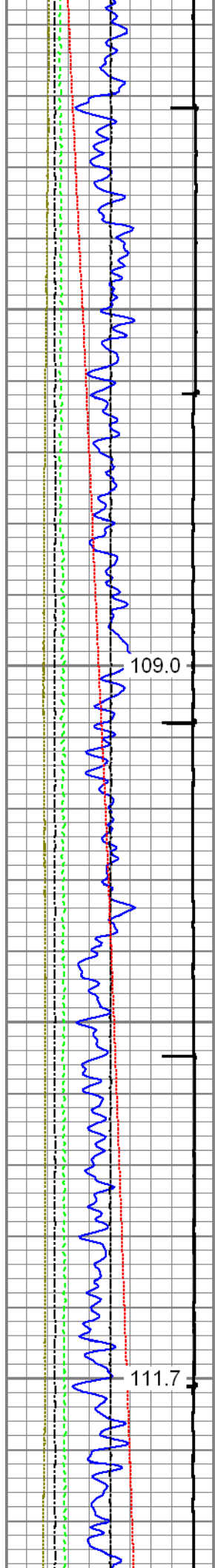


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2000

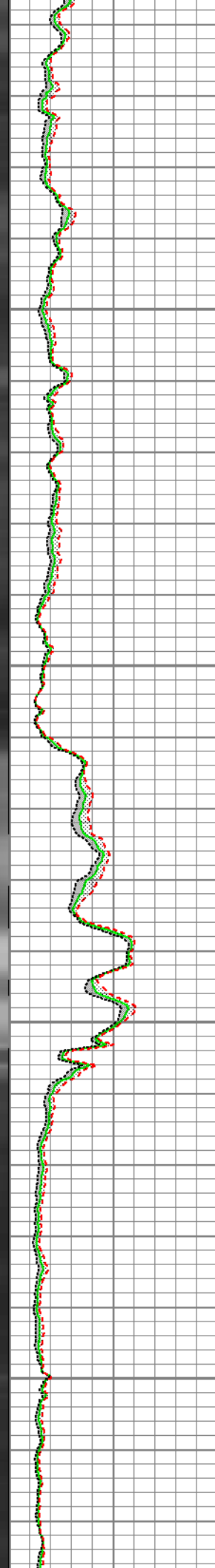
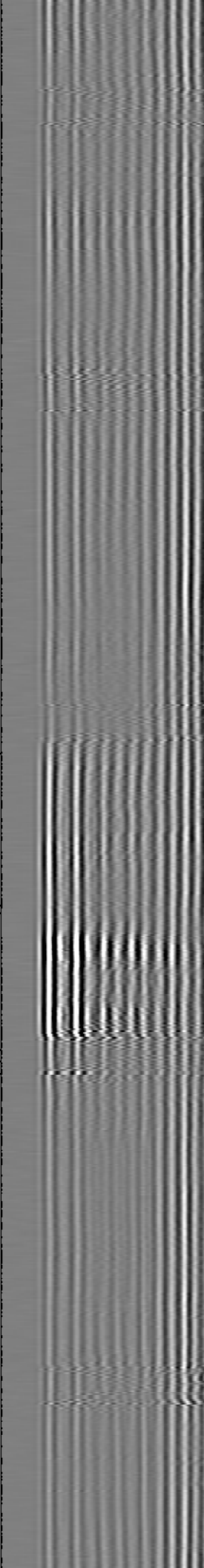
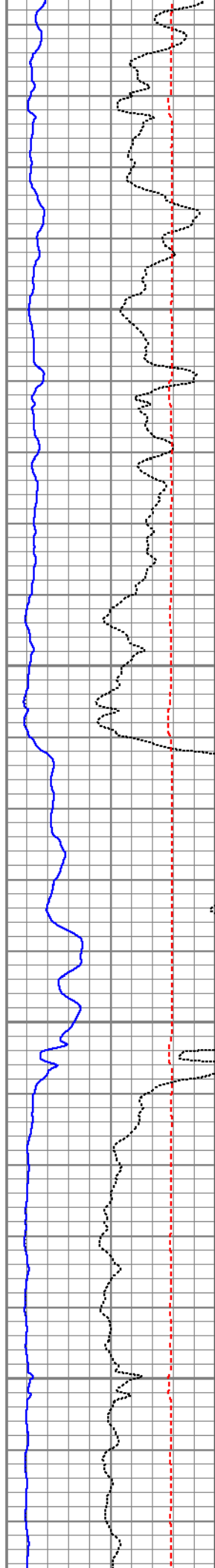
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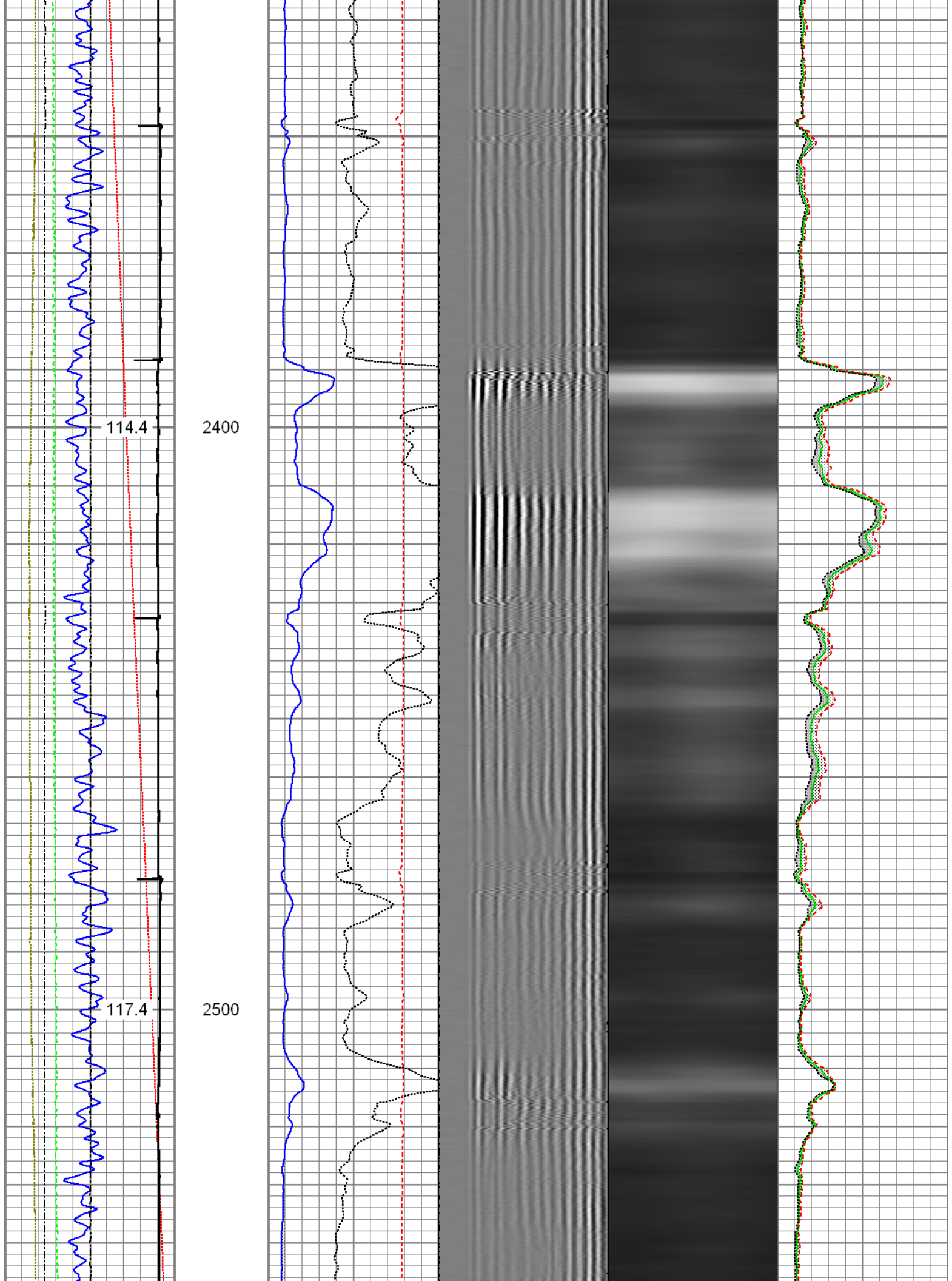


