



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Whiting Oil and Gas Corporation	Company	Whiting Oil and Gas Corporation
Well	Razor Federal 12F-1305A	Well	Razor Federal 12F-1305A
Field	Wildcat	Field	Wildcat
County	Weld	County	Weld
State	Colorado	State	Colorado
Location:		API # : 05-123-38719	Other Services
SEC 12 TWP 10N RGE 58W		MIT	
Permanent Datum	Ground Level	Elevation	4937'
Log Measured From	Kelly Bushing	Elevation	21 FT
Drilling Measured From	Kelly Bushing	Elevation	K.B. 4958' D.F. 4957' G.L. 4937'

Date	17-Dec-2015
Run Number	One
Depth Driller	13910 FT
Depth Logger	5401 FT
Bottom Logged Interval	5396 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	202°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	12:16 PM
Equipment Number	HD-0324
Location	Fort Lupton, CO
Recorded By	Andrew Olmsted
Witnessed By	Kelly 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	1840 FT		
Intermediate #1	7	32	HCL-80	Surface	6217 FT		
Intermediate #2							
Liner	4 1/2	11.6	HCP-110	5238 FT	13,859 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 Tie Back Extension reported at 5238 FT
Adjusted log +14 FT to correlate with Tie Back Extension
Log ran from 5401 FT to surface
Recorded with 1500 PSI surface induced pressure

Thank you for choosing FMC Technologies Surface Integrated Services.

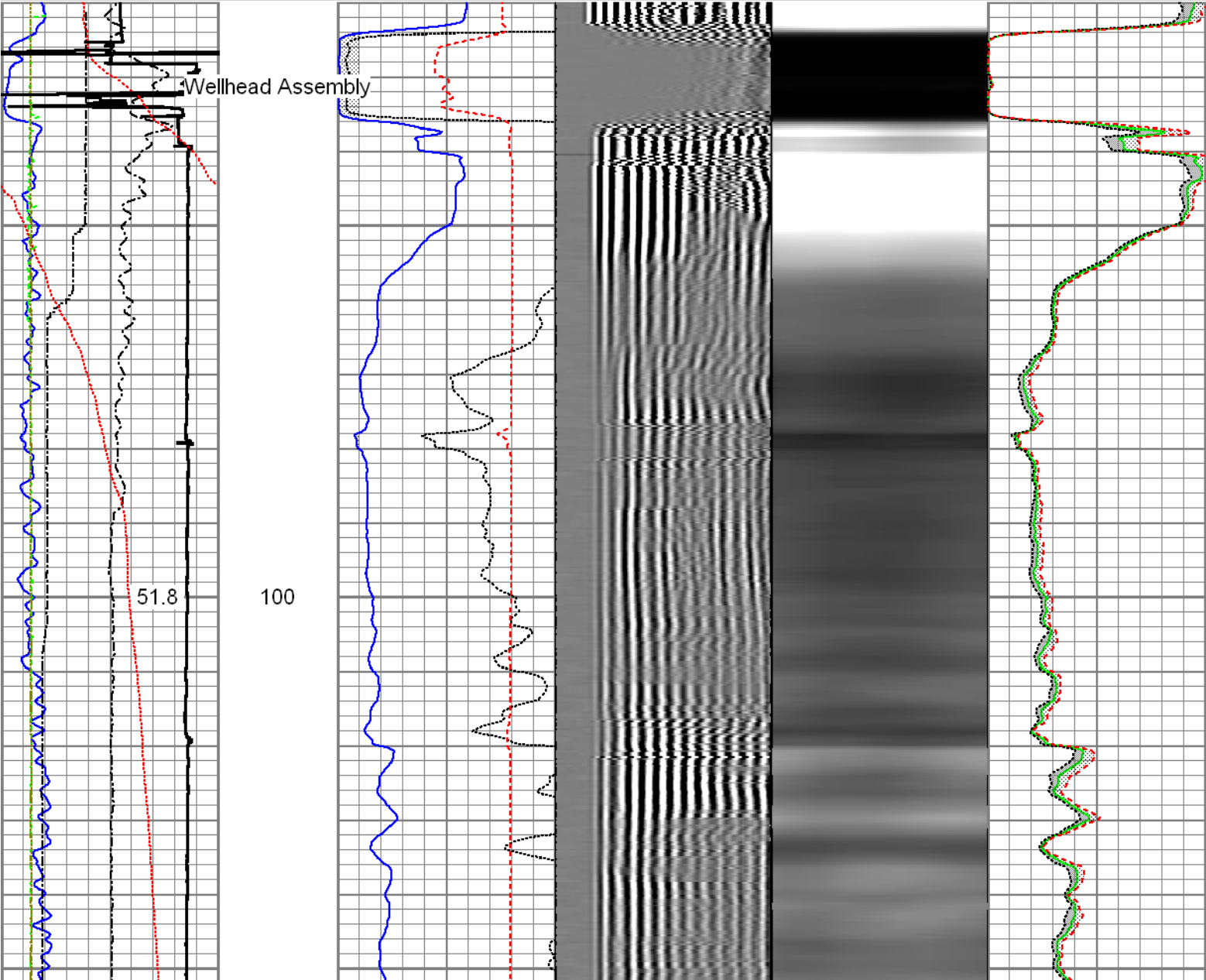


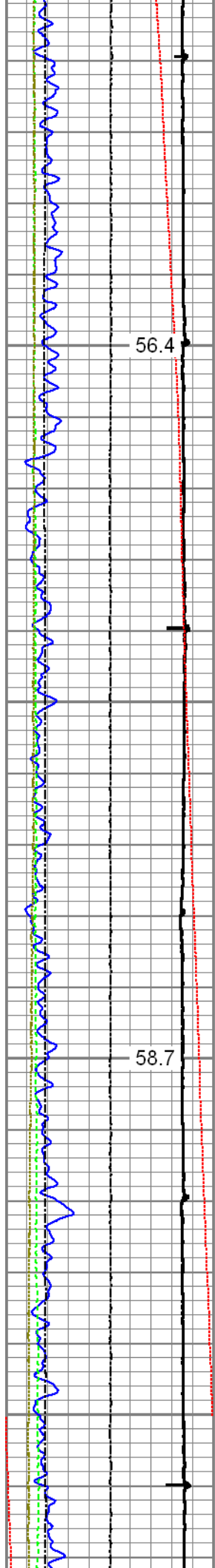
Main Pass

Recorded with 1500 PSI Surface Induced Pressure

Database File: 12-17-15_whiting_razor federal 12f-1305a_mit_rbl.db
Dataset Pathname: pass6.1
Presentation Format: rbt4_mit
Dataset Creation: Sat Dec 19 11:18:15 2015 by Calc SCH 120430
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				
Temperature				
0 (degF) 20				
-10 Deviation (°) 90				



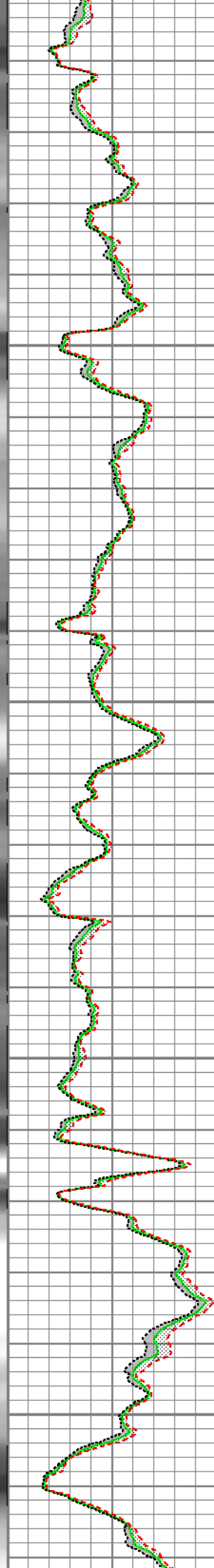
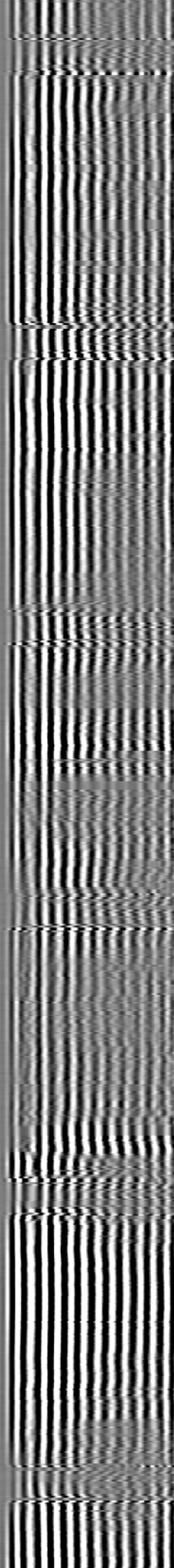
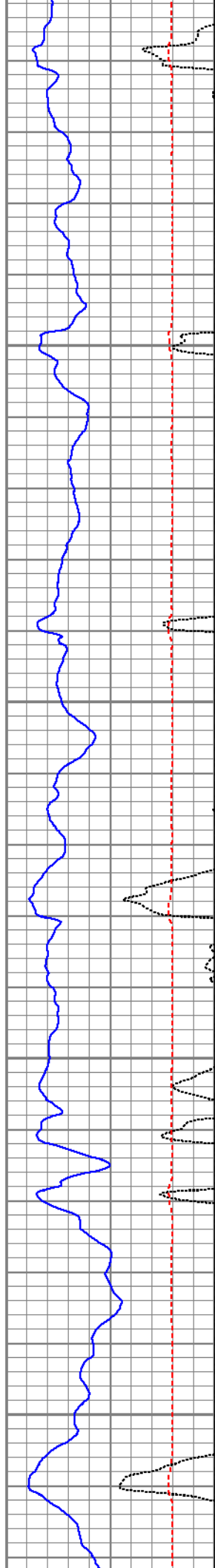


