



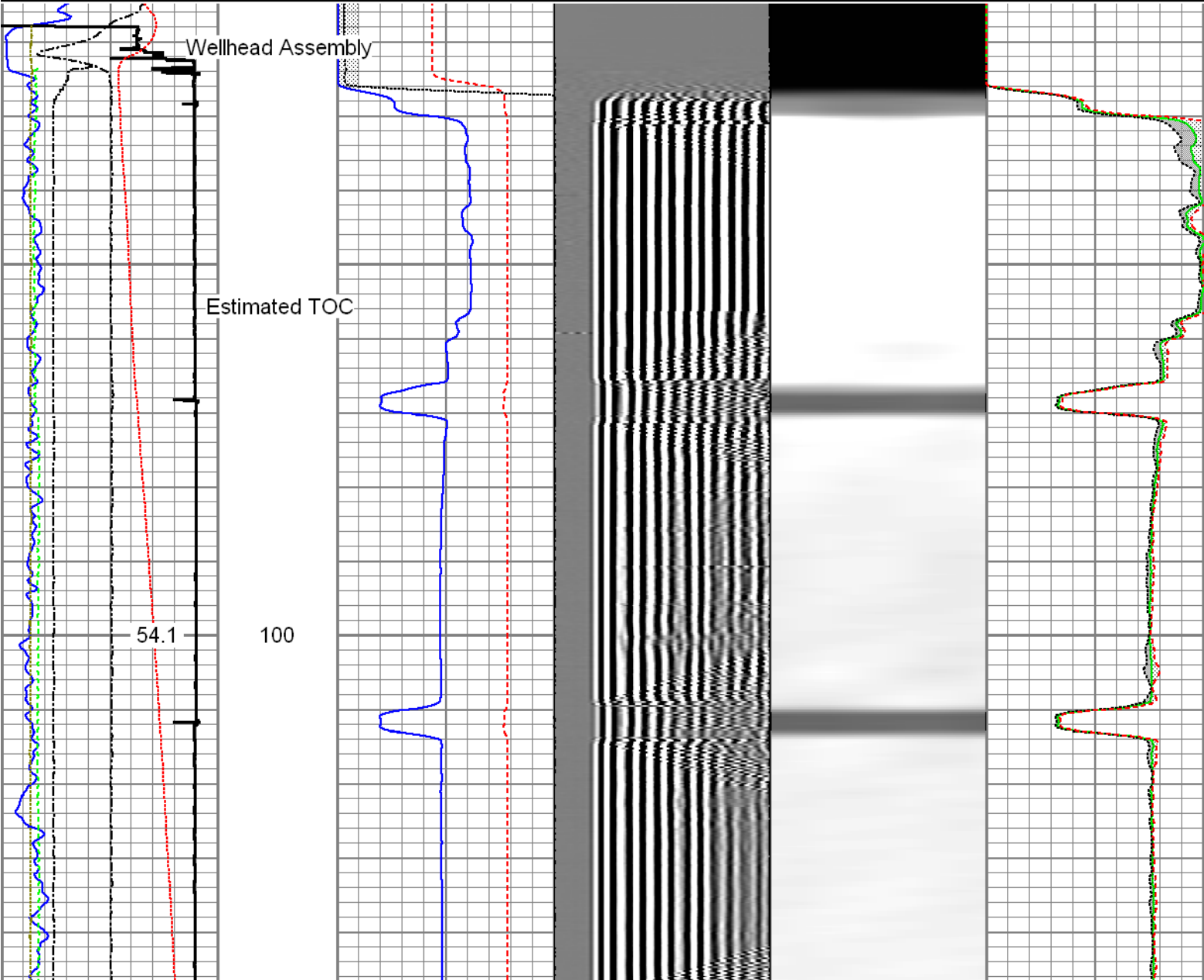
<<< Fold Here >>>
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible 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 as per customer request Depth referenced to Kelly Bushing of 24 FT Log ran from just above Liner Top to surface Marker Joints found At 6102 FT and 6197 FT Recorded with 2500 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.



Recorded with 2500 PSI Surface Induced Pressure

Database File: 12-19-15\_noble\_moser h22-715\_mit\_rbl.db  
Dataset Pathname: pass5.1  
Presentation Format: rbt4\_mit  
Dataset Creation: Sat Dec 19 15:15:12 2015 by Calc 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				