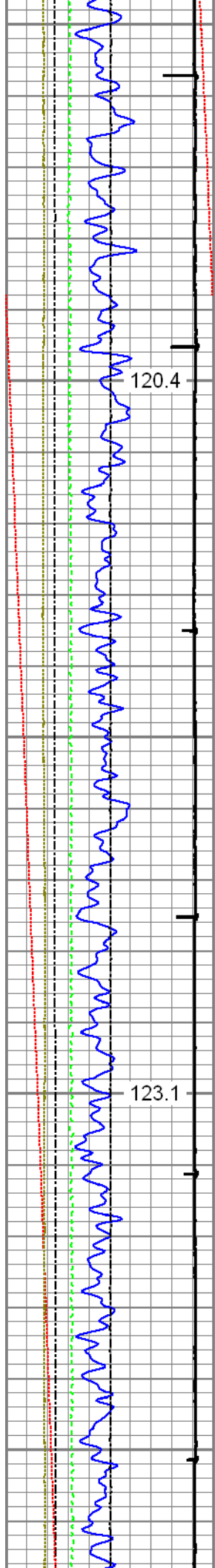


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2300

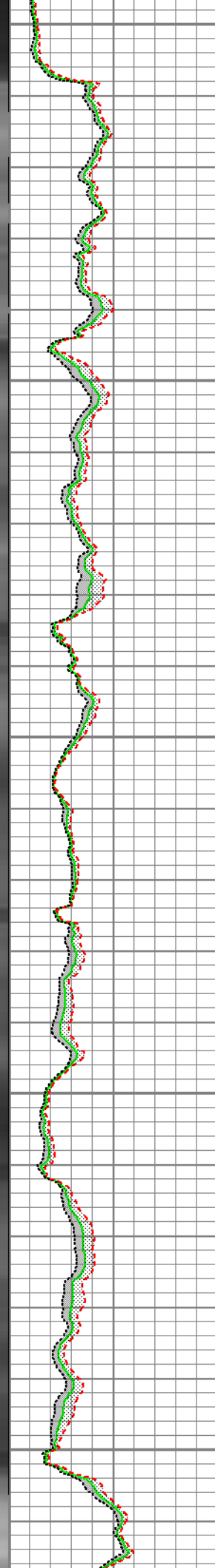
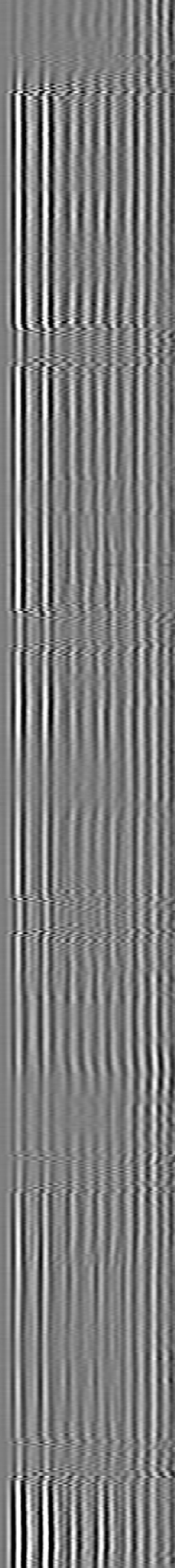
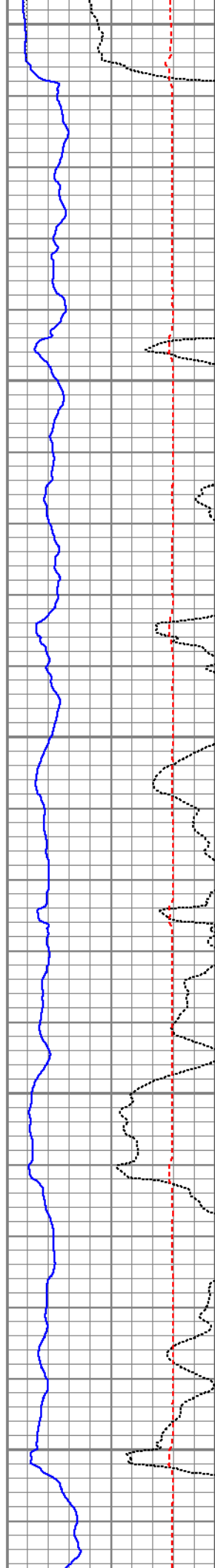