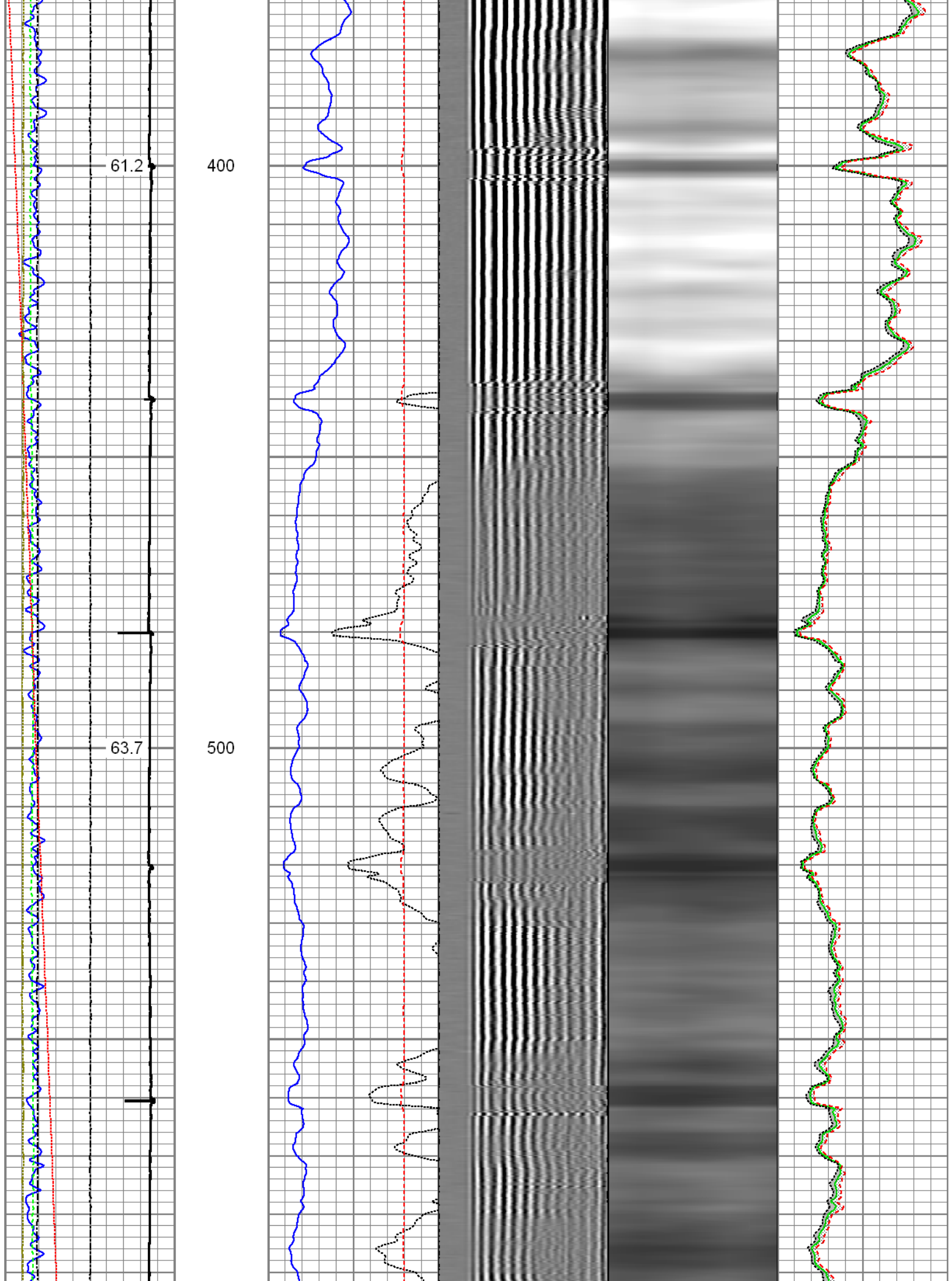
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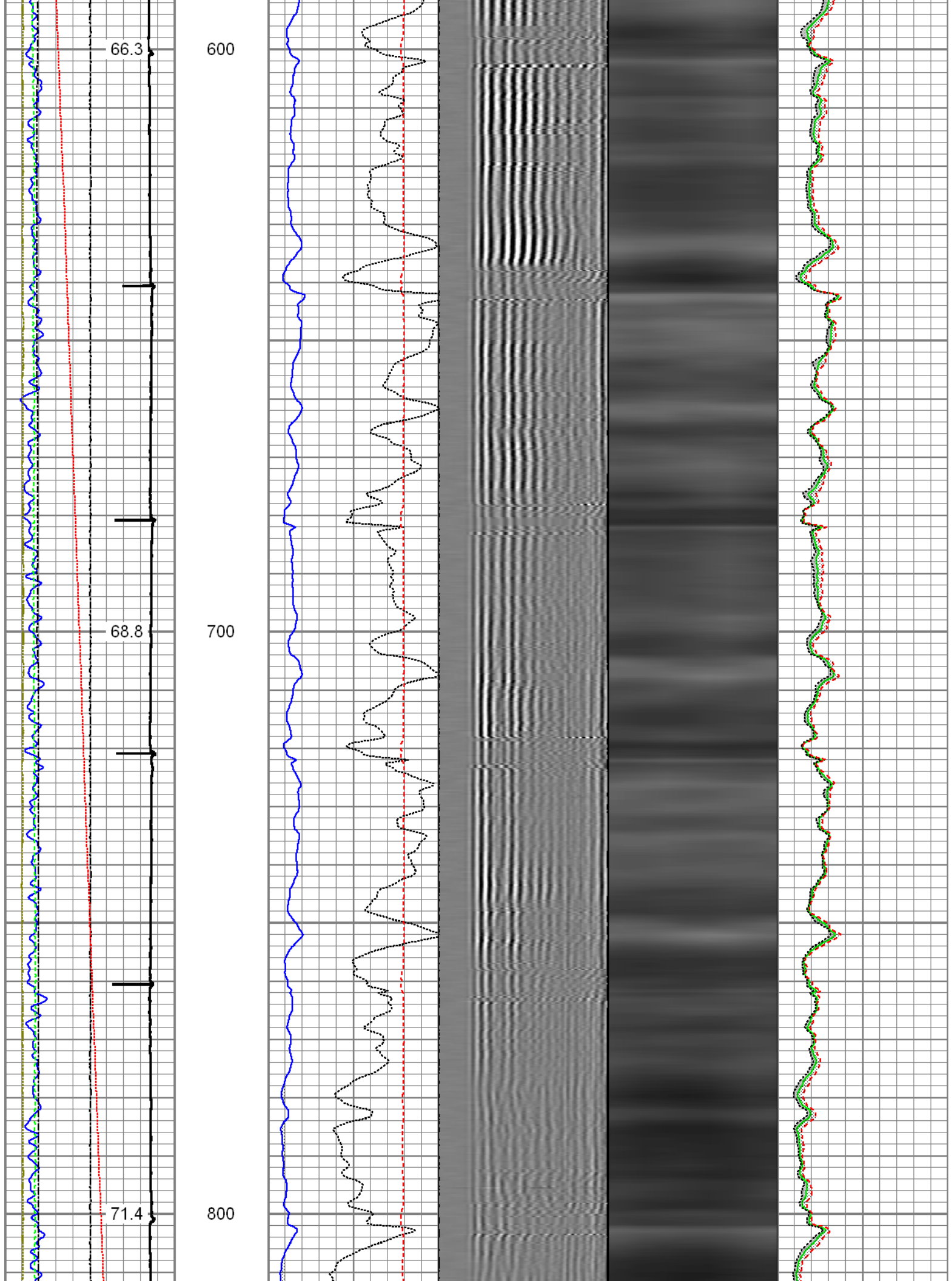
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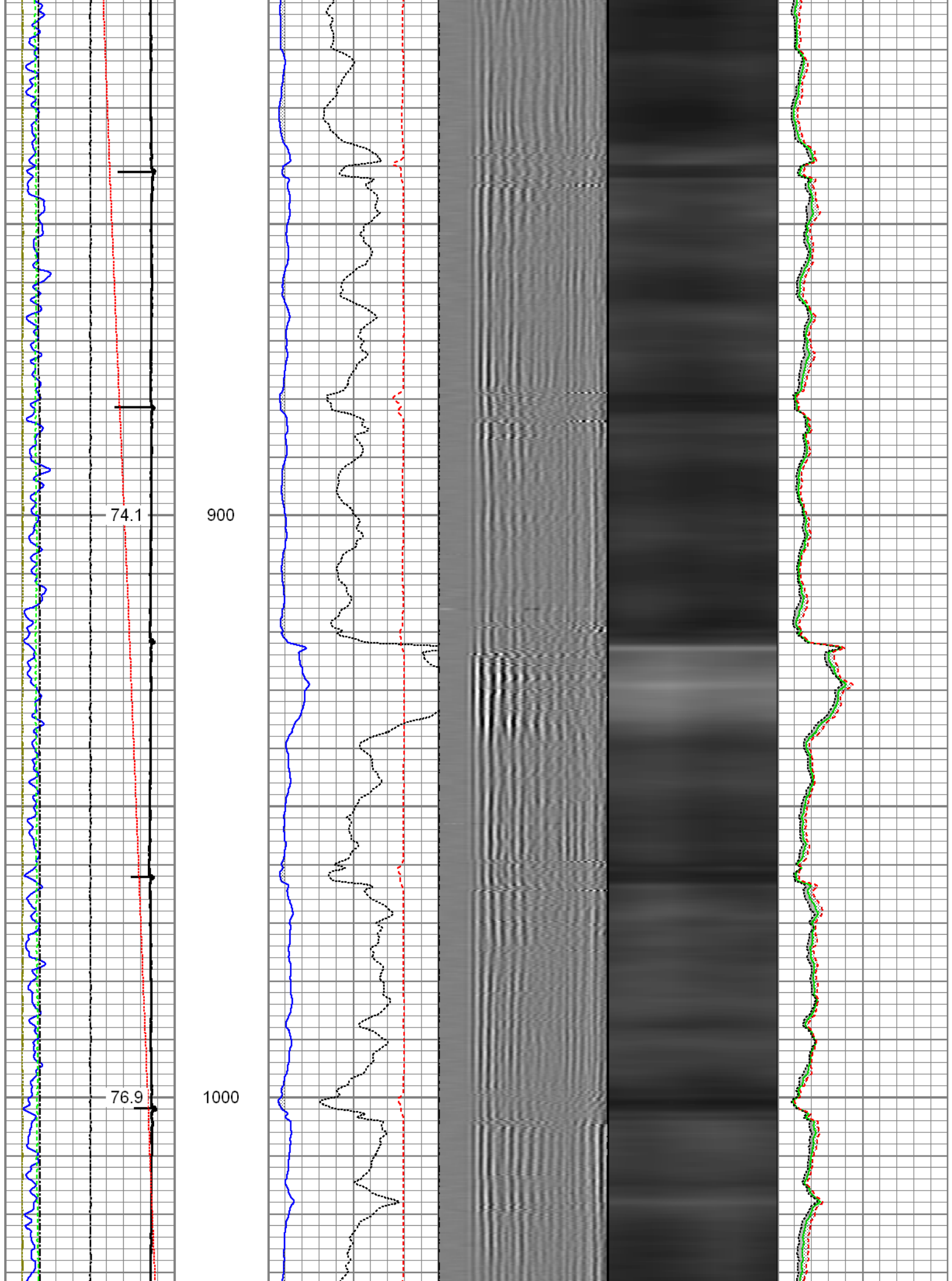
200

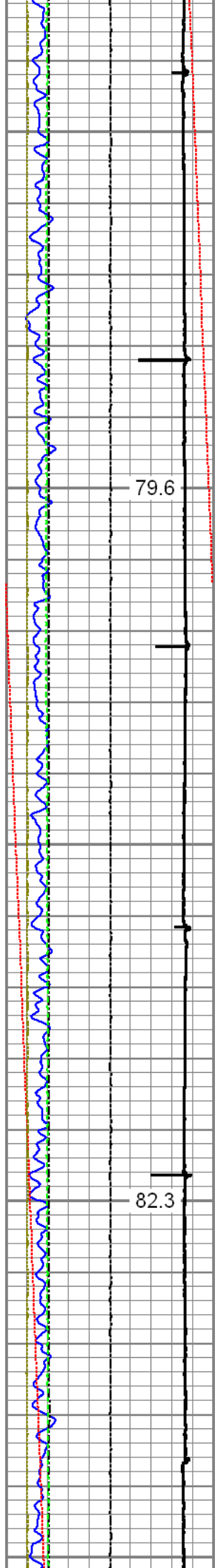
300





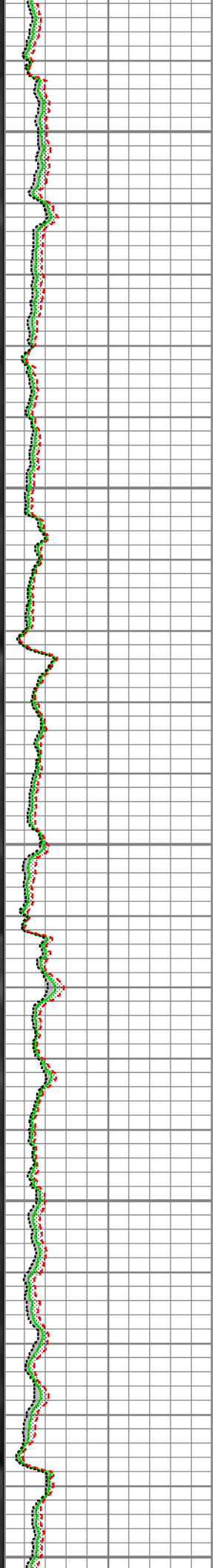
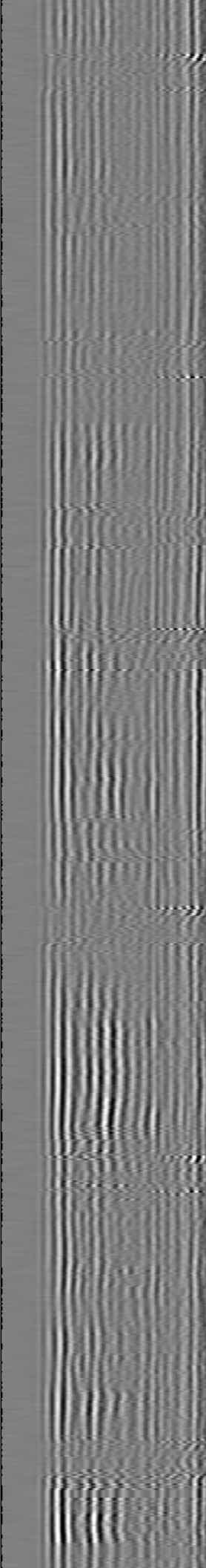
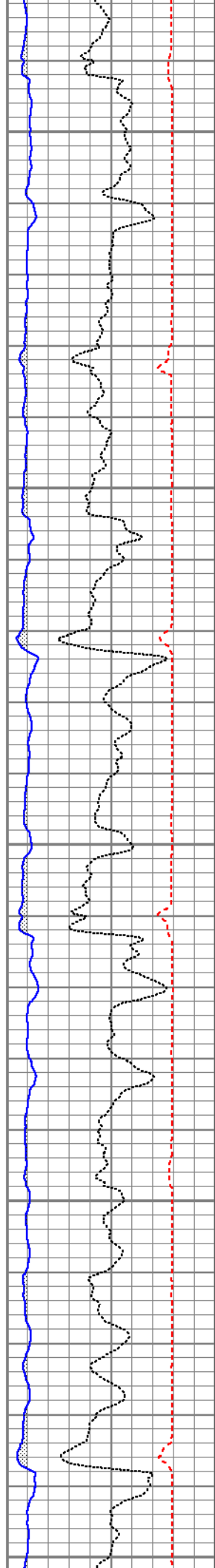