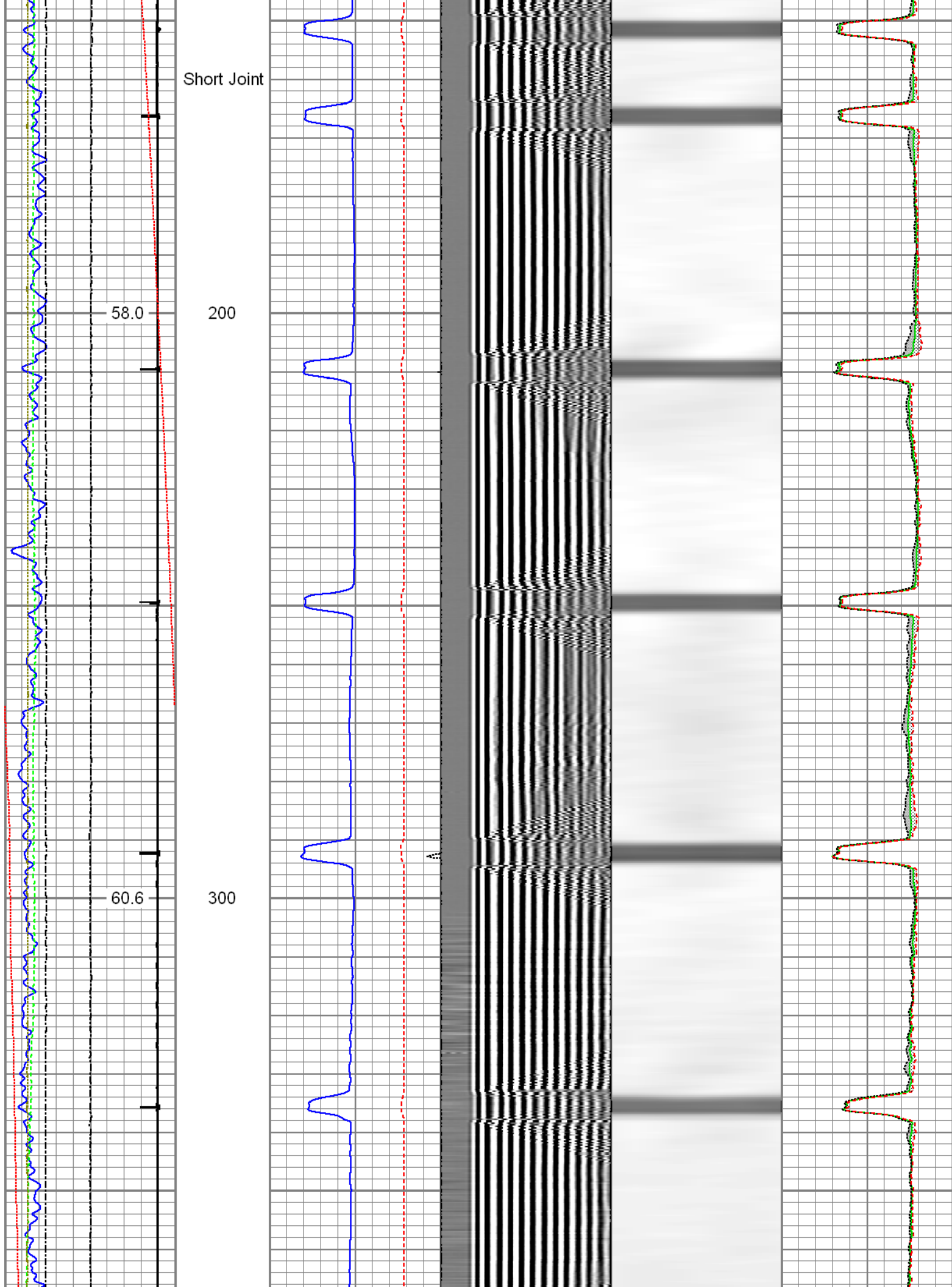
Short Joint

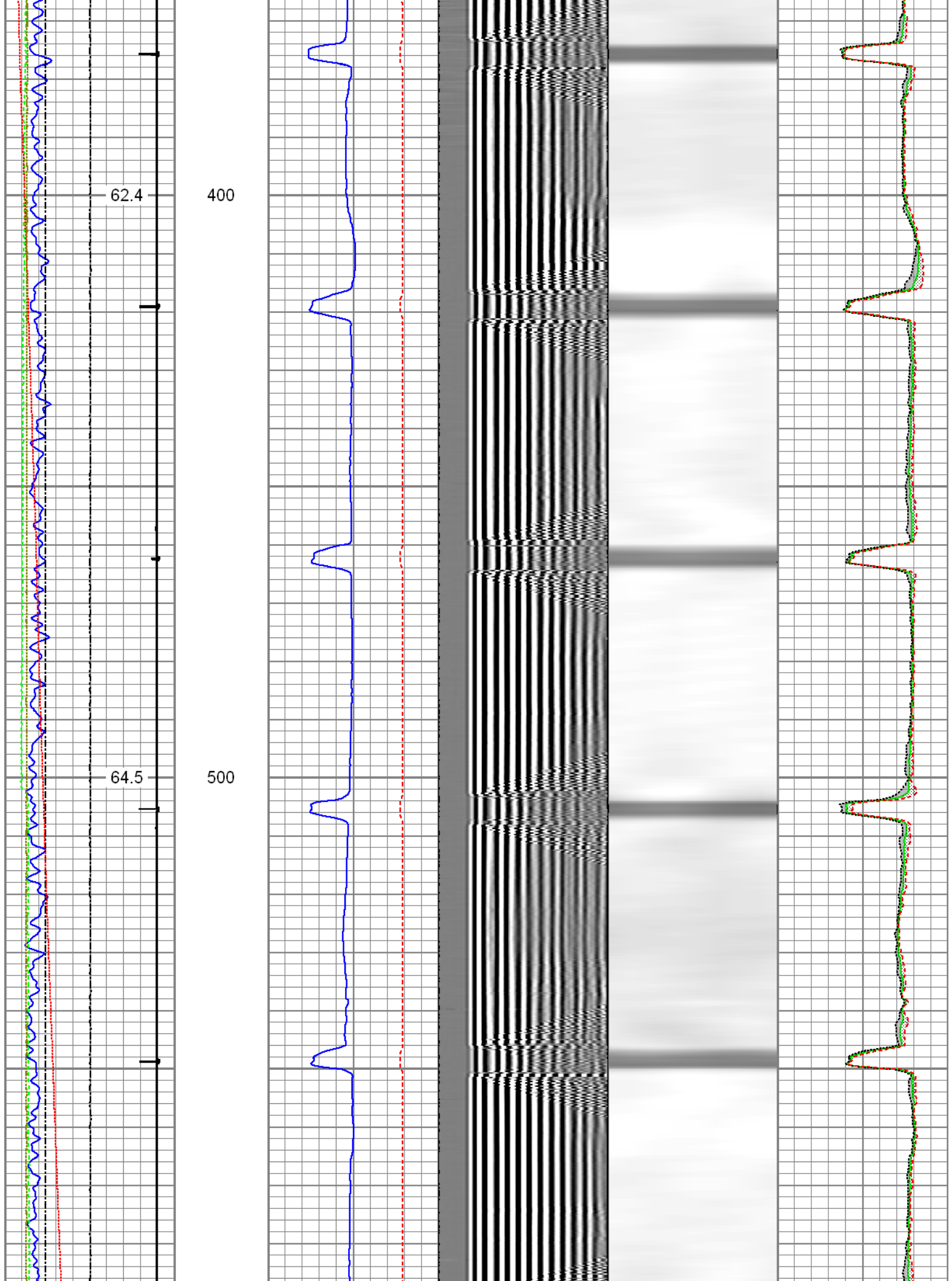
58.0

200

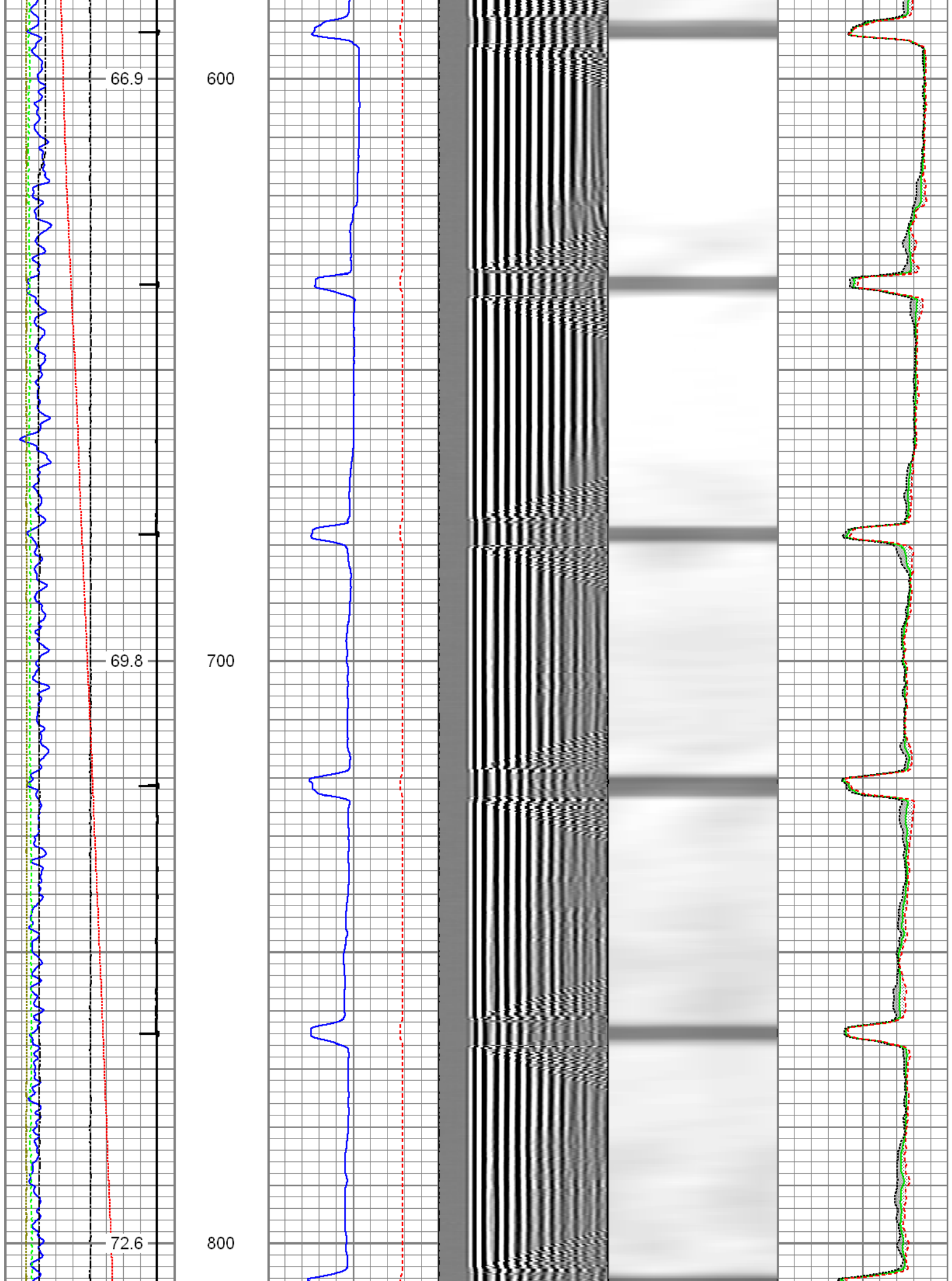
60.6

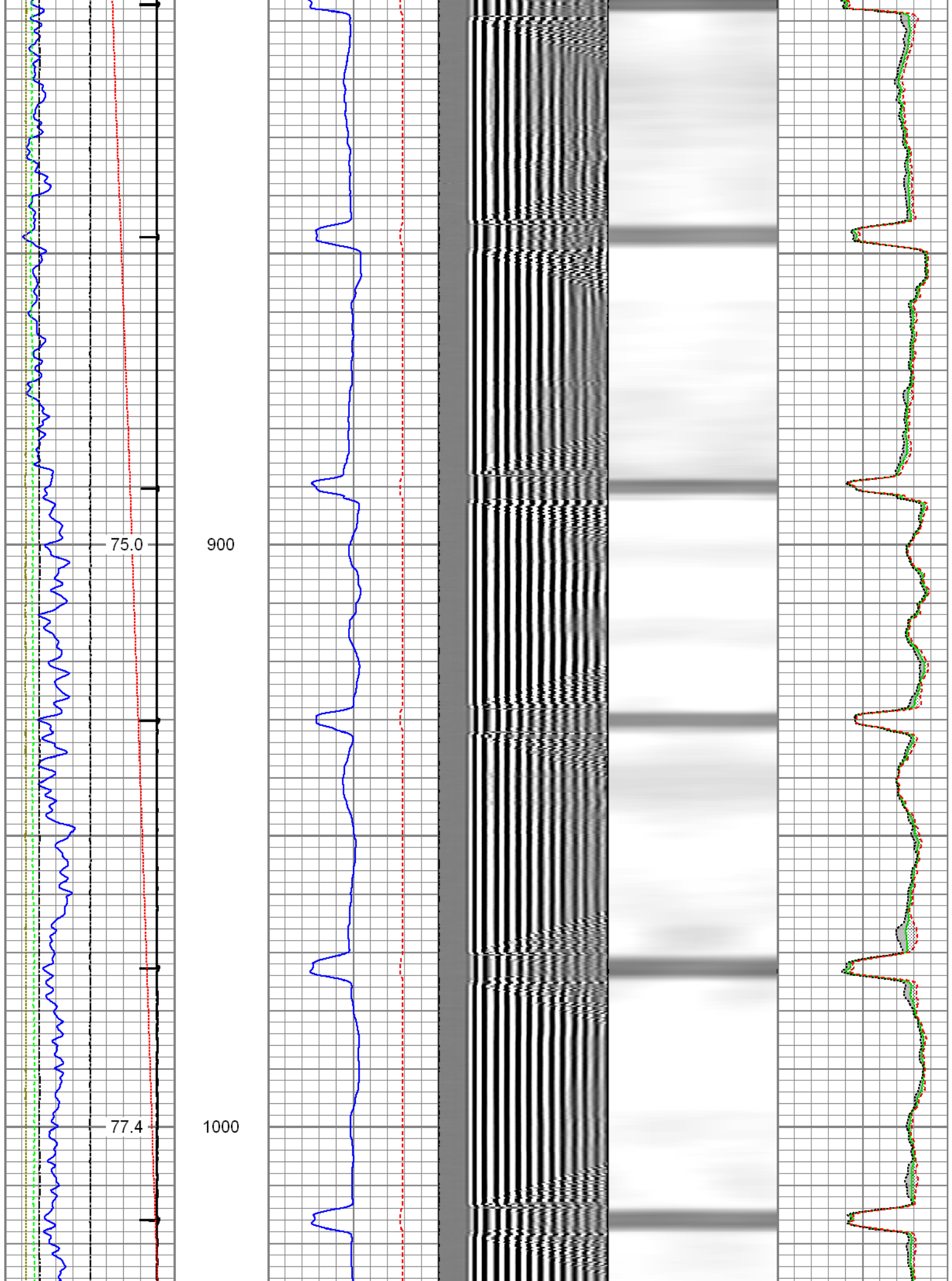
300

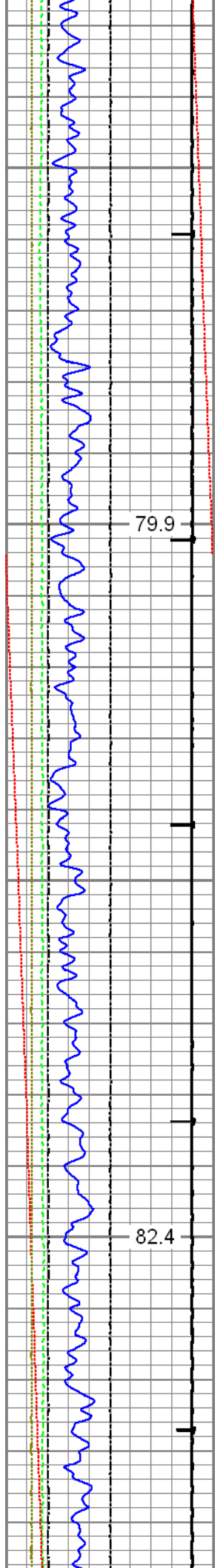






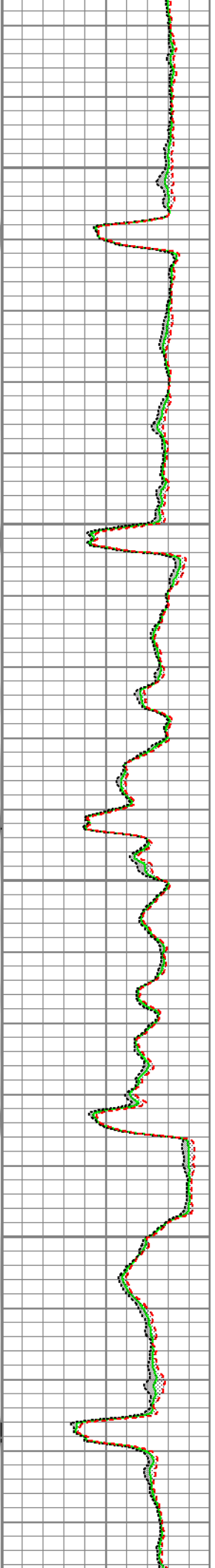
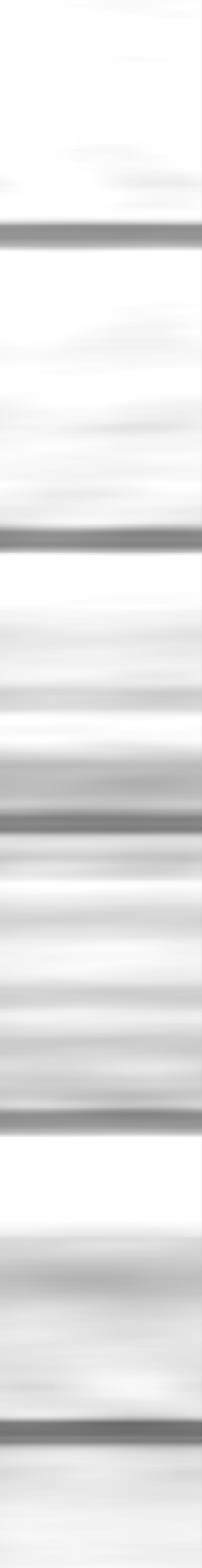
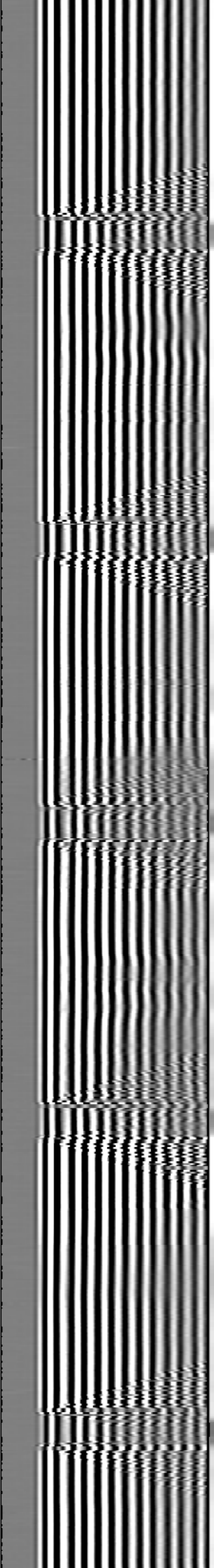
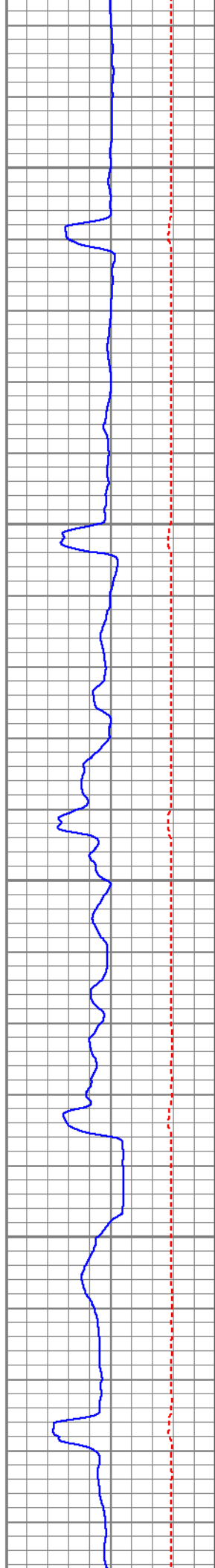


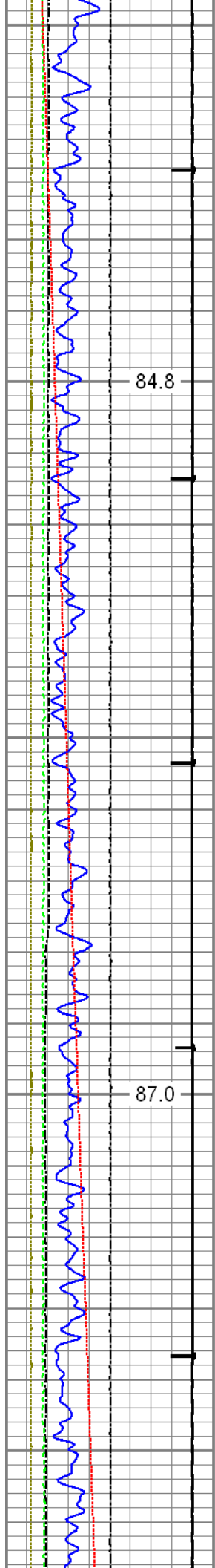




1100

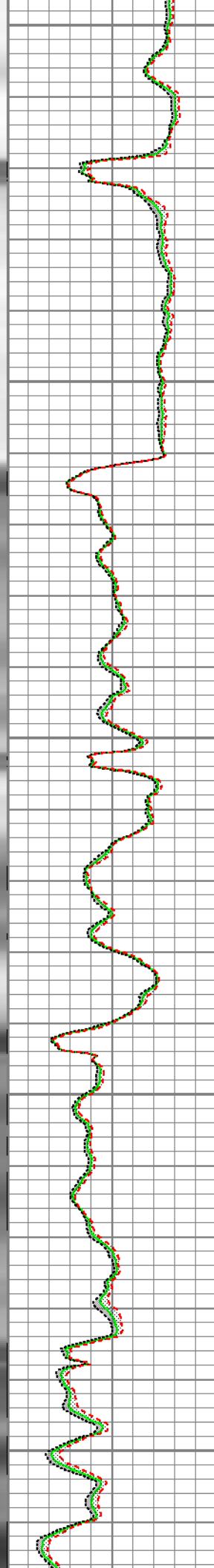
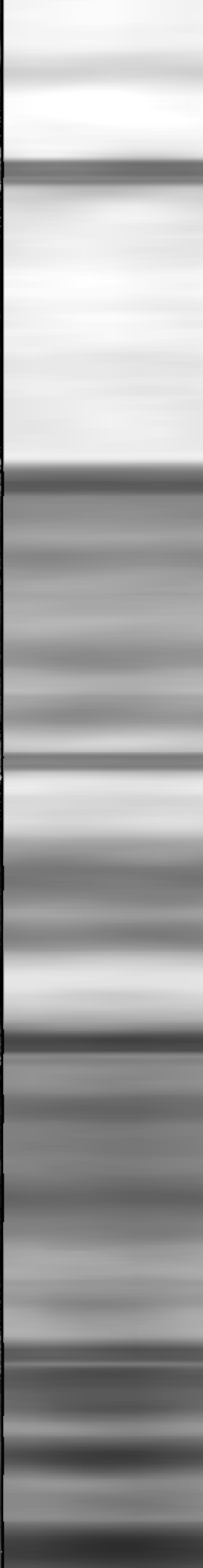
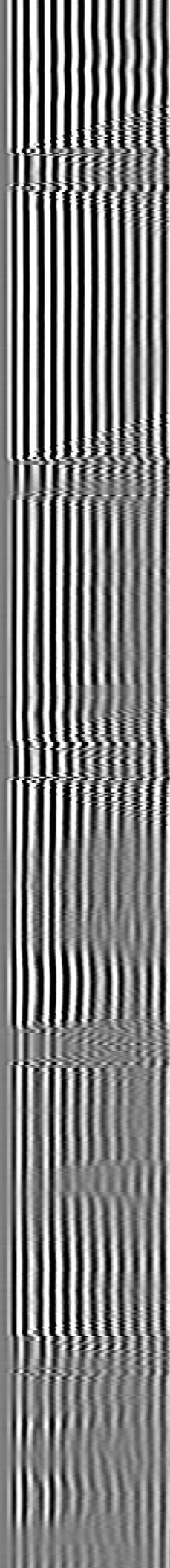
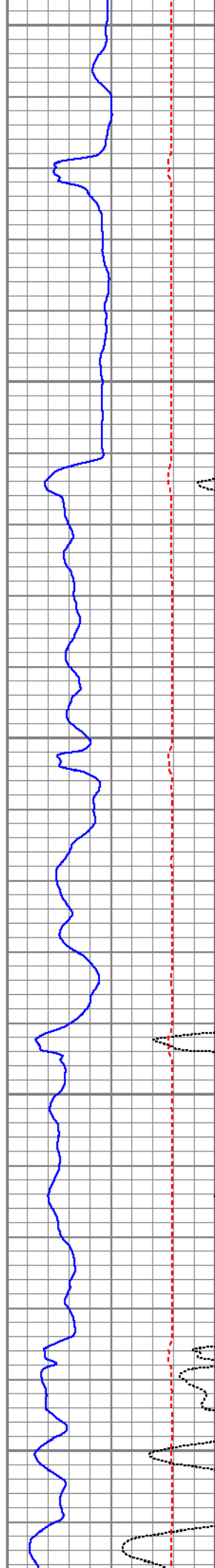
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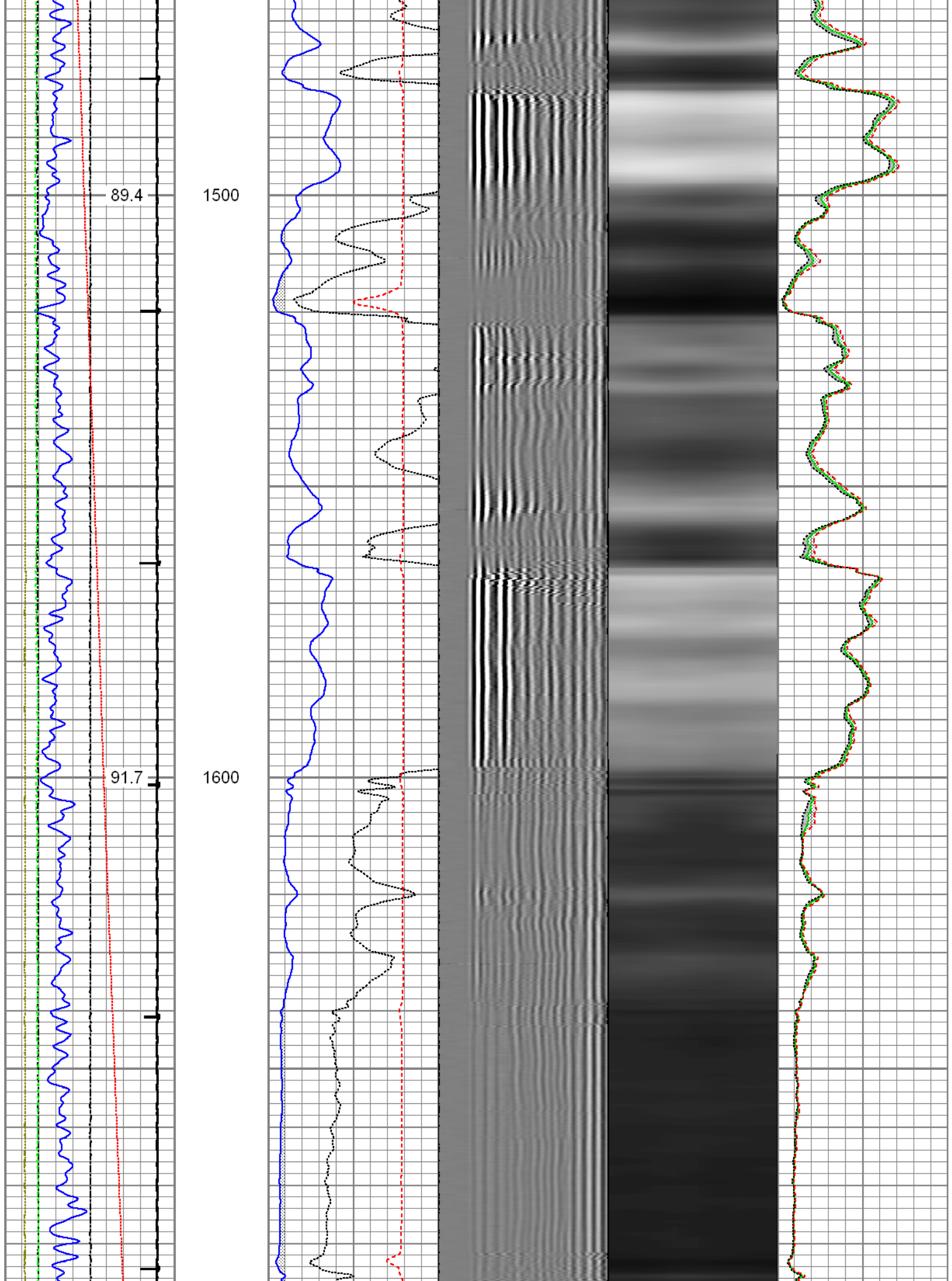


