



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Whiting Oil & Gas Corporation		Company Whiting Oil & Gas Corporation	
Well Razor Federal 12F-1301A		Well Razor Federal 12F-1301A	
Field Wildcat		Field Wildcat	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API # : 05-123-38709	
SEC 12 TWP 10N RGE 58W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
		Elevation 4937'	
		Elevation	
		K.B. 4958'	
		D.F. 4957'	
		G.L. 4937'	
Date		17-Dec-2015	
Run Number		One	
Depth Driller		14150 FT	
Depth Logger		5694 FT	
Bottom Logged Interval		5694 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbs/gal	
Max. Recorded Temp.		203°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		13:00	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		W.Wacker	
Witnessed By		K. Lewis	
Borehole Record			
Tubing Record			
Run Number		To	
Bit		From	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lbs/ft)	
Intermediate #1		Grade	
Intermediate #2		Top	
Liner		Bottom	
4 1/2		11.6	
HCP-110		5528 FT	
		14145 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 Tie Back Extension at 5528 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.

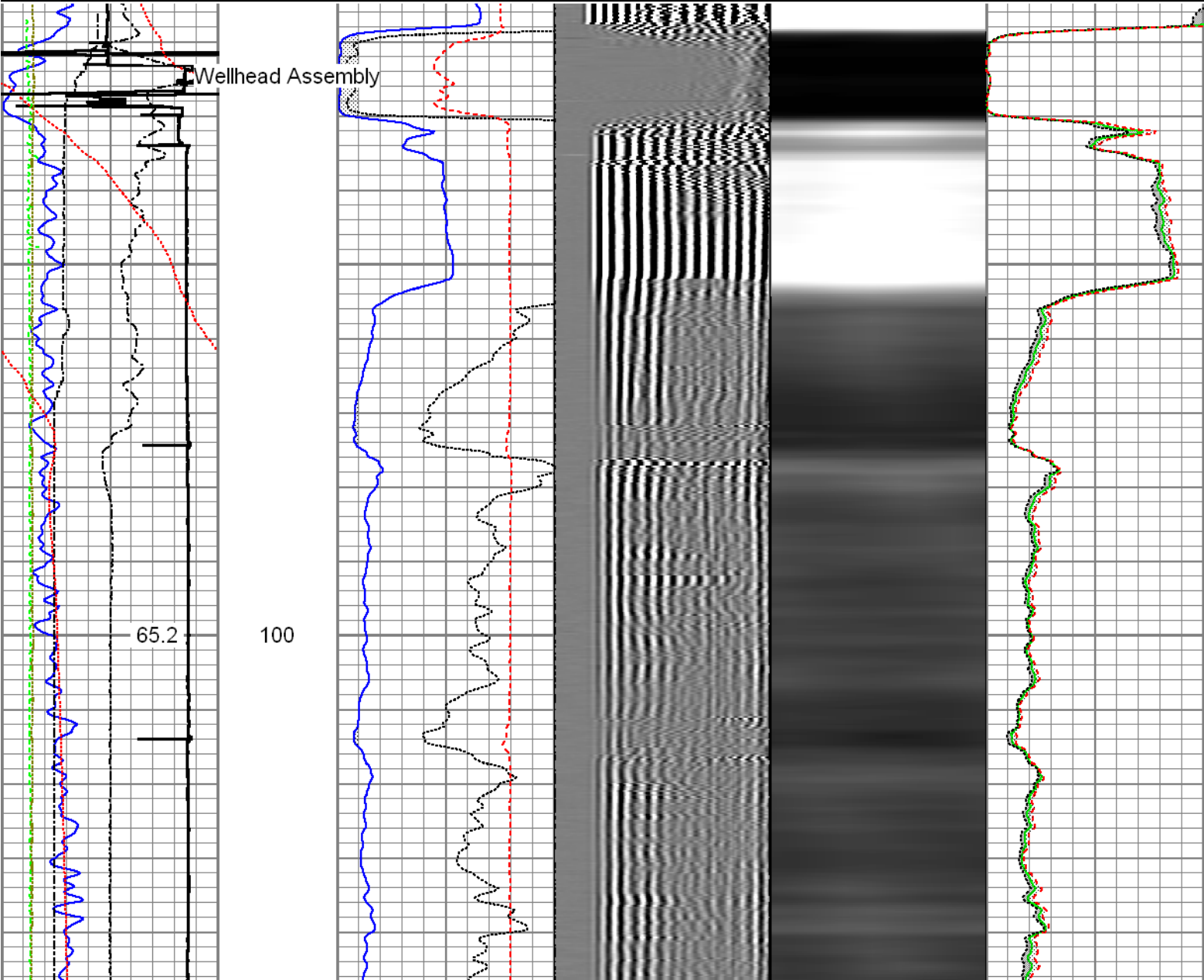


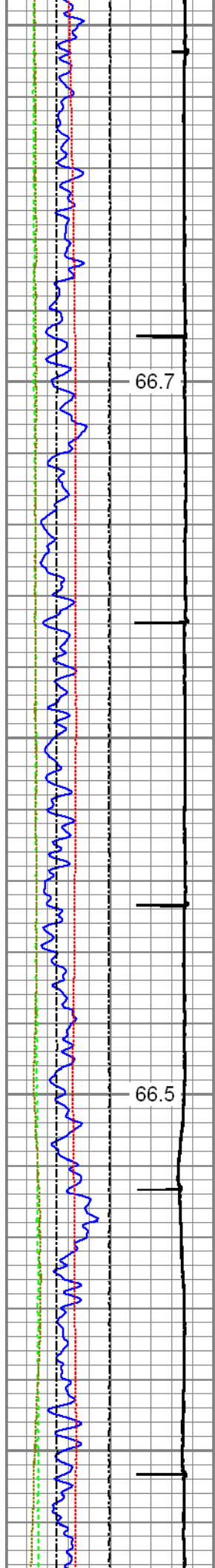
Main Pass

Recorded With 1500 PSI Surfaced Induced Pressure

Database File: 12-17-15_whiting_razor federal 12f-1301a_mit_rbl.db
Dataset Pathname: main
Presentation Format: rbt4_mit
Dataset Creation: Thu Dec 17 13:03:17 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

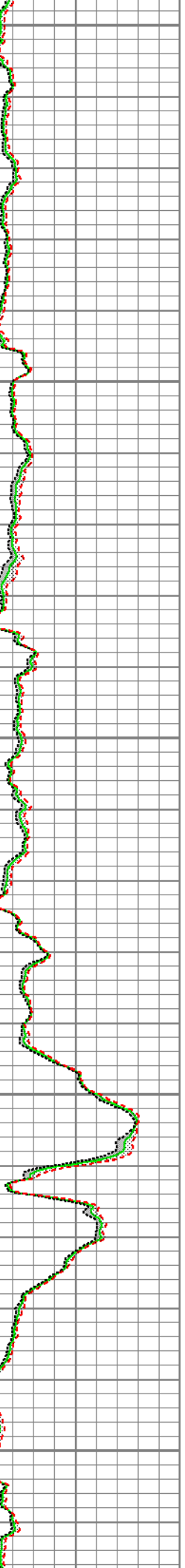
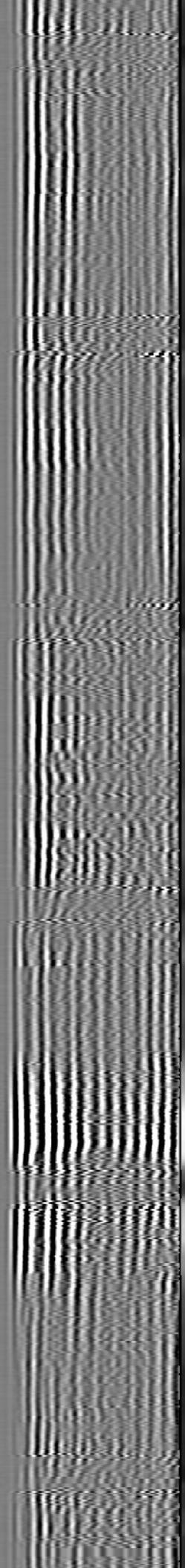
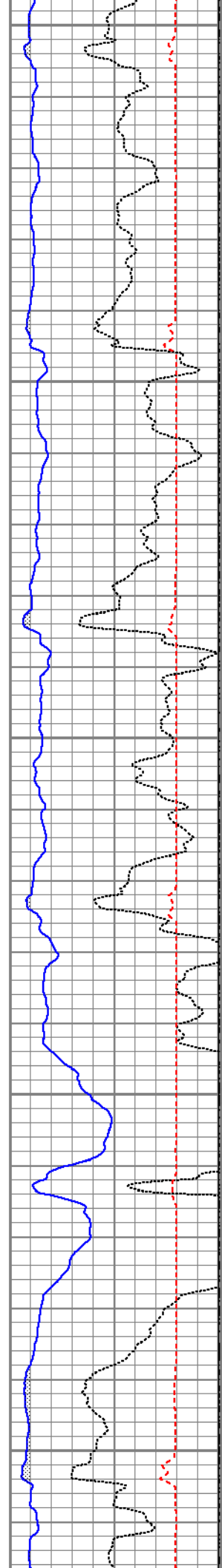
Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Casing Collar Locator	3' Amplitude x 5 0 (mV) 20			Minimum Amplitude 0 100
Line Speed -100 (ft/min) 100	3' Travel Time 650 (usec) 150			Maximum Amplitude 0 100
Line Tension 0 (lb) 2000	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