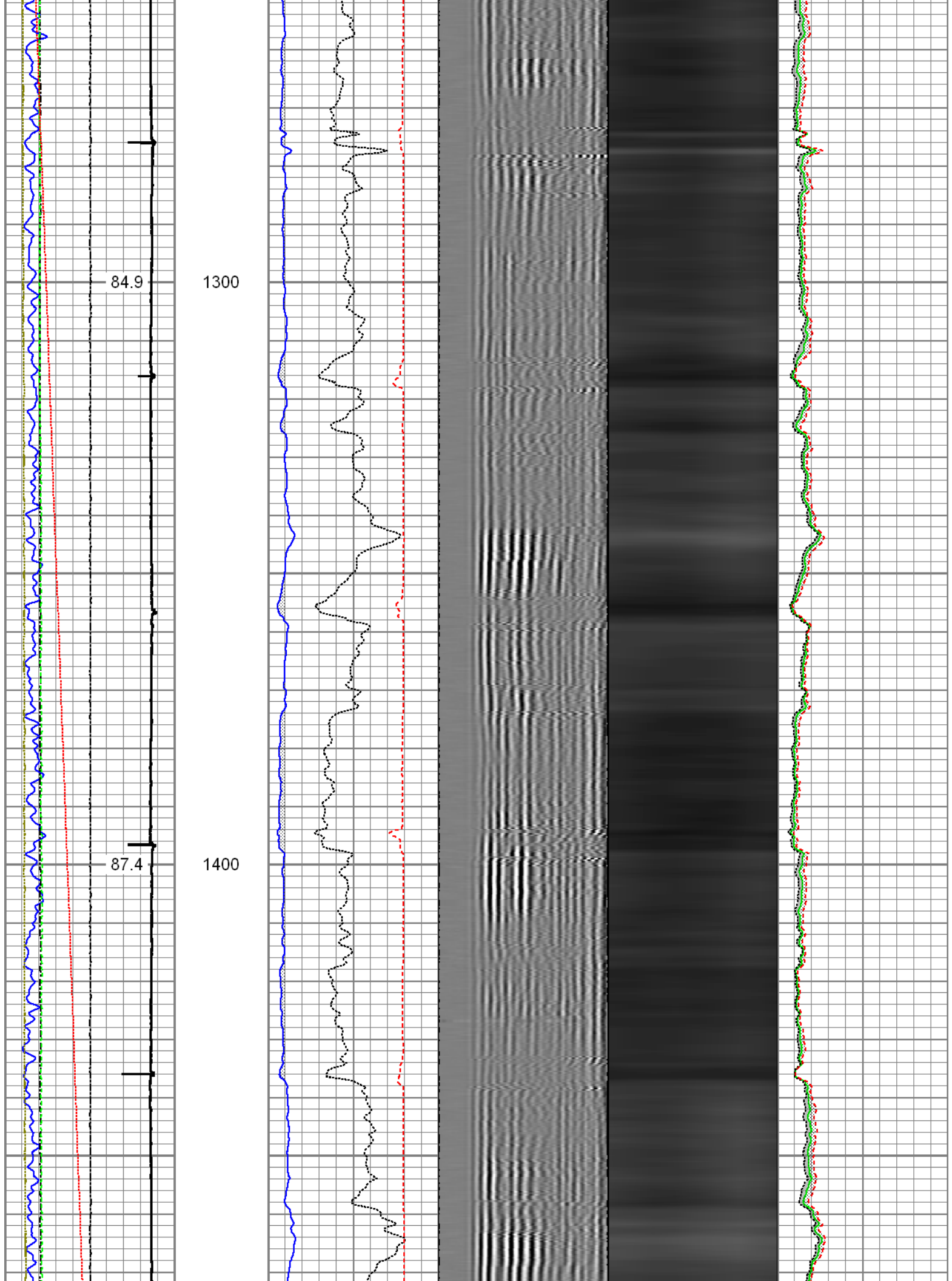


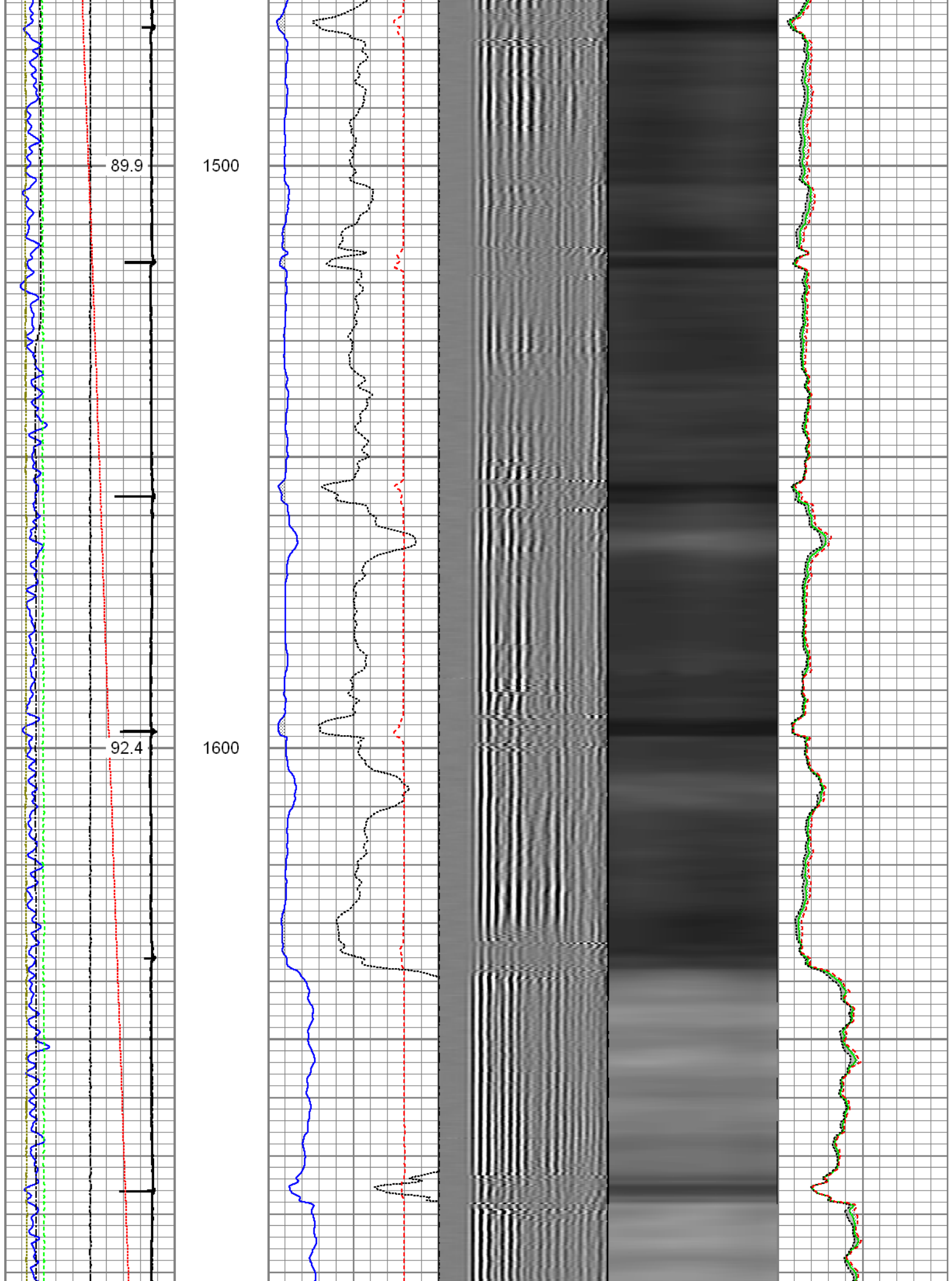


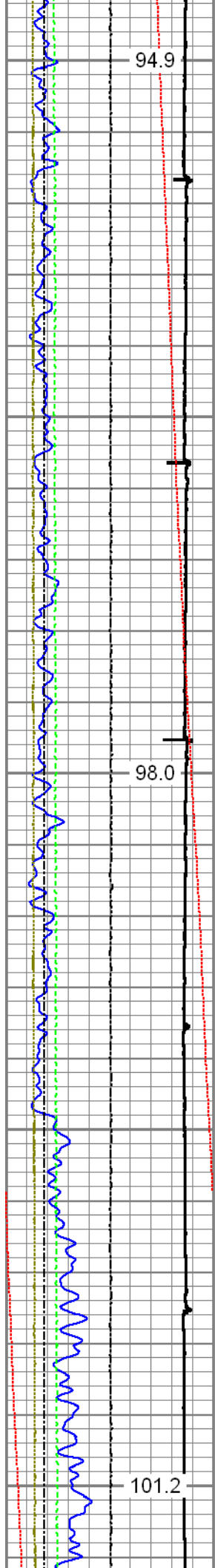
1100

1200





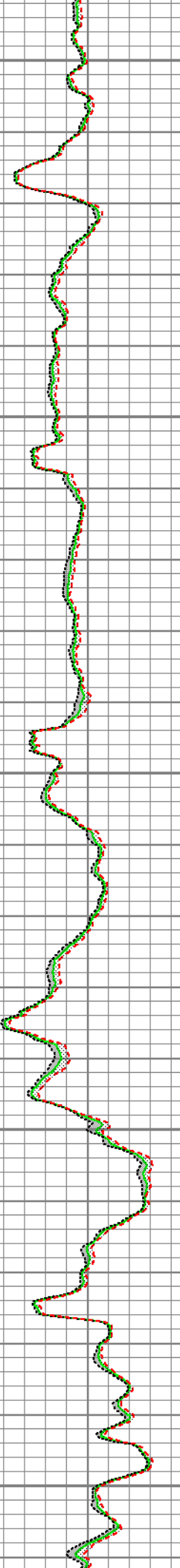
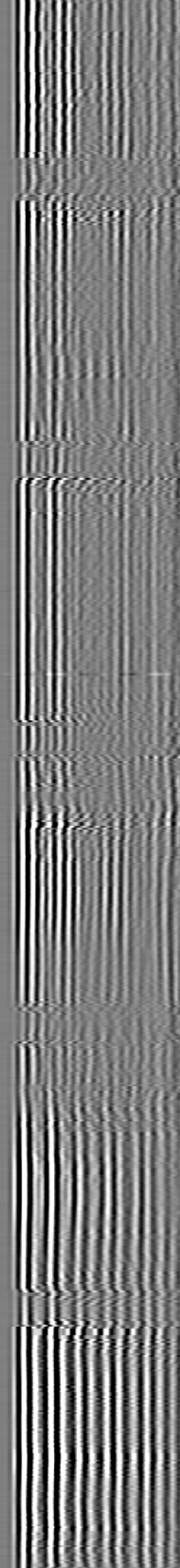
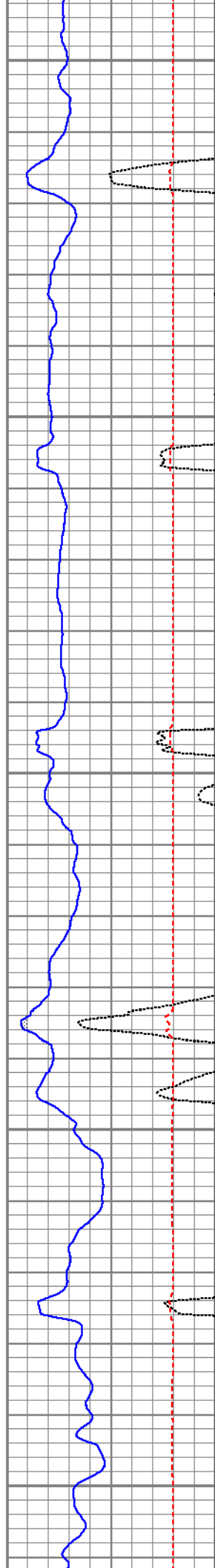


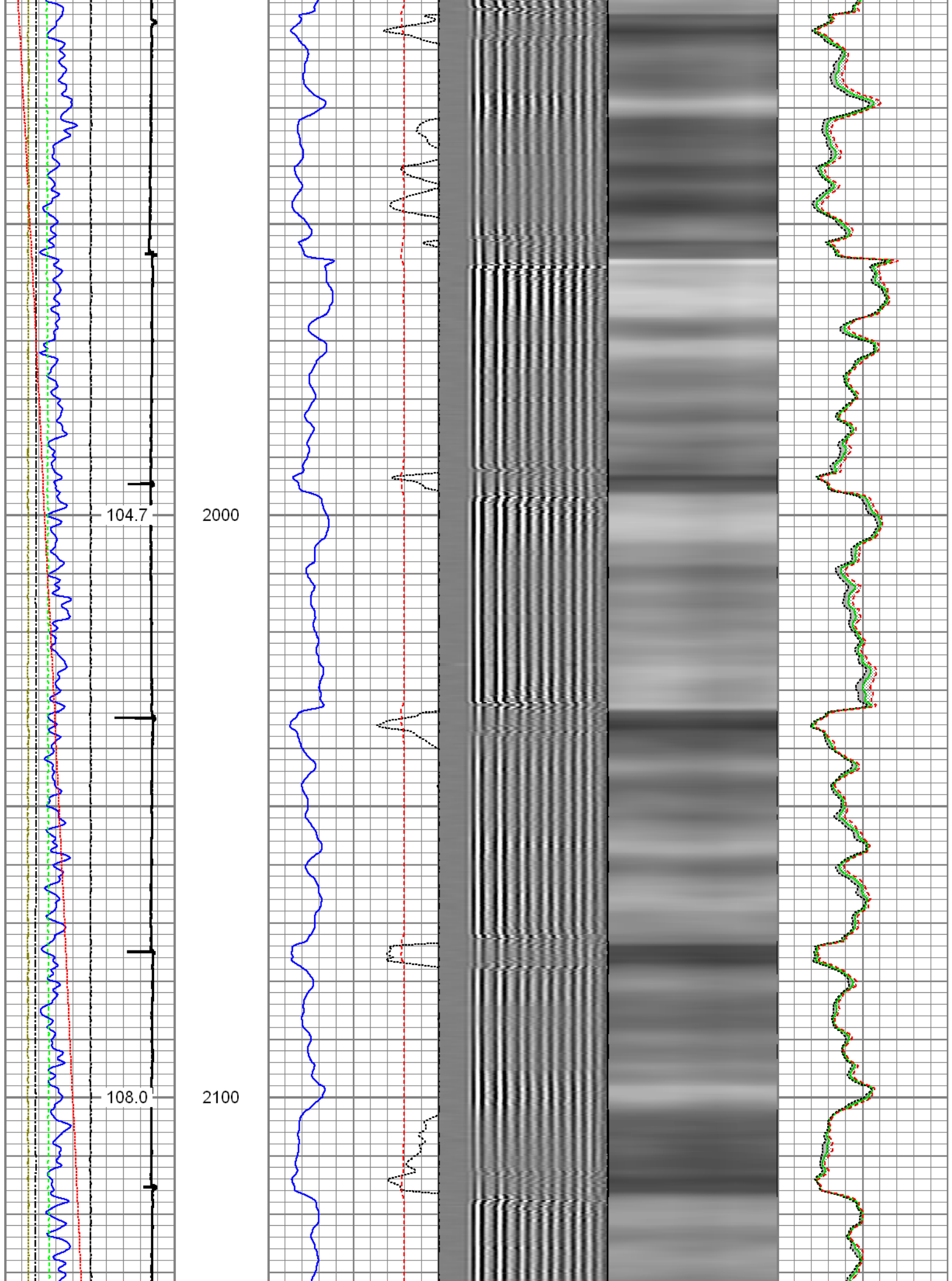


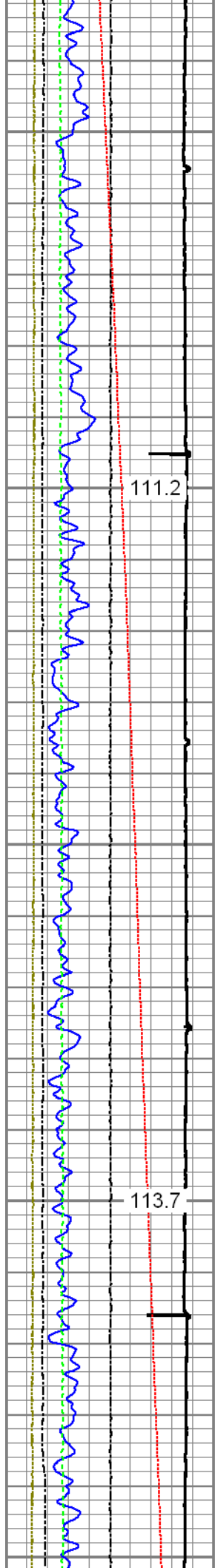
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1800