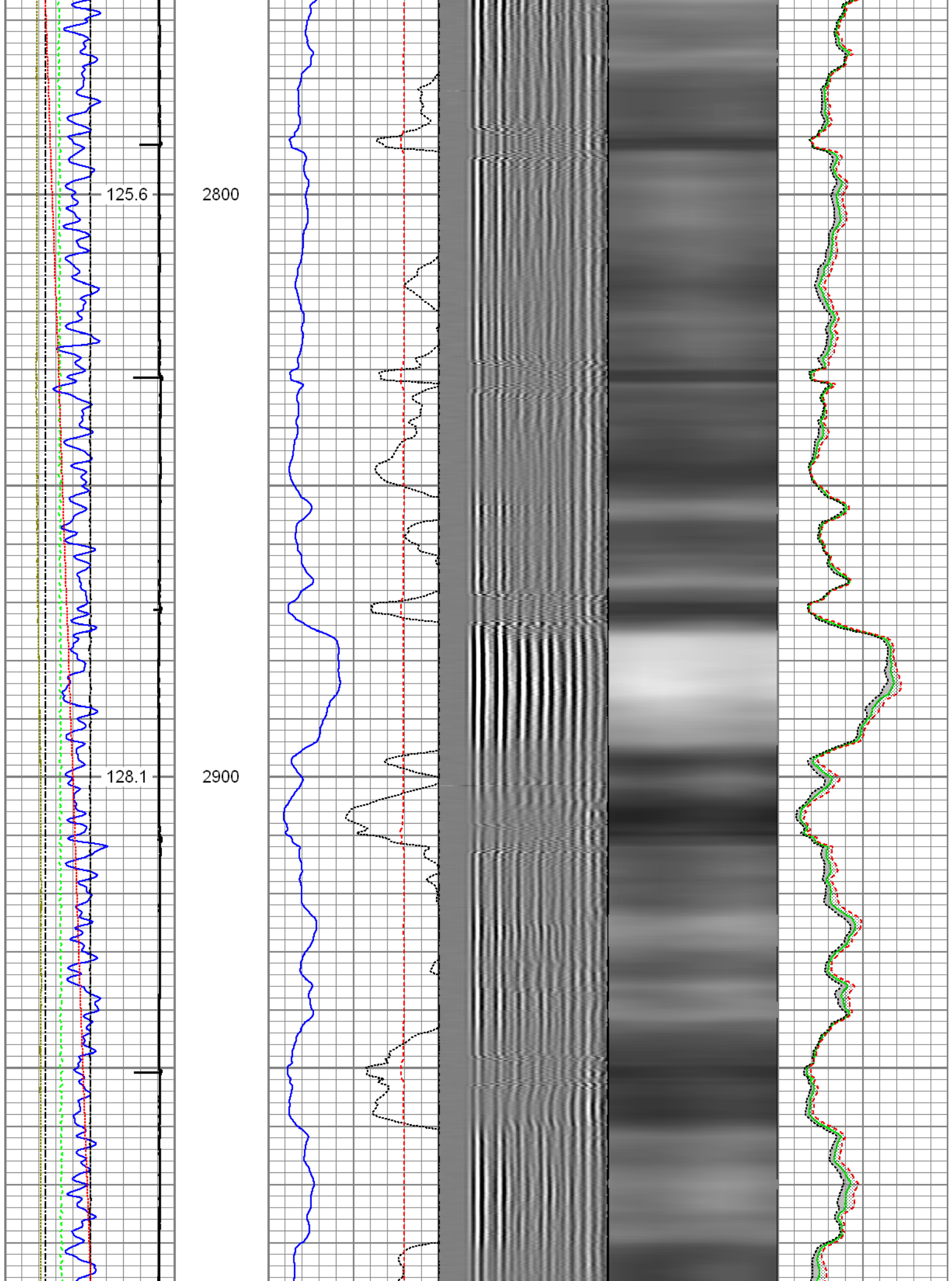


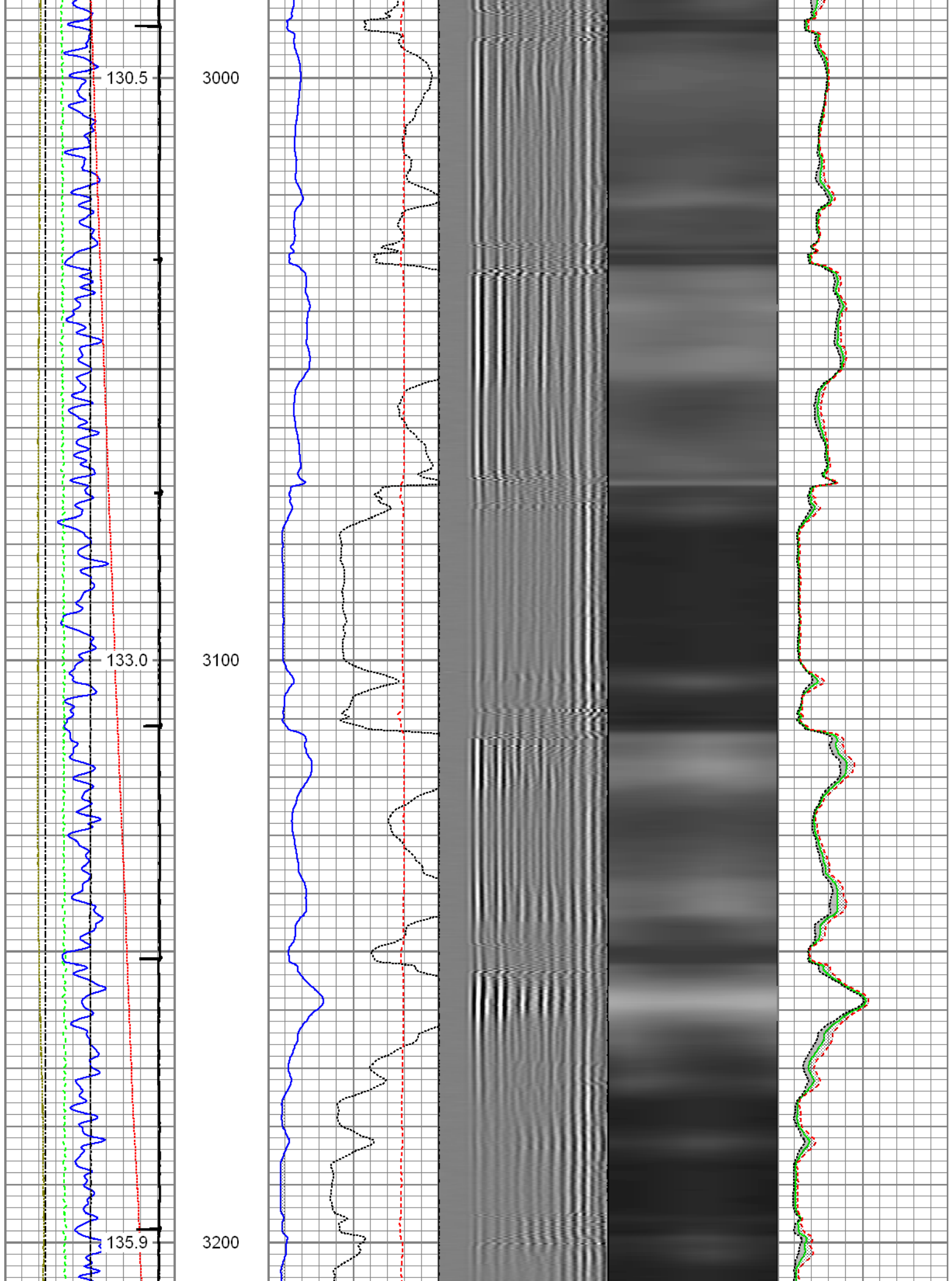


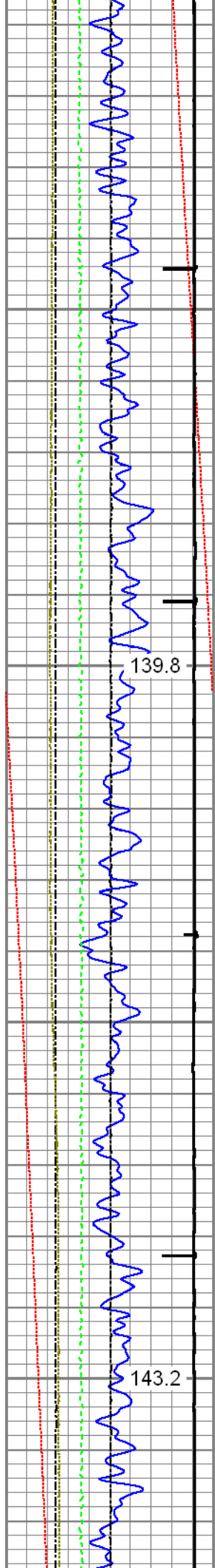
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2700



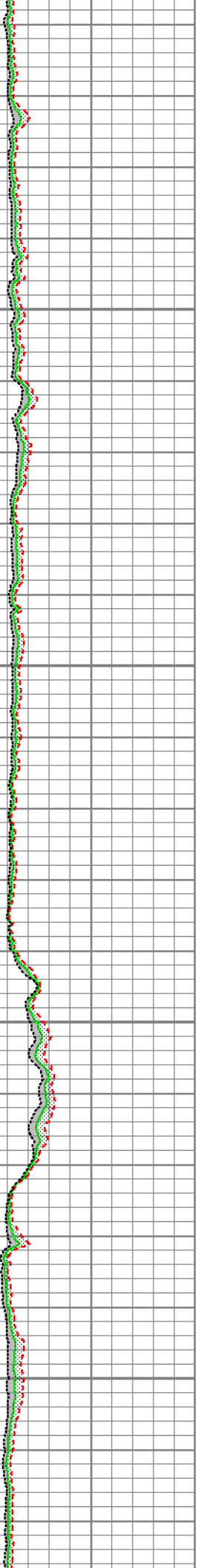
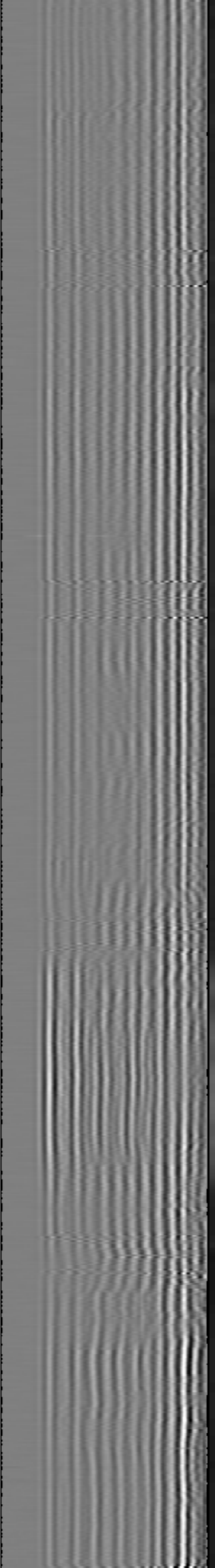
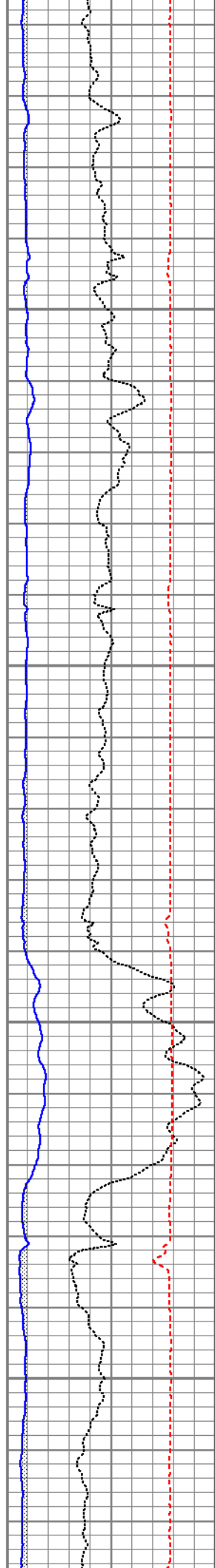