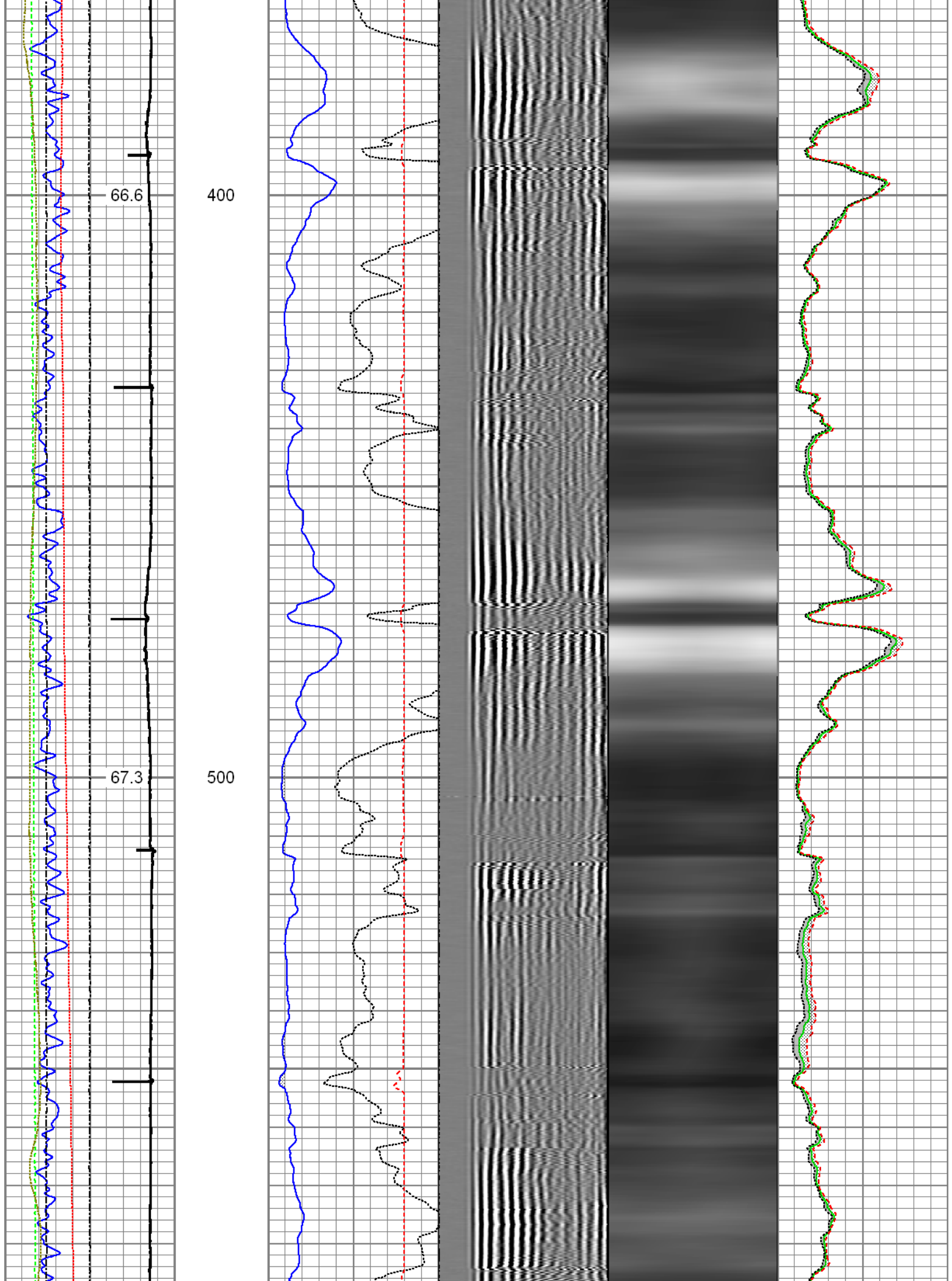


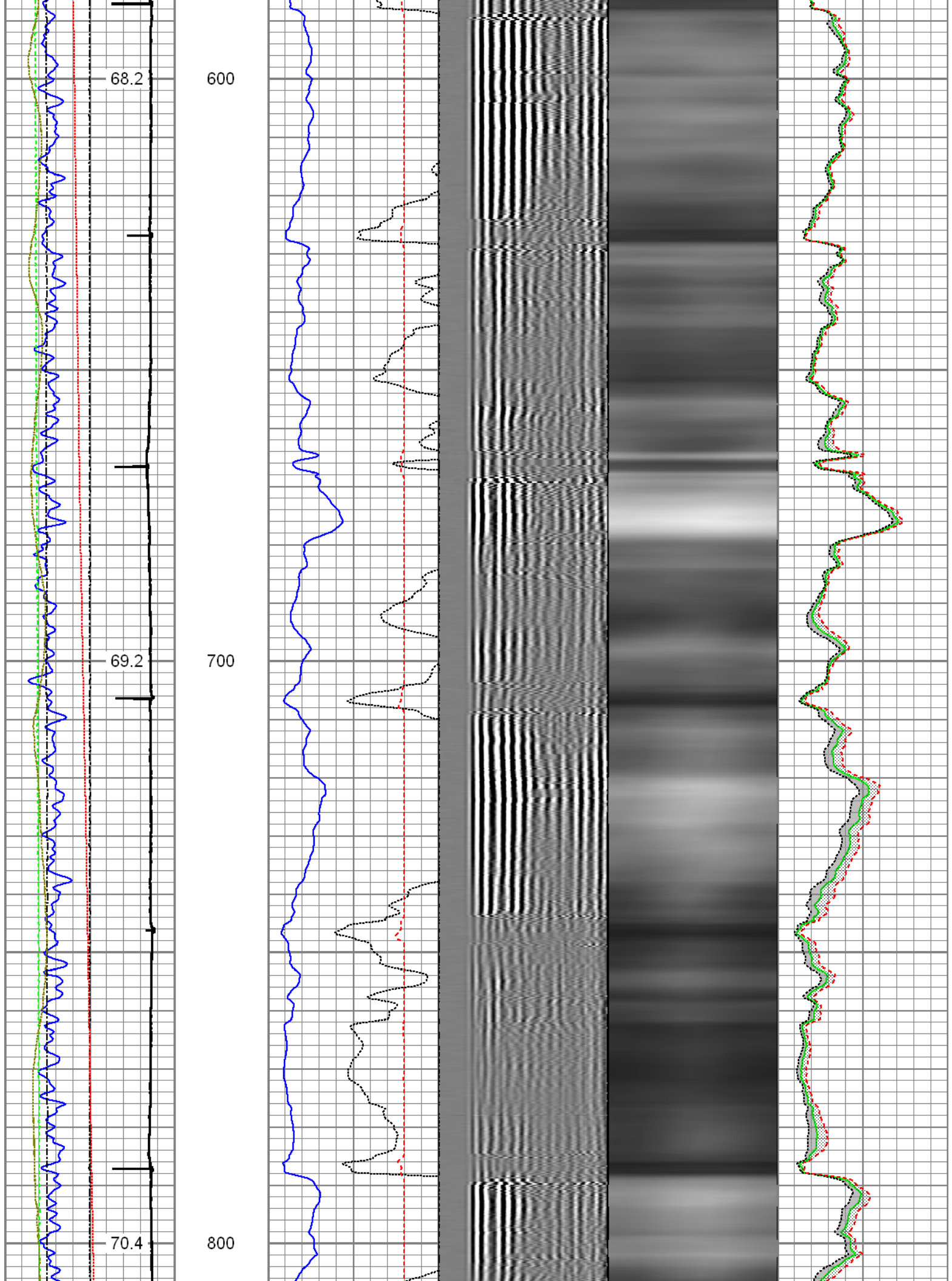


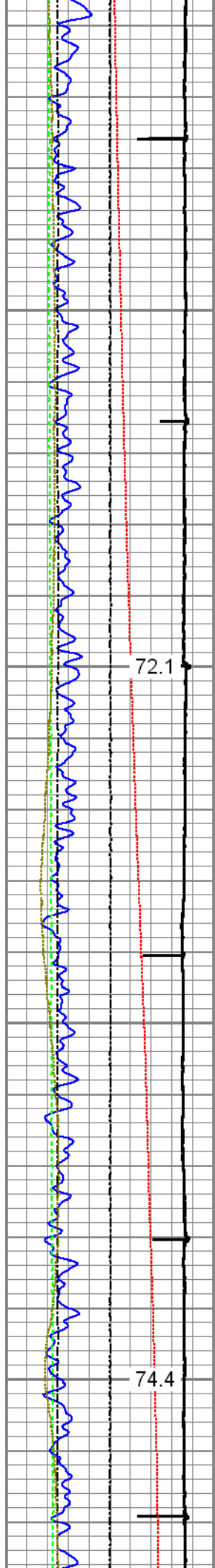
200

300







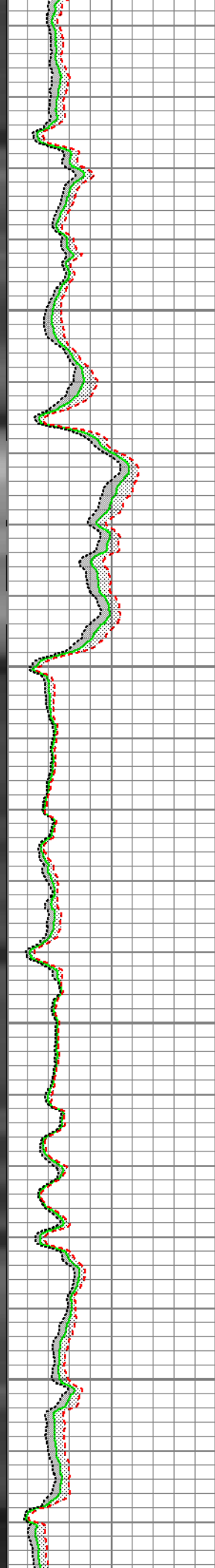
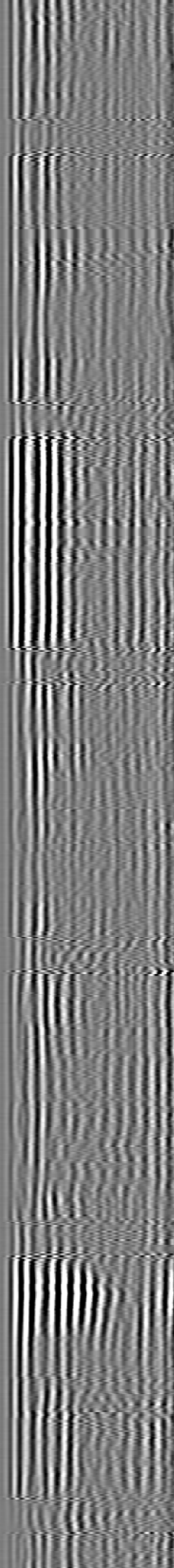
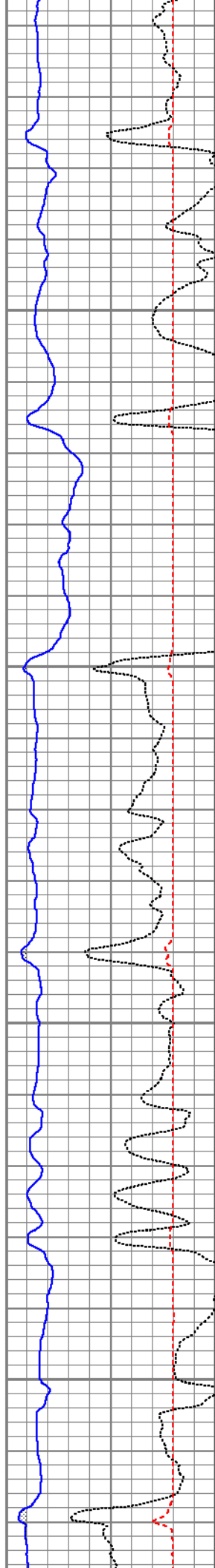


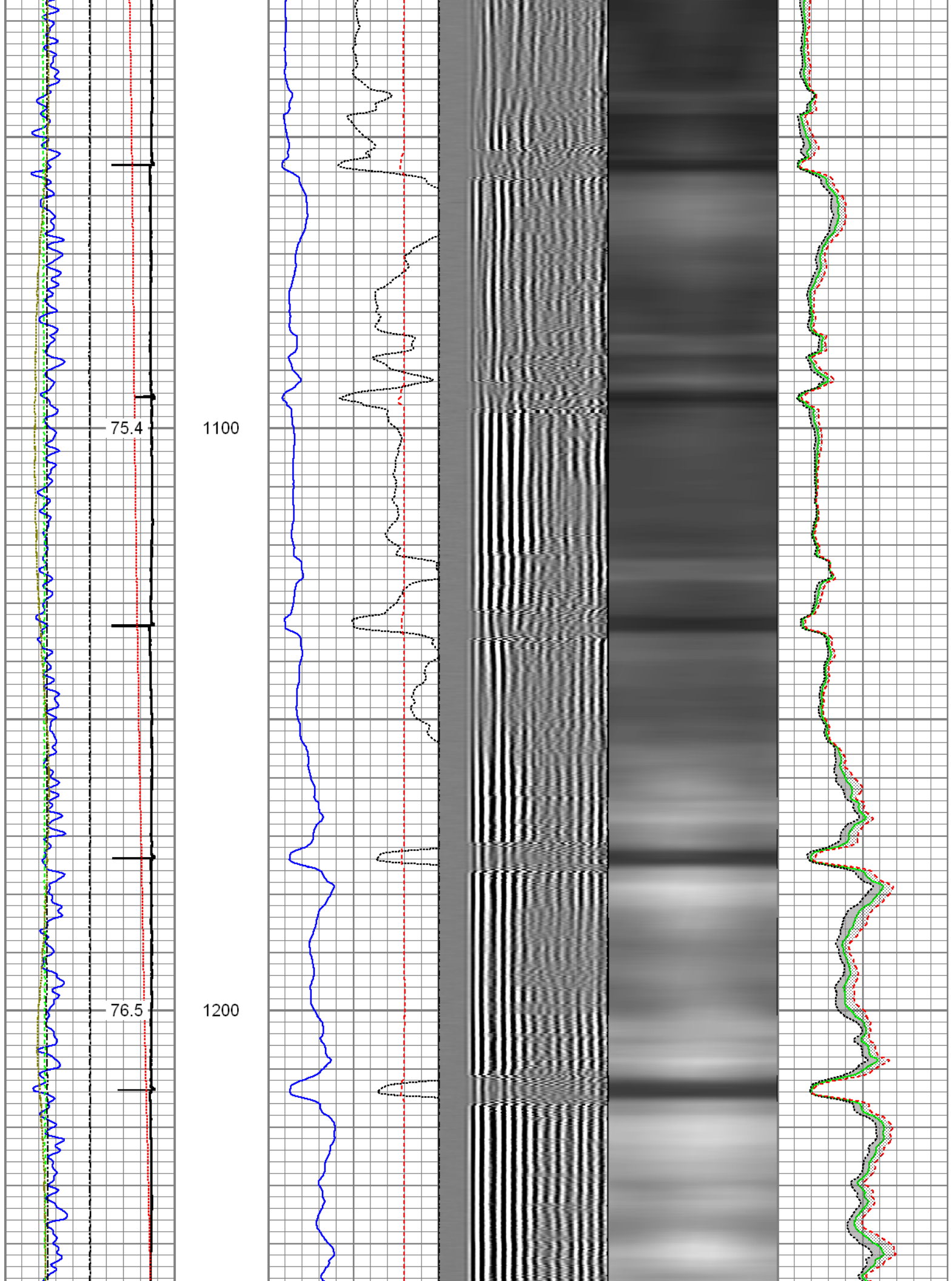
72.1

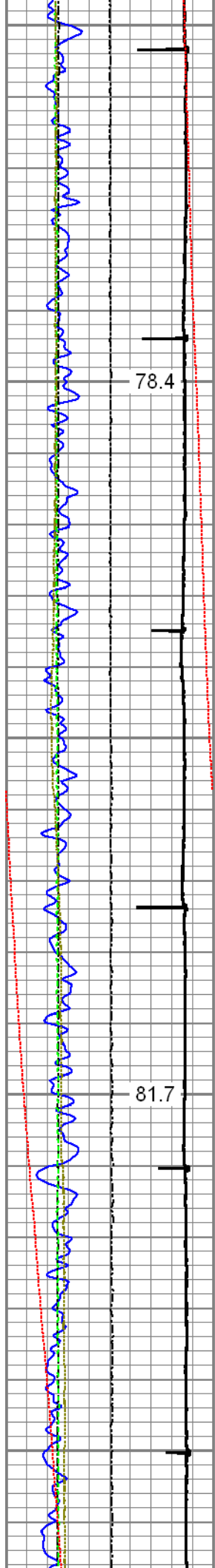
900

74.4

1000

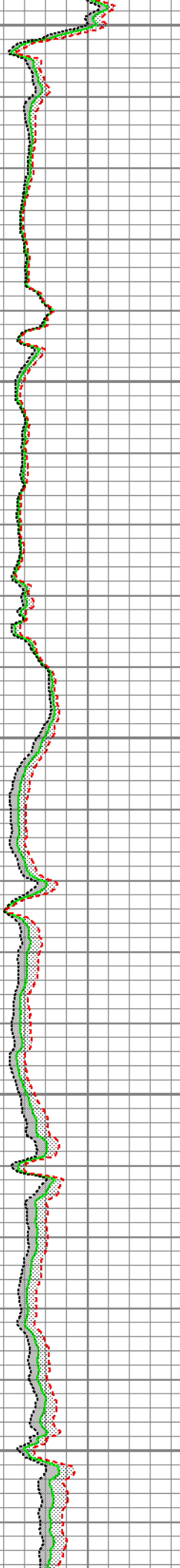
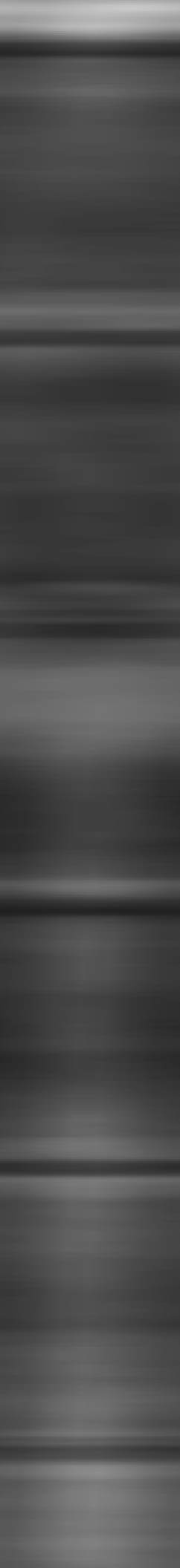
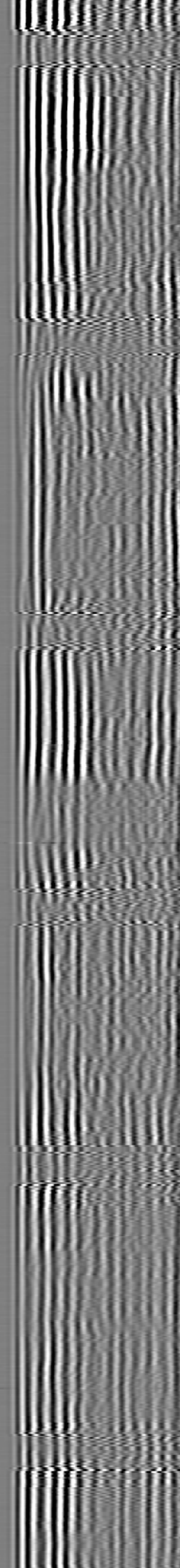
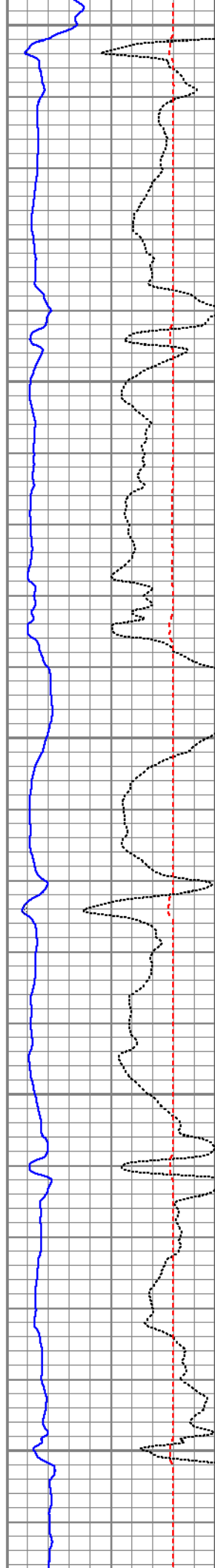