1900

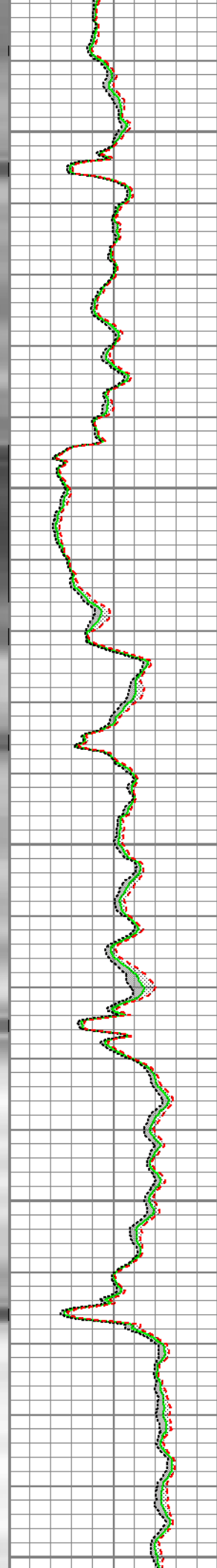
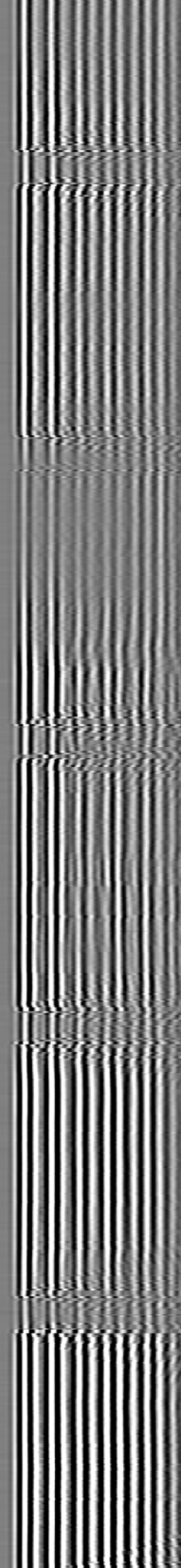
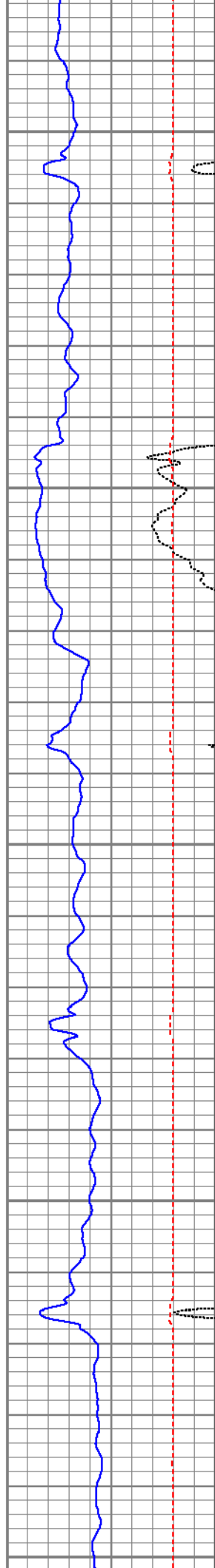


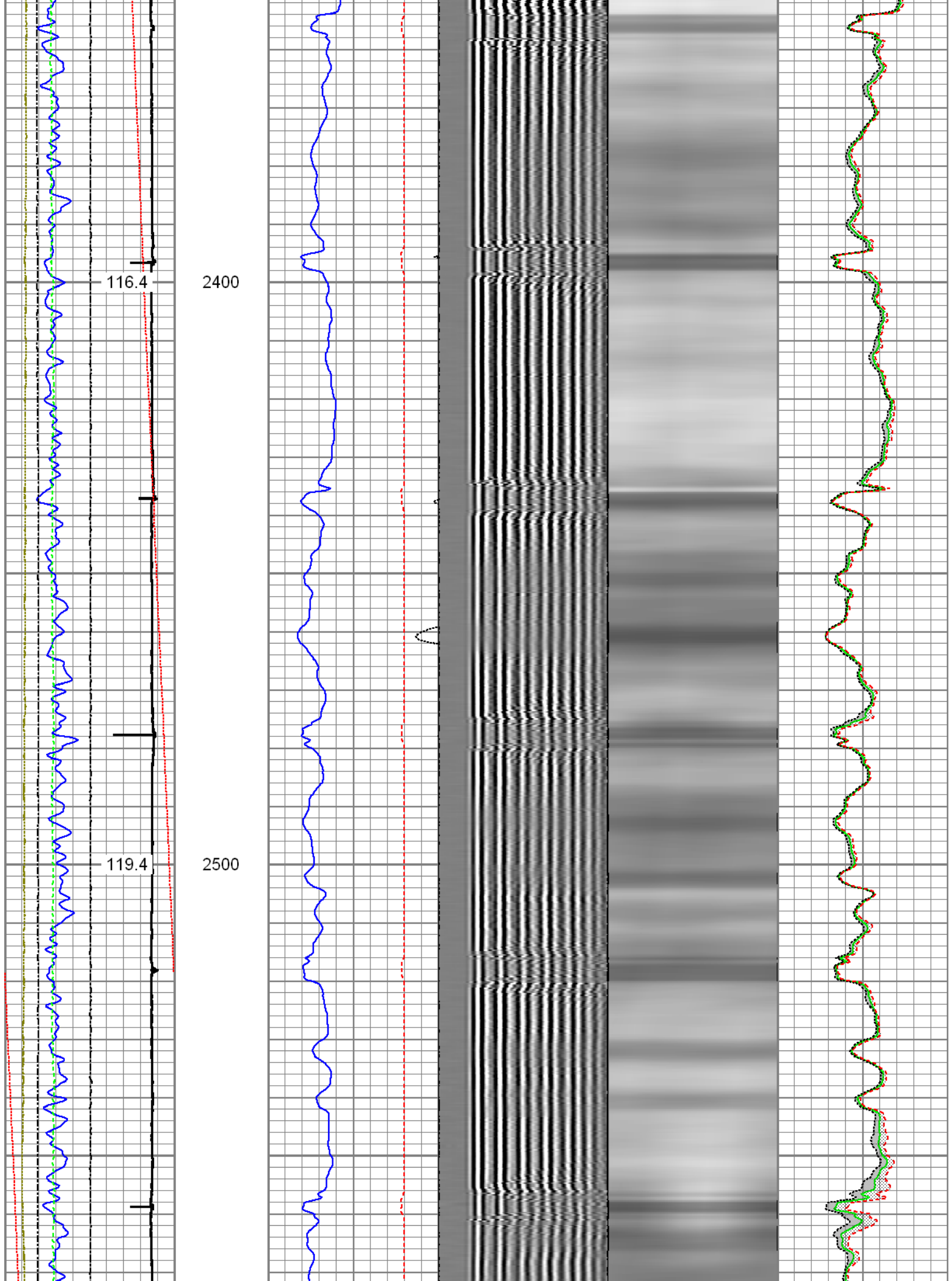


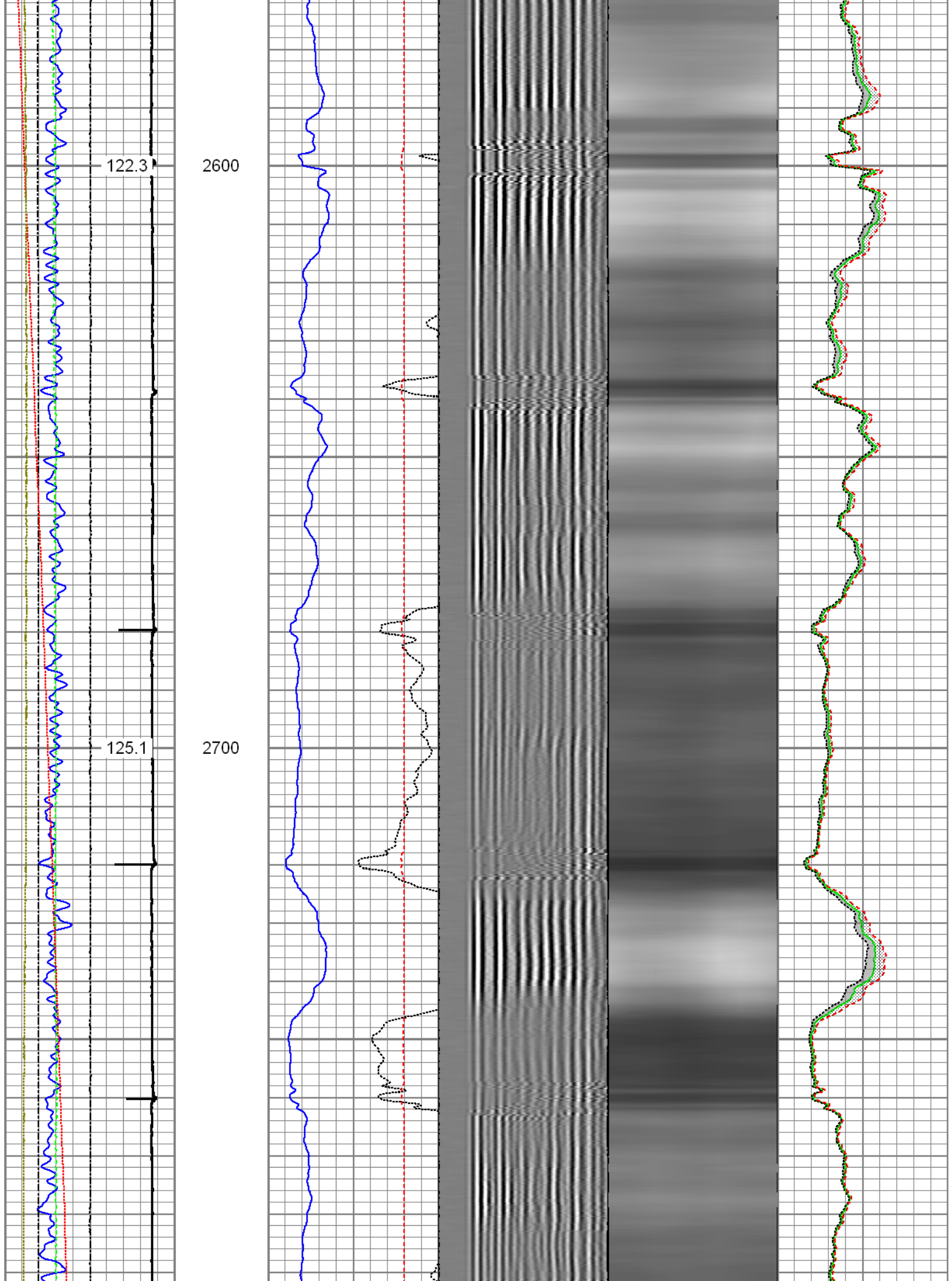


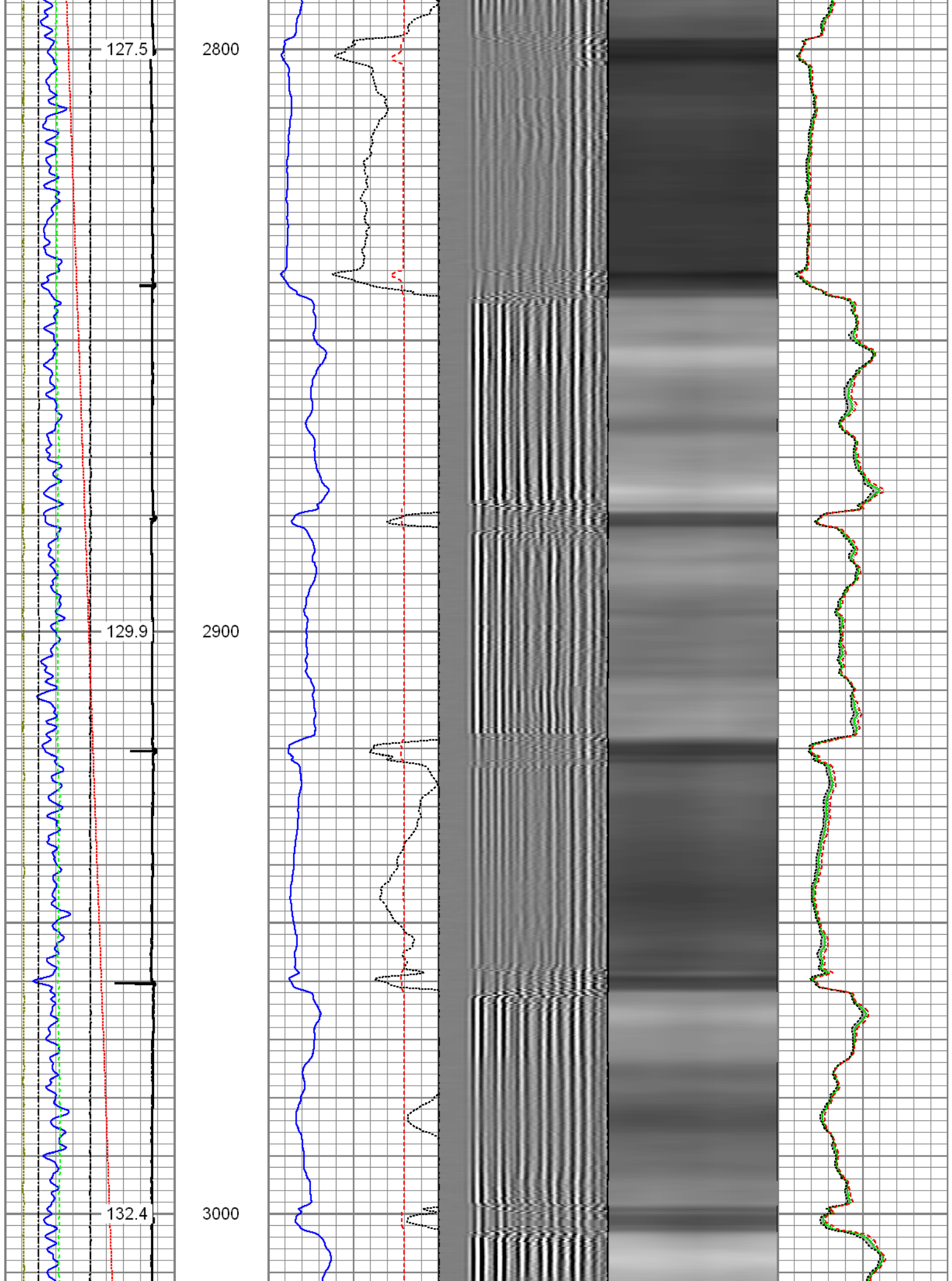
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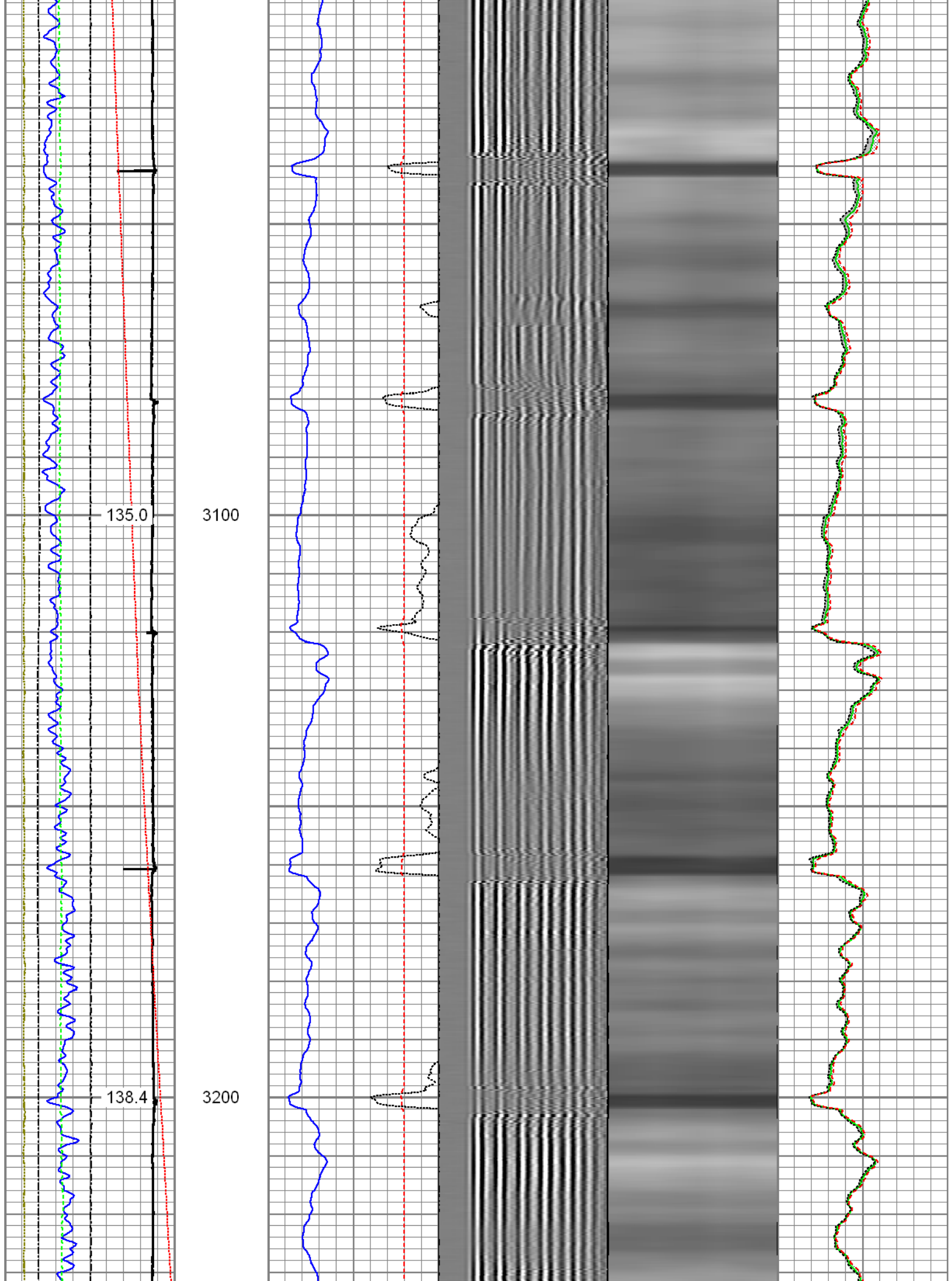
2300