1300

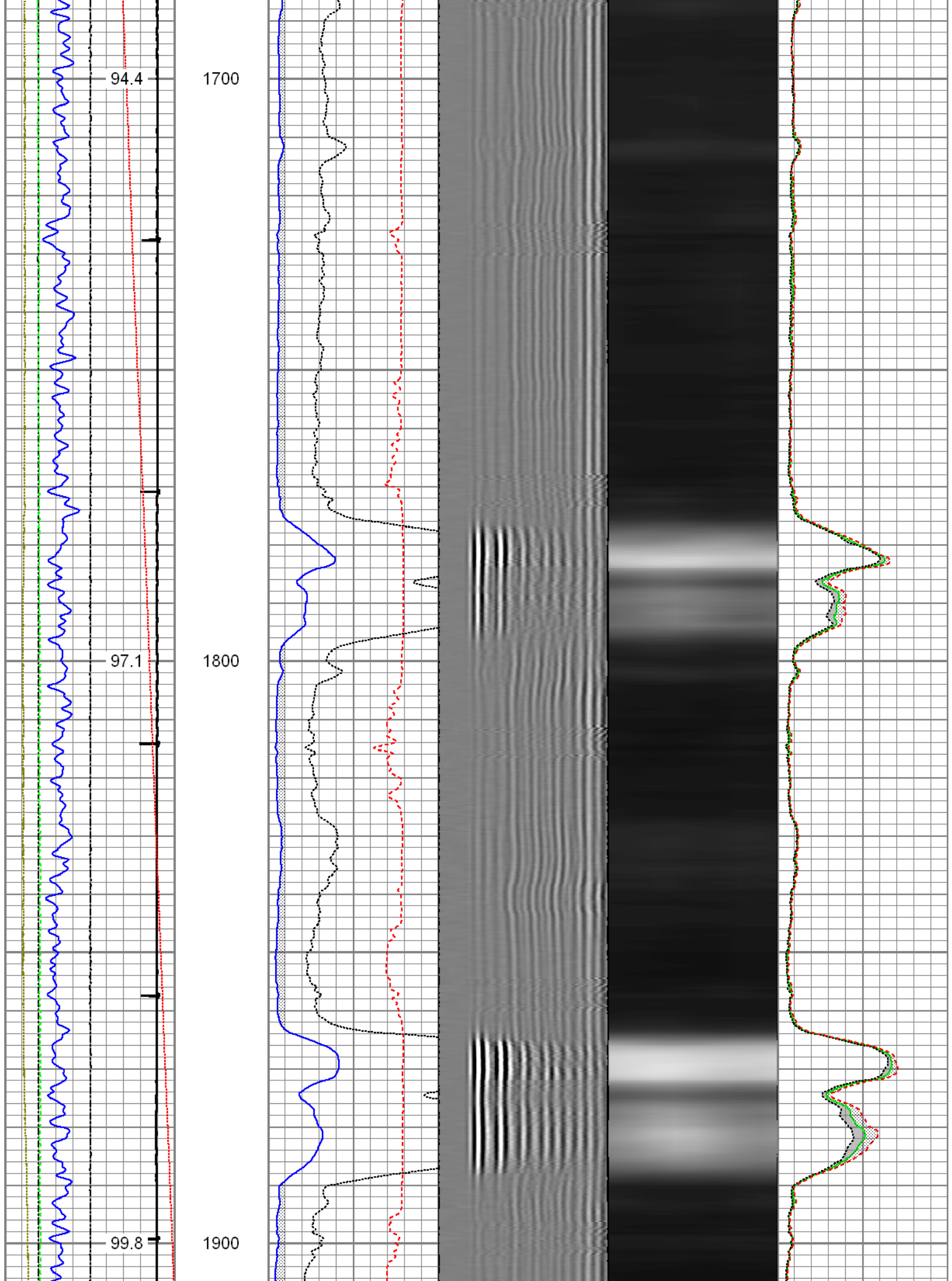
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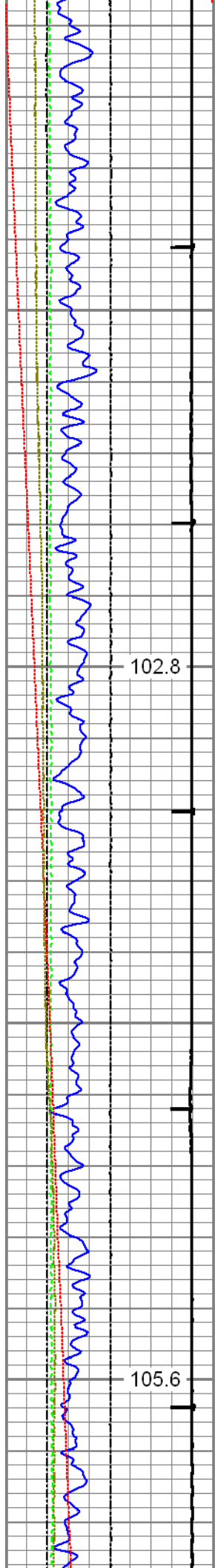






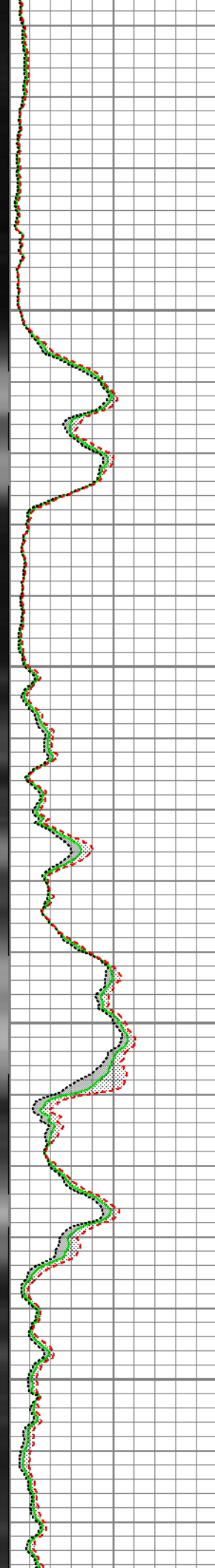
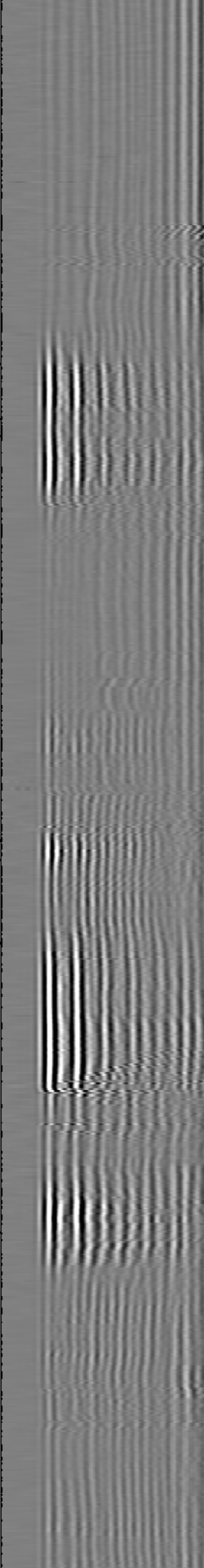
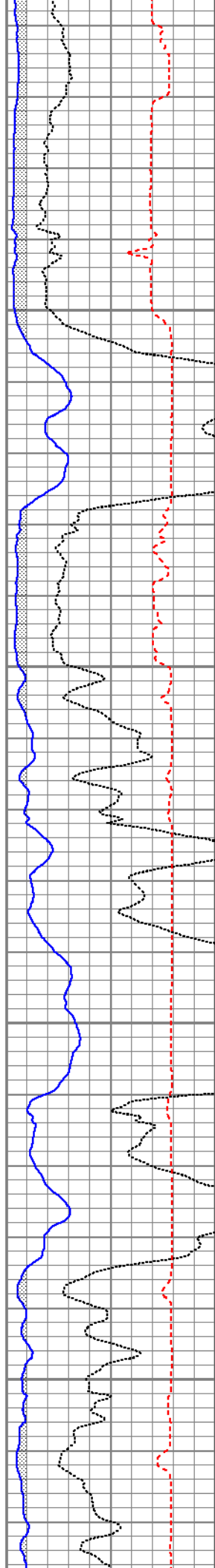