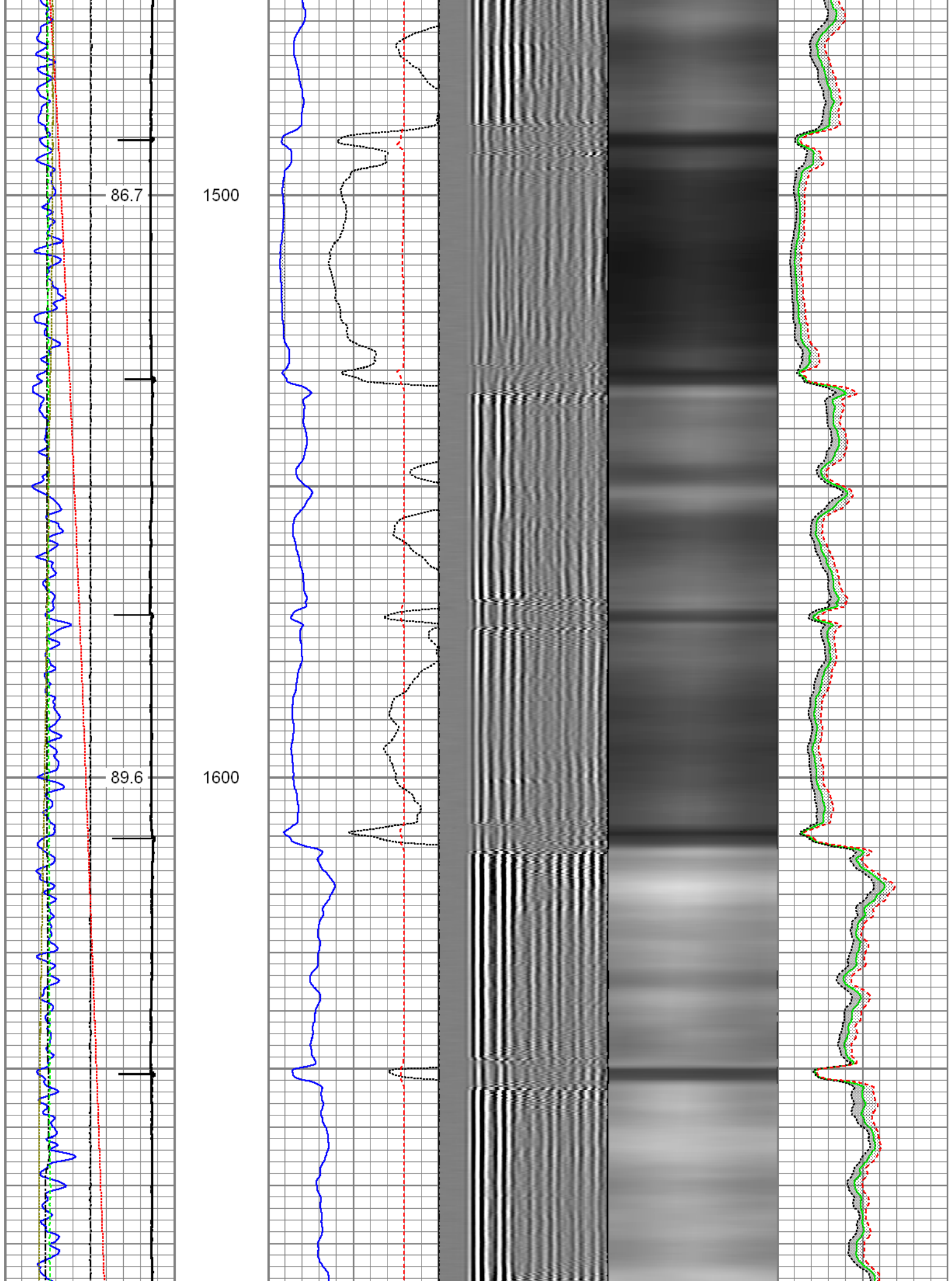


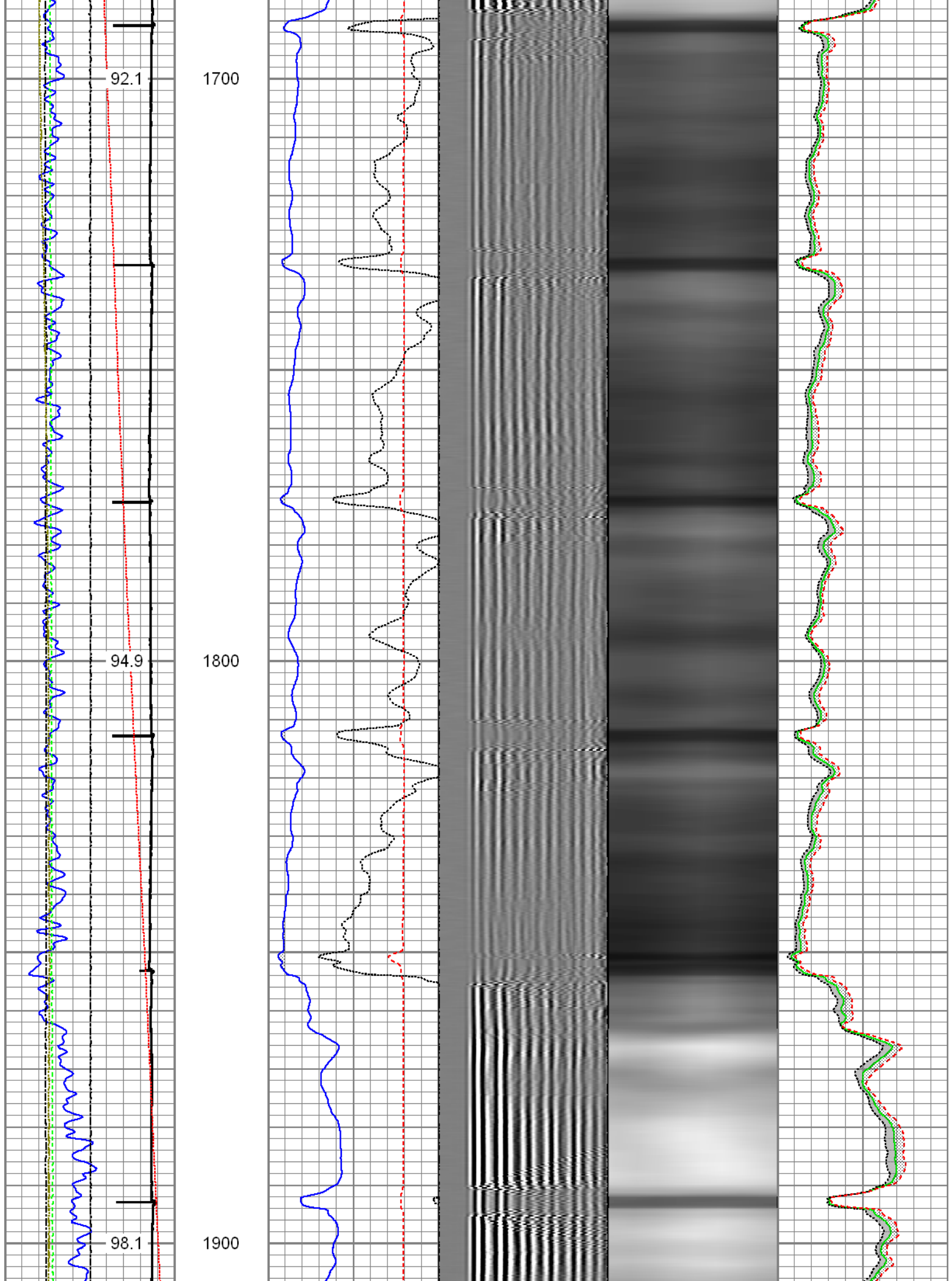


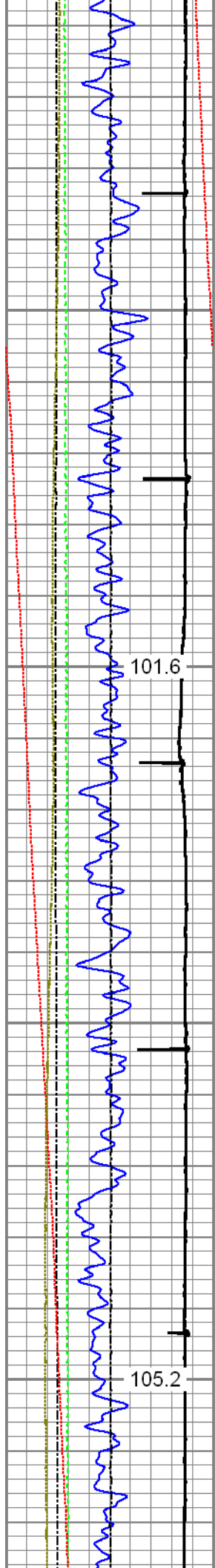
1300

1400



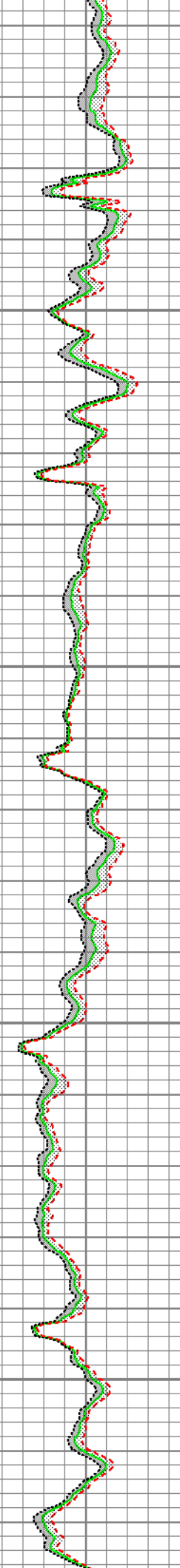
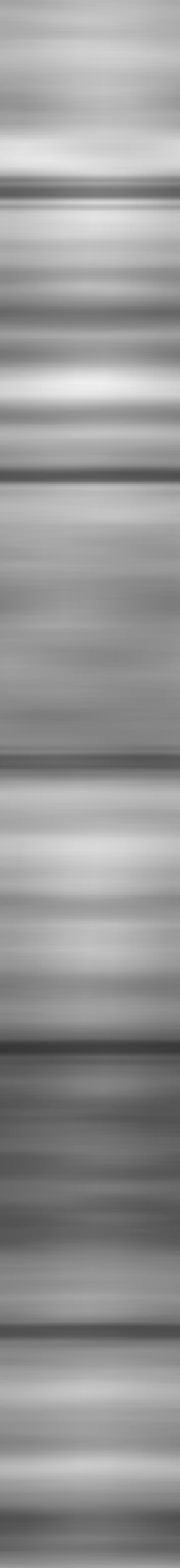
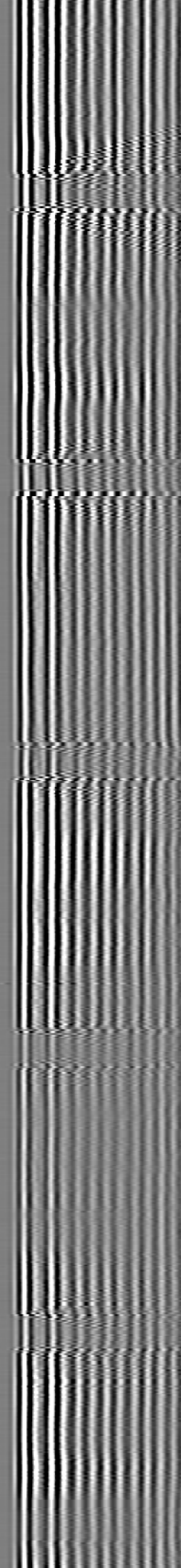
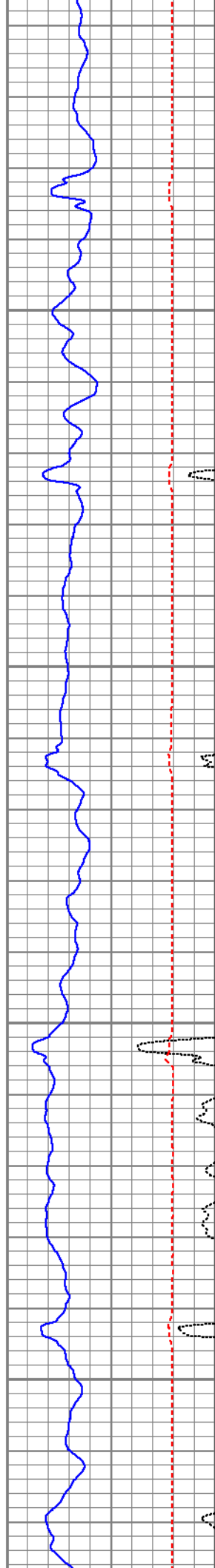