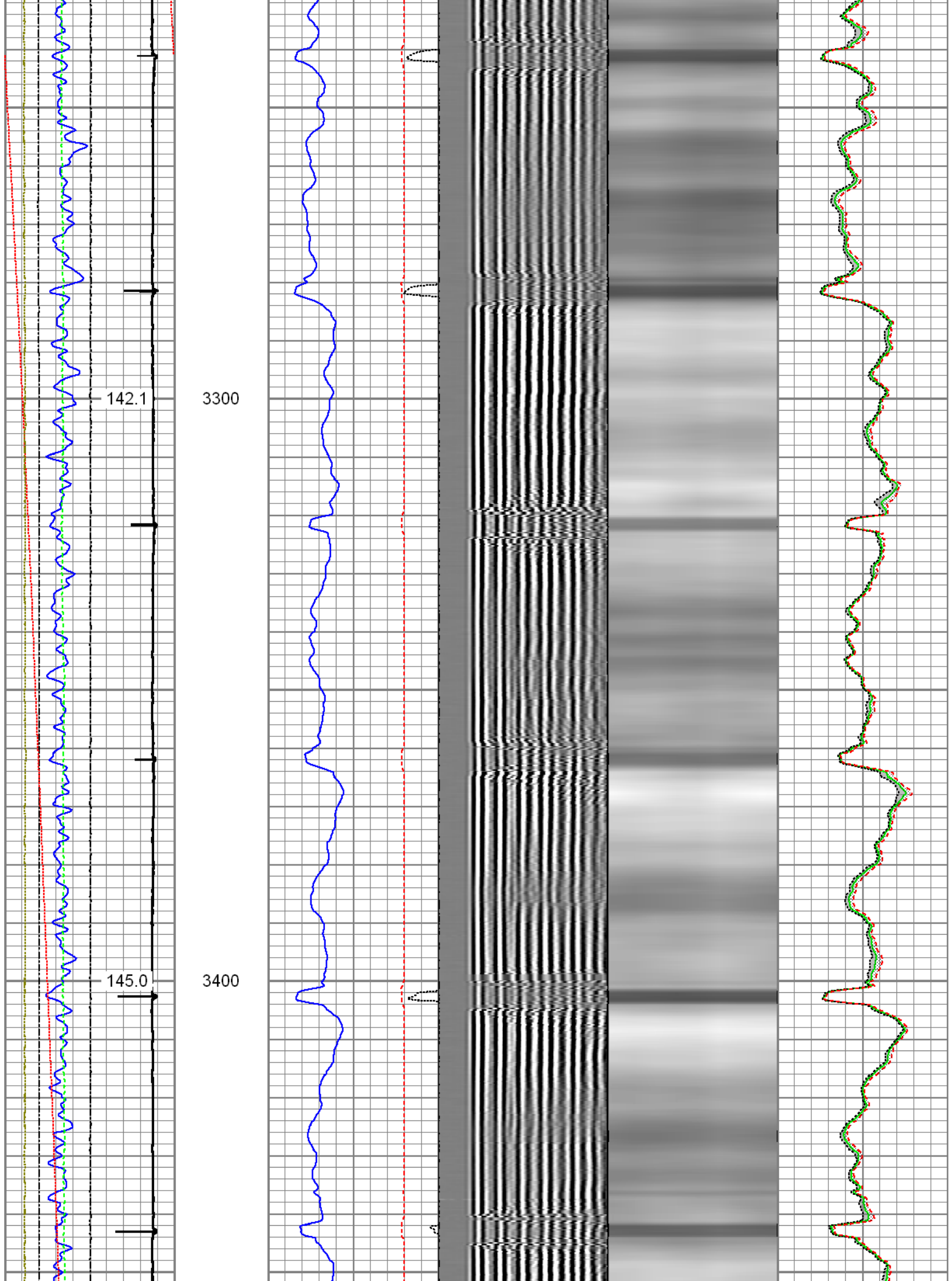


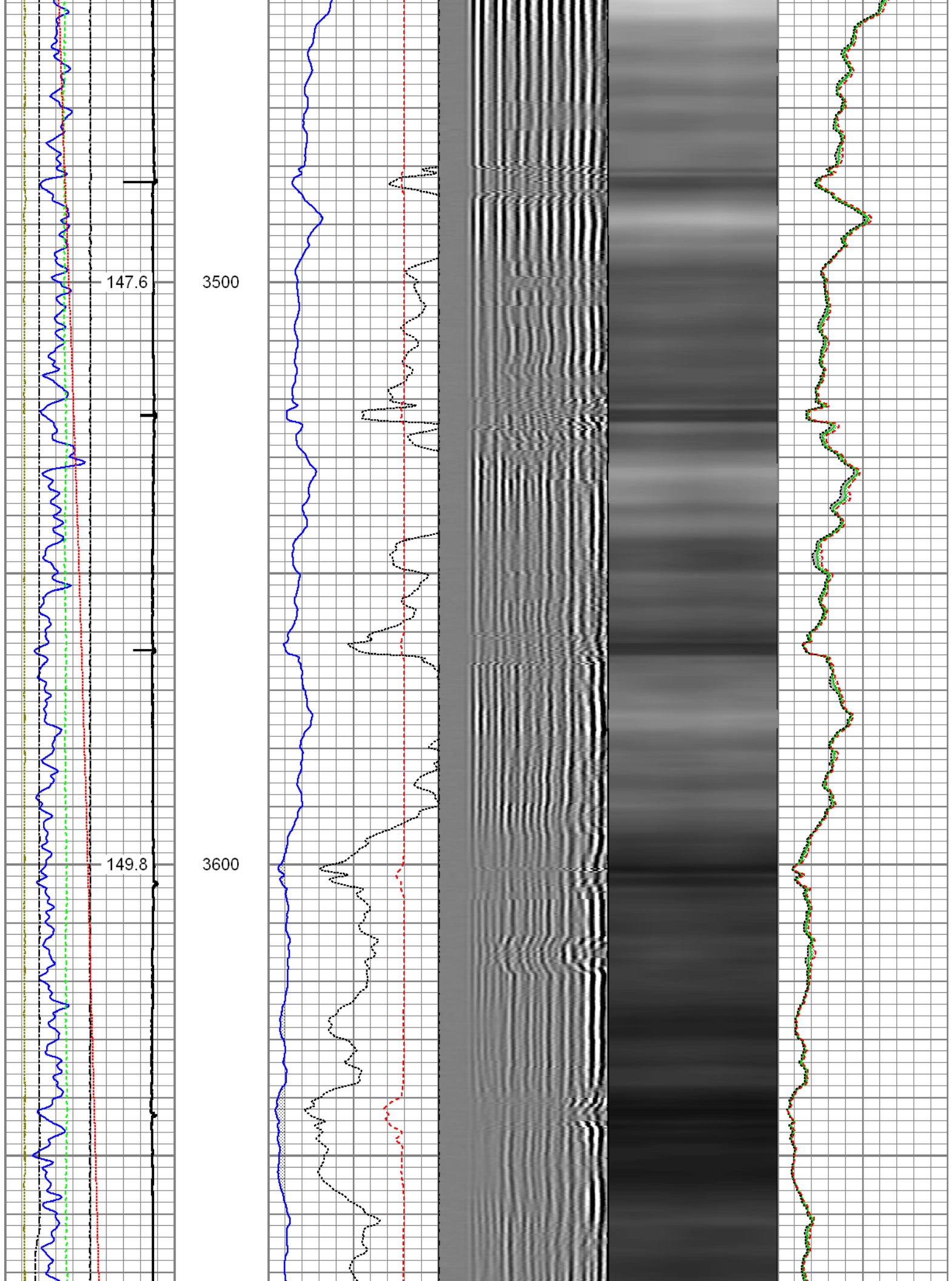


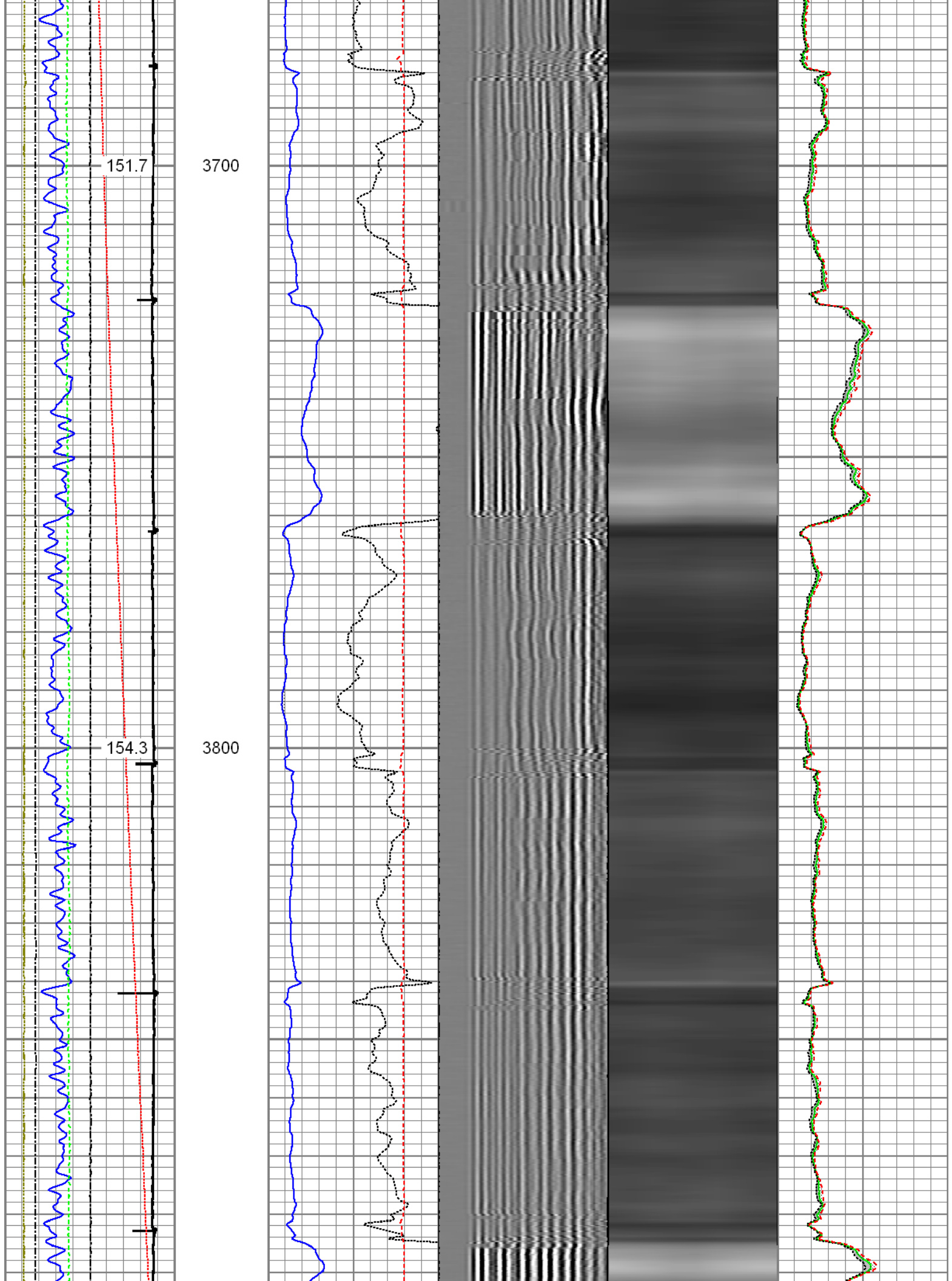


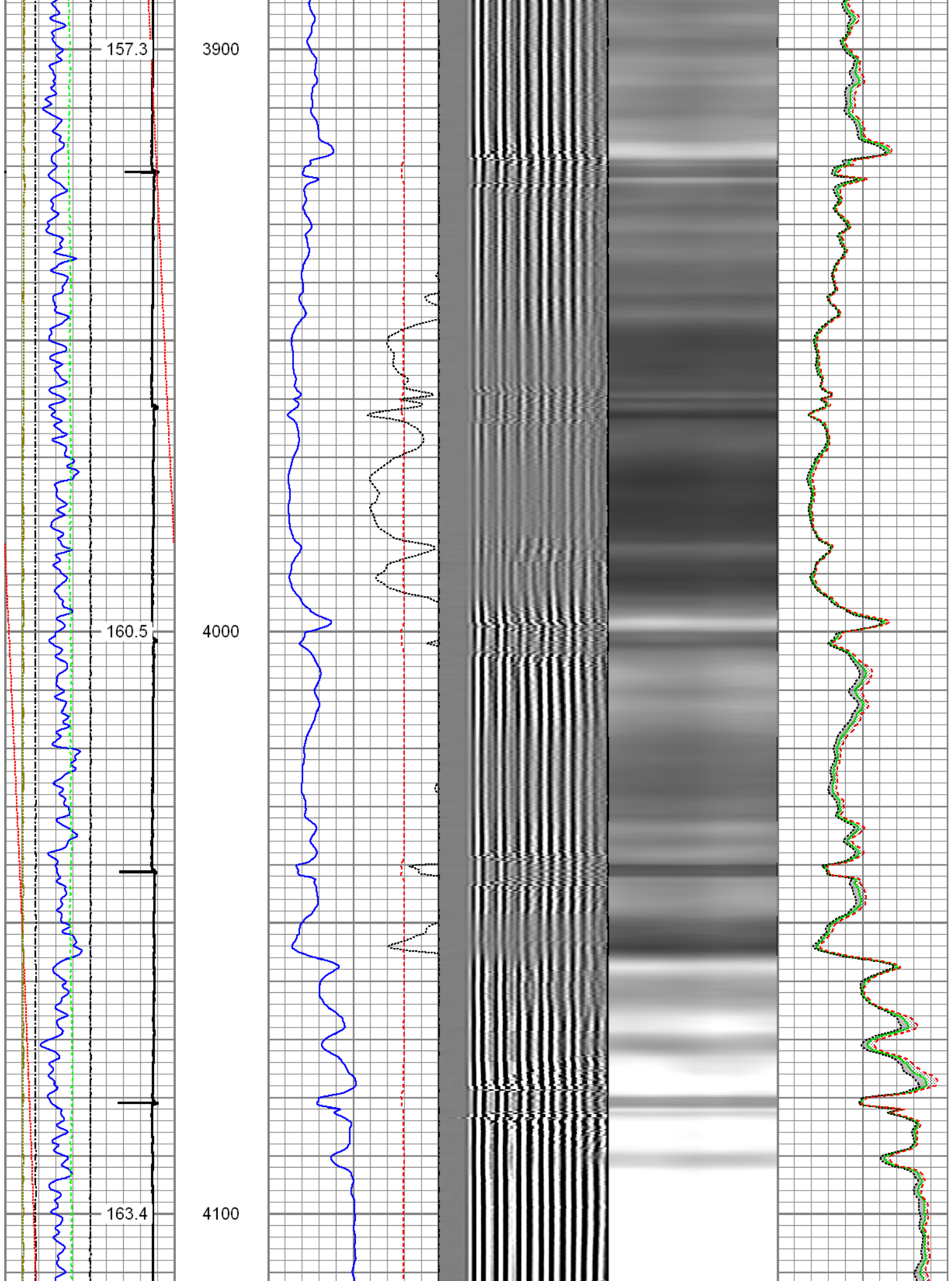


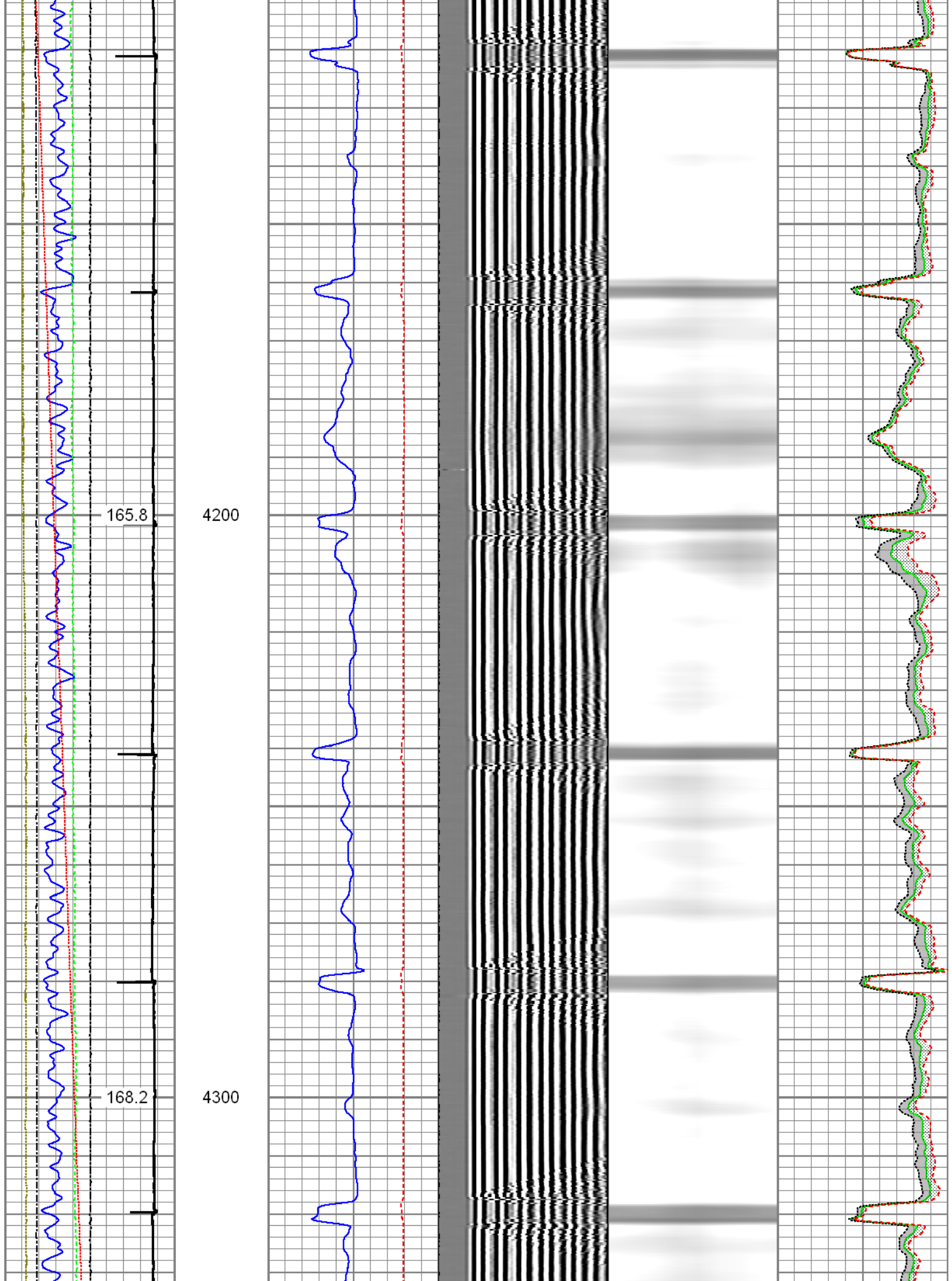