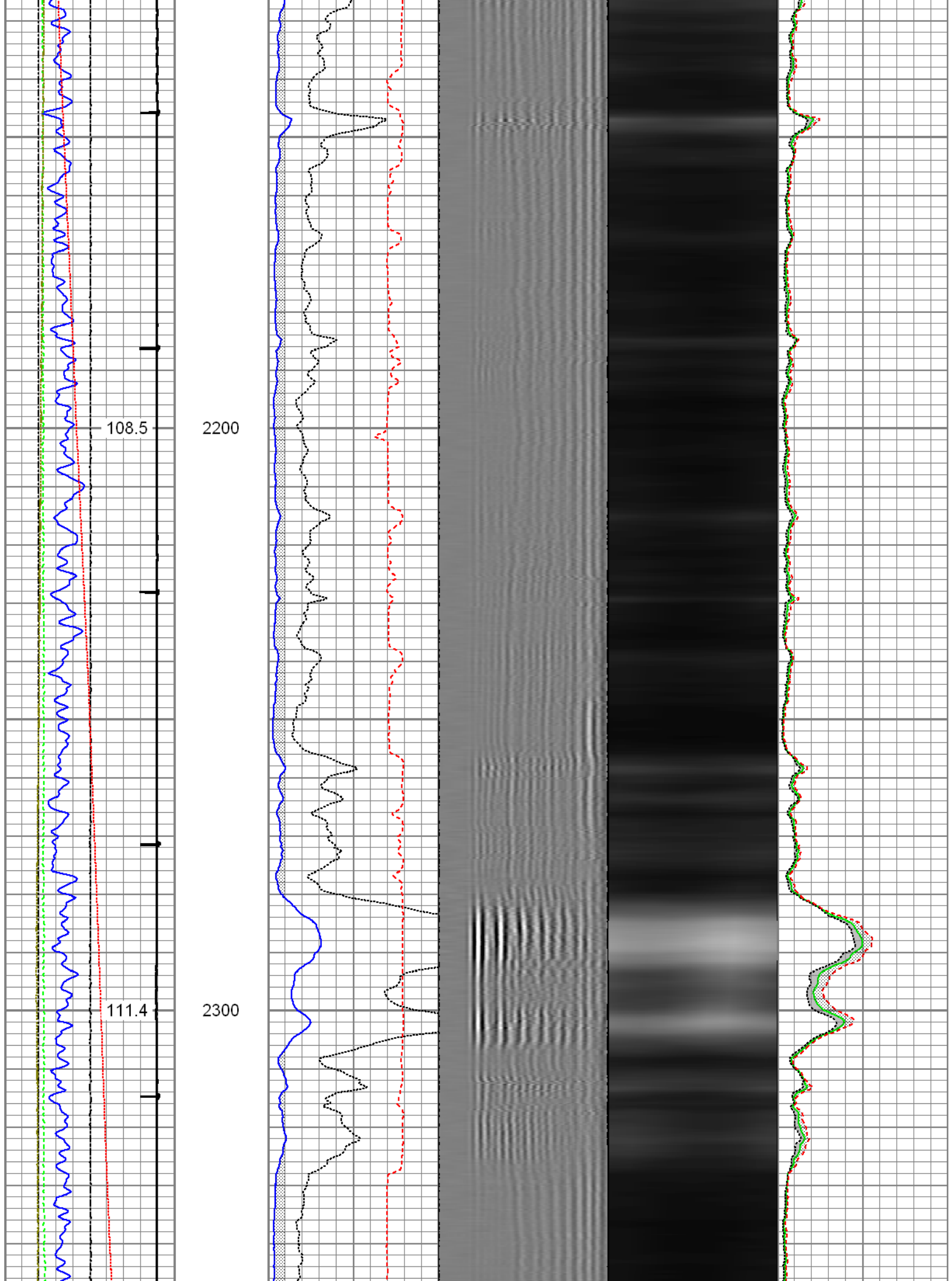


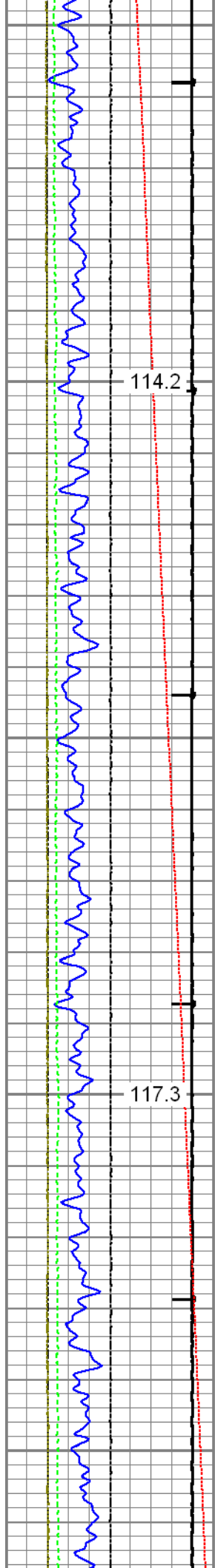


2000

2100

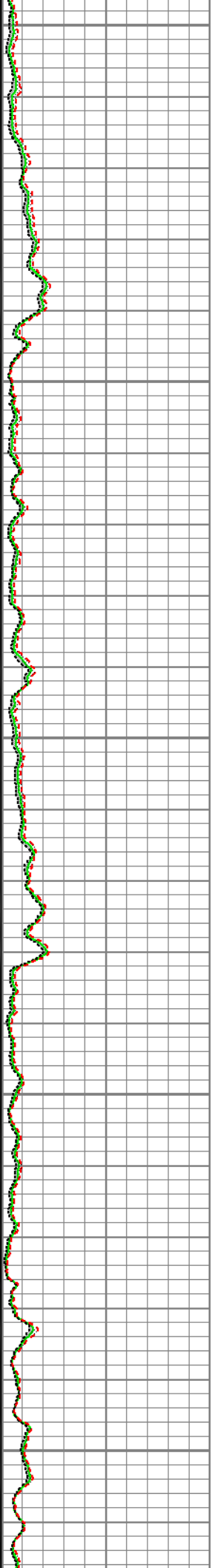
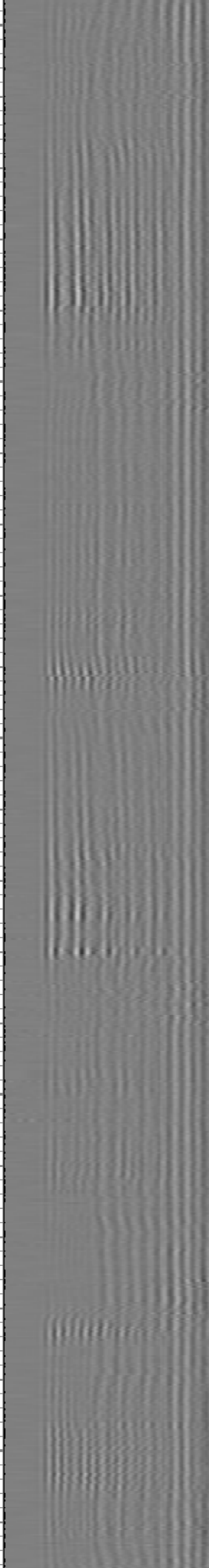
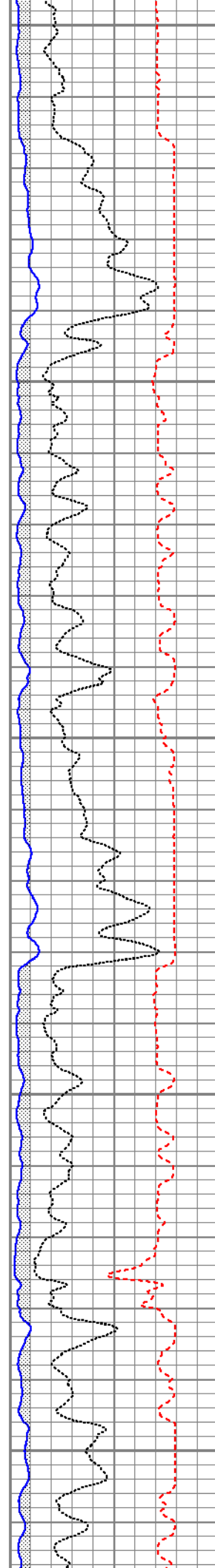


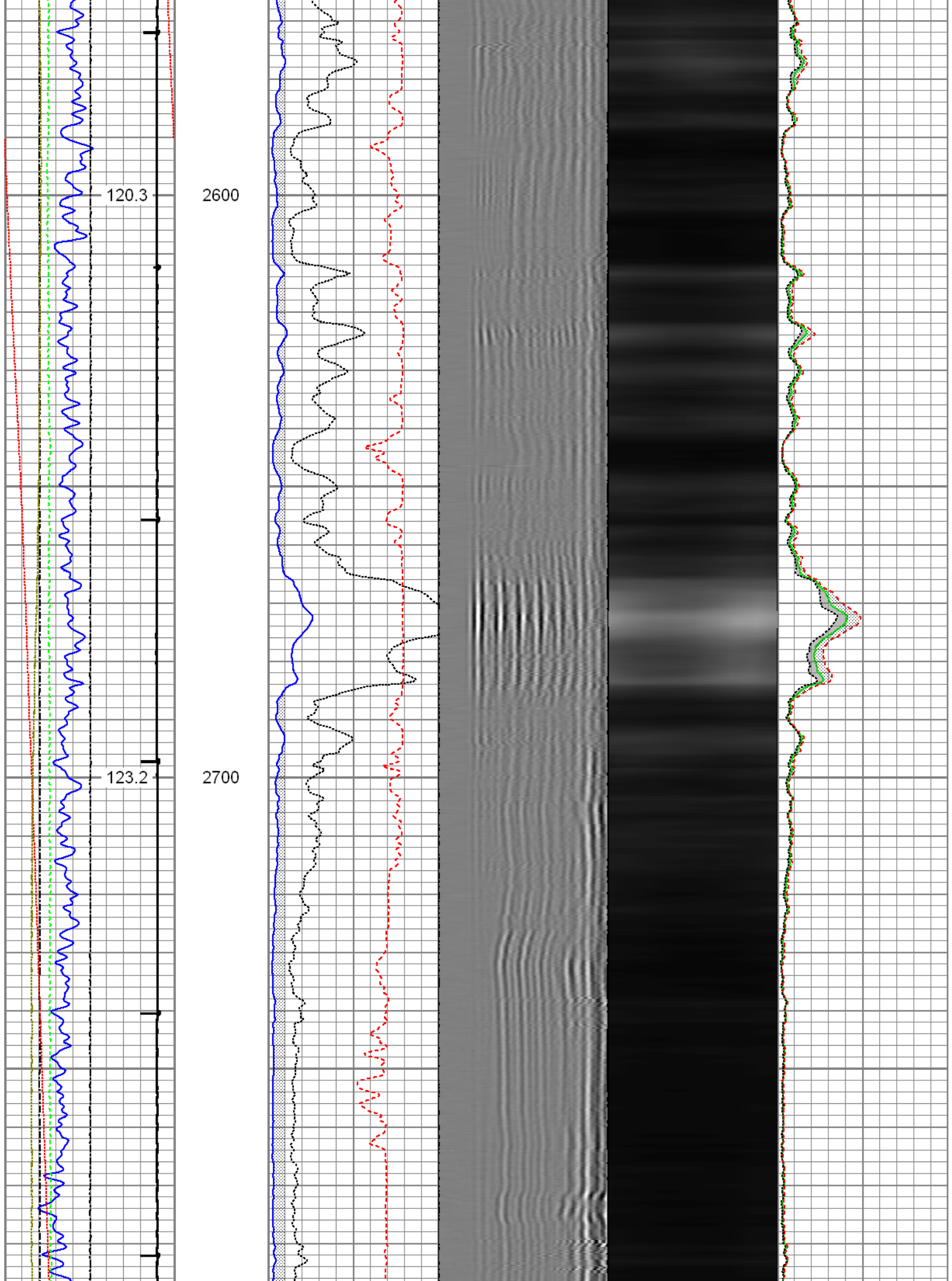




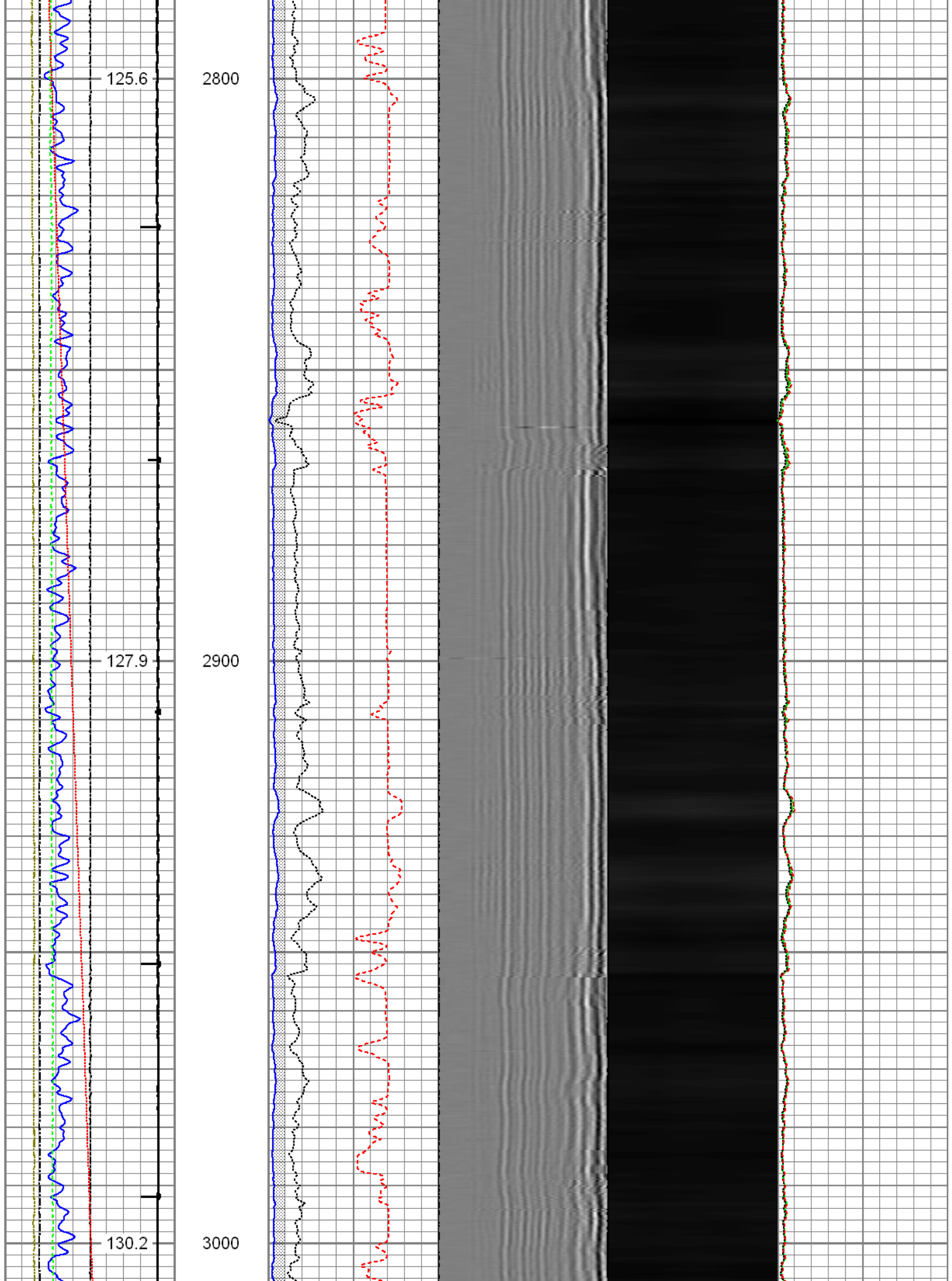
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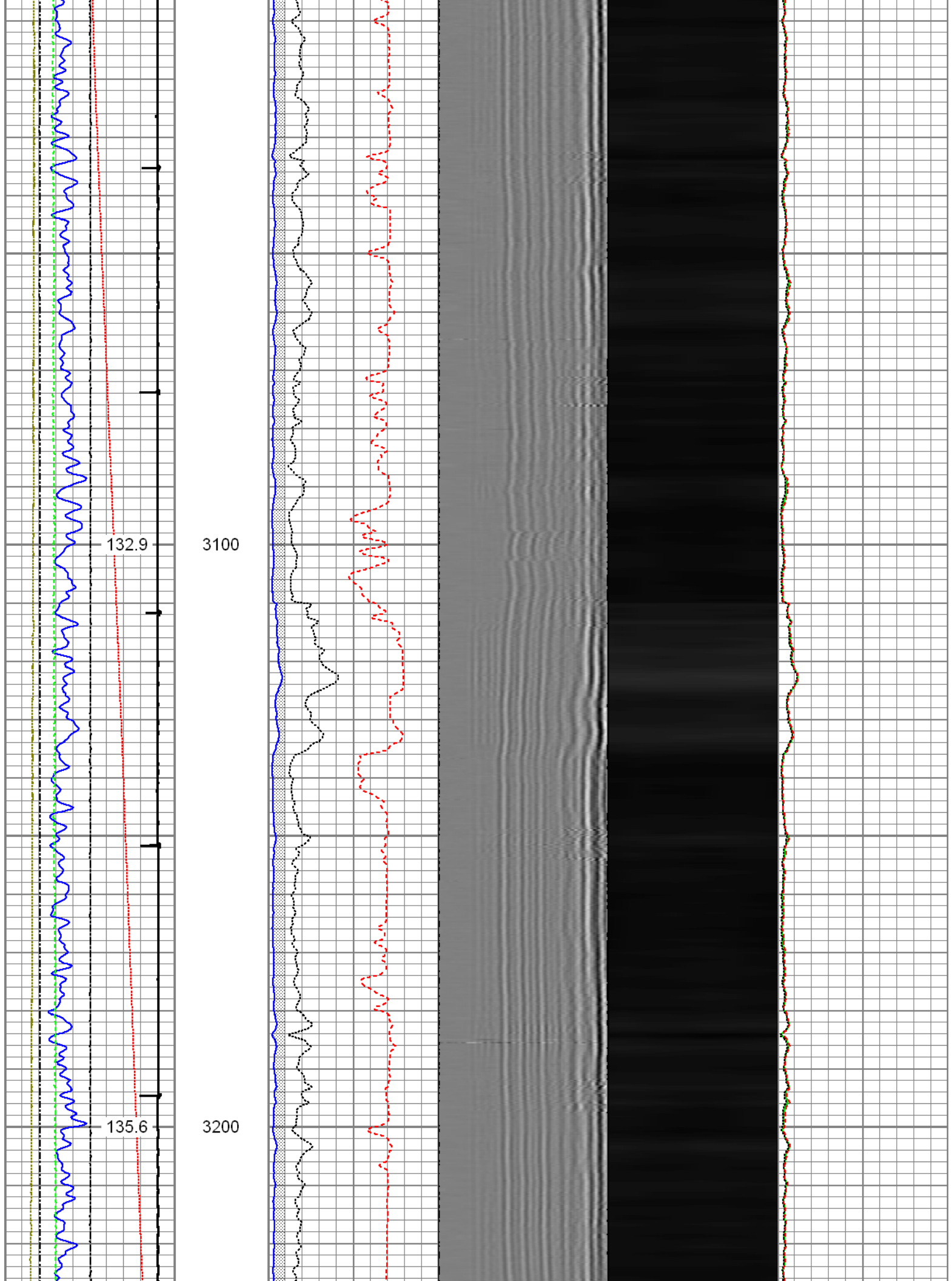
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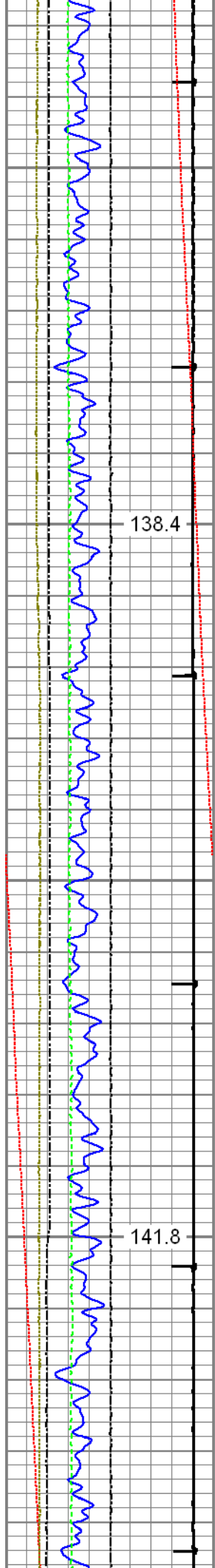