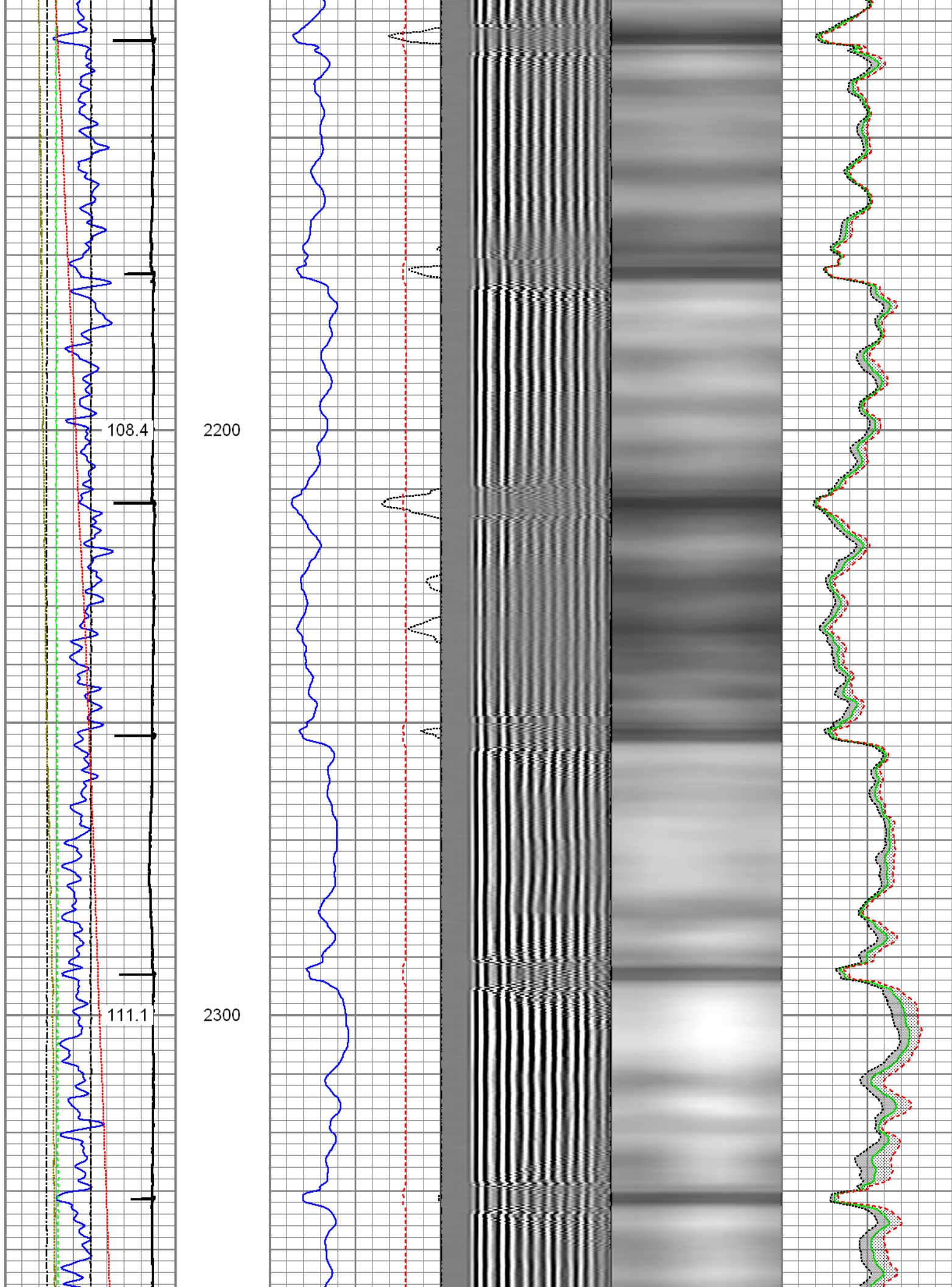


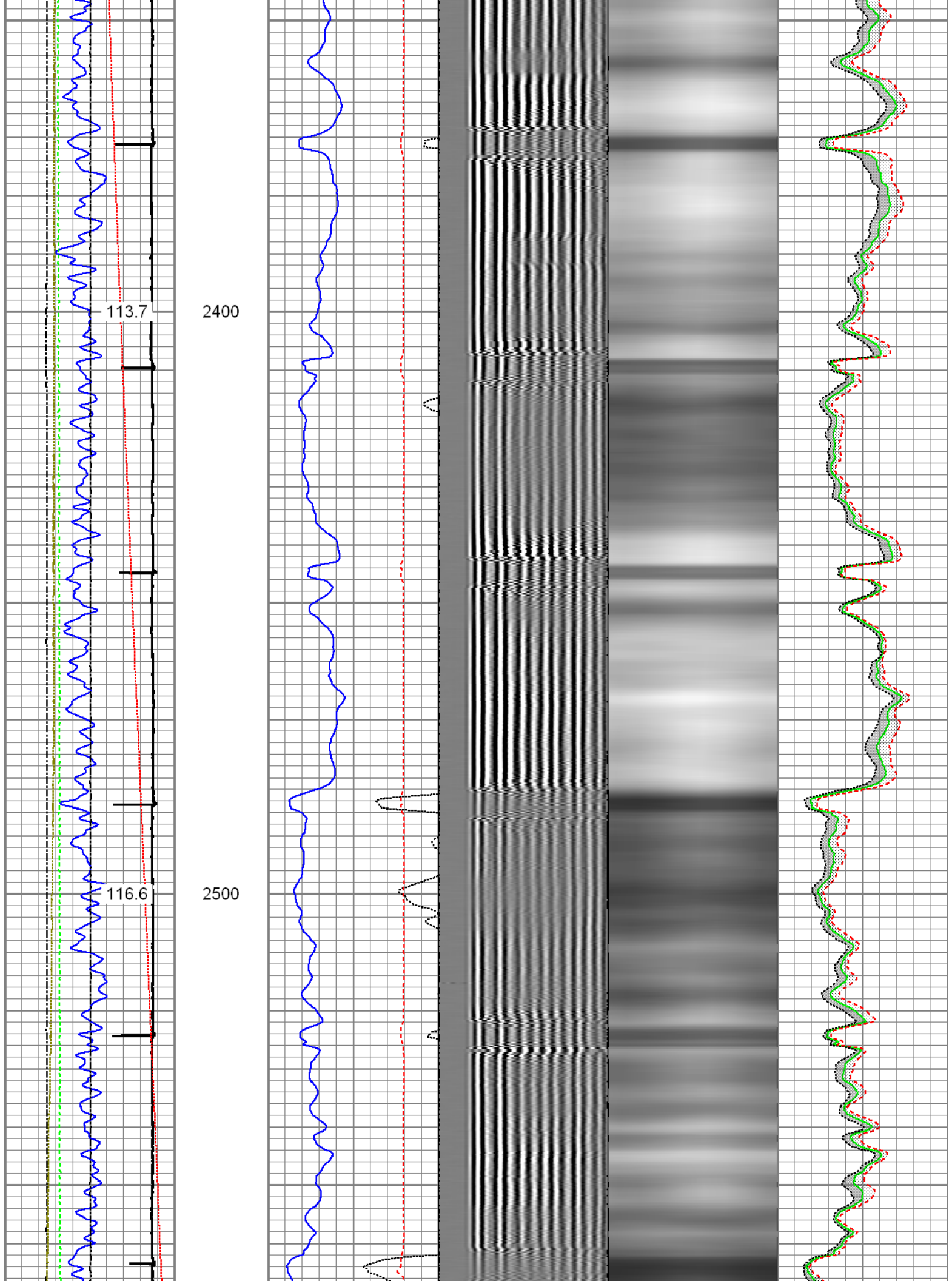


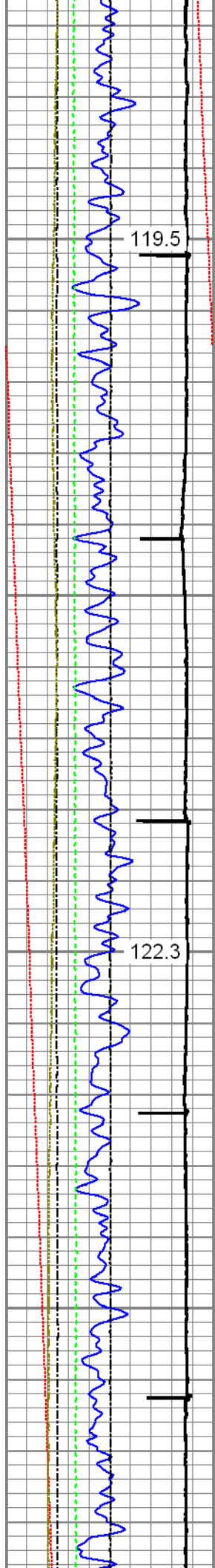
2000

2100



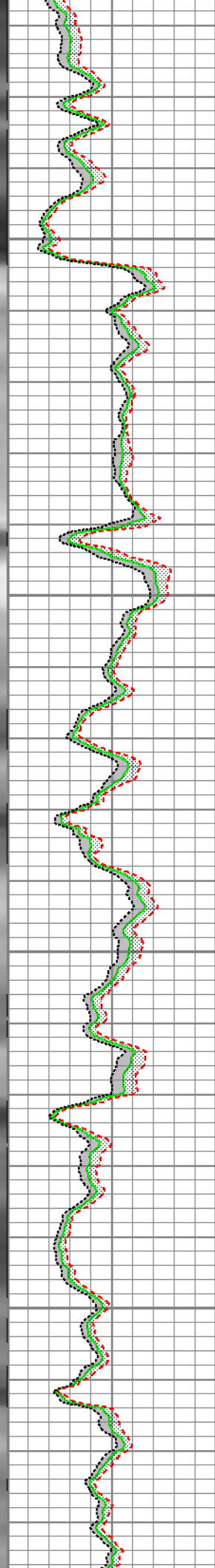
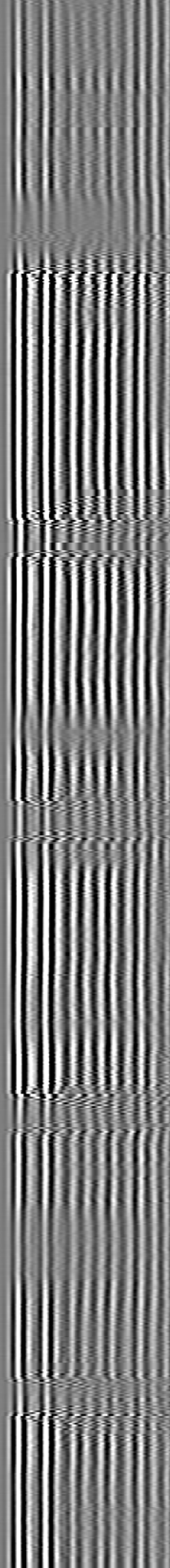
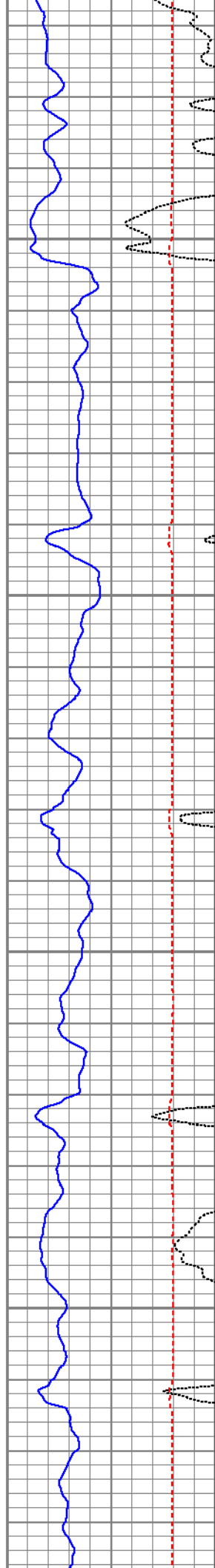


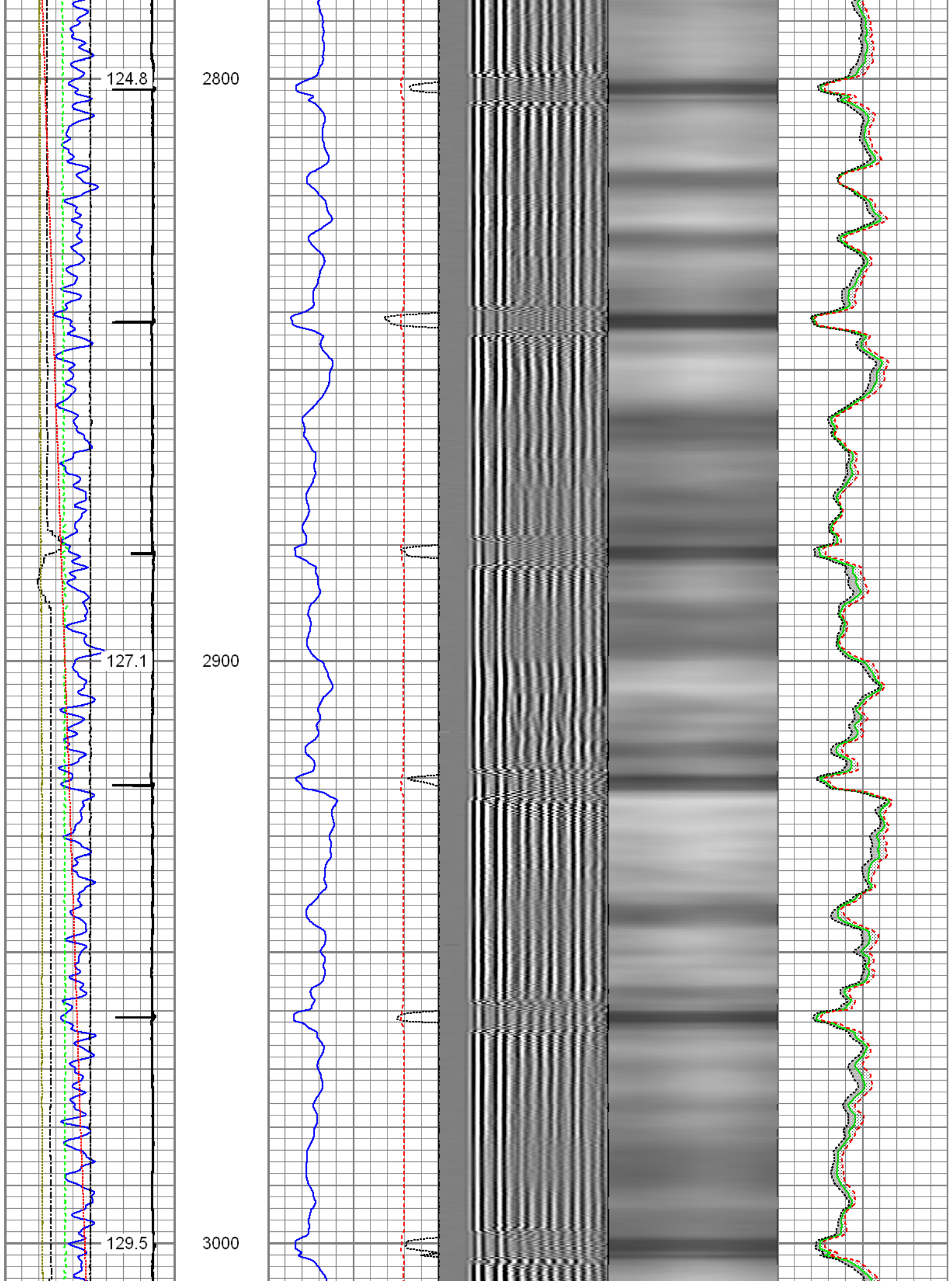


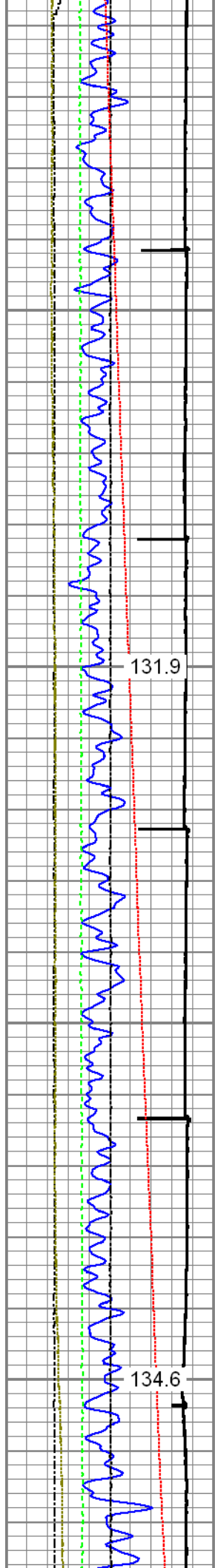


2600

2700

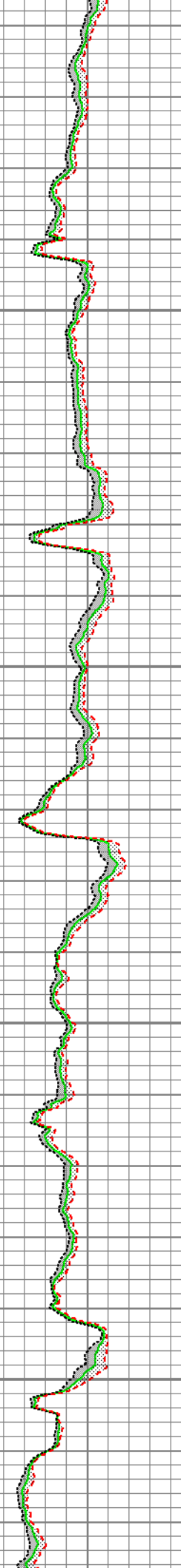
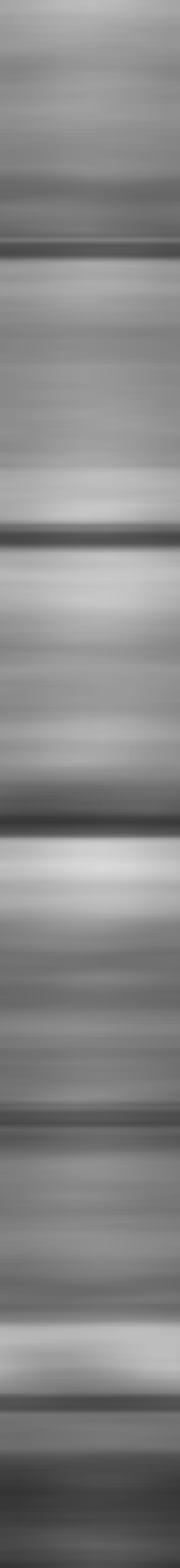
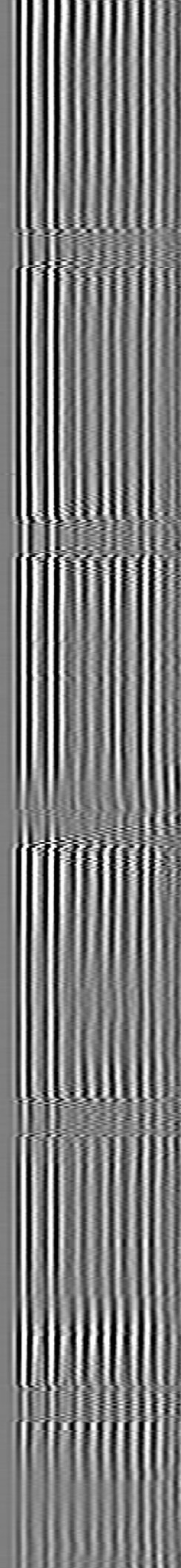
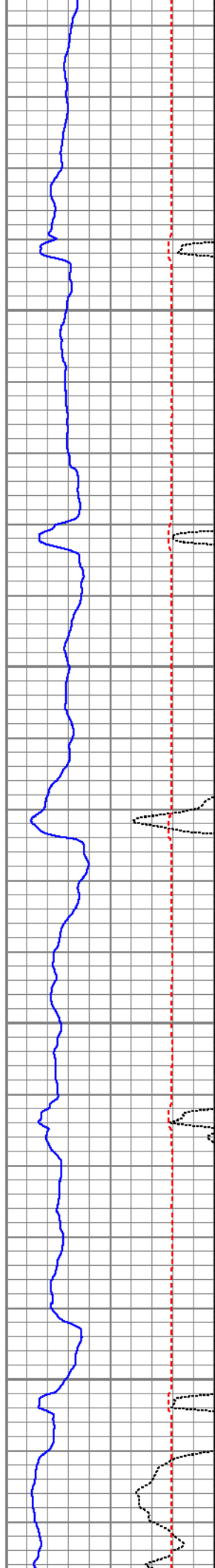