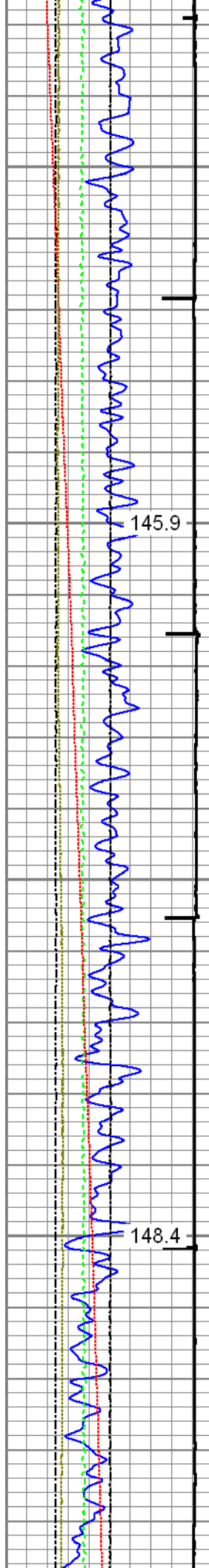




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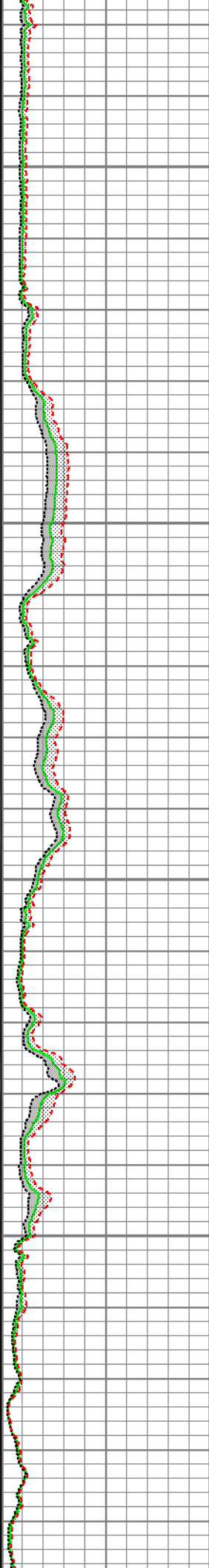
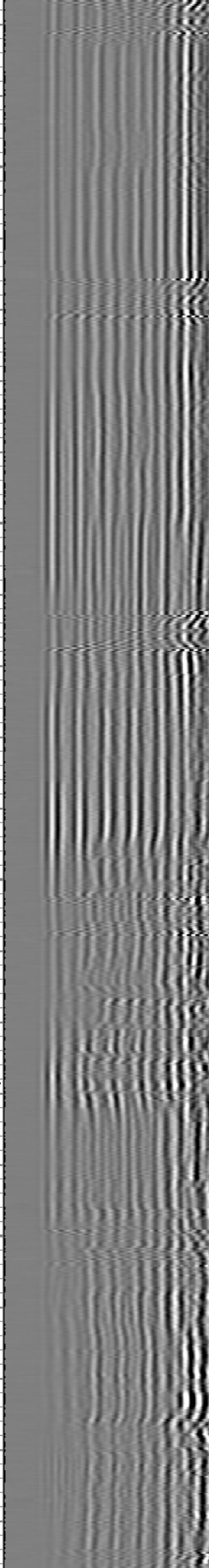
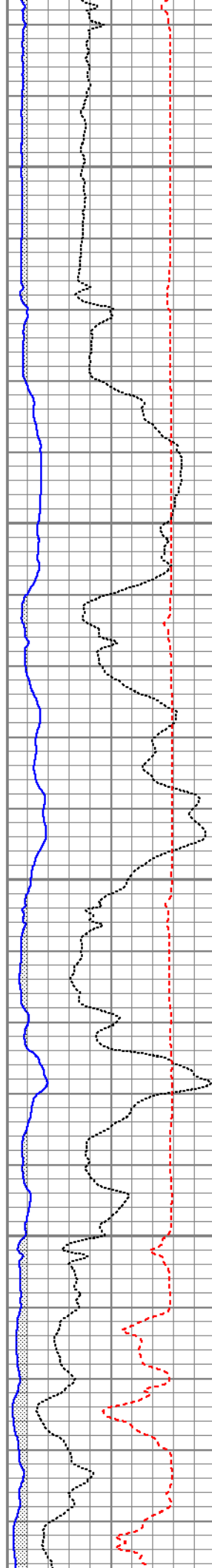
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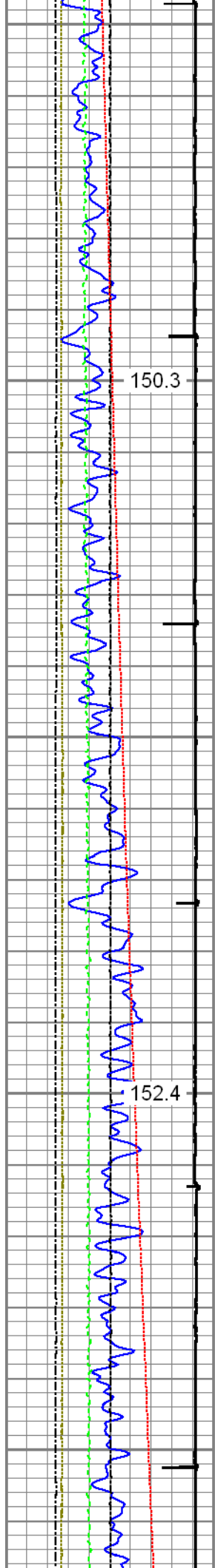