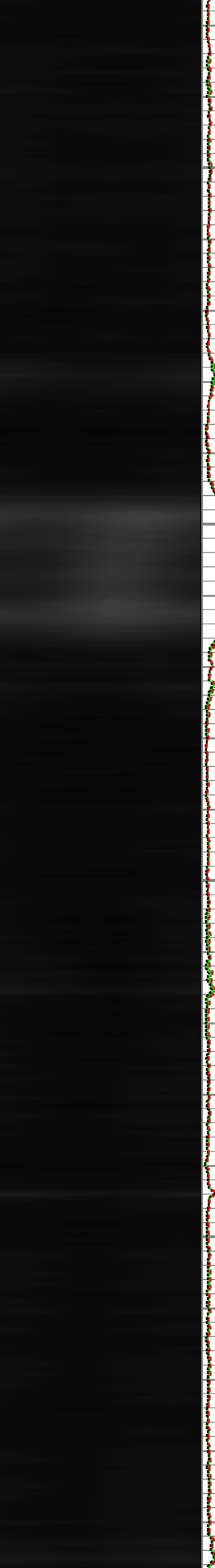
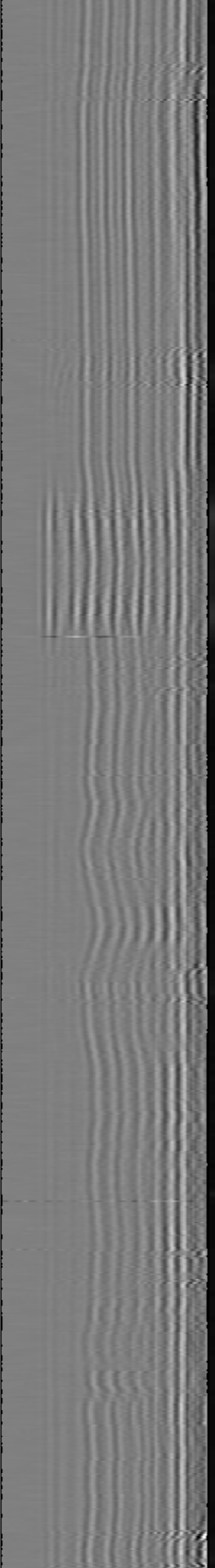
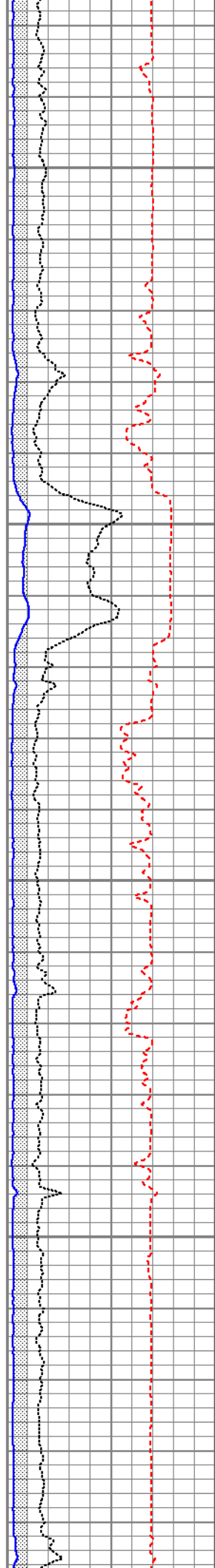