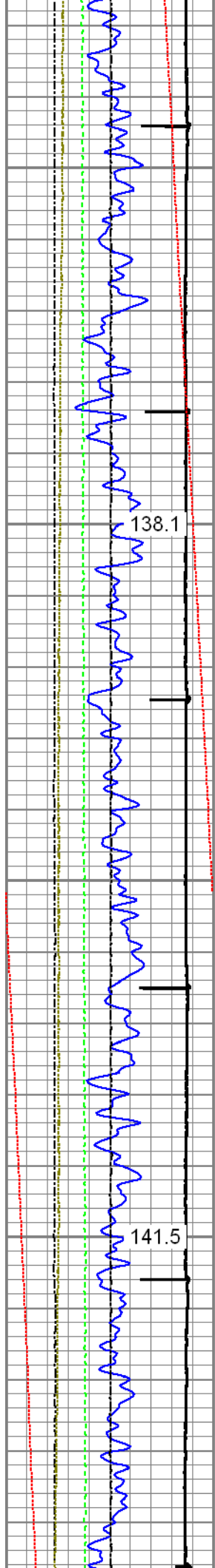




3100

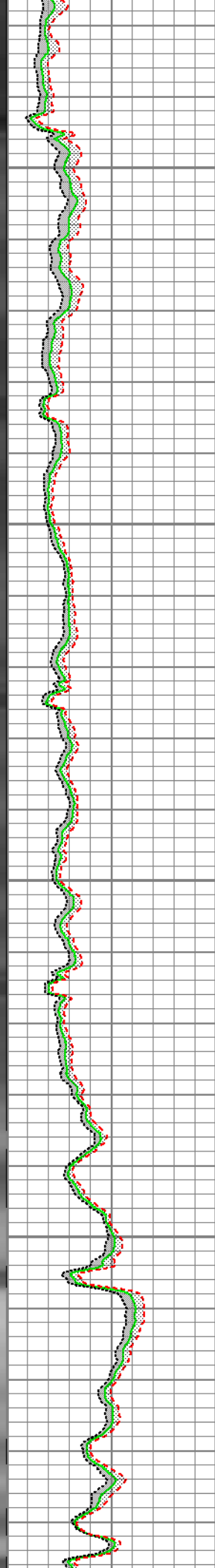
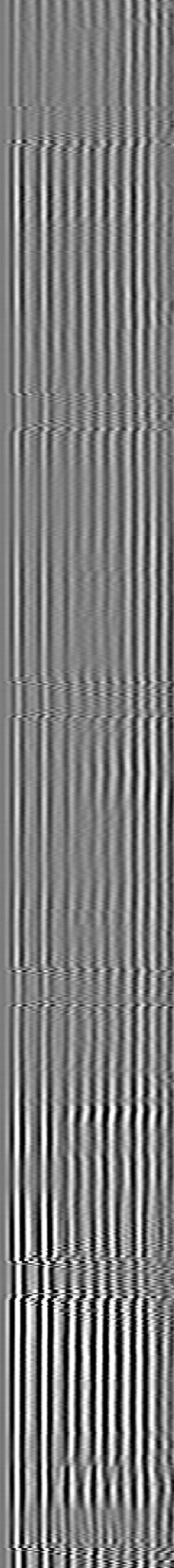
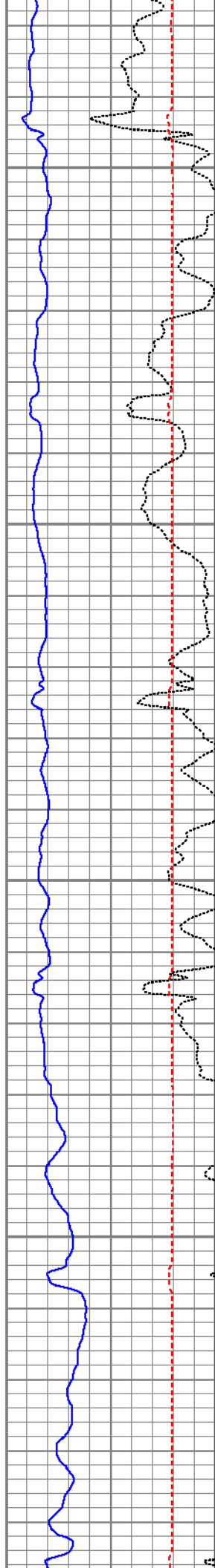
3200