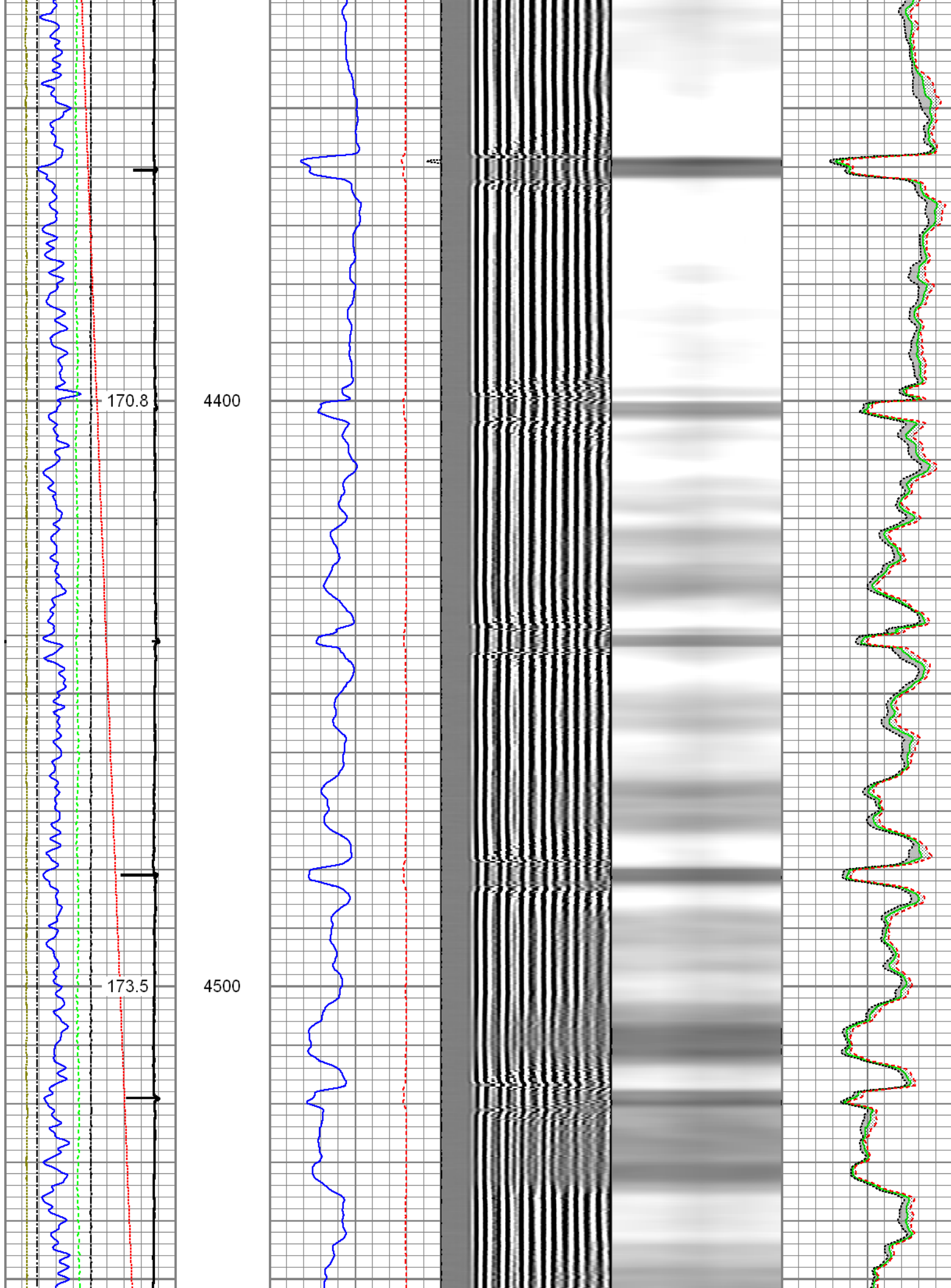


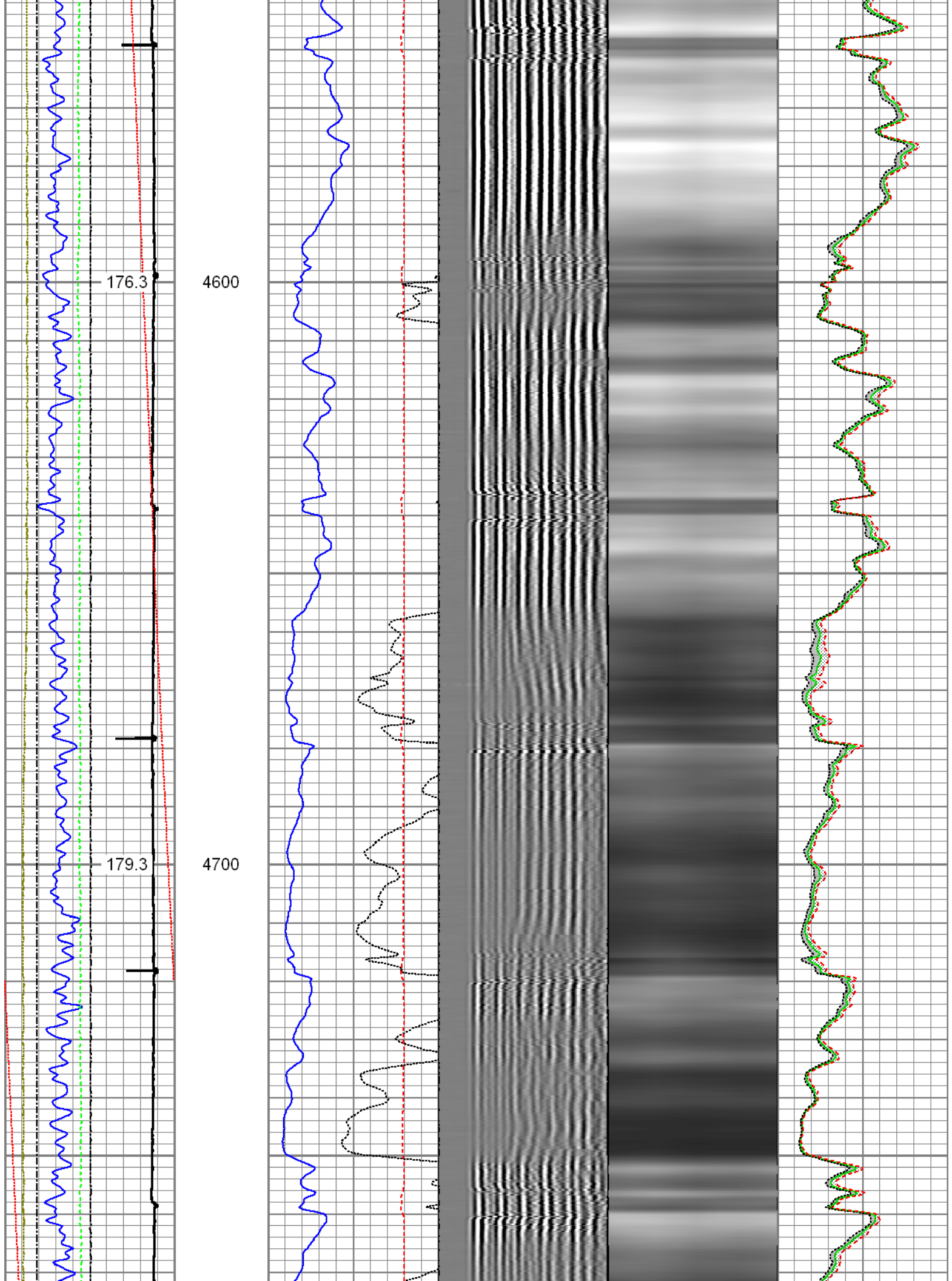


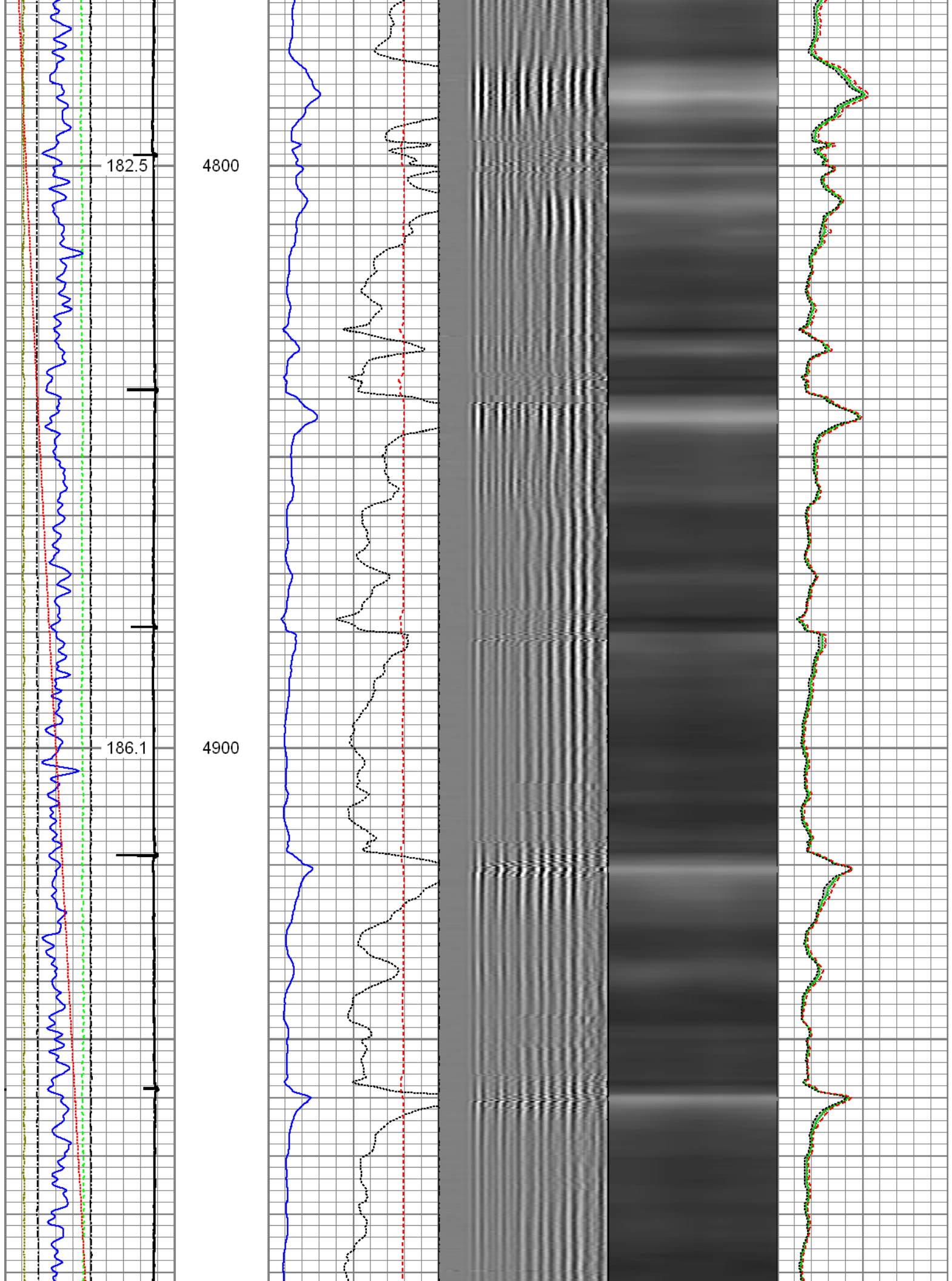


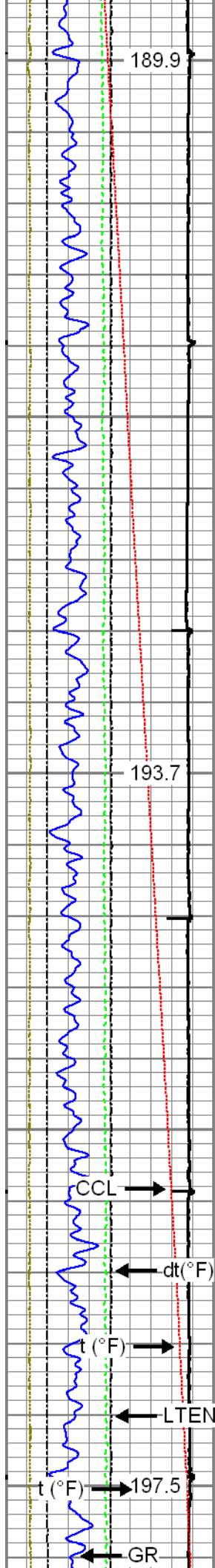








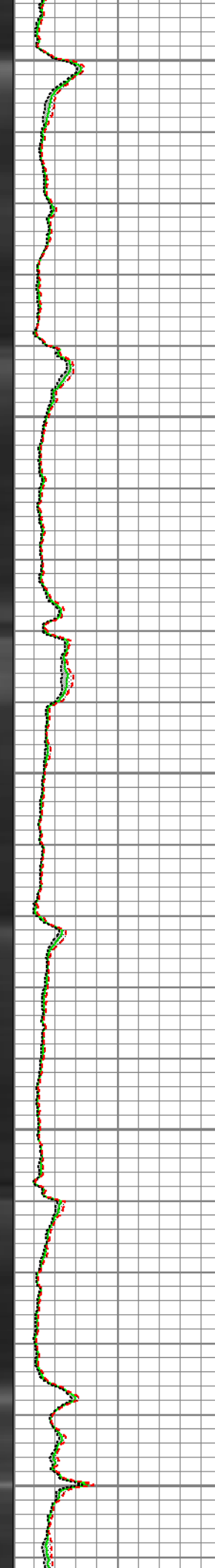
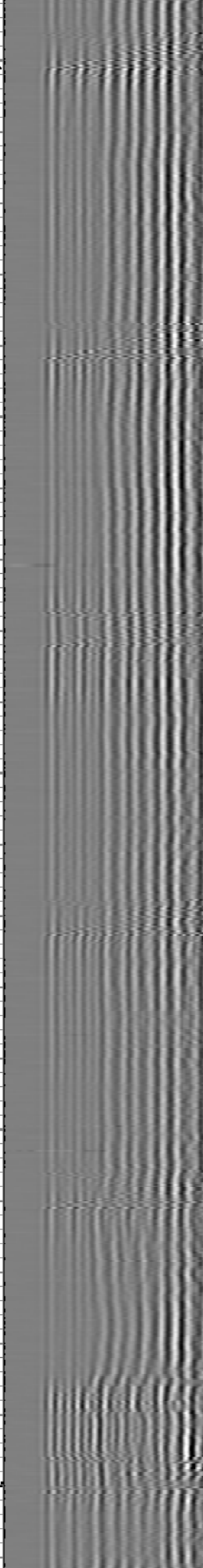