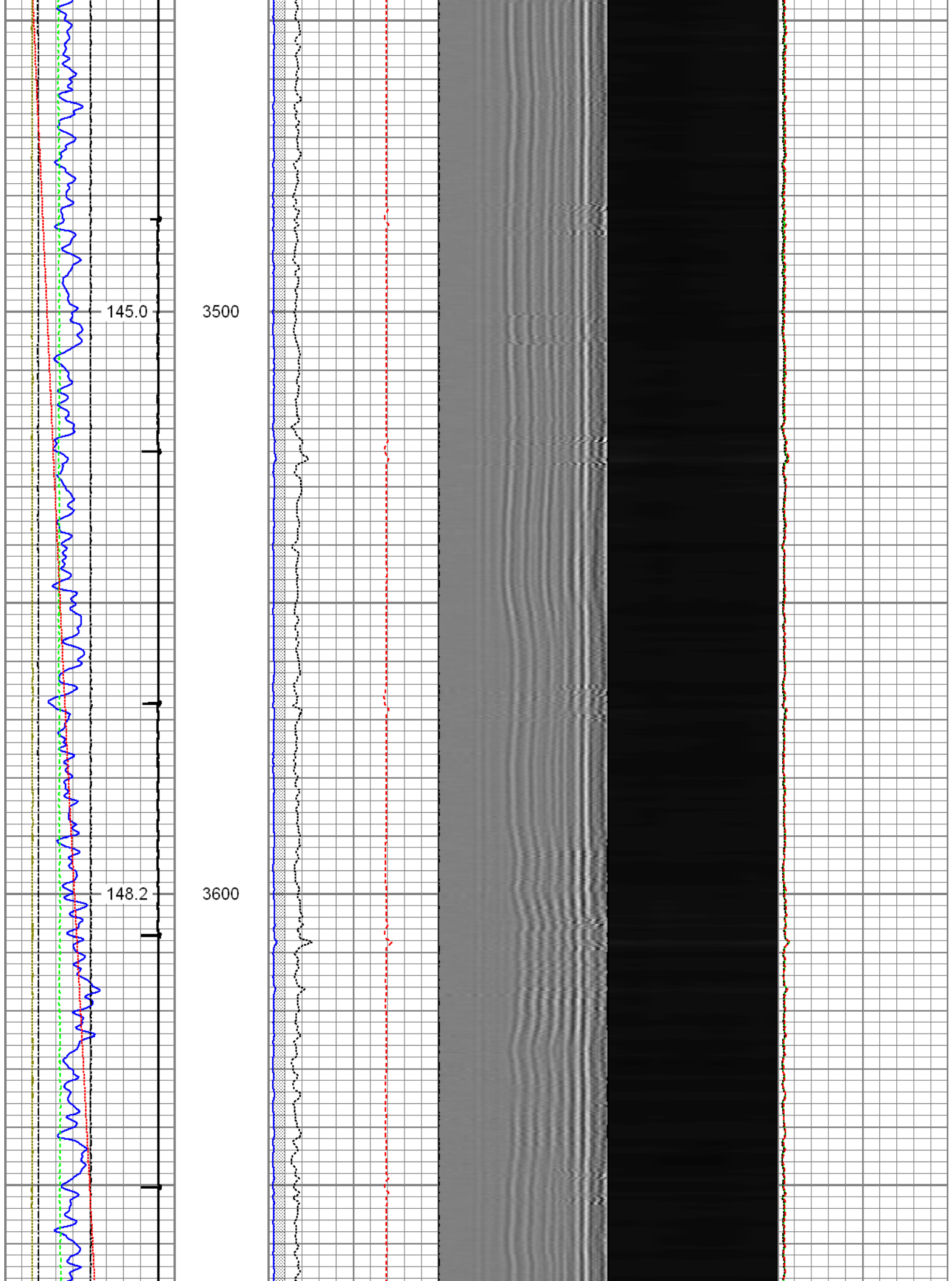


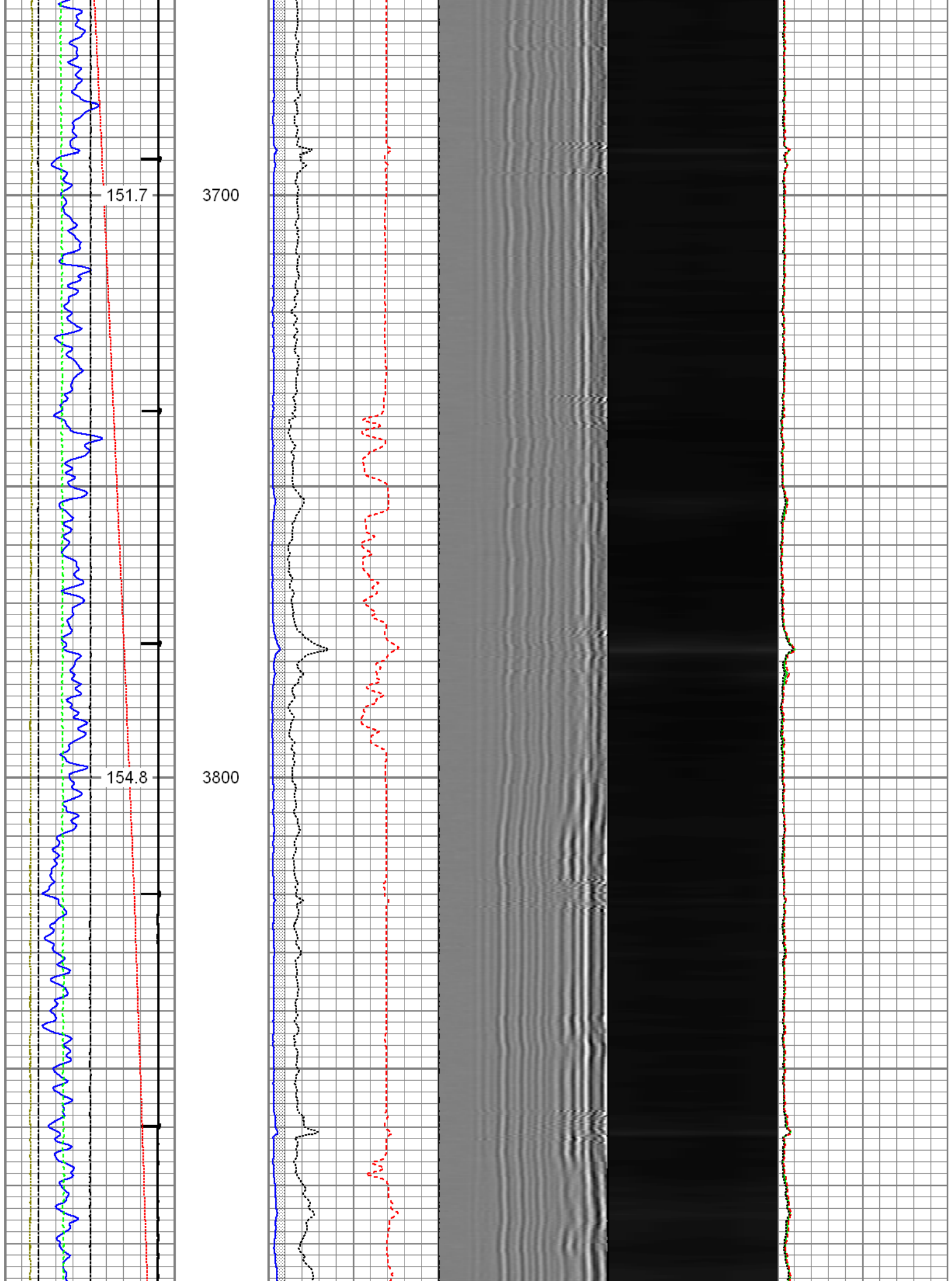


3300

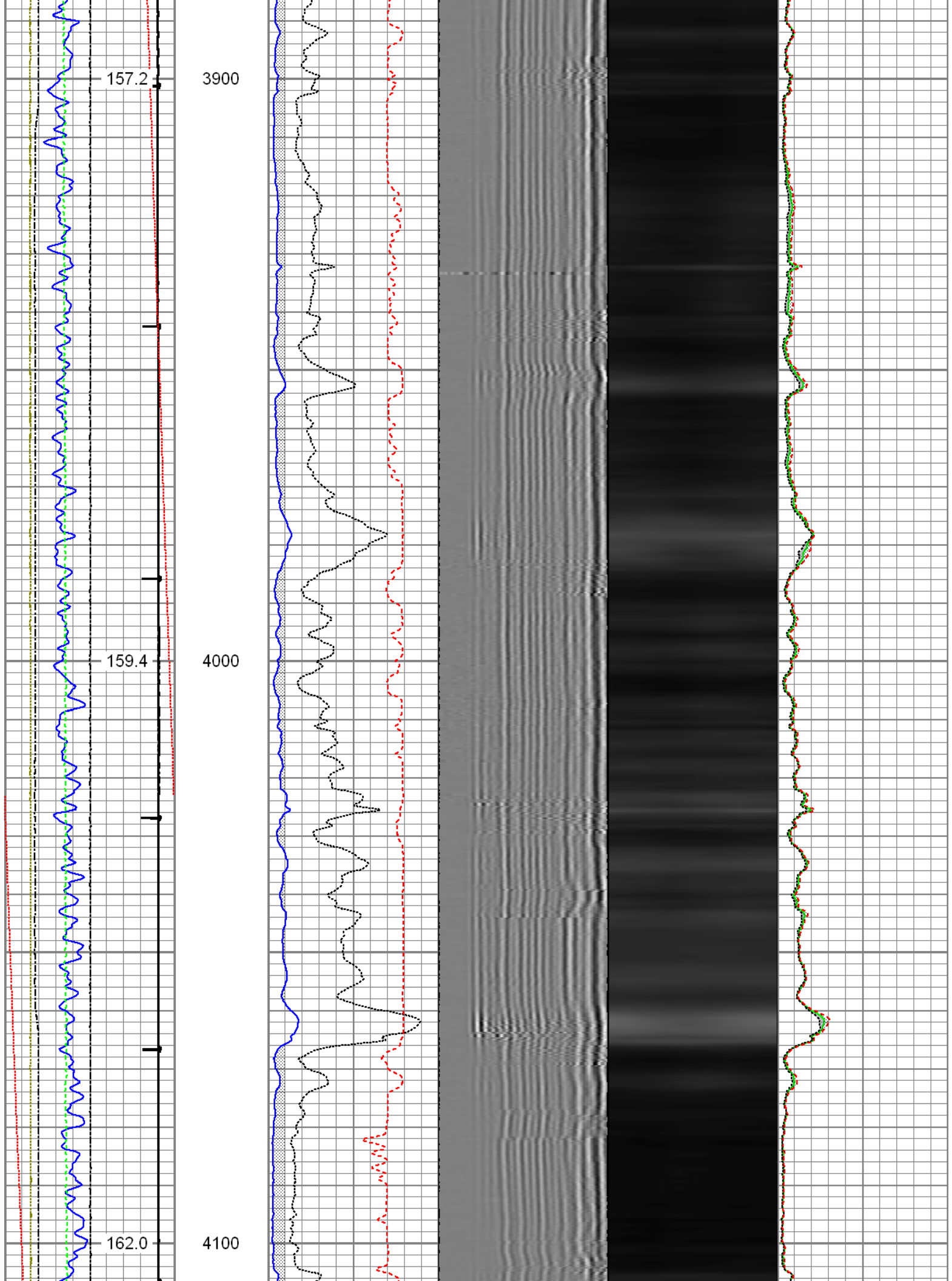
3400

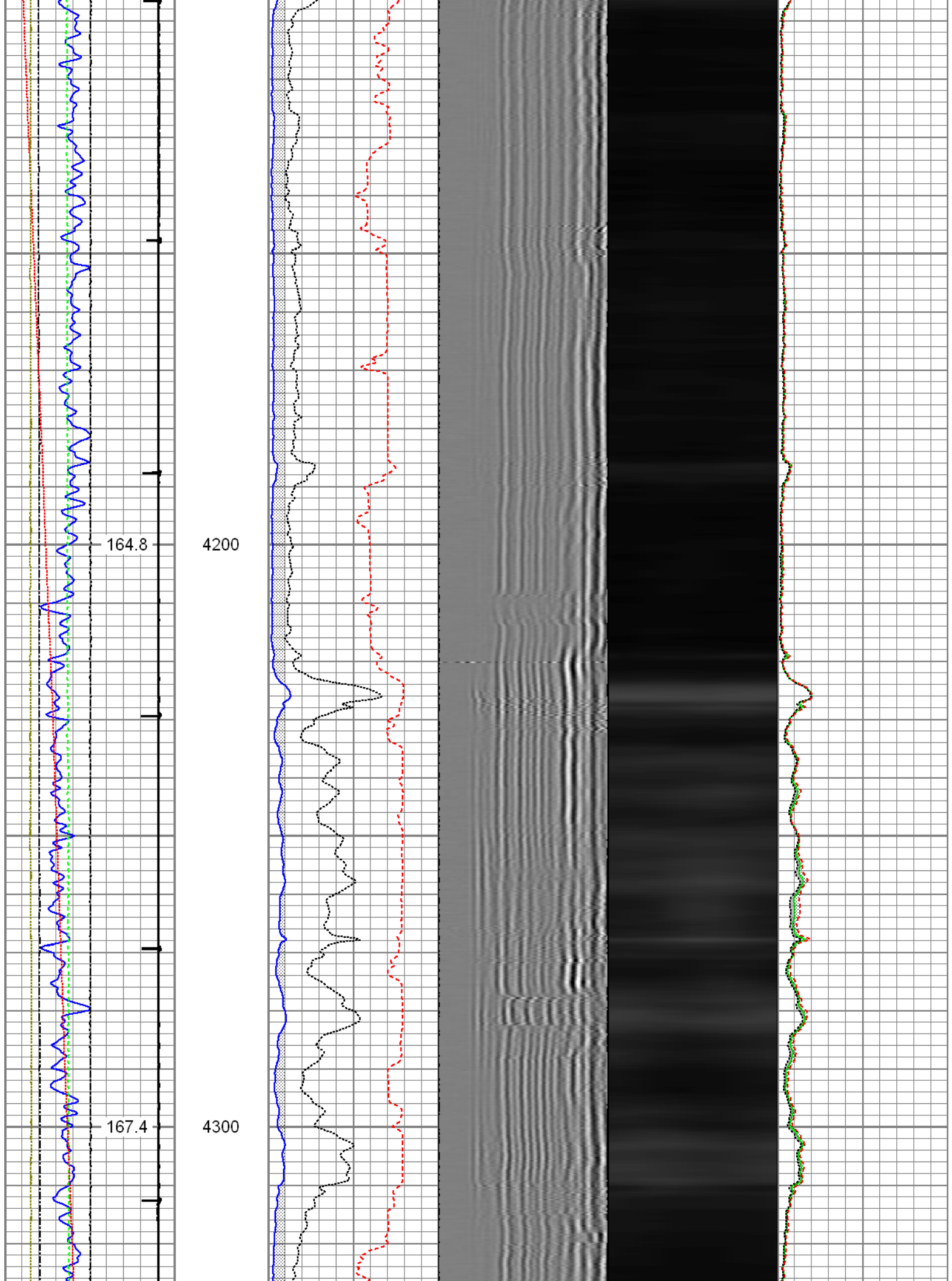


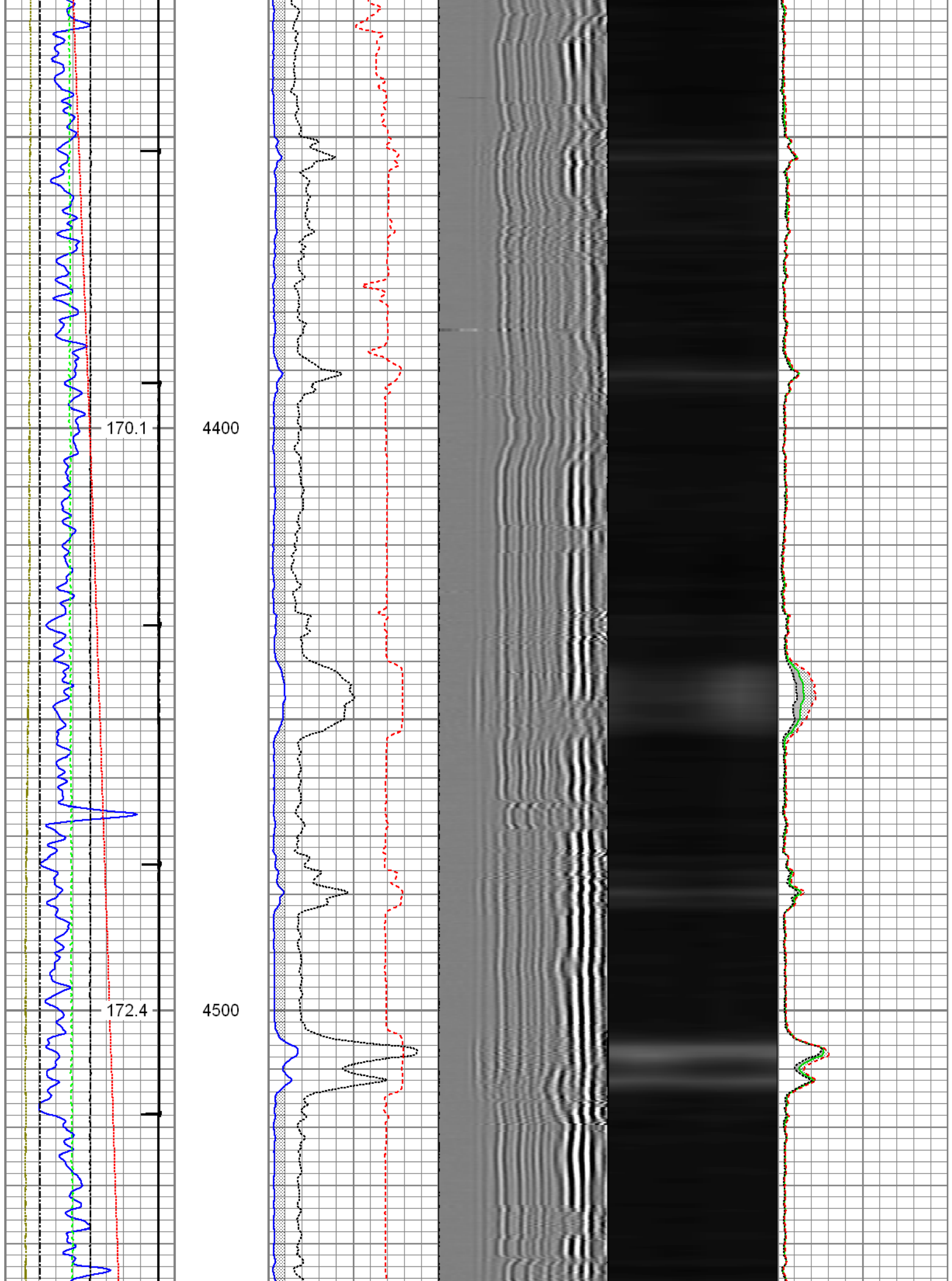


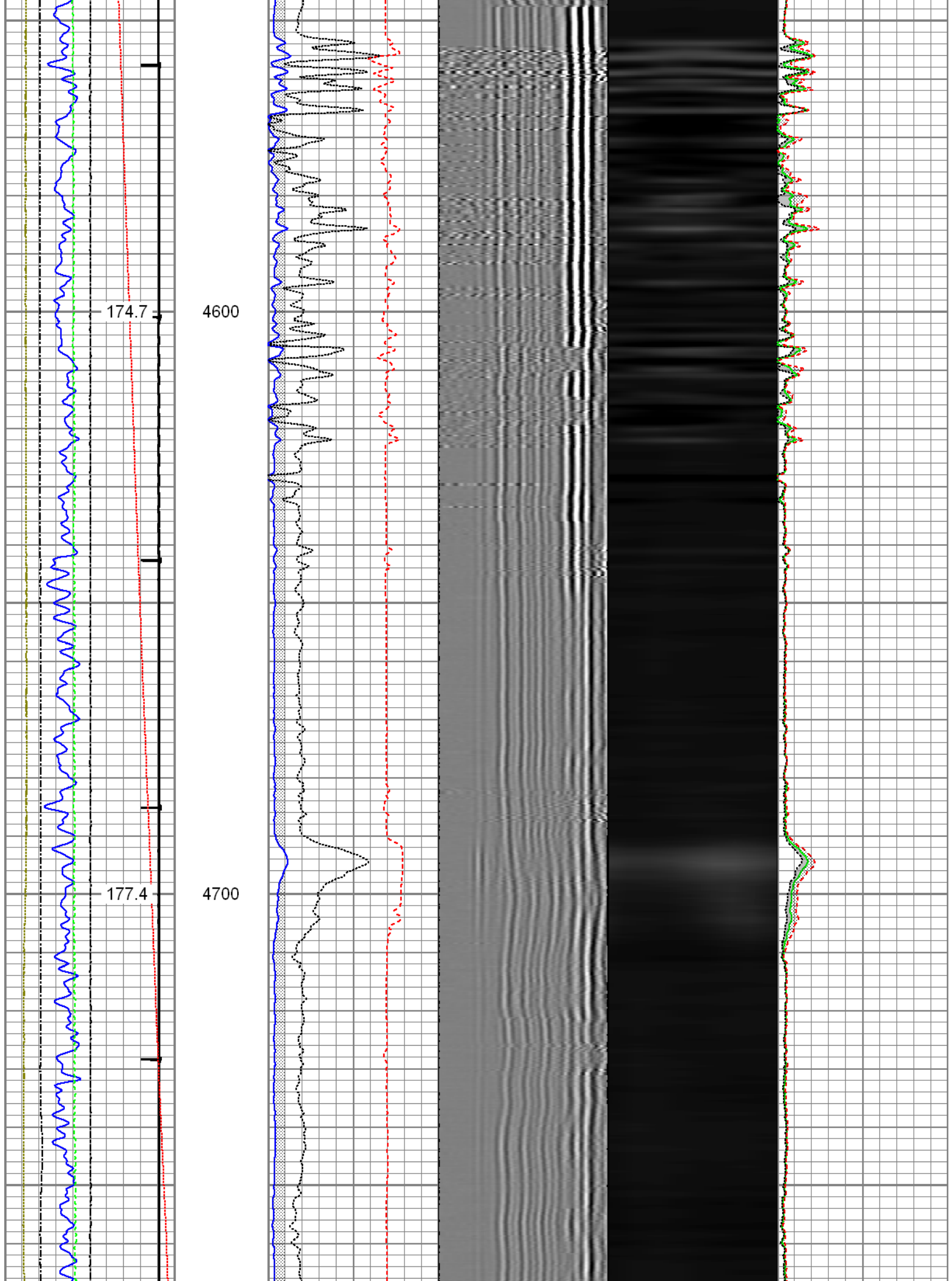