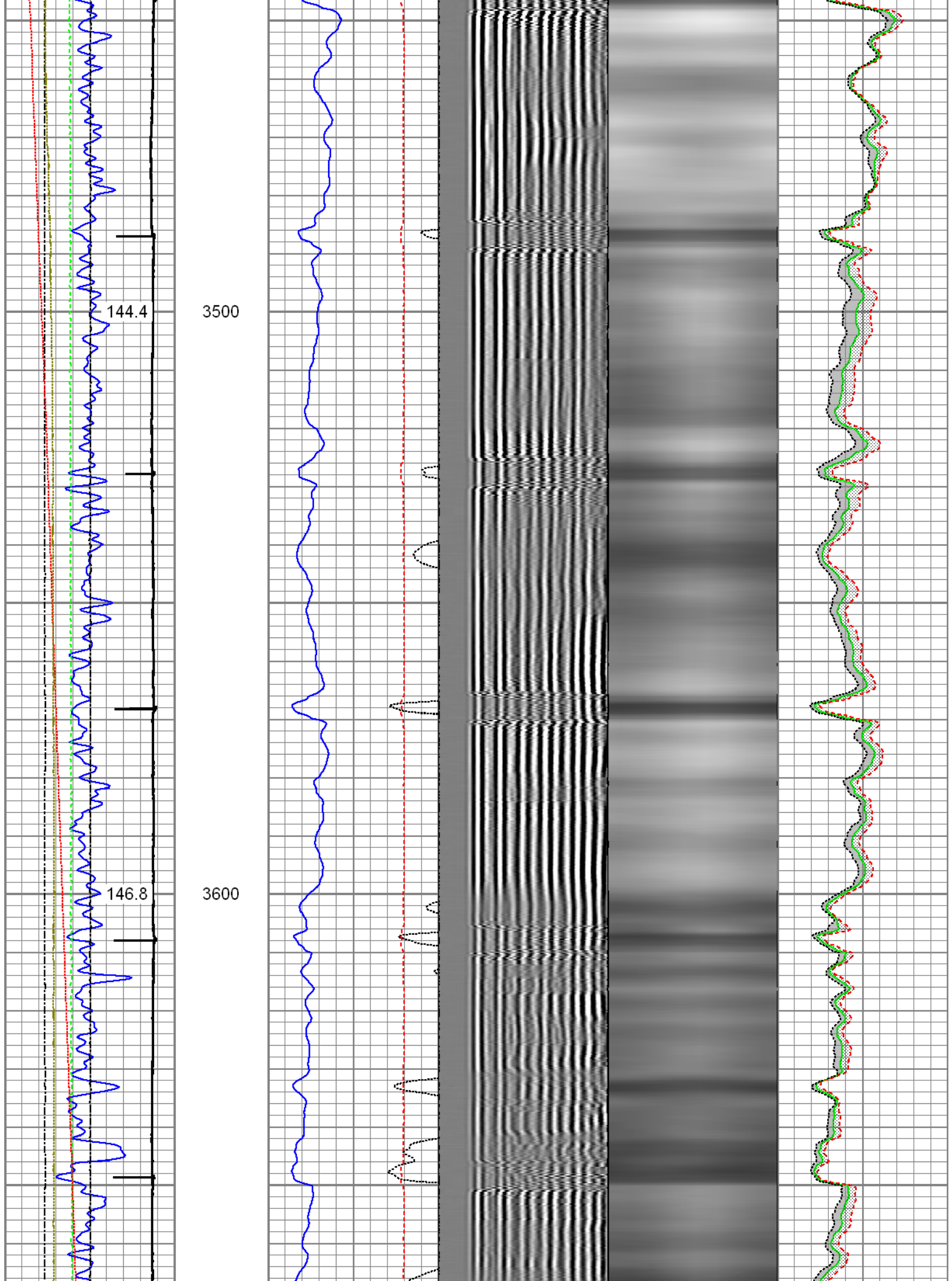


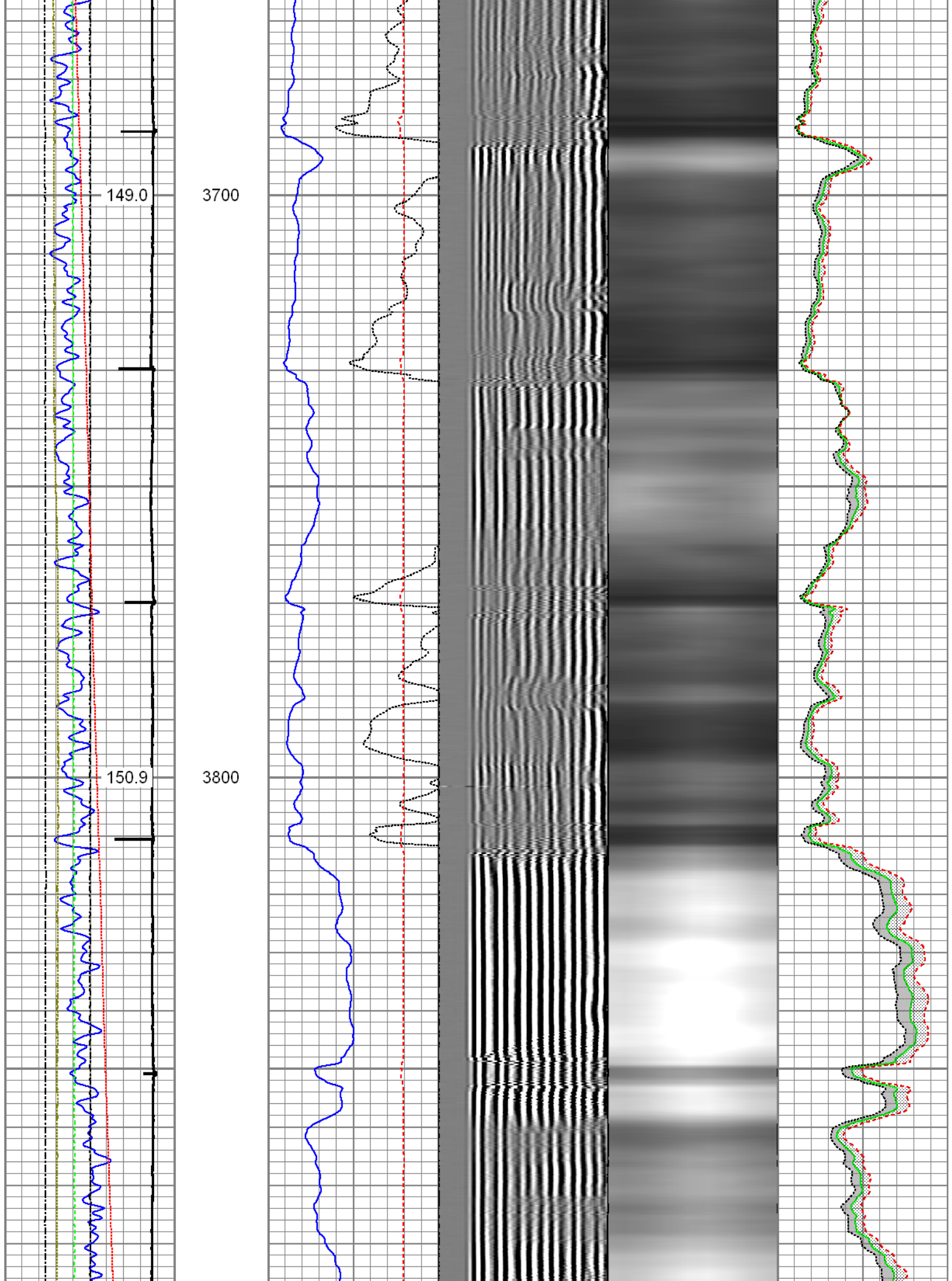


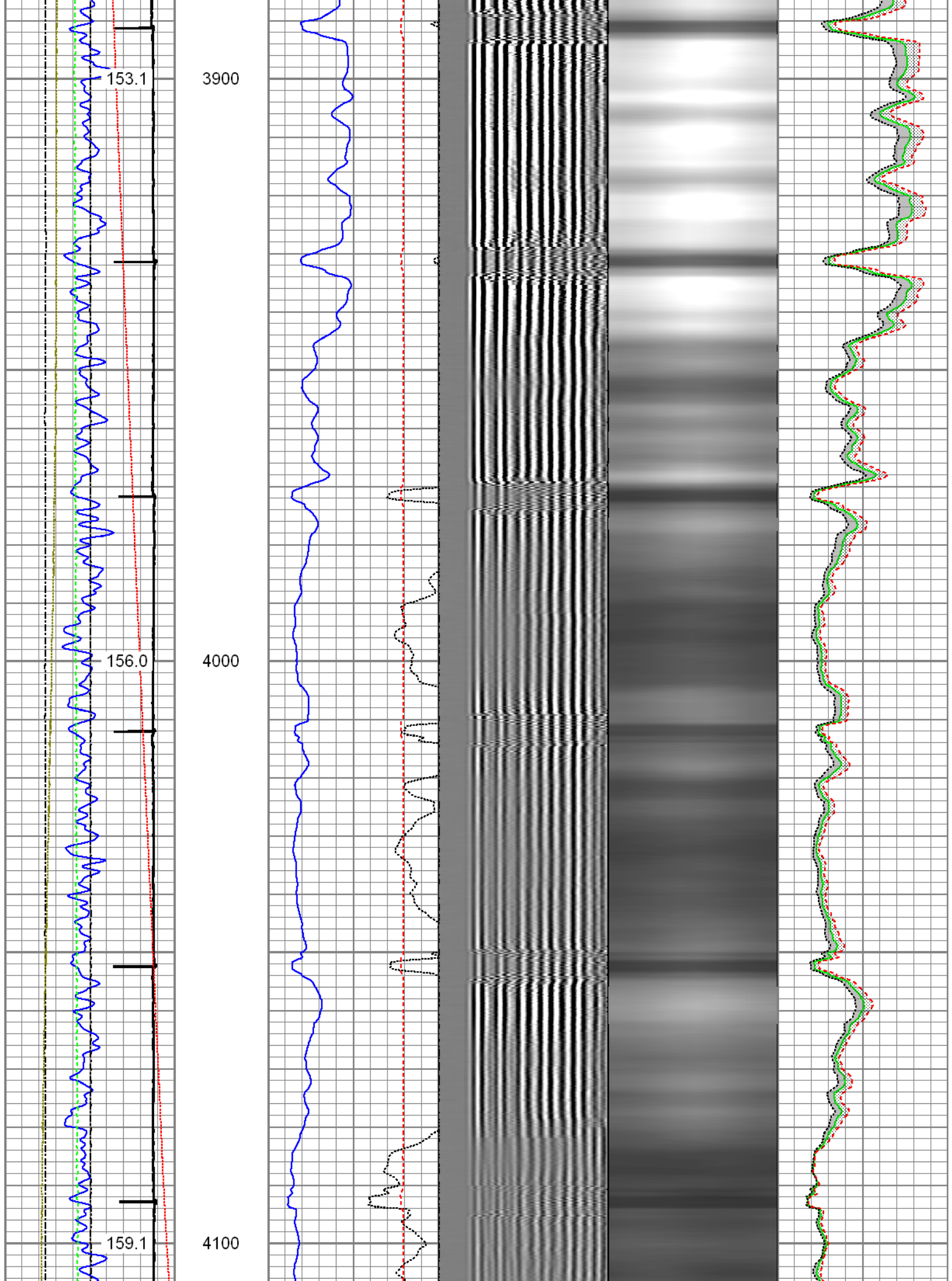
3300

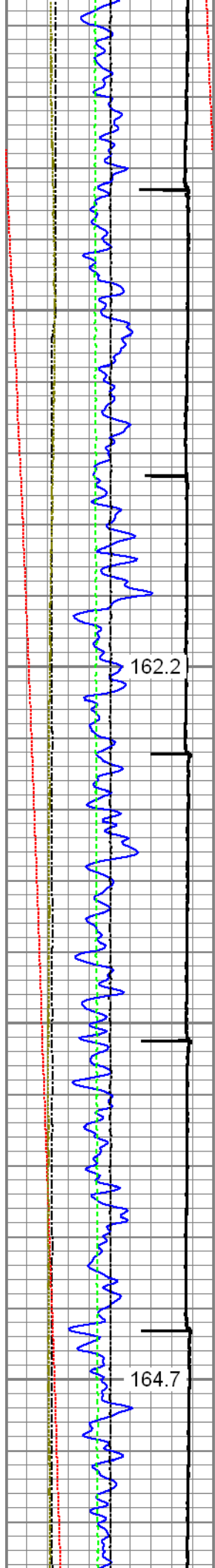
3400





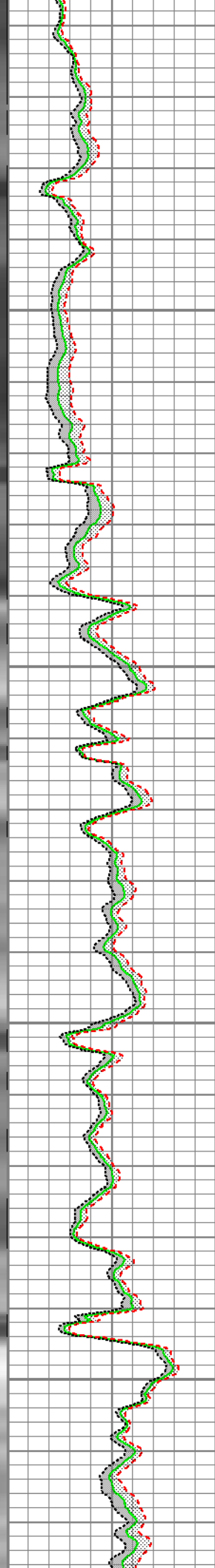
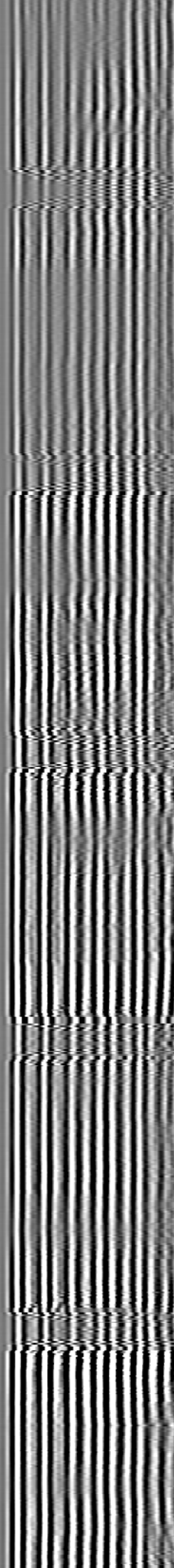
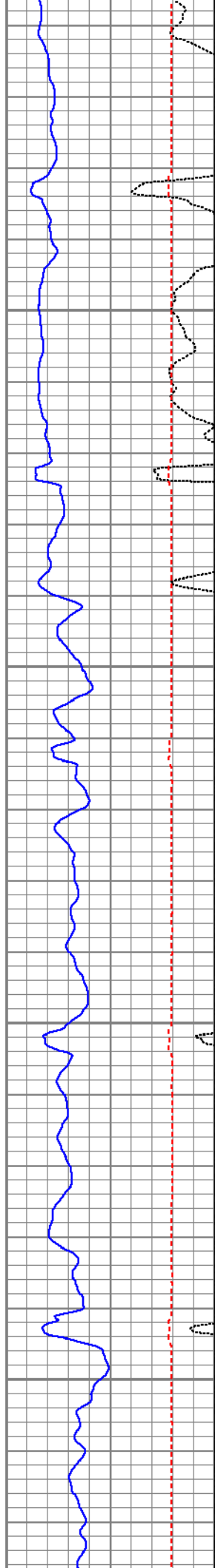


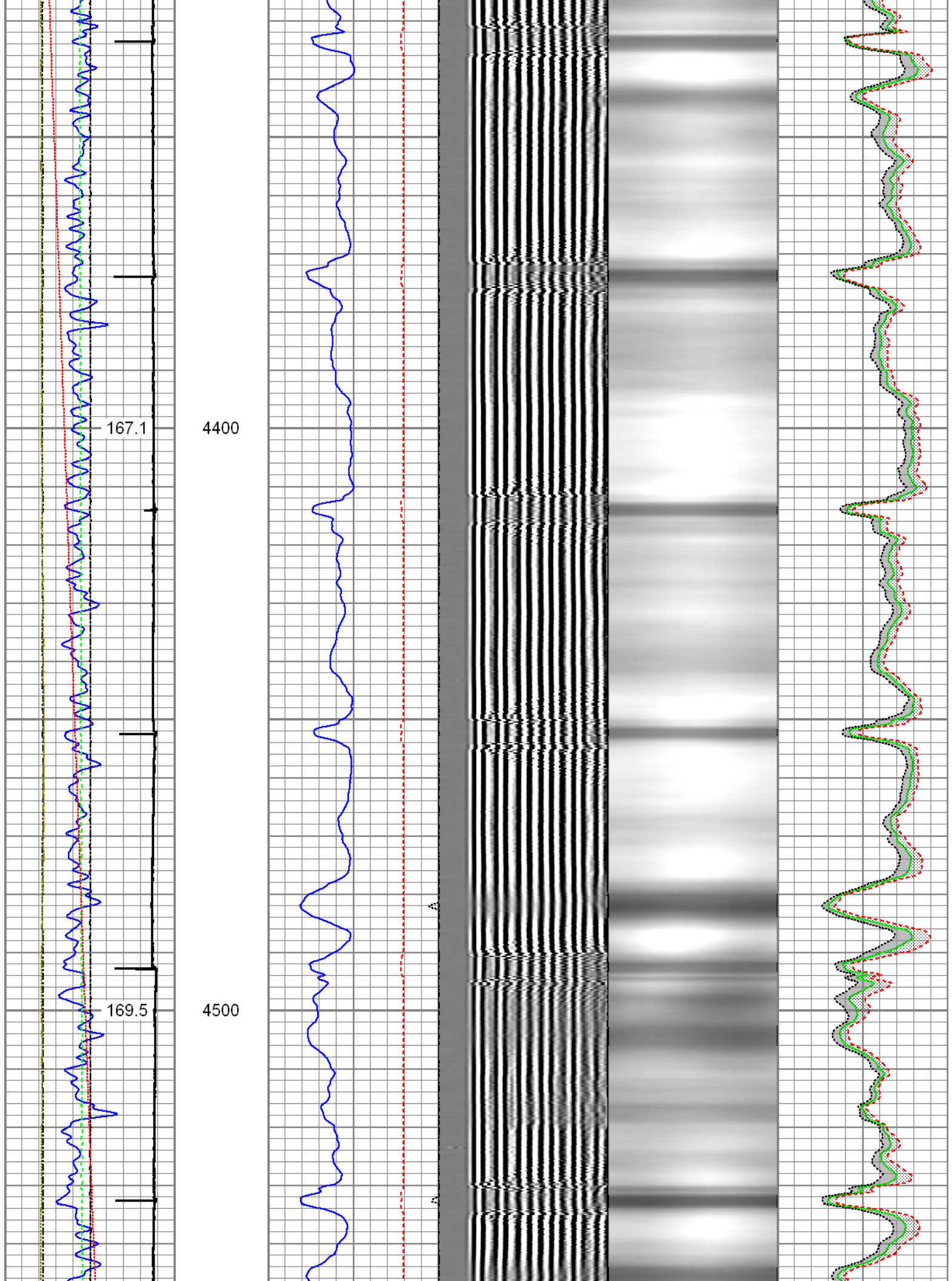


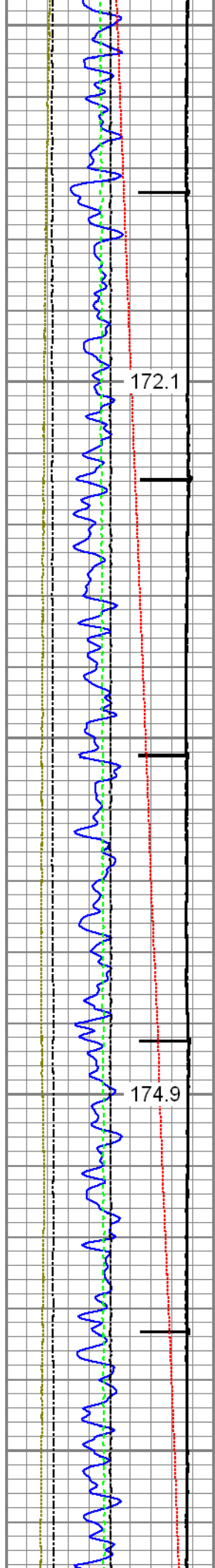


4200

4300





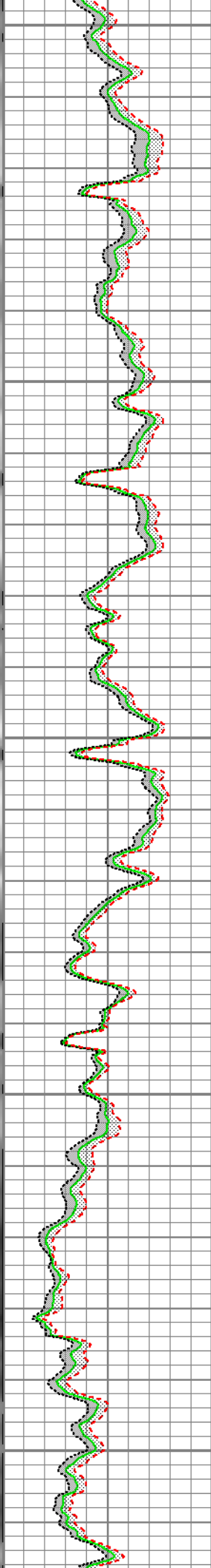
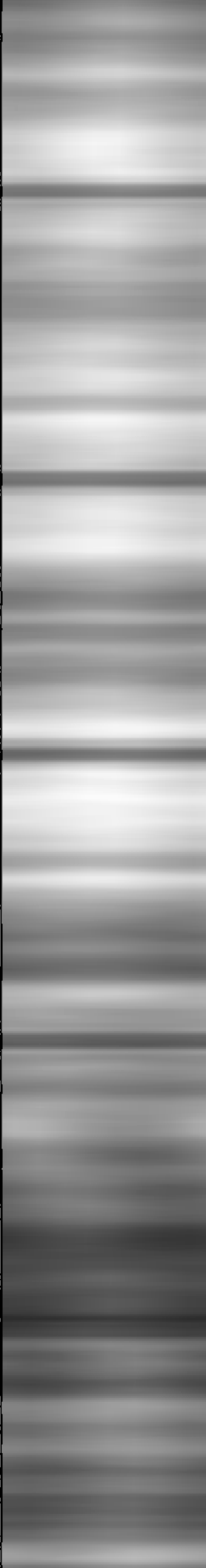
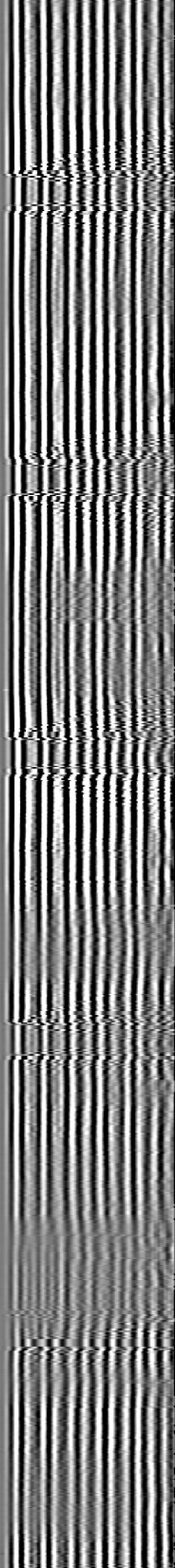
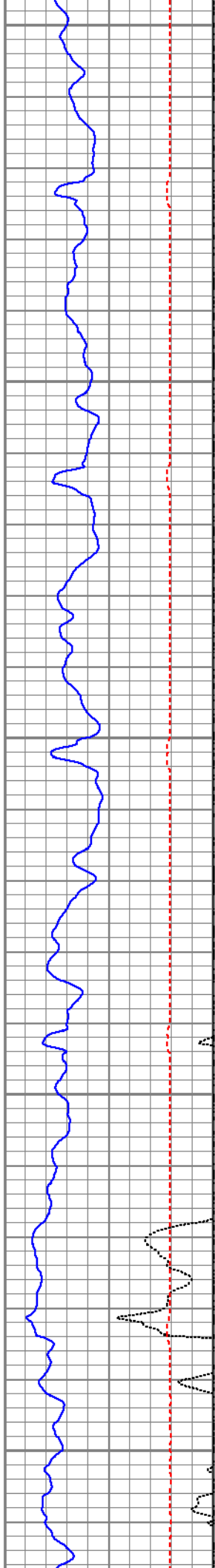