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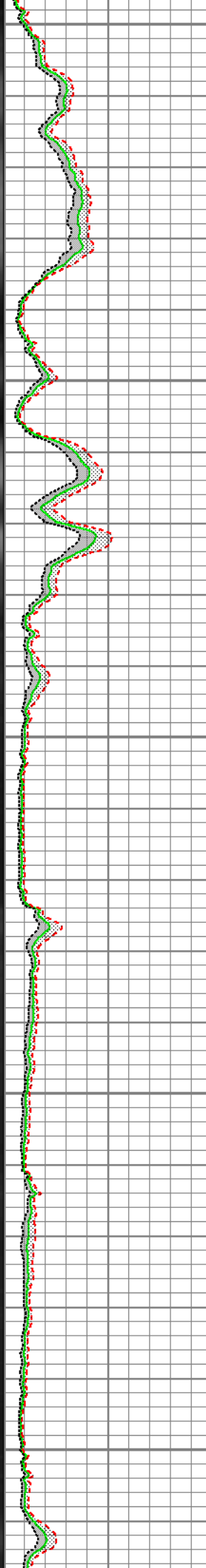
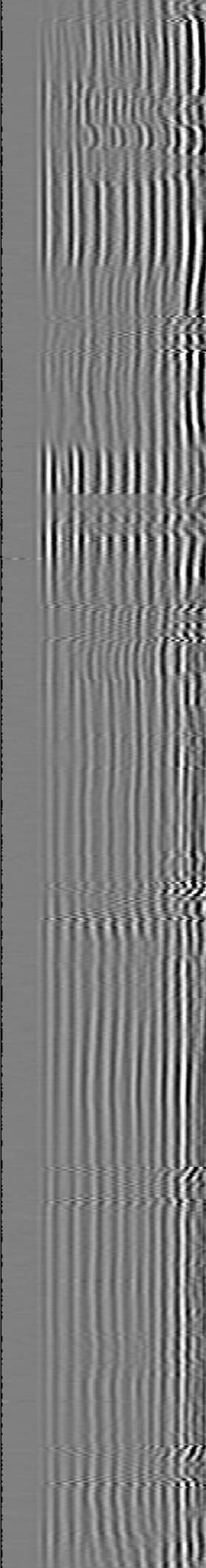
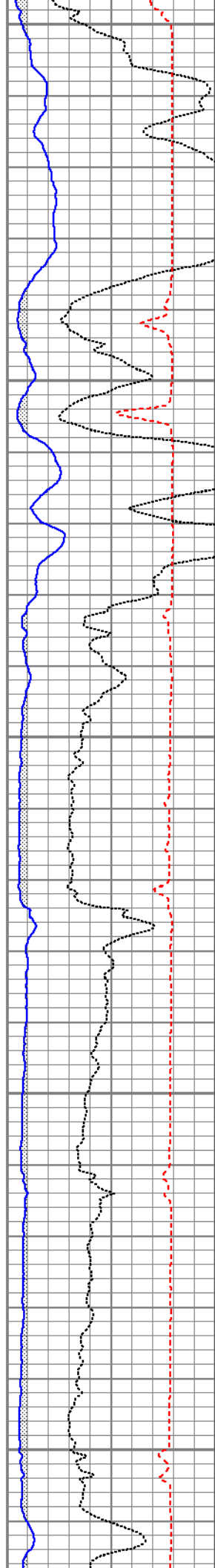
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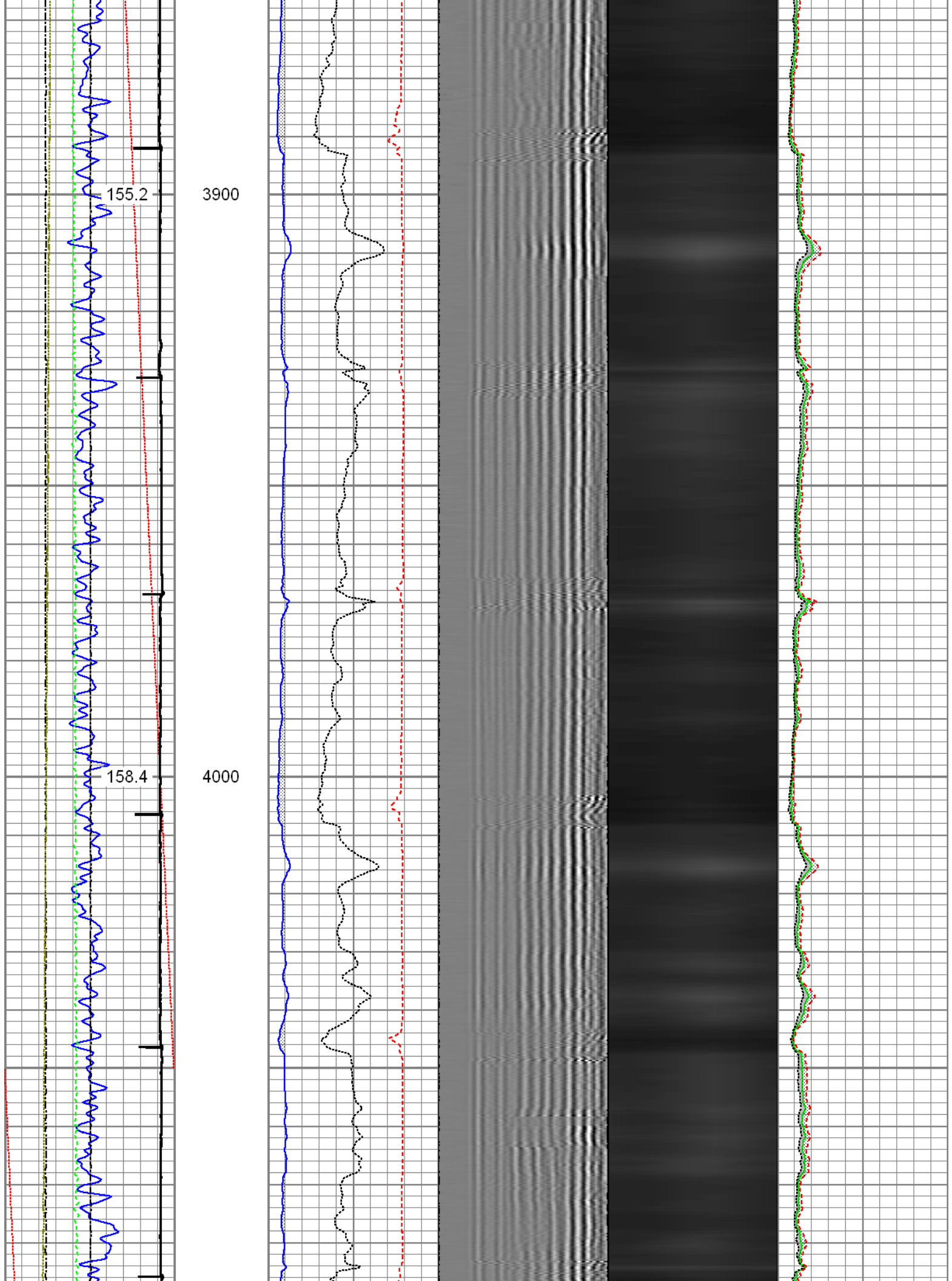