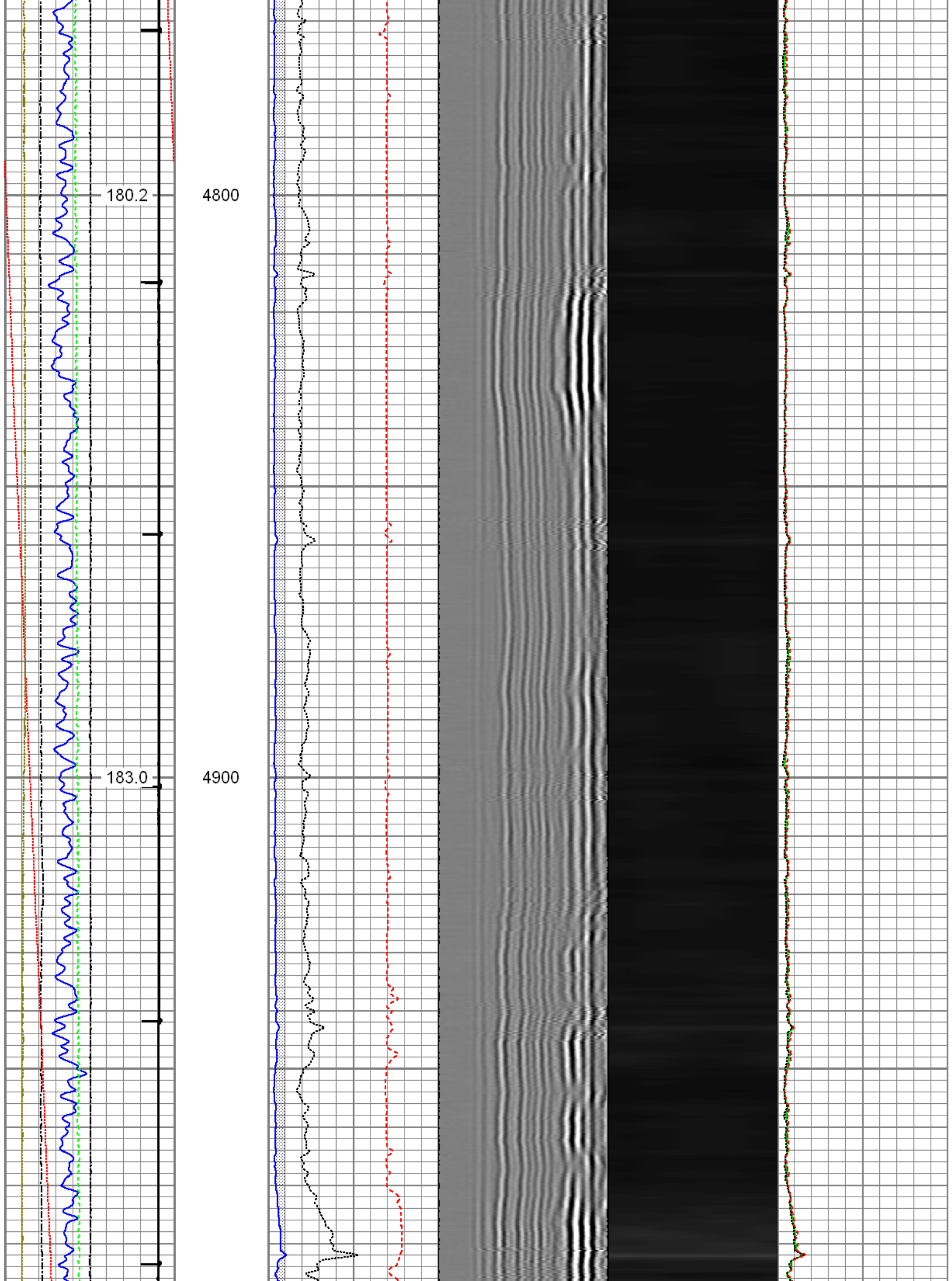




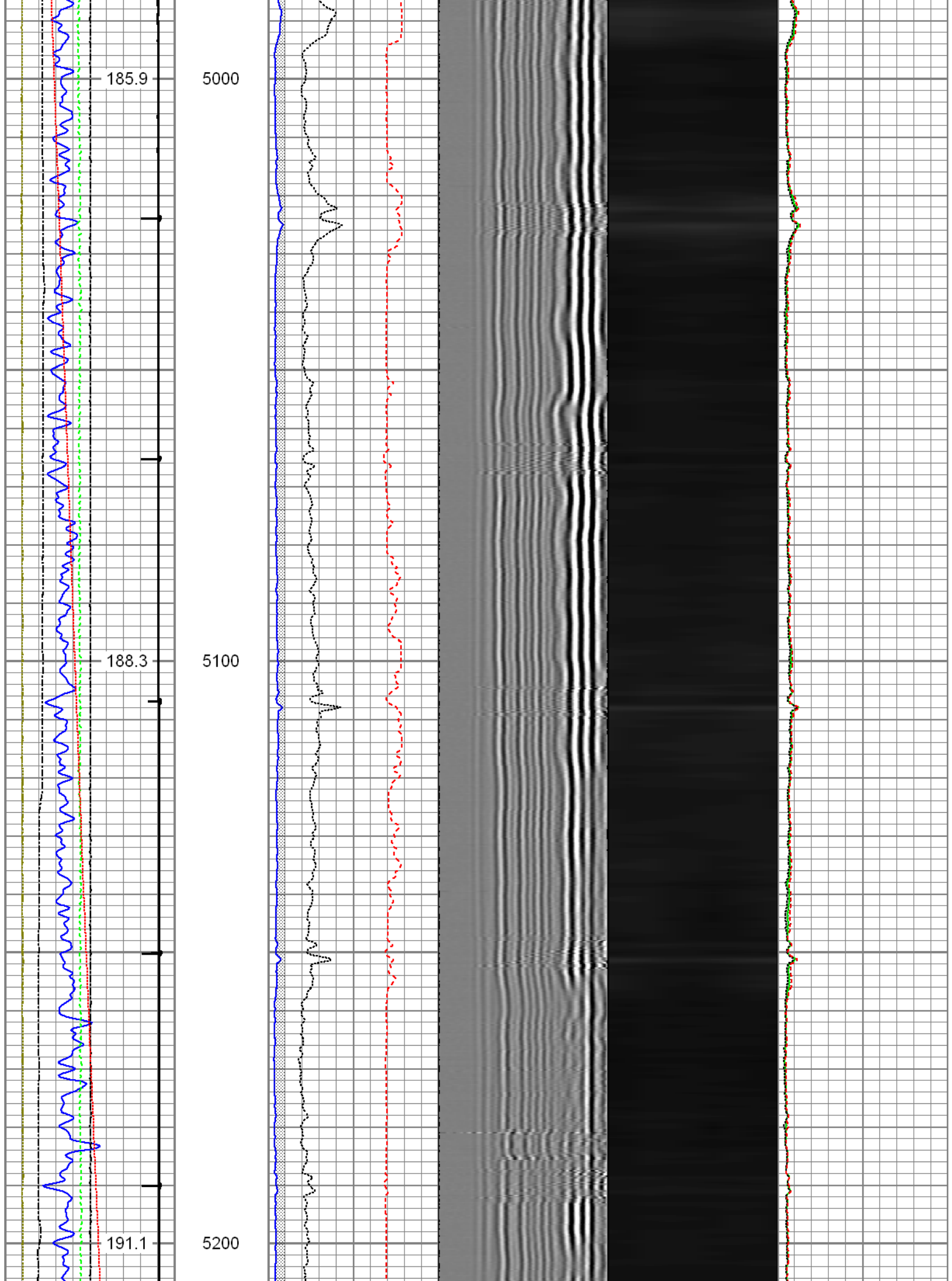


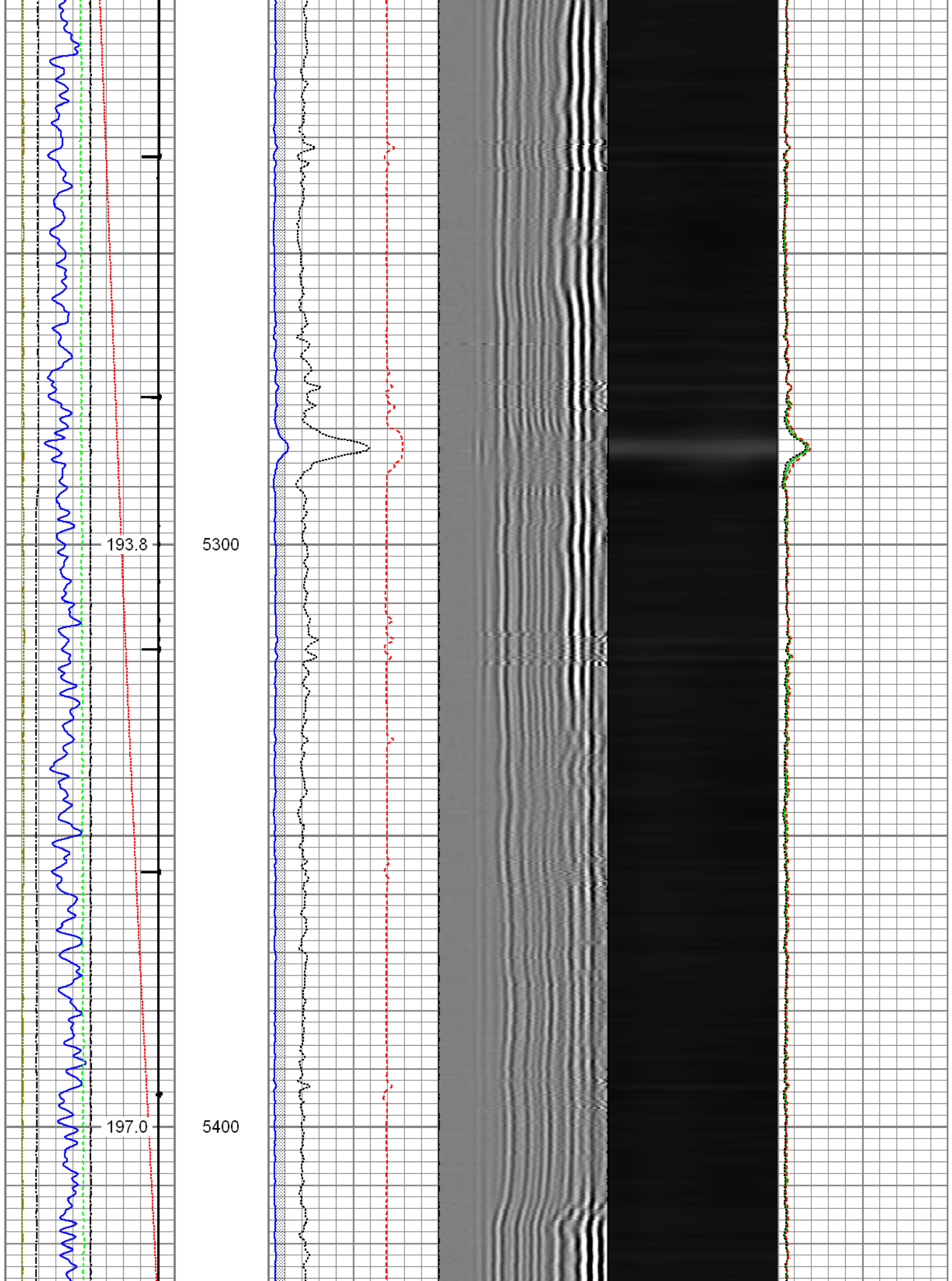


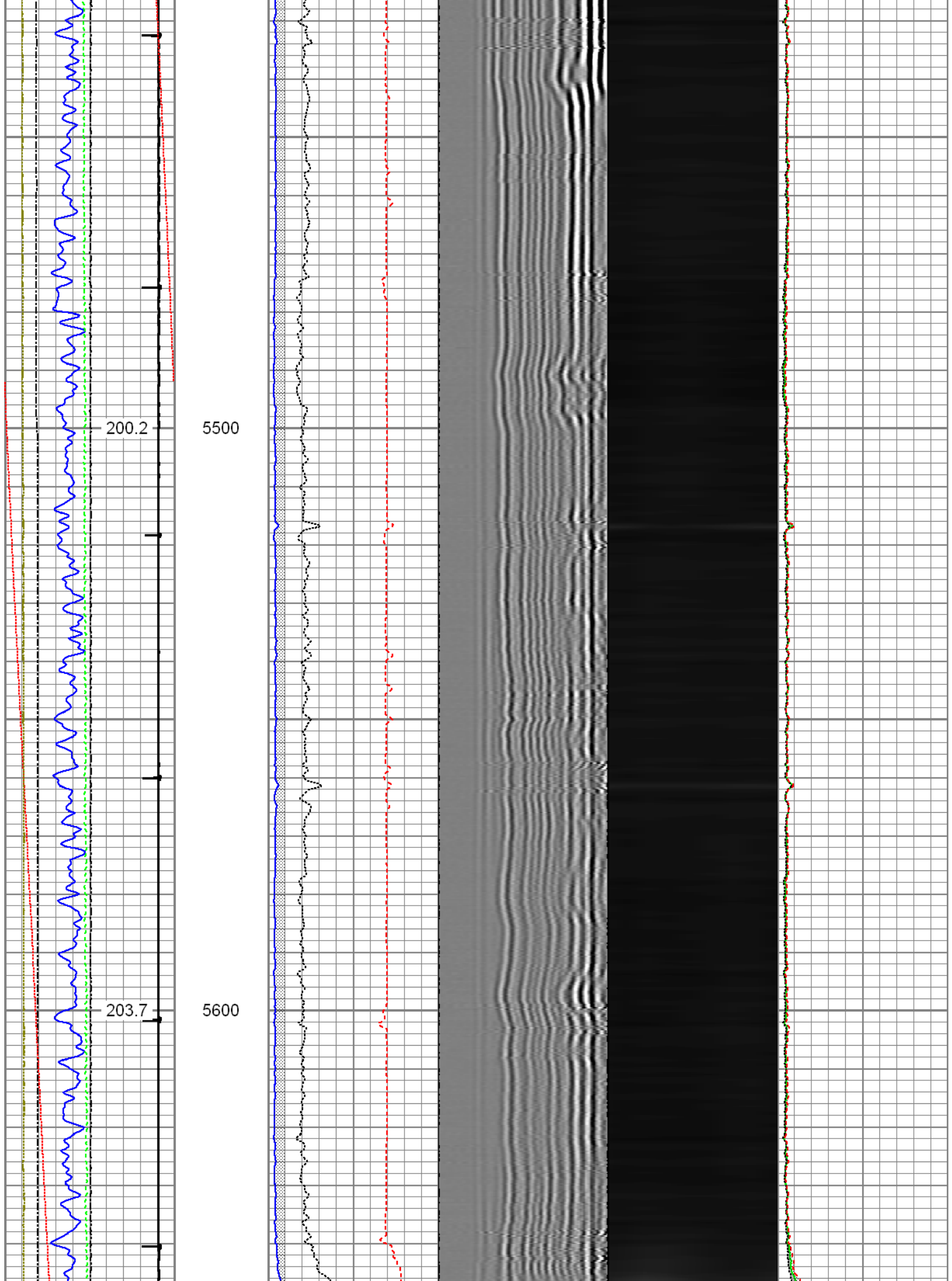


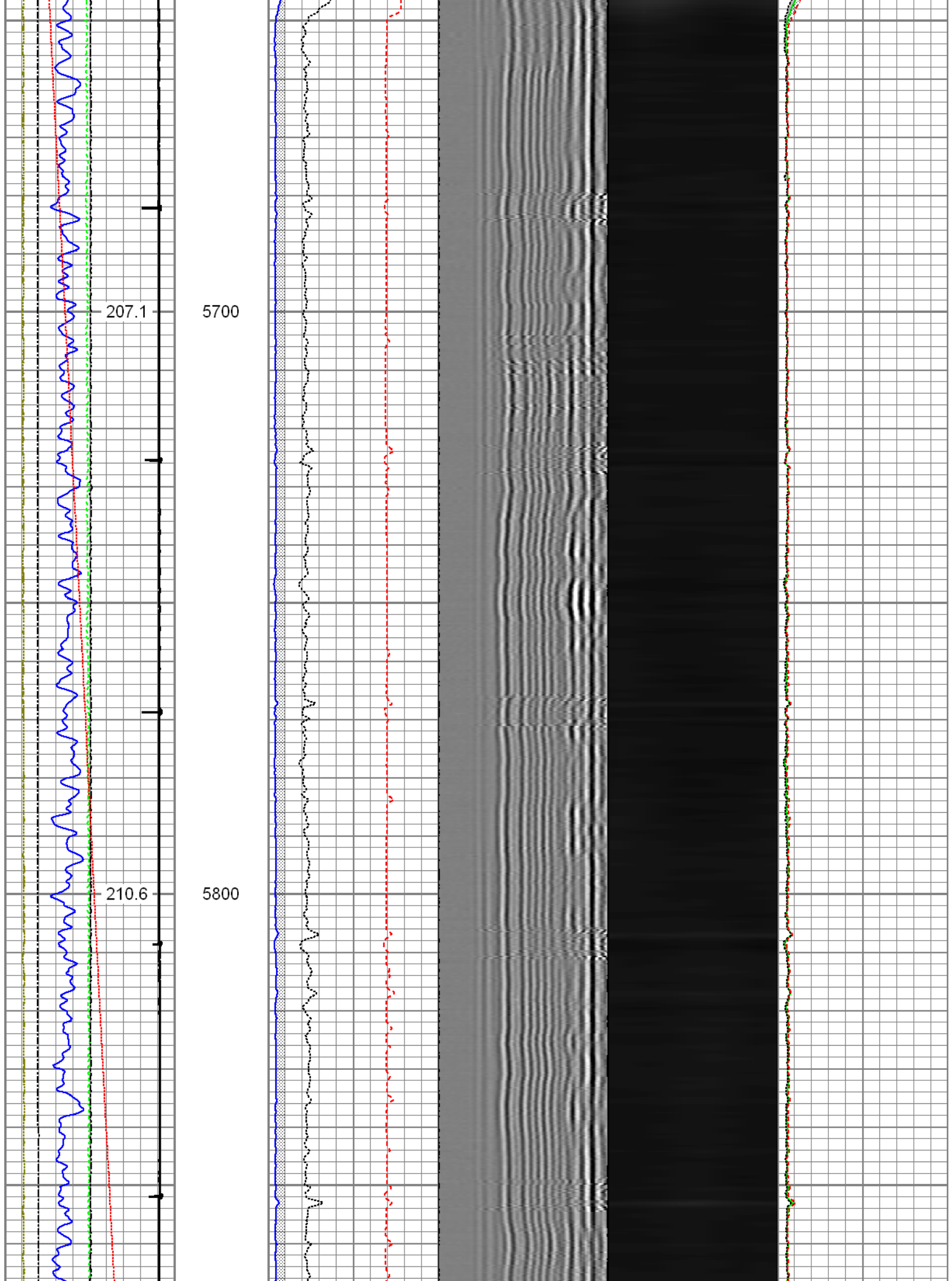




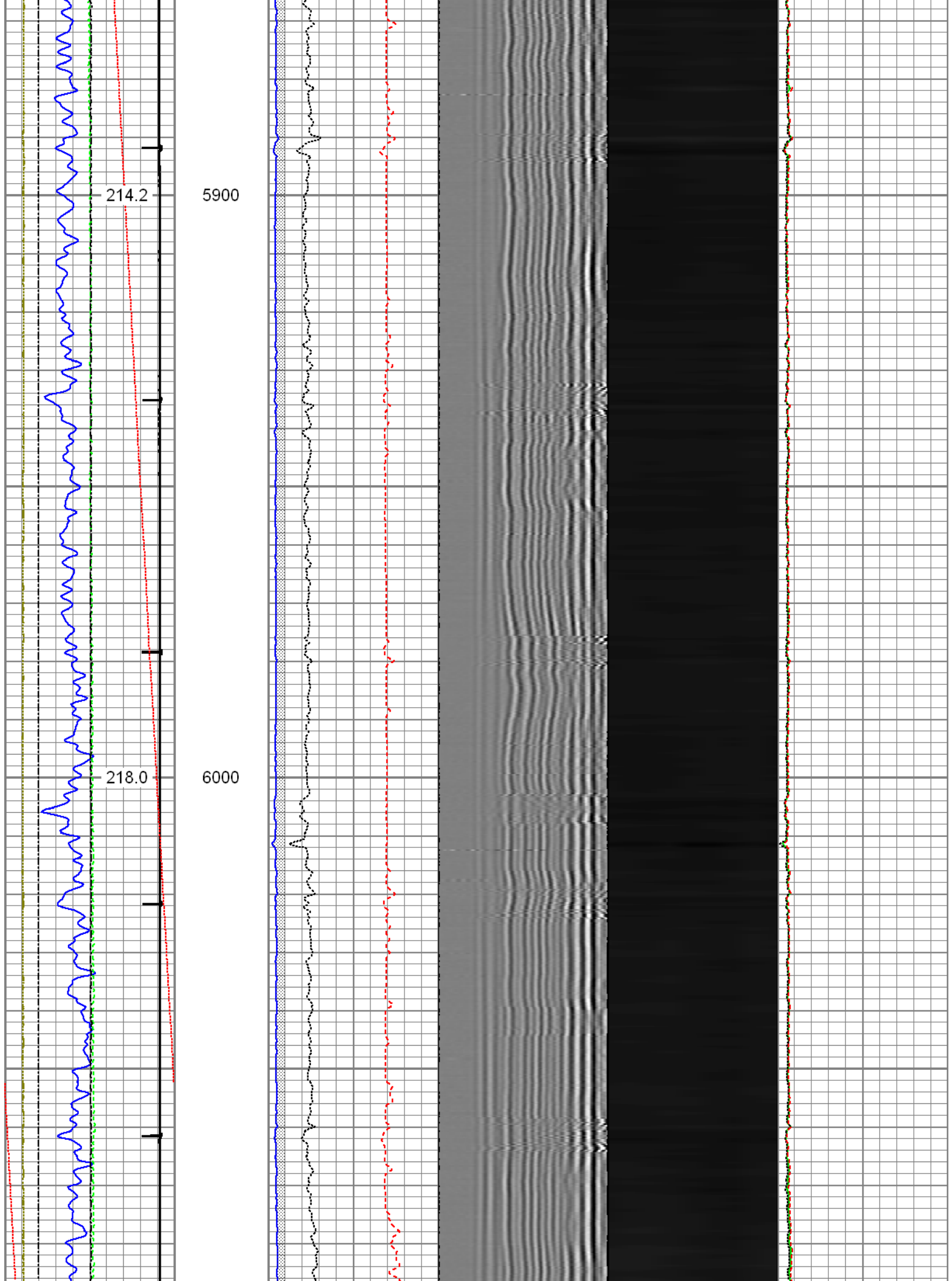




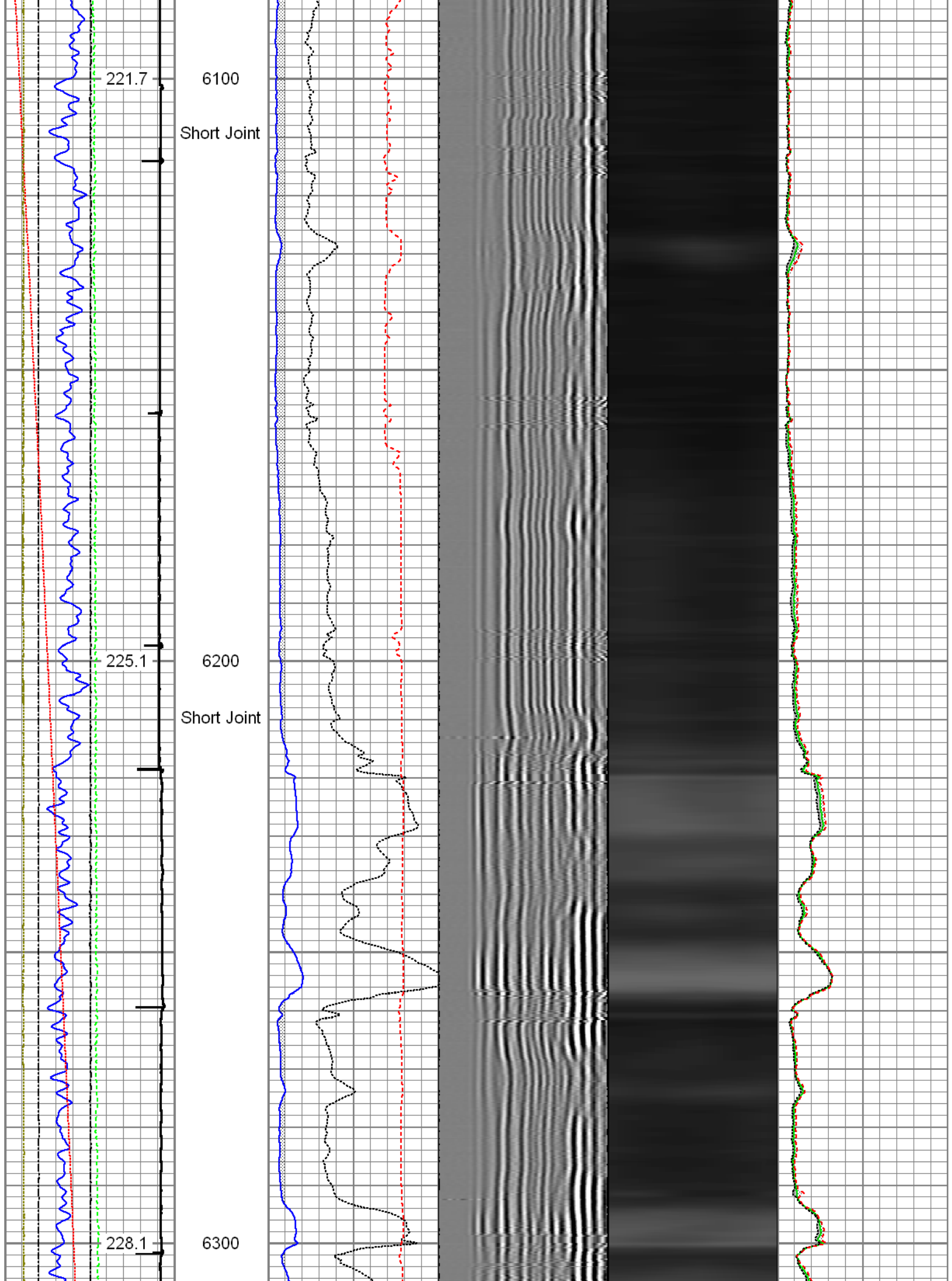