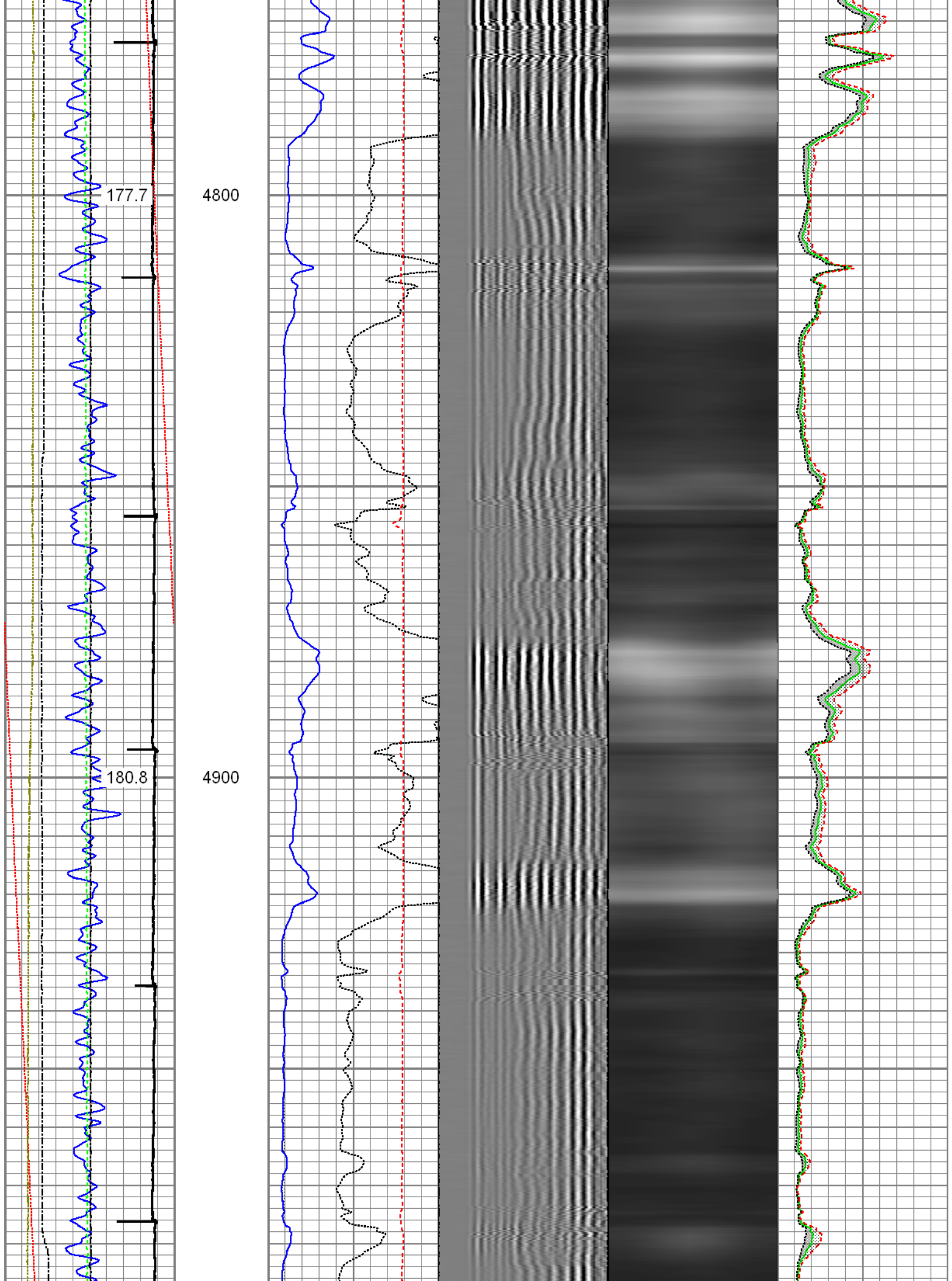
172.1

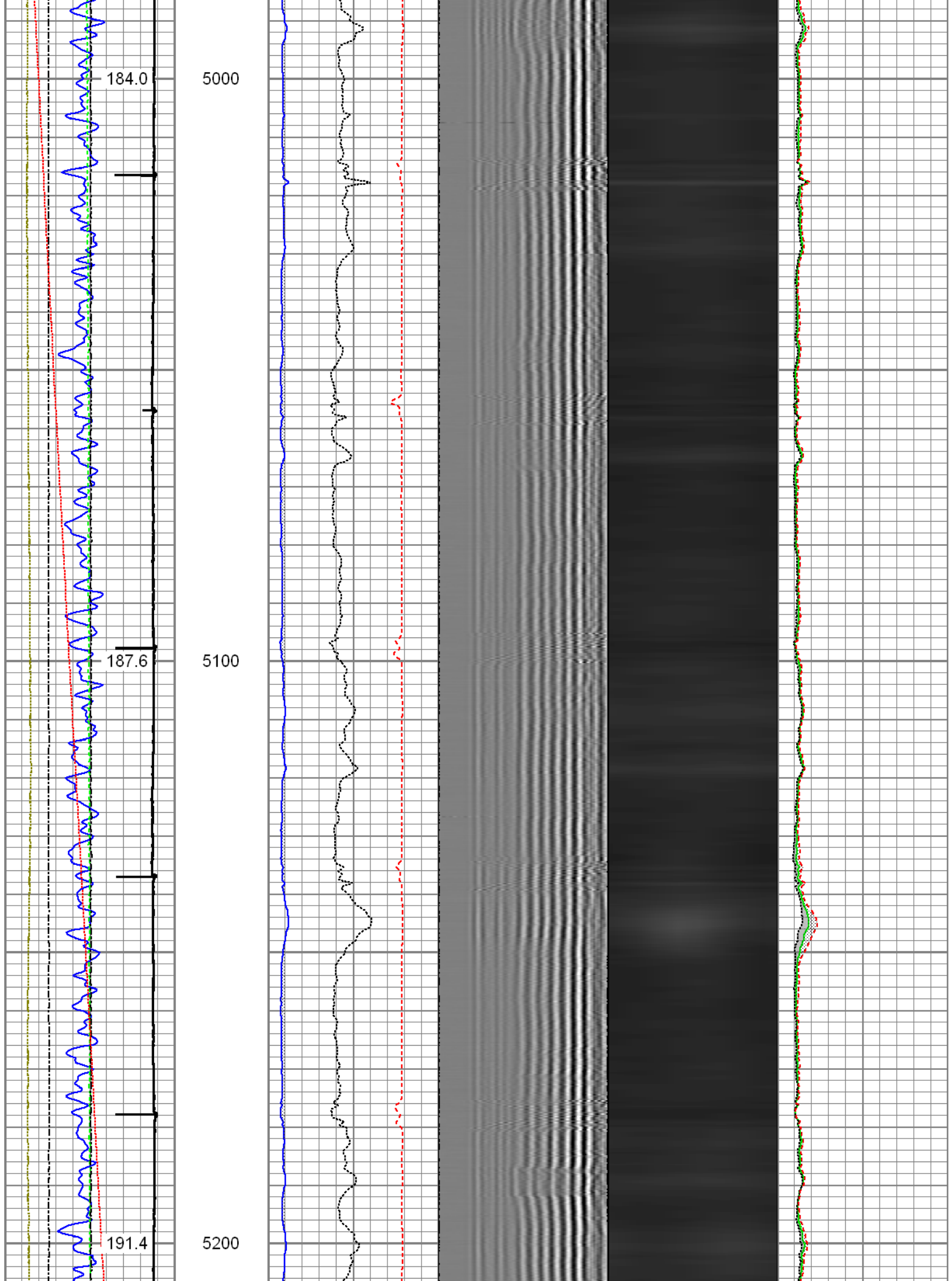
4600

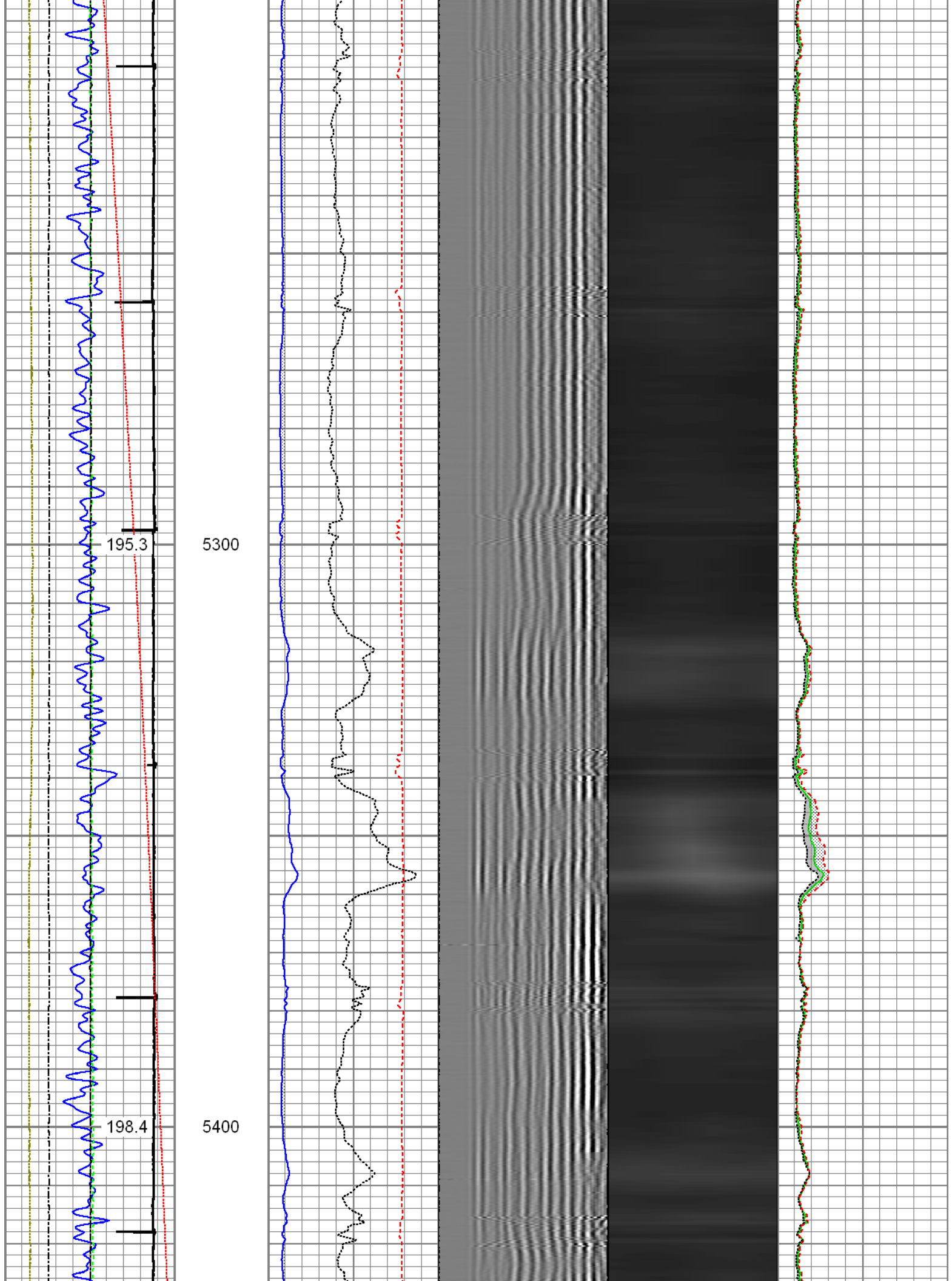
174.9

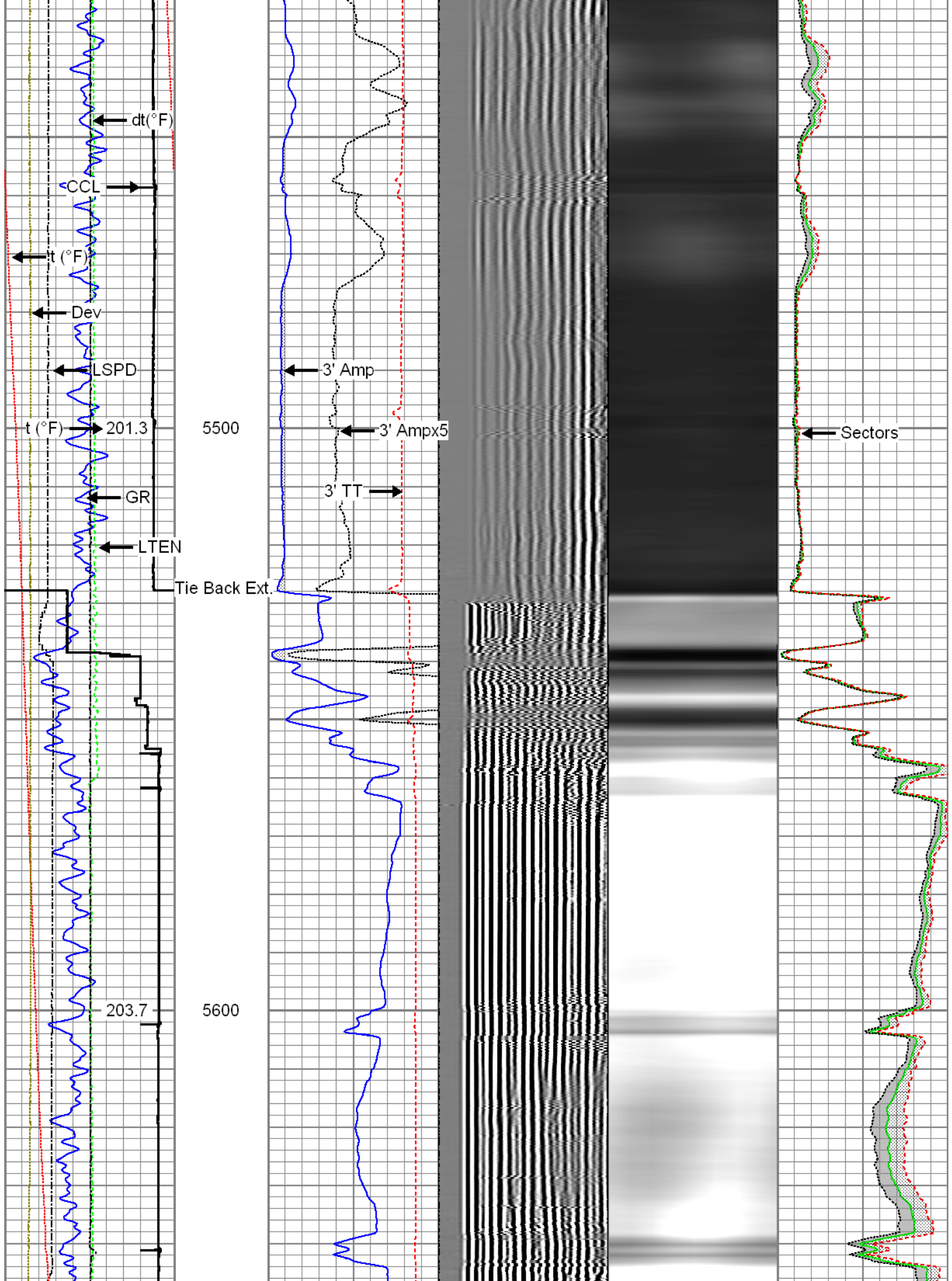
4700

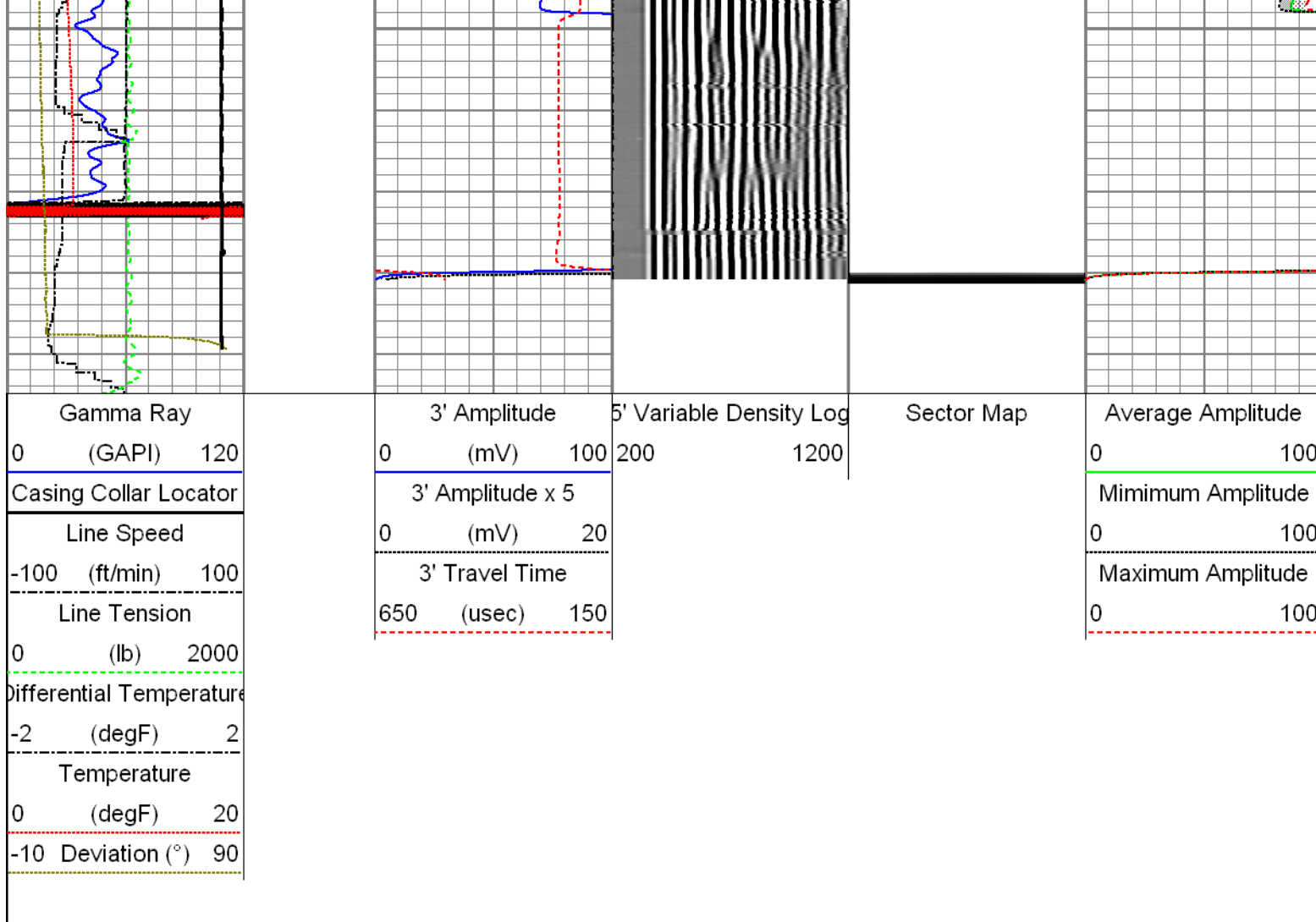





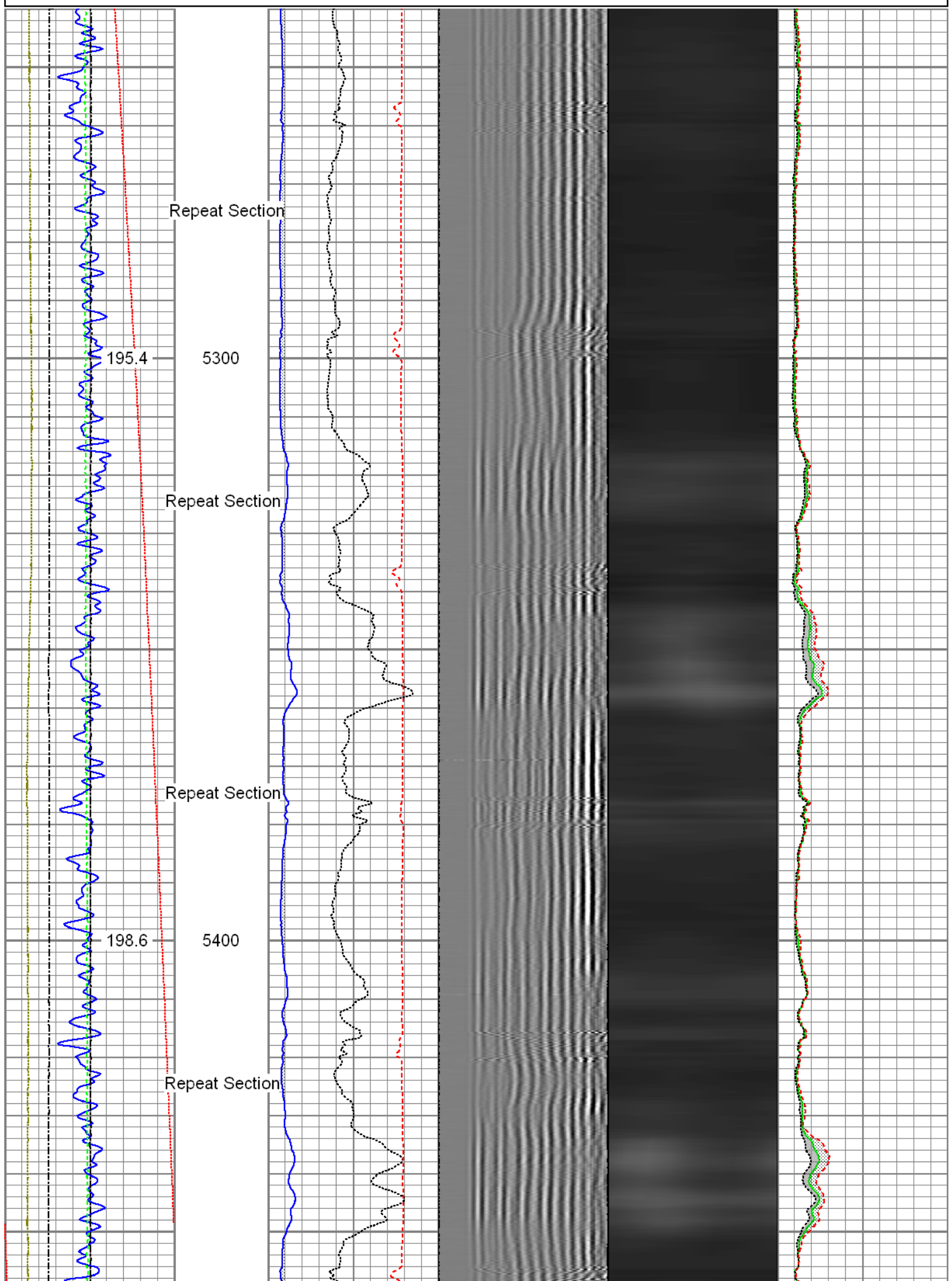


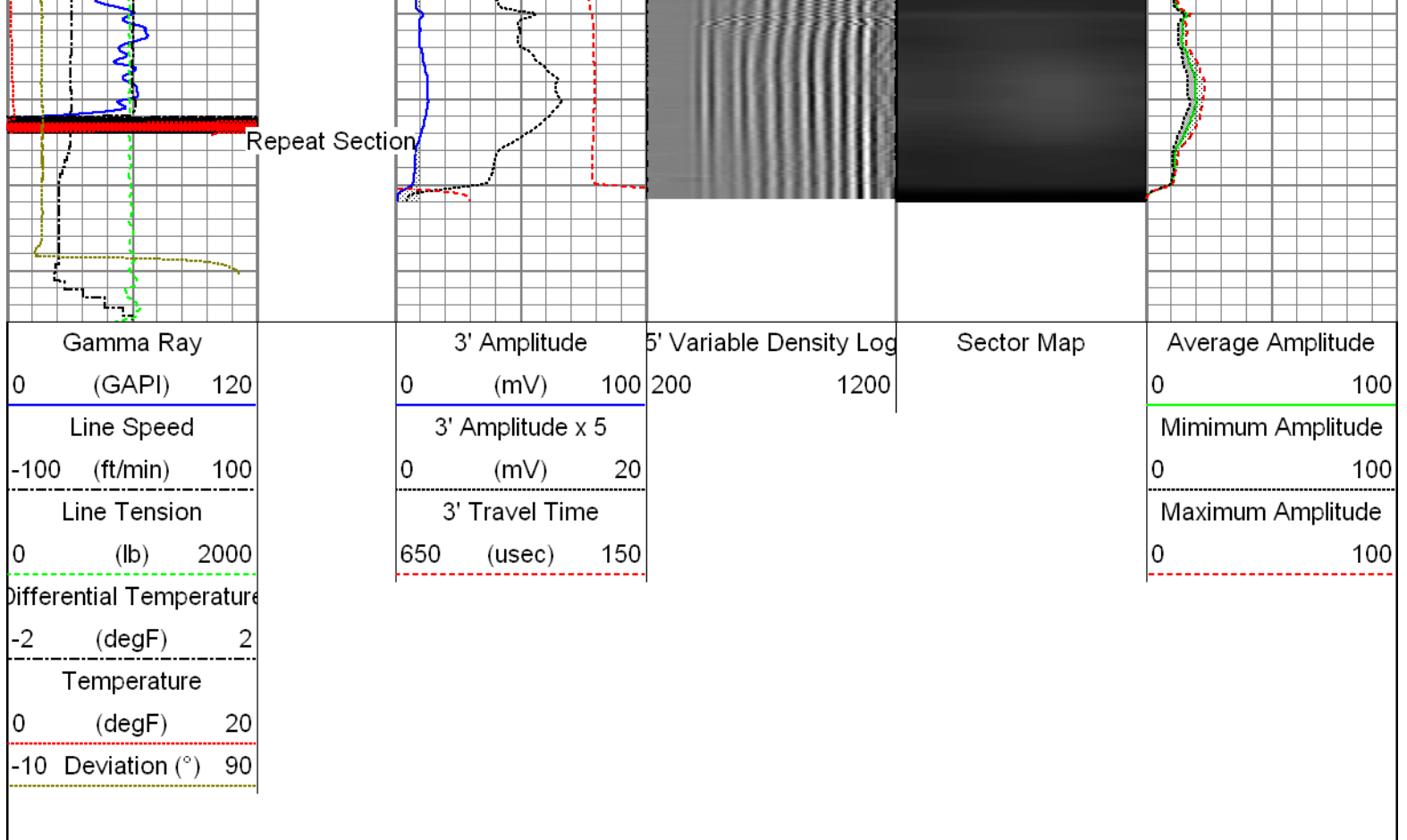






		Repeat Section		
		Recorded With 1500 PSI Surface Induced Pressure		
Database File: 12-17-15_whiting_razor federal 12f-1301a_mit_rbl.db Dataset Pathname: repeat-re Presentation Format: rbt4_mit Dataset Creation: Thu Dec 17 12:52:34 2015 by Log 7.0 B1 Charted by: Depth in Feet scaled 1:240				
Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Line Speed -100 (ft/min) 100	3' Amplitude x 5 0 (mV) 20			Minimum Amplitude 0 100
Line Tension 0 (lb) 2000	3' Travel Time 650 (usec) 150			Maximum Amplitude 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						

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
TSTAMP	0.00		UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 12-17-15_whiting_razor federal 12f-1301a_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-1301a_mit_rbl.db		
Dataset Pathname:	main		
Dataset Creation:	Thu Dec 17 13:03:17 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 12:21:14 2015				
Ring size:	4	5	6	7		
(in)	Sens	Sens	Sens			
Finger 01:	1410 271.0	1681 297.0	1978 323.0	2301		
Finger 02:	1468 270.0	1738 282.0	2020 313.0	2333		
Finger 03:	1704 264.0	1968 281.0	2249 299.0	2548		

Finger 04:	1674	263.0	1937	278.0	2215	297.0	2512
Finger 05:	1559	250.0	1809	270.0	2079	296.0	2375
Finger 06:	1539	244.0	1783	263.0	2046	288.0	2334
Finger 07:	1383	268.0	1651	283.0	1934	318.0	2252
Finger 08:	1552	246.0	1798	263.0	2061	290.0	2351
Finger 09:	1434	258.0	1692	284.0	1976	309.0	2285
Finger 10:	1483	258.0	1741	275.0	2016	295.0	2311
Finger 11:	1487	255.0	1742	271.0	2013	288.0	2301
Finger 12:	1331	277.0	1608	299.0	1907	321.0	2228
Finger 13:	1608	275.0	1883	287.0	2170	297.0	2467
Finger 14:	1452	284.0	1736	299.0	2035	311.0	2346
Finger 15:	1565	263.0	1828	274.0	2102	281.0	2383
Finger 16:	1406	283.0	1689	297.0	1986	305.0	2291