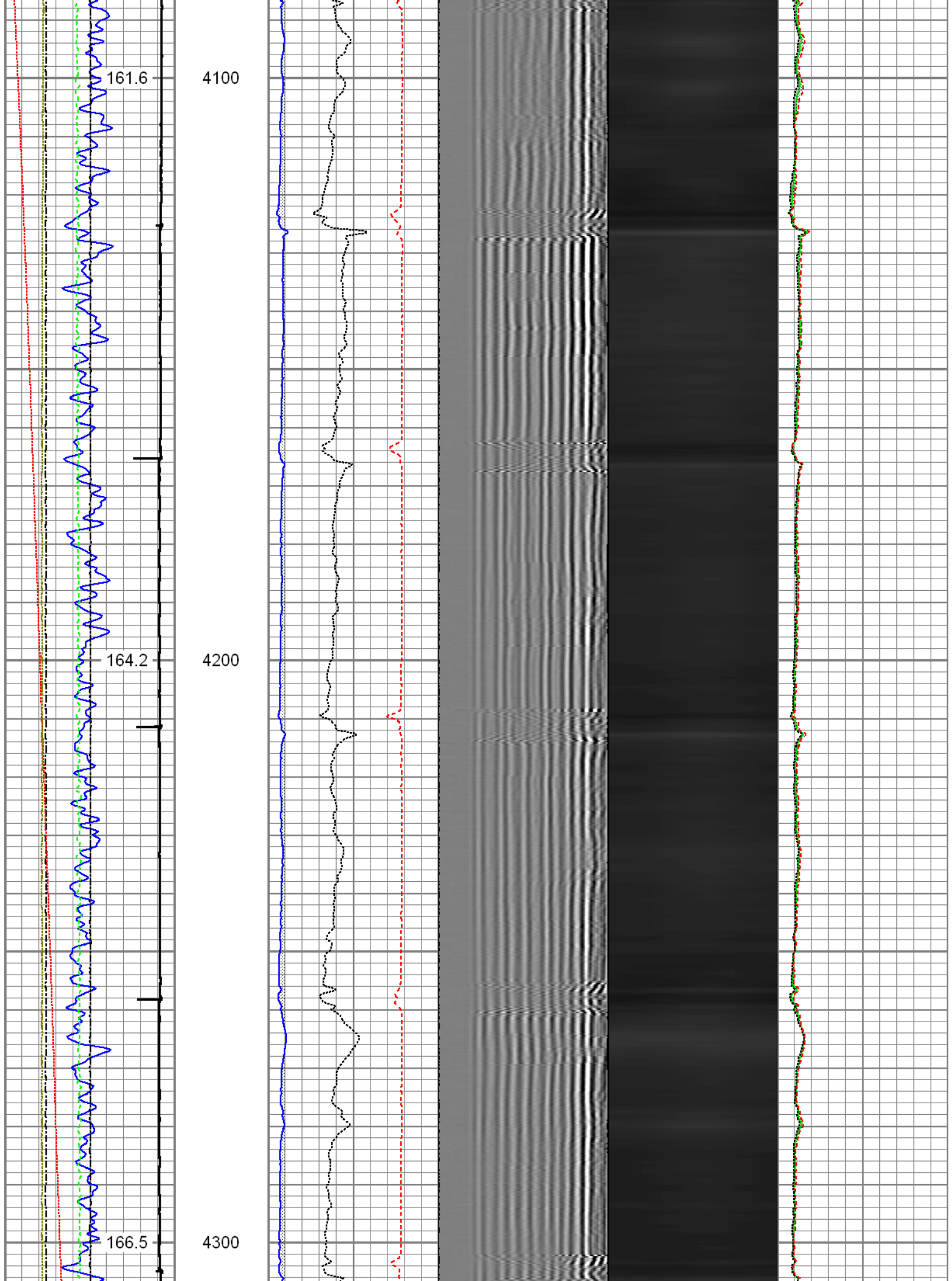


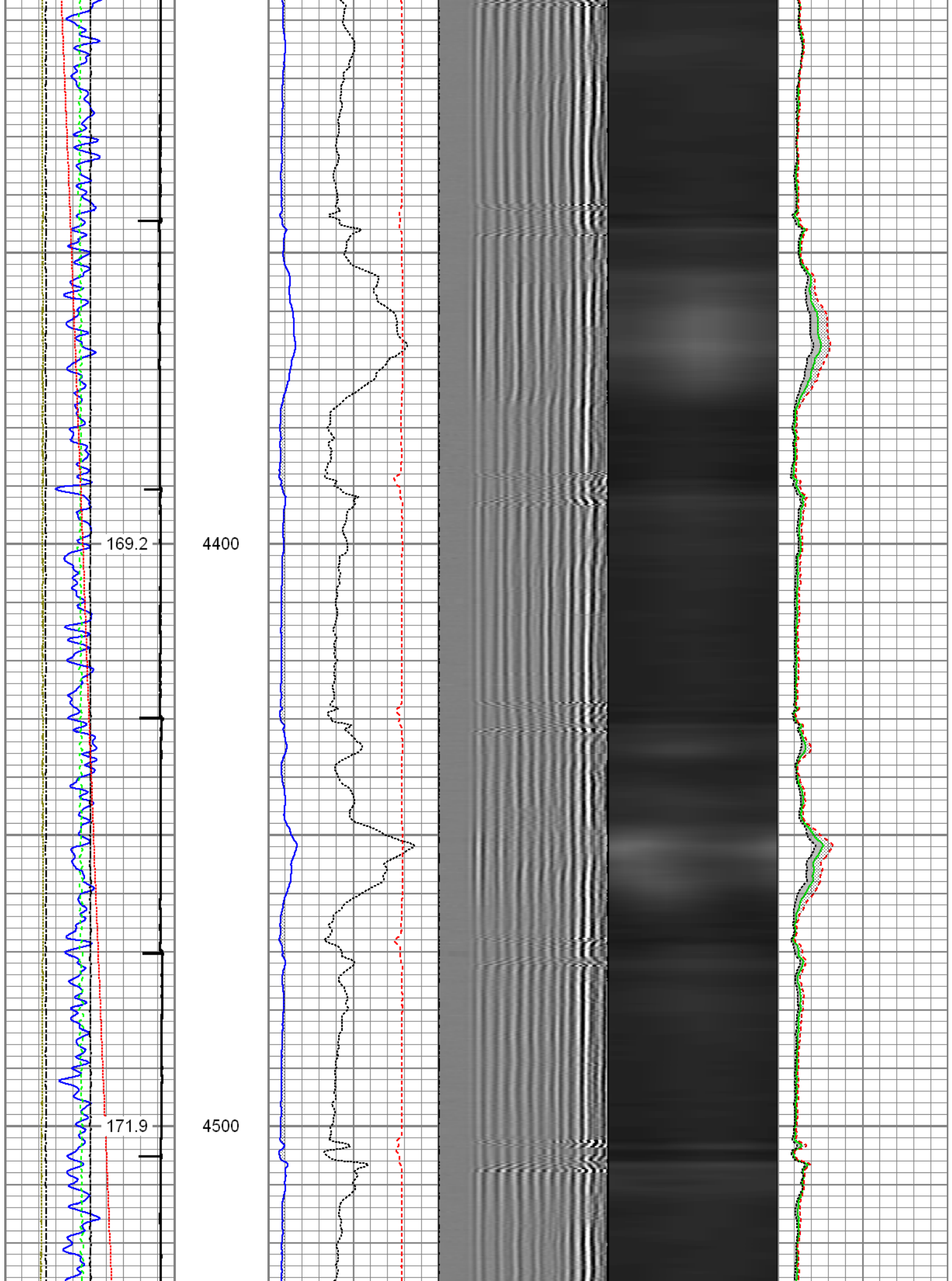
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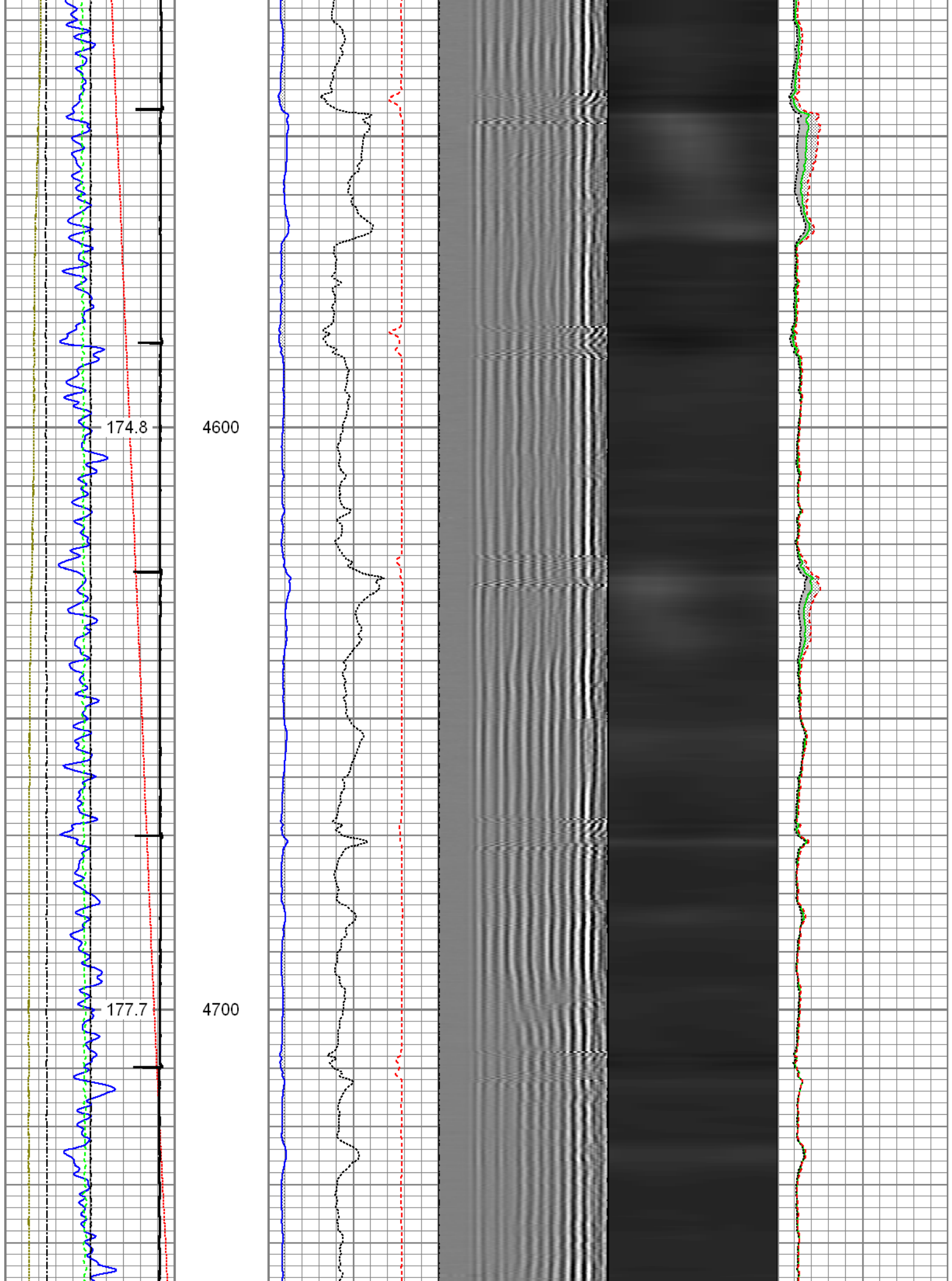
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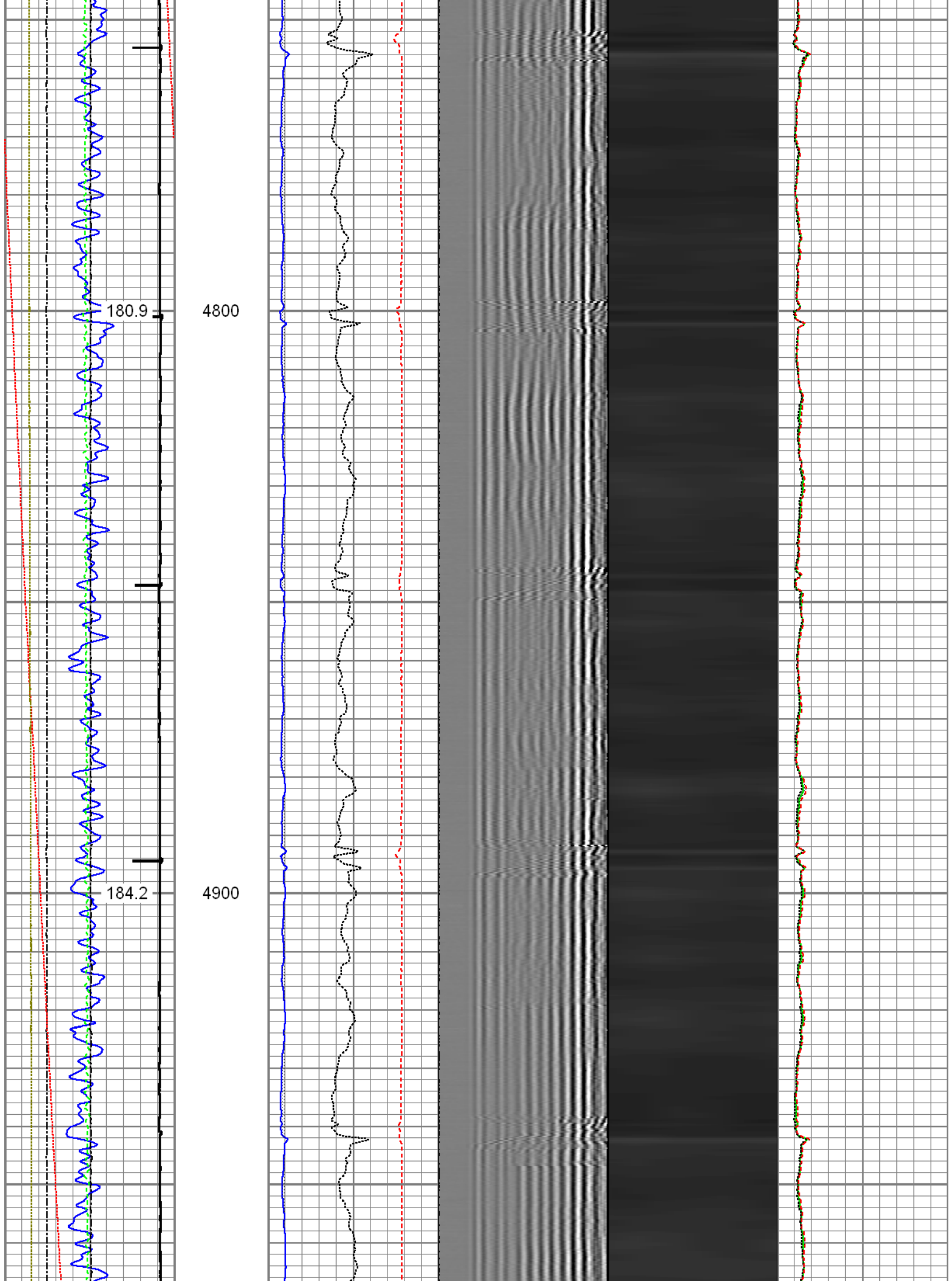