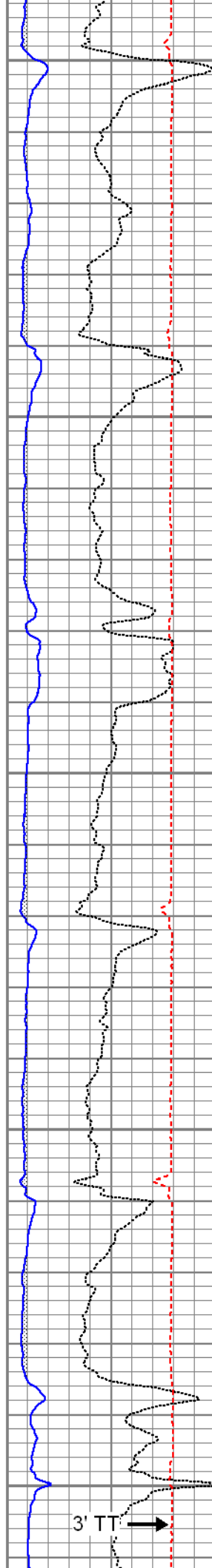


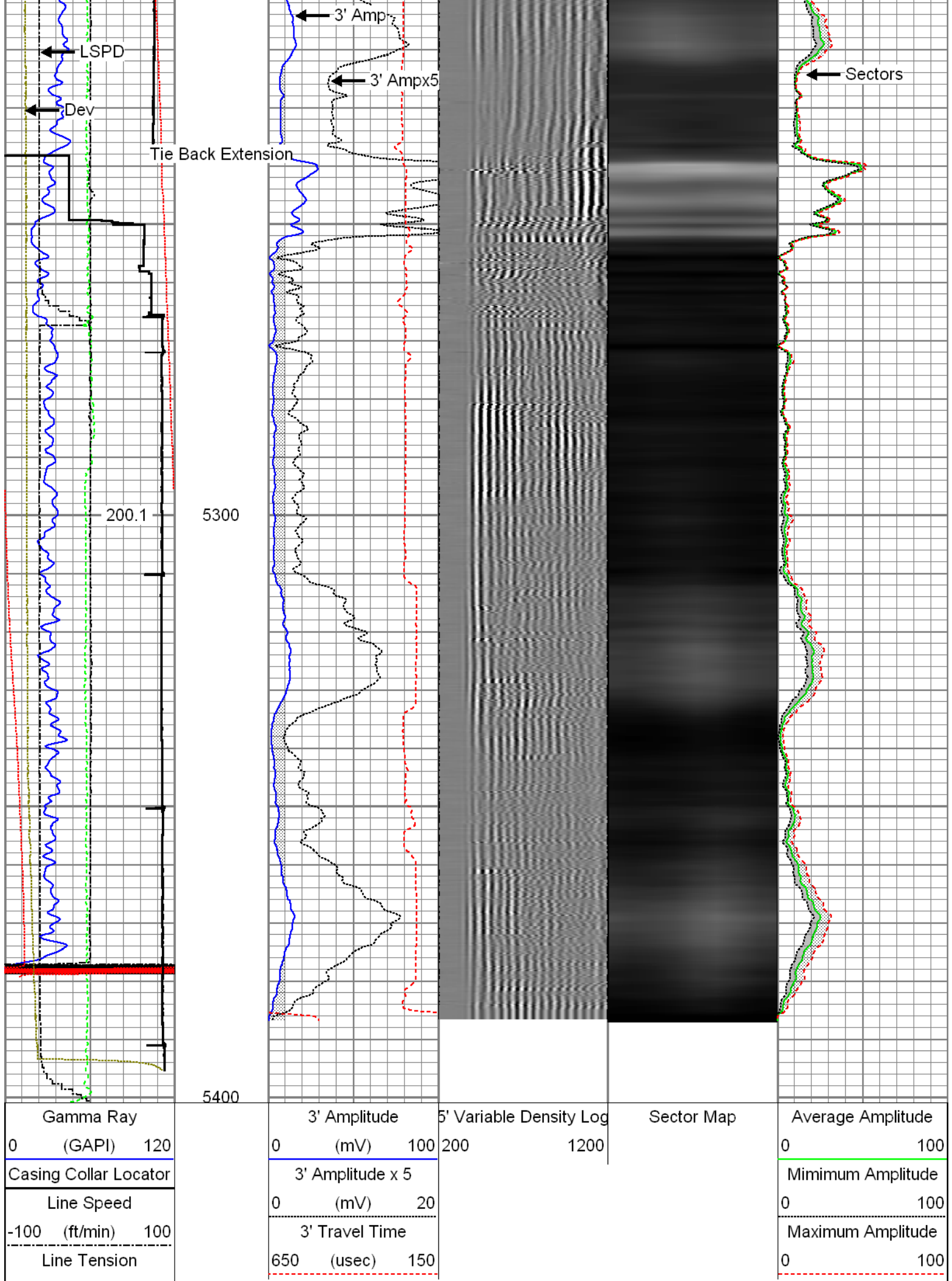


5000


5100

5200





0	(lb)	2000
Differential Temperature		
-2	(degF)	2
Temperature		
0	(degF)	20
-10	Deviation (°)	90