Finger 17:	1639	274.0	1913	279.0	2192	279.0	2471
Finger 18:	1420	298.0	1718	309.0	2027	315.0	2342
Finger 19:	1653	261.0	1914	258.0	2172	253.0	2425
Finger 20:	1548	270.0	1818	277.0	2095	275.0	2370
Finger 21:	1604	253.0	1857	257.0	2114	253.0	2367
Finger 22:	1576	280.0	1856	283.0	2139	277.0	2416
Finger 23:	1377	282.0	1659	290.0	1949	285.0	2234
Finger 24:	1702	267.0	1969	268.0	2237	259.0	2496
Finger 25:	1398	299.0	1697	309.0	2006	303.0	2309
Finger 26:	1538	293.0	1831	299.0	2130	290.0	2420
Finger 27:	1464	263.0	1727	279.0	2006	265.0	2271
Finger 28:	1649	280.0	1929	287.0	2216	274.0	2490
Finger 29:	1484	276.0	1760	286.0	2046	281.0	2327
Finger 30:	1447	273.0	1720	292.0	2012	289.0	2301
Finger 31:	1532	268.0	1800	276.0	2076	279.0	2355
Finger 32:	1351	262.0	1613	280.0	1893	285.0	2178
Finger 33:	1632	298.0	1930	309.0	2239	309.0	2548
Finger 34:	1551	265.0	1816	278.0	2094	281.0	2375
Finger 35:	1444	263.0	1707	279.0	1986	292.0	2278
Finger 36:	1601	270.0	1871	286.0	2157	296.0	2453
Finger 37:	1606	265.0	1871	283.0	2154	298.0	2452
Finger 38:	1510	265.0	1775	286.0	2061	304.0	2365
Finger 39:	1471	269.0	1740	294.0	2034	317.0	2351
Finger 40:	1613	272.0	1885	295.0	2180	319.0	2499

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454
Tool Model: UW_RBT_004

Calibration Casing Diameter:	7.000	in
Calibration Depth:	22.622	ft

Master Calibration, performed Thu Dec 17 12:15:14 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.002	0.780	0.800	62.165	78.413	0.971
5FT	-0.004	0.746	0.800	62.165	81.856	1.100
S1	-0.001	0.759	0.000	100.000	131.571	0.180
S2	-0.003	0.784	0.000	100.000	127.148	0.346
S3	-0.003	0.795	0.000	100.000	125.356	0.350
S4	-0.003	0.804	0.000	100.000	123.804	0.405
S5	-0.001	0.792	0.000	100.000	126.006	0.169
S6	-0.003	0.773	0.000	100.000	128.820	0.440
S7	-0.002	0.748	0.000	100.000	133.201	0.320
S8	-0.002	0.745	0.000	100.000	133.749	0.331

Temperature Calibration Report

Serial Number:
Tool Model:
Performed:

10025100
UW_PRT_016
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		degF
8		degF
9		degF
10		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-1301A
Field Wildcat
County Weld
State Colorado