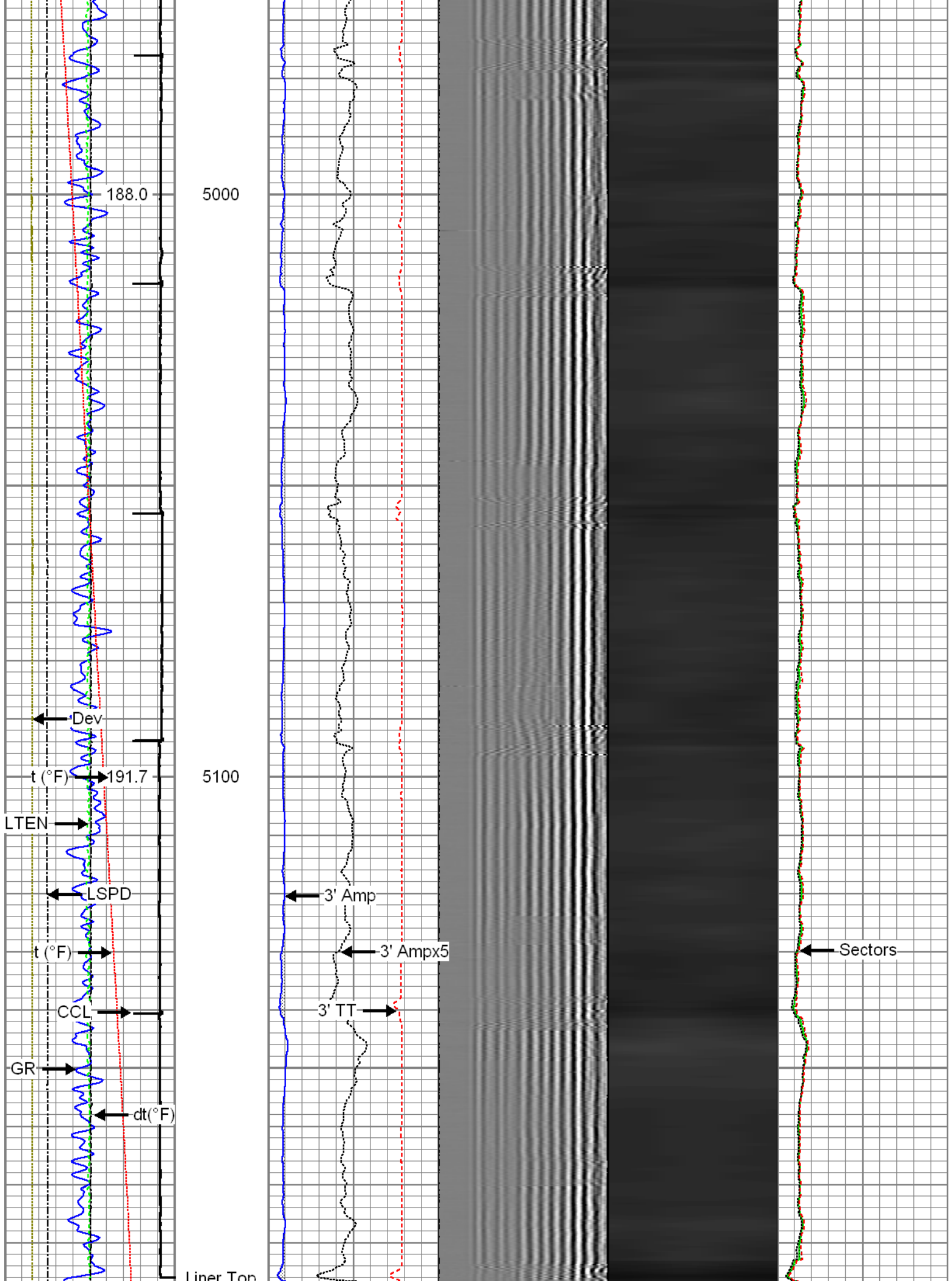




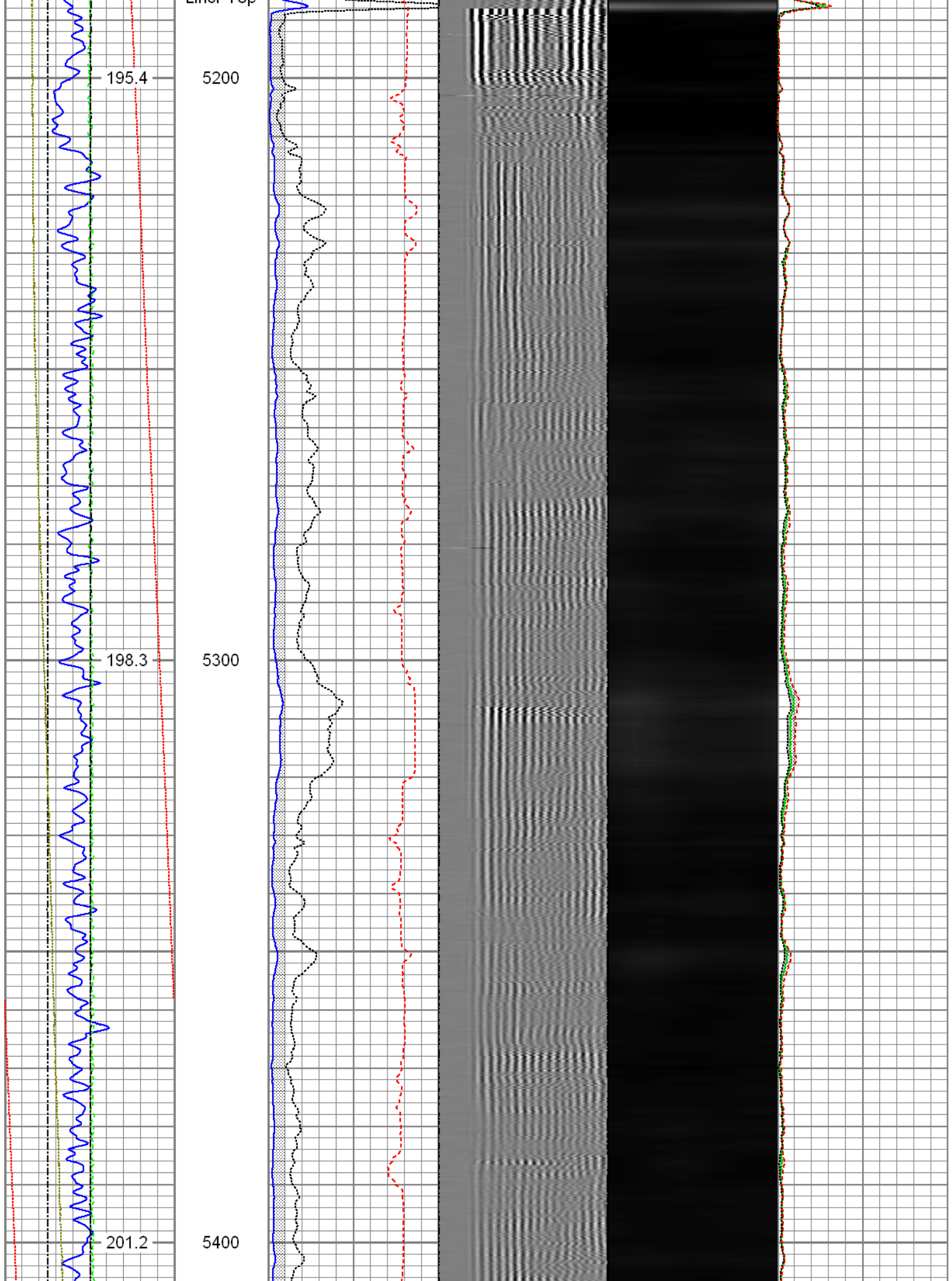


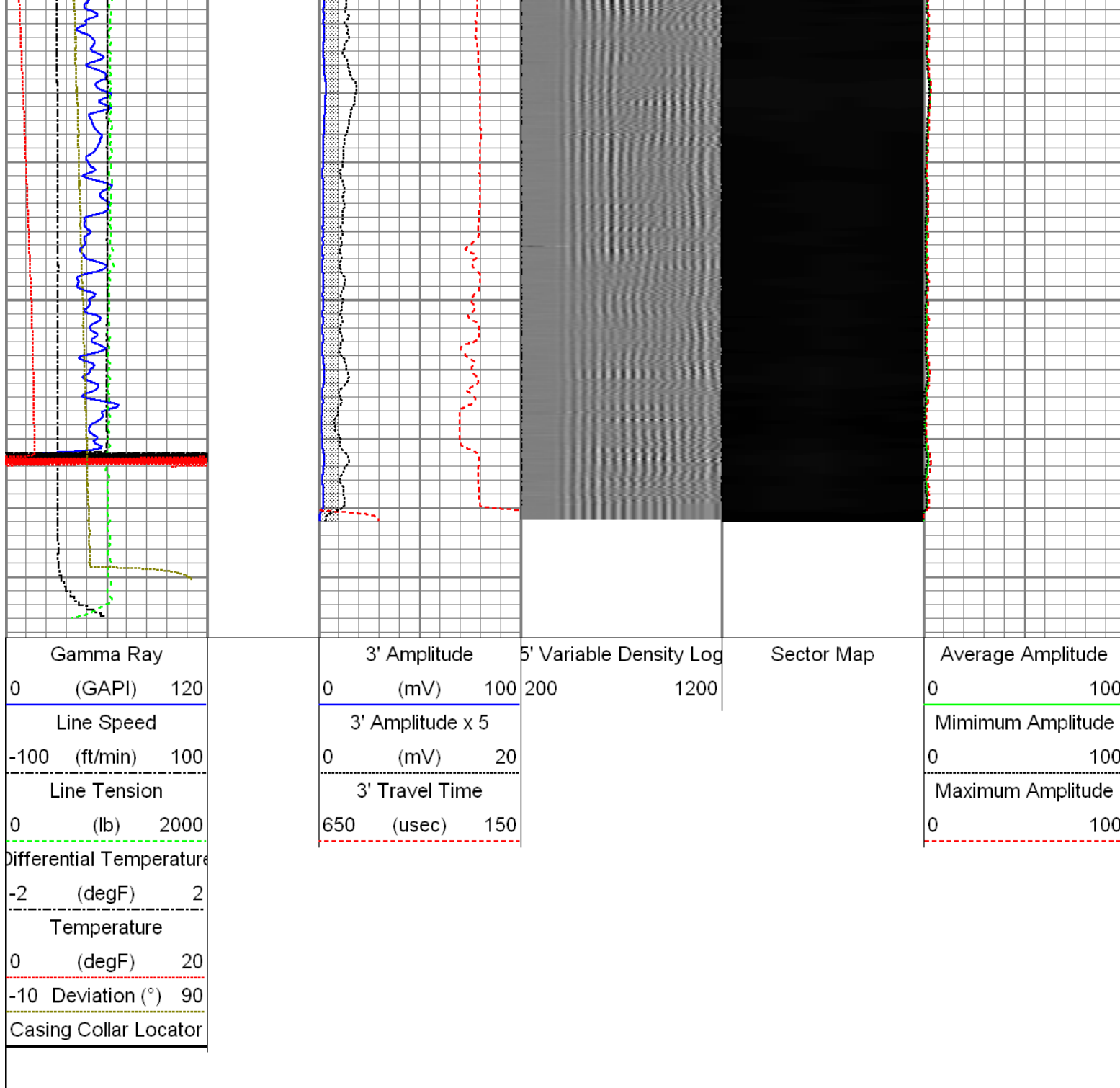







Error 10p







Repeat Pass

Recorded with 1500 PSI Surface Induced Pressure

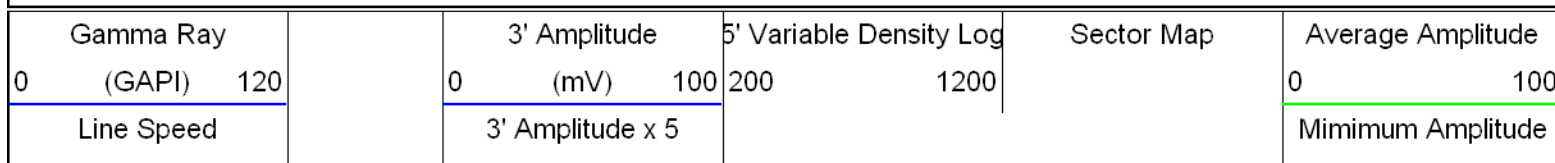
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Dataset Pathname: pass4