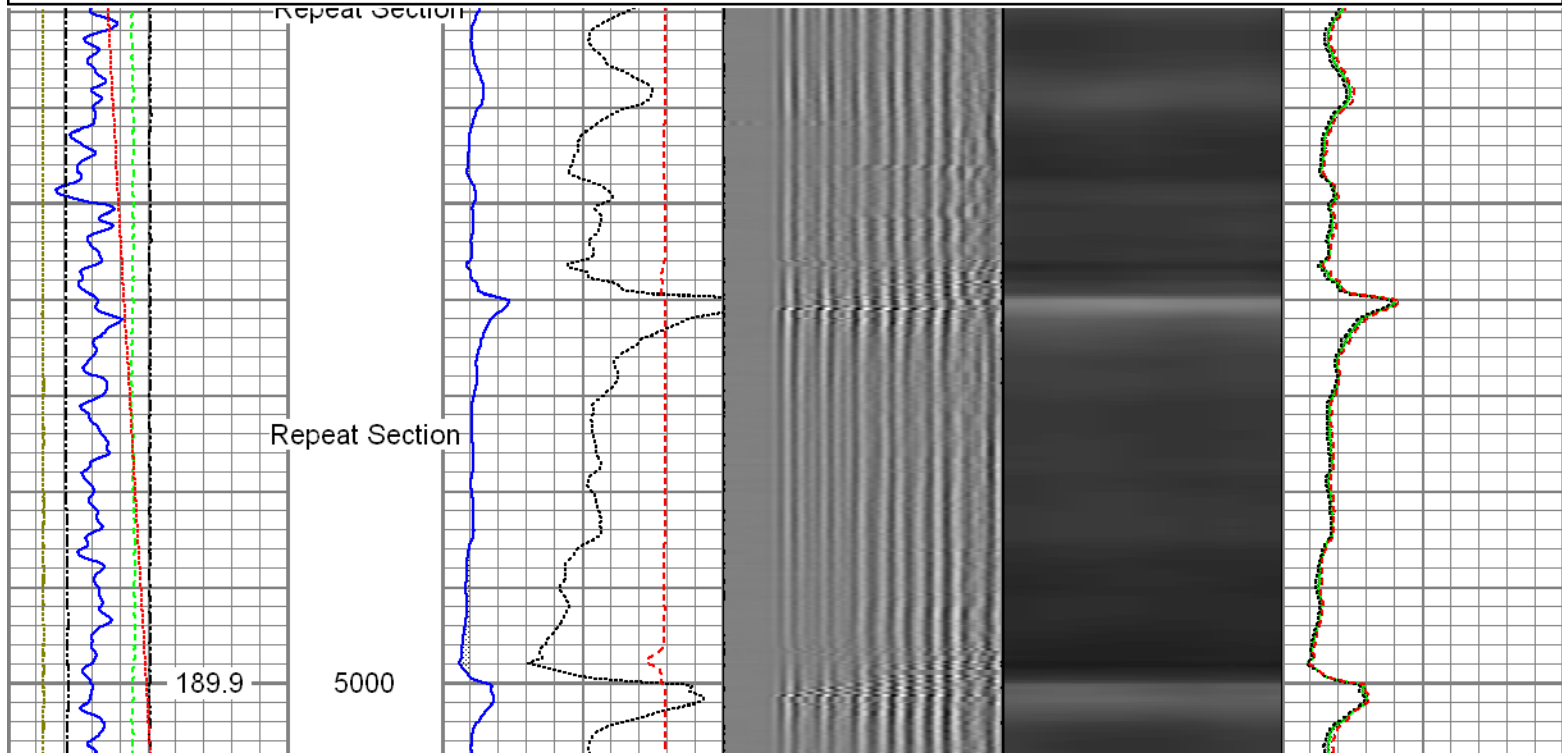


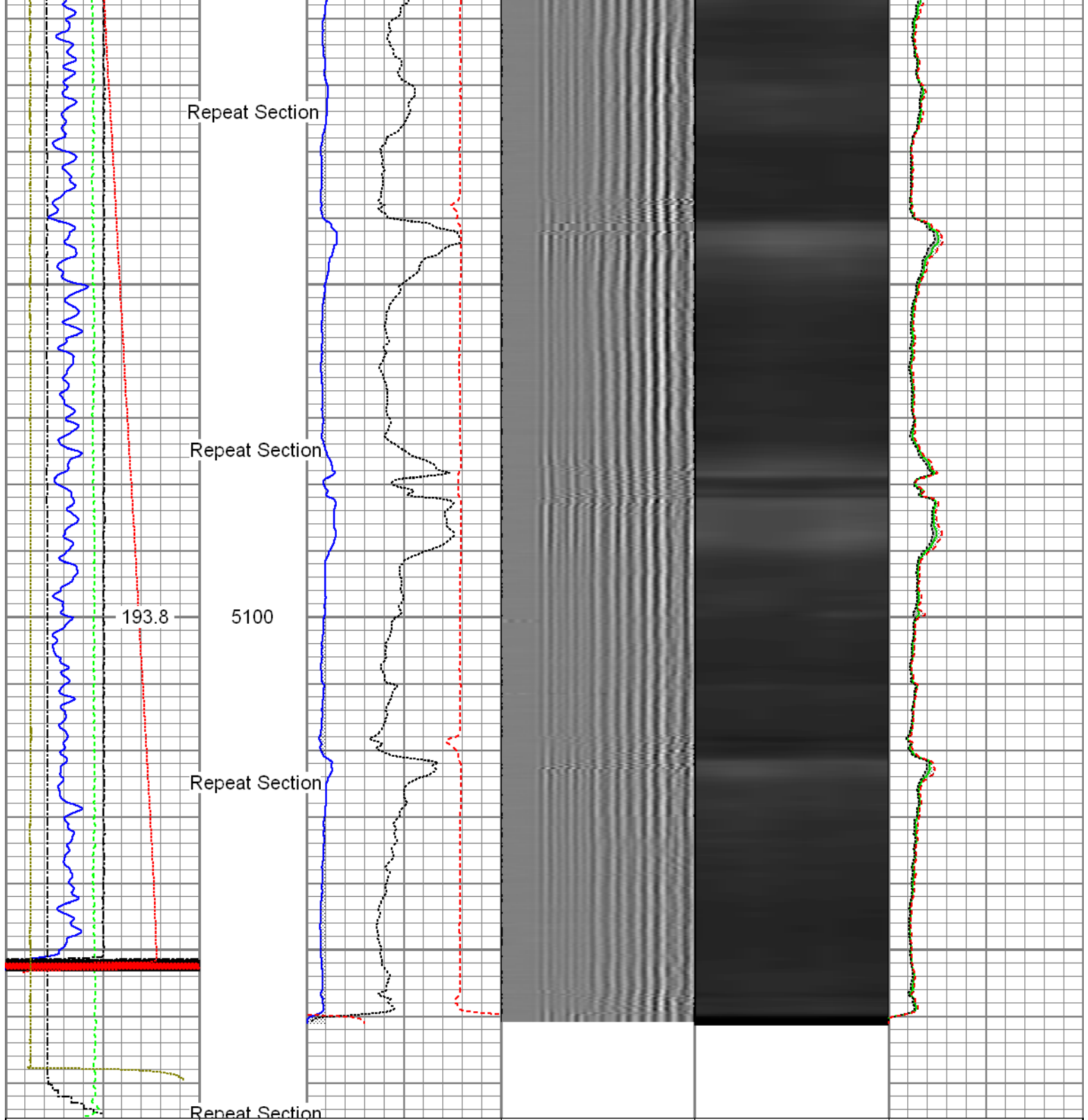
Repeat Pass

Recorded with 1500 PSI Surface Induced Pressure


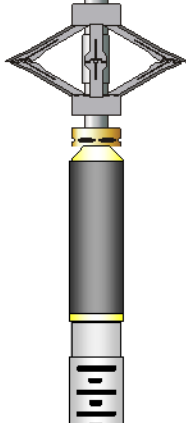
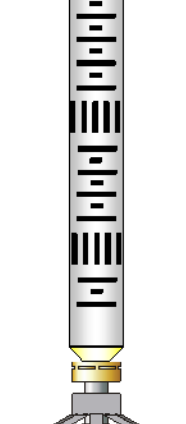
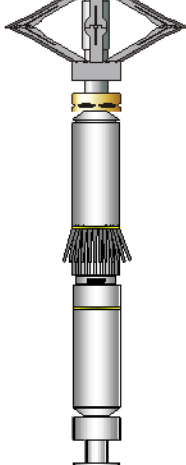
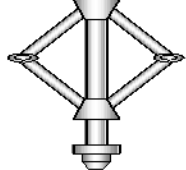
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Dataset Pathname: pass4.1
Presentation Format: rbt4_mit
Dataset Creation: Sat Dec 19 11:39:18 2015 by Calc SCH 120430
Charted by: Depth in Feet scaled 1:240

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

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 (10025095) Platinum Resistance Thermometer	1.04	1.69	5.20
			UW_PRC-DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WV3FT	15.42		UW_RBT-UW_RBT_004 (10022773) 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					
WV5FT	14.42					
MIT	5.41		UW_PRC #3 -DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_MIT-UW_MIT40_042 (10012912) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (10019616) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20

Dataset: 12-17-15_whiting_razor federal 12f-1305a_mit_rbl.db: field/well/run1/pass6.1
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-1305a_mit_rbl.db
Dataset Pathname: pass6.1
Dataset Creation: Sat Dec 19 11:18:15 2015 by Calc SCH 120430

Multi-finger Imaging Tool Calibration Report

Serial Number: 10012912
Number of Fingers: 40
Tool Model: UW_MIT40_042

Inclinometer Calibration Report

Performed: Mon Jul 15 09:39:36 2013
Calibration Angle: 45

	Inc X	Inc Y
Vertical:	1968	1974
Finger 1 up:	1740	1744
Finger 31 up:	2215	1741
Finger 21 up:	2205	2224
Finger 11 up:	1731	2217
Sensitivity ratio:	0.992868	
X-axis angle:	134.307	
Deviation const.:	335.589	

Finger Calibration Report

Performed: Thu Dec 17 10:42:26 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1077	352.0	1429	390.0	1819	407.0	2226
Finger 02:	1211	360.0	1571	390.0	1961	404.0	2365
Finger 03:	1092	367.0	1459	408.0	1867	429.0	2296
Finger 04:	1135	354.0	1489	396.0	1885	419.0	2304
Finger 05:	1160	359.0	1519	402.0	1921	414.0	2335
Finger 06:	1155	361.0	1516	403.0	1919	419.0	2338
Finger 07:	1097	357.0	1454	409.0	1863	434.0	2297
Finger 08:	1178	354.0	1532	401.0	1933	419.0	2352
Finger 09:	1136	351.0	1487	399.0	1886	419.0	2305
Finger 10:	1126	349.0	1475	397.0	1872	416.0	2288
Finger 11:	1130	345.0	1475	395.0	1870	413.0	2283
Finger 12:	1179	350.0	1529	396.0	1925	411.0	2336
Finger 13:	1175	345.0	1520	389.0	1909	400.0	2309
Finger 14:	1139	350.0	1489	399.0	1888	414.0	2302
Finger 15:	1105	355.0	1460	408.0	1868	428.0	2296
Finger 16:	1120	358.0	1478	411.0	1889	431.0	2320
Finger 17:	1043	339.0	1382	394.0	1776	423.0	2199
Finger 18:	1147	345.0	1492	385.0	1877	406.0	2283
Finger 19:	1035	450.0	1485	390.0	1875	416.0	2291
Finger 20:	1091	354.0	1445	401.0	1846	427.0	2273
Finger 21:	1108	362.0	1470	399.0	1869	410.0	2279
Finger 22:	1070	366.0	1436	404.0	1840	429.0	2269
Finger 23:	1072	369.0	1441	413.0	1854	437.0	2291
Finger 24:	1094	376.0	1470	376.0	1846	396.0	2242
Finger 25:	1055	369.0	1424	407.0	1831	427.0	2258
Finger 26:	1173	359.0	1532	370.0	1902	391.0	2293
Finger 27:	1071	368.0	1439	394.0	1833	409.0	2242
Finger 28:	1122	361.0	1483	382.0	1865	399.0	2264
Finger 29:	1055	373.0	1428	398.0	1826	419.0	2245
Finger 30:	1077	377.0	1454	389.0	1843	424.0	2267

Finger 30:	1077	371.0	1451	388.0	1845	421.0	2267
Finger 31:	1136	366.0	1502	387.0	1889	405.0	2294
Finger 32:	1176	401.0	1577	415.0	1992	432.0	2424
Finger 33:	1157	368.0	1525	380.0	1905	403.0	2308
Finger 34:	1108	381.0	1489	398.0	1887	424.0	2311
Finger 35:	965	338.0	1303	372.0	1675	410.0	2085
Finger 36:	1078	369.0	1447	397.0	1844	423.0	2267
Finger 37:	1165	370.0	1535	390.0	1925	409.0	2334
Finger 38:	1200	364.0	1564	383.0	1947	389.0	2336
Finger 39:	1214	359.0	1573	382.0	1955	393.0	2348
Finger 40:	1110	366.0	1476	397.0	1873	416.0	2289

Segmented Cement Bond Log Calibration Report

Serial Number: 10022773
Tool Model: UW_RBT_004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 36.364 ft

Master Calibration, performed Sat Dec 19 11:18:12 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.003	0.776	0.800	62.165	79.340	0.562
5FT	-0.000	0.734	0.800	62.165	83.592	0.837
S1	0.003	0.697	0.000	100.000	144.110	-0.440
S2	0.001	0.712	0.000	100.000	140.676	-0.176
S3	0.002	0.701	0.000	100.000	143.057	-0.309
S4	0.002	0.714	0.000	100.000	140.391	-0.244
S5	0.003	0.743	0.000	100.000	135.010	-0.352
S6	0.002	0.722	0.000	100.000	138.972	-0.332
S7	0.003	0.724	0.000	100.000	138.759	-0.477
S8	0.003	0.711	0.000	100.000	141.261	-0.491

Temperature Calibration Report

Serial Number: 10025095
Tool Model: UW_PRT_016
Performed: Wed Feb 11 13:43:20 2015

Point #	Reading	Reference
1	12798.00 cps	68.00 degF
2	18136.00 cps	104.00 degF
3	29513.00 cps	176.00 degF
4	40905.00 cps	248.00 degF
5	52487.00 cps	320.00 degF
6	58362.00 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: Mon Nov 23 09:56:50 2015

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Calibrator Reading.

1.0

cps

Sensitivity:

0.6000

GAPI/cps



Company

Whiting Oil and Gas Corporation

Well

Razor Federal 12F-1305A

Field

Wildcat

County

Weld

State

Colorado