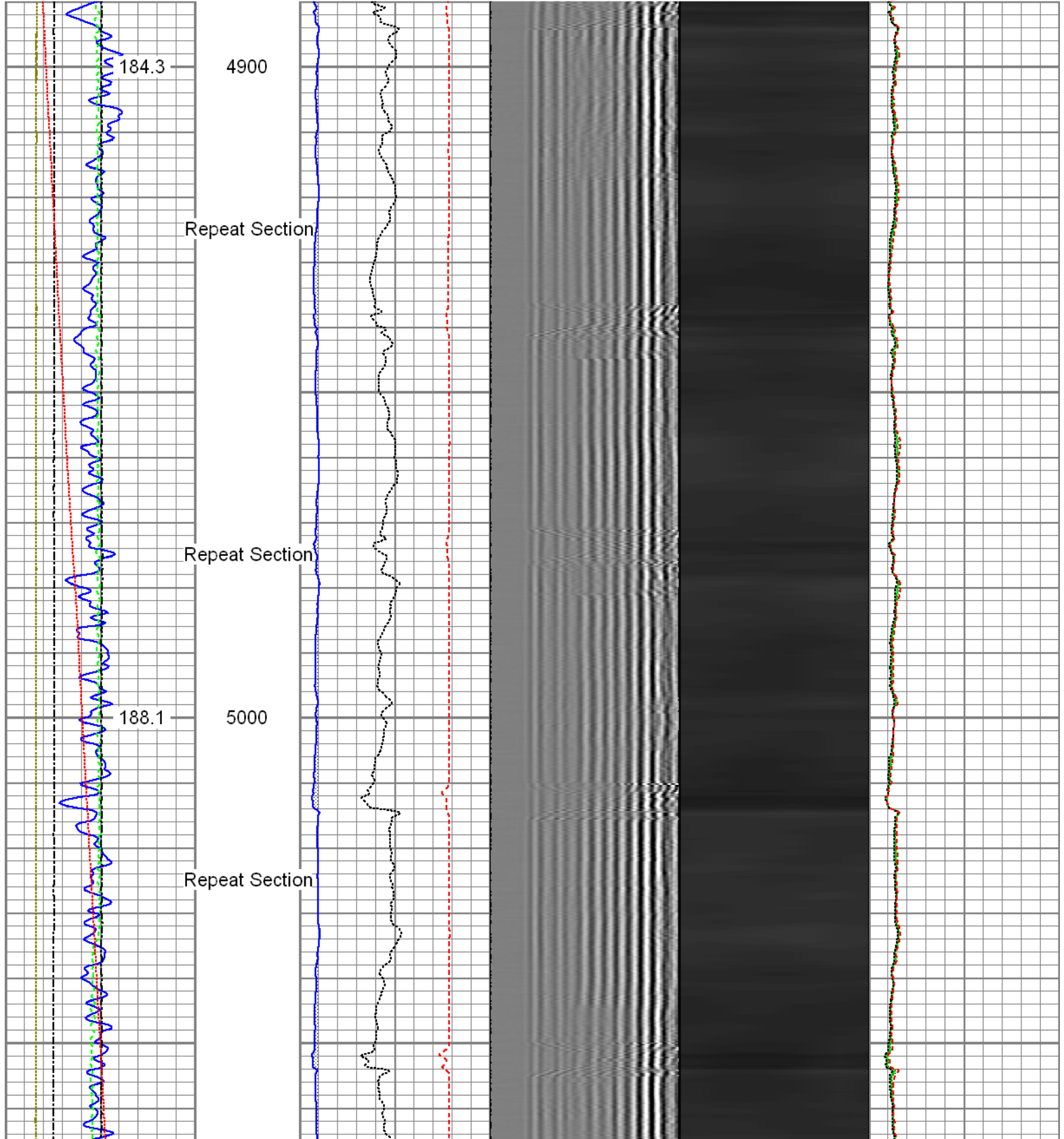
Presentation Format: rbt4_mit

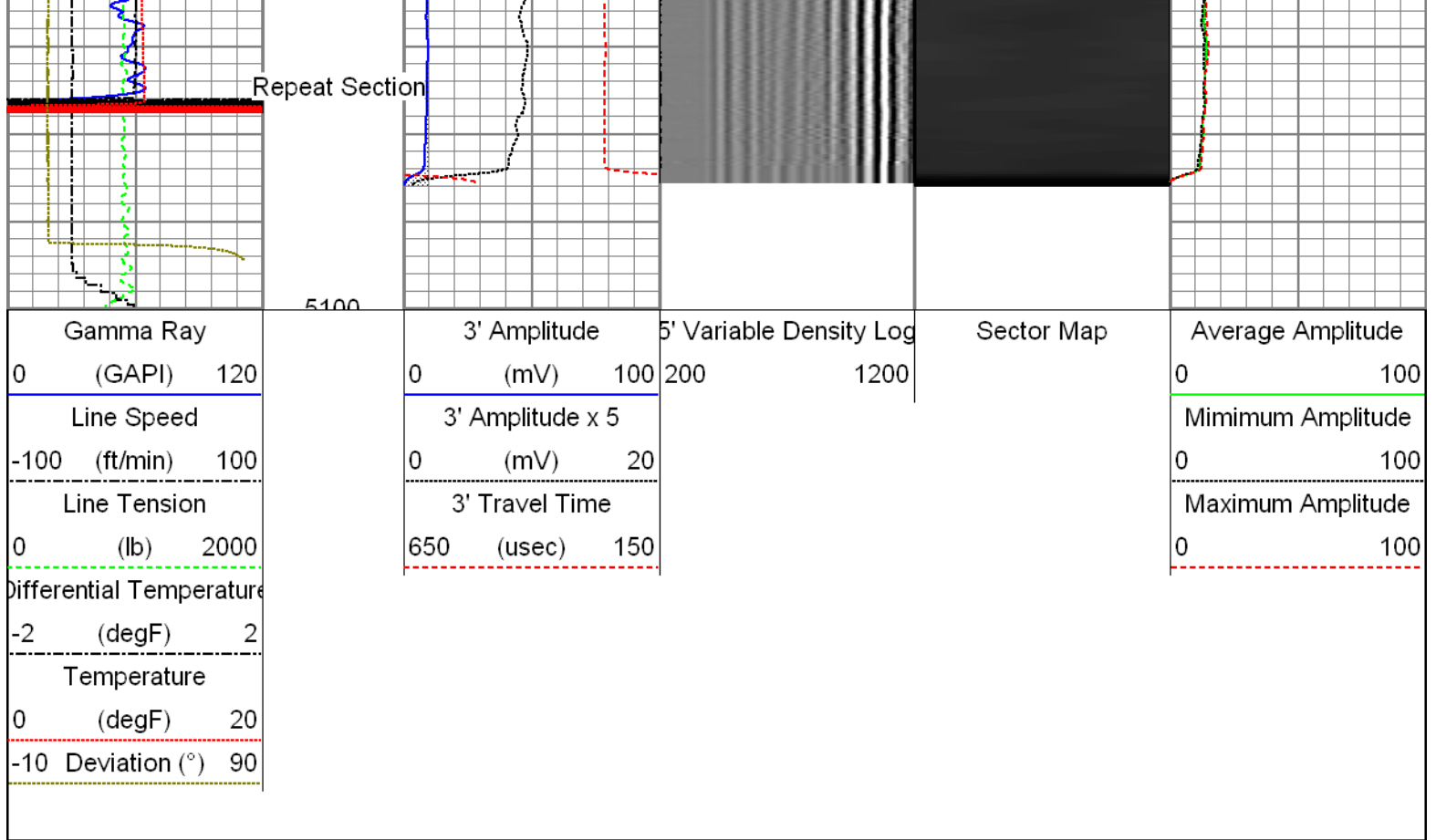
Dataset Creation: Wed Dec 16 09:42:48 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

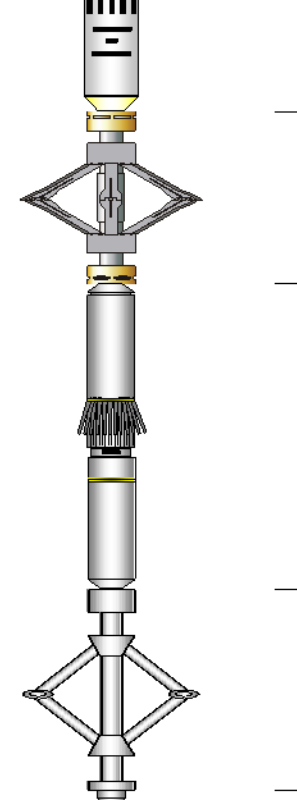


-100 (ft/min)	100	0 (mV)	20	0	100
Line Tension		3' Travel Time		Maximum Amplitude	
0 (lb)	2000	650 (usec)	150	0	100
Differential Temperature					
-2 (degF)	2				
Temperature					
0 (degF)	20				
-10 Deviation (°)	90				





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	
TEMP	22.45		UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20	
			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					
MIT	5.41		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			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
TSTAMP	0.00		UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 12-16-15_Whiting_Razor Federal 12F-1307A_MIT_RBL.db: field/well/run1/pass7 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report	
Database File:	C:\Warrior\Data\12-16-2015_Whiting_Razor Federal 12F-1307A_RBL_MIT\12-16-15_Whiting_Razor F
Dataset Pathname:	pass7
Dataset Creation:	Wed Dec 16 09:57:42 2015 by Log 7.0 B1

Multi-finger Imaging Tool Calibration Report
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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:				Wed Dec 16 07:56:01 2015			
Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1411	285.0	1696	295.0	1991	316.0	2307
Finger 02:	1468	278.0	1746	285.0	2031	299.0	2330
Finger 03:	1704	281.0	1985	278.0	2263	288.0	2551
Finger 04:	1675	276.0	1951	276.0	2227	280.0	2507

Finger 04:	1675	278.0	1931	278.0	2227	280.0	2307
Finger 05:	1564	260.0	1824	268.0	2092	281.0	2373
Finger 06:	1544	259.0	1803	256.0	2059	270.0	2329
Finger 07:	1379	286.0	1665	278.0	1943	308.0	2251
Finger 08:	1556	257.0	1813	256.0	2069	275.0	2344
Finger 09:	1440	273.0	1713	276.0	1989	297.0	2286
Finger 10:	1489	262.0	1751	270.0	2021	281.0	2302
Finger 11:	1489	260.0	1749	266.0	2015	277.0	2292
Finger 12:	1333	281.0	1614	294.0	1908	310.0	2218
Finger 13:	1611	277.0	1888	283.0	2171	289.0	2460
Finger 14:	1452	283.0	1735	294.0	2029	304.0	2333
Finger 15:	1543	262.0	1805	265.0	2070	246.0	2316
Finger 16:	1402	283.0	1685	293.0	1978	306.0	2284
Finger 17:	1639	273.0	1912	276.0	2188	280.0	2468
Finger 18:	1419	295.0	1714	306.0	2020	322.0	2342
Finger 19:	1651	258.0	1909	255.0	2164	259.0	2423
Finger 20:	1547	263.0	1810	274.0	2084	285.0	2369
Finger 21:	1601	250.0	1851	254.0	2105	263.0	2368
Finger 22:	1574	271.0	1845	282.0	2127	289.0	2416
Finger 23:	1374	274.0	1648	291.0	1939	303.0	2242
Finger 24:	1699	257.0	1956	268.0	2224	275.0	2499
Finger 25:	1393	292.0	1685	309.0	1994	324.0	2318
Finger 26:	1532	288.0	1820	296.0	2116	313.0	2429
Finger 27:	1458	270.0	1728	264.0	1992	291.0	2283
Finger 28:	1646	278.0	1924	281.0	2205	303.0	2508
Finger 29:	1480	272.0	1752	287.0	2039	306.0	2345
Finger 30:	1443	273.0	1716	285.0	2001	311.0	2312
Finger 31:	1530	265.0	1795	279.0	2074	294.0	2368
Finger 32:	1349	263.0	1612	281.0	1893	299.0	2192
Finger 33:	1629	298.0	1927	313.0	2240	319.0	2559
Finger 34:	1549	269.0	1818	278.0	2096	287.0	2383
Finger 35:	1440	269.0	1709	283.0	1992	294.0	2286
Finger 36:	1600	281.0	1881	285.0	2166	297.0	2463
Finger 37:	1605	273.0	1878	284.0	2162	296.0	2458
Finger 38:	1510	275.0	1785	286.0	2071	298.0	2369
Finger 39:	1469	281.0	1750	294.0	2044	309.0	2353
Finger 40:	1609	286.0	1895	294.0	2189	306.0	2495

Segmented Cement Bond Log Calibration Report

Serial Number:	10013454
Tool Model:	UW_RBT_004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	21.000 ft

Master Calibration, performed Wed Dec 16 07:52:05 2015:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3FT	0.000	0.780	0.800	62.165	78.632	0.800	
5FT	-0.002	0.746	0.800	62.165	81.986	1.003	
S1	0.000	0.759	0.000	100.000	131.881	-0.055	
S2	-0.001	0.784	0.000	100.000	127.415	0.137	
S3	-0.000	0.795	0.000	100.000	125.781	0.012	
S4	-0.000	0.804	0.000	100.000	124.248	0.049	
S5	0.000	0.792	0.000	100.000	126.219	0.000	
S6	-0.000	0.773	0.000	100.000	129.342	0.036	
S7	0.000	0.748	0.000	100.000	133.629	0.000	
S8	0.000	0.745	0.000	100.000	134.199	-0.003	

Temperature Calibration Report

Serial Number:	10025100
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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-1307A
Field Wildcat
County Weld
State Colorado