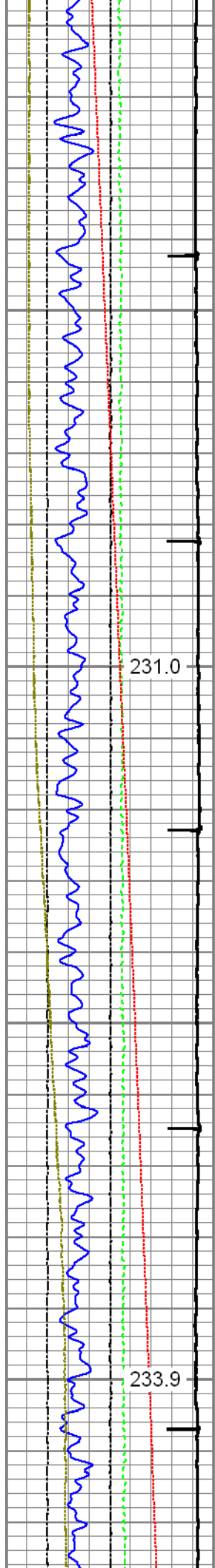






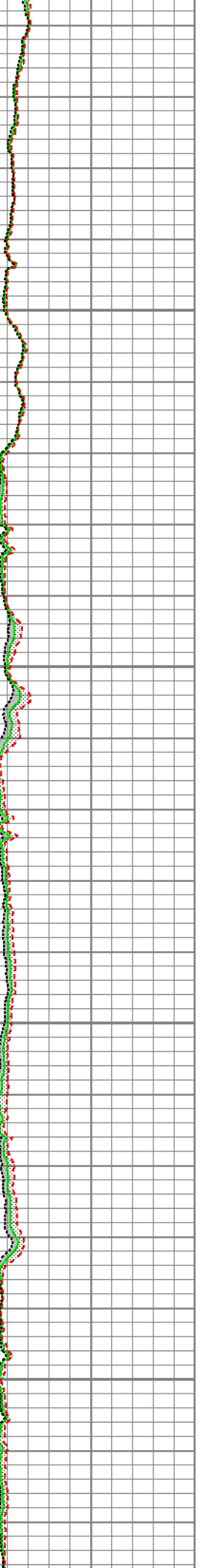
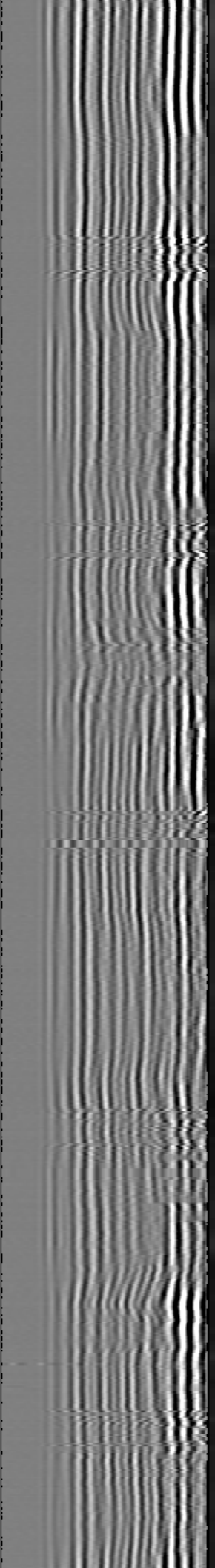
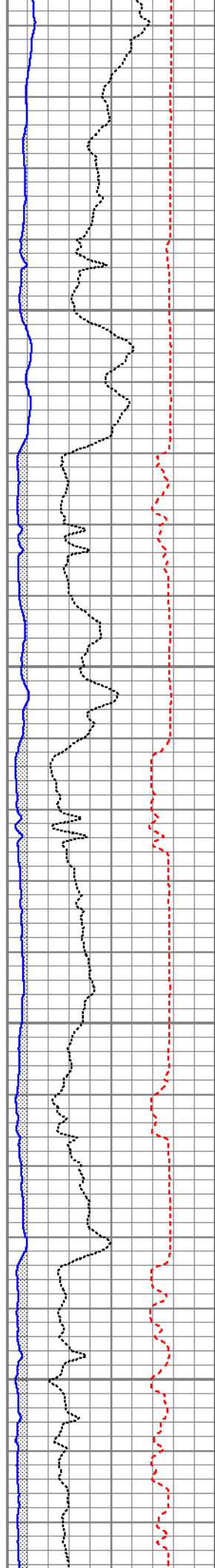


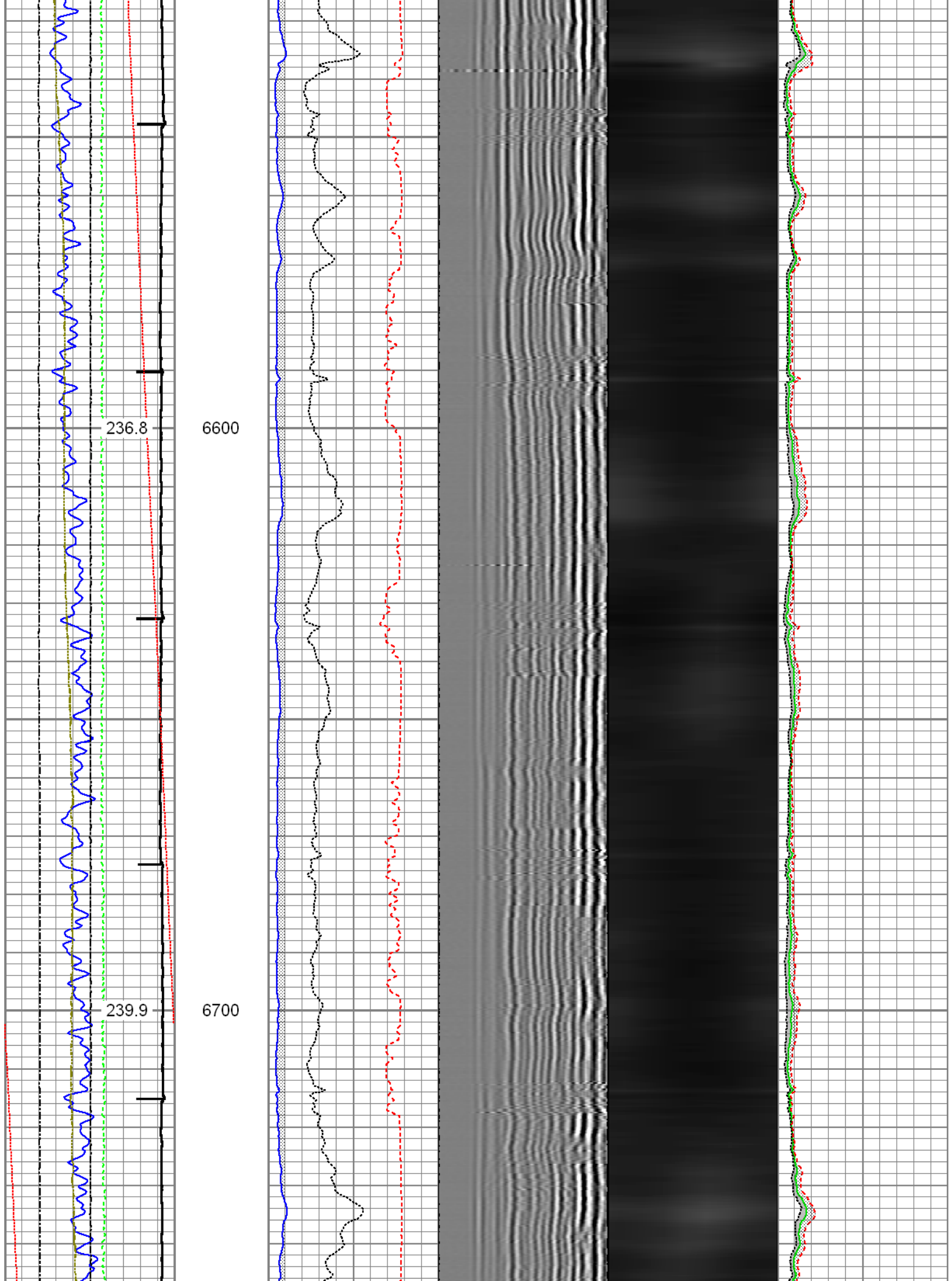


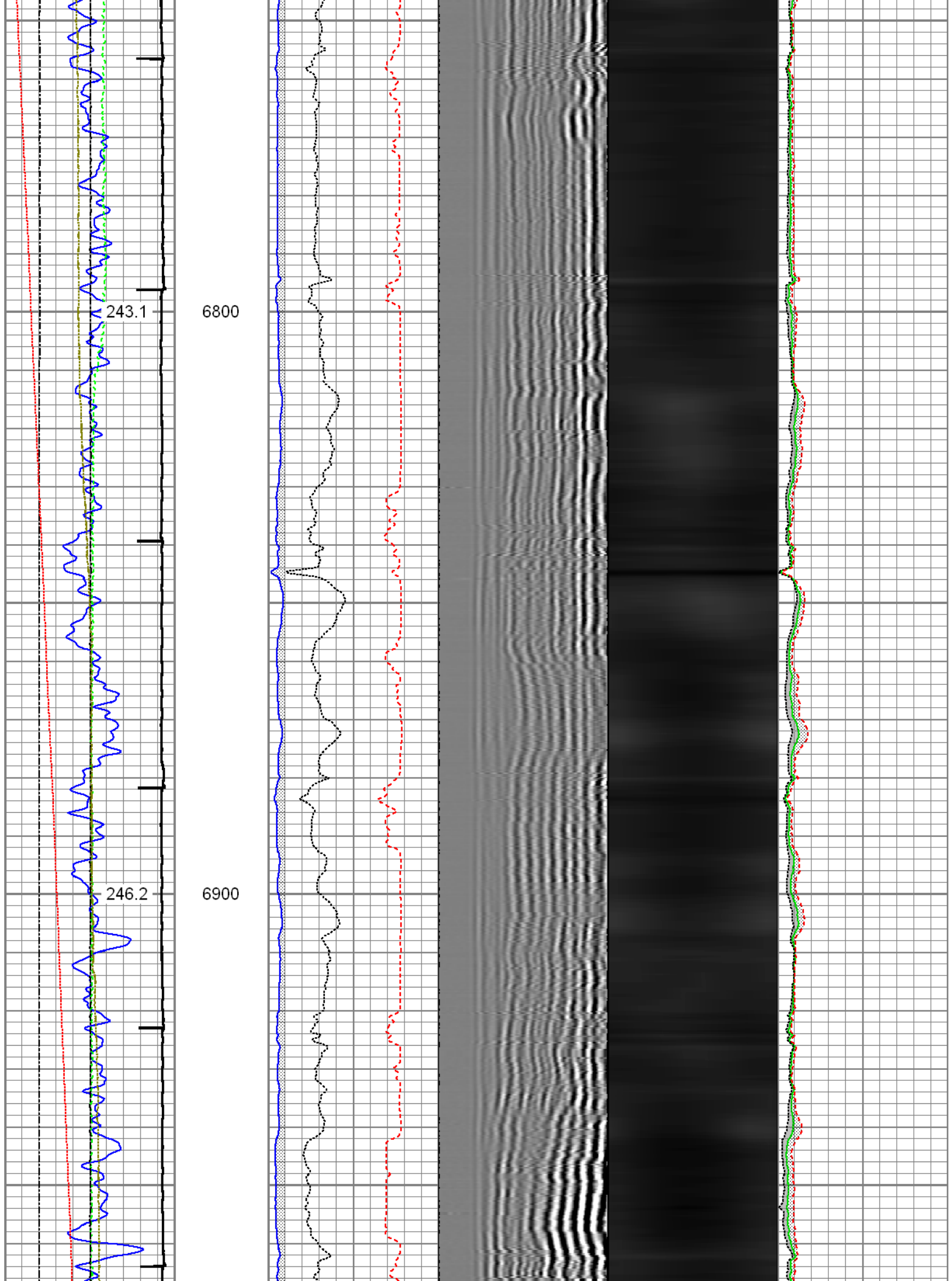


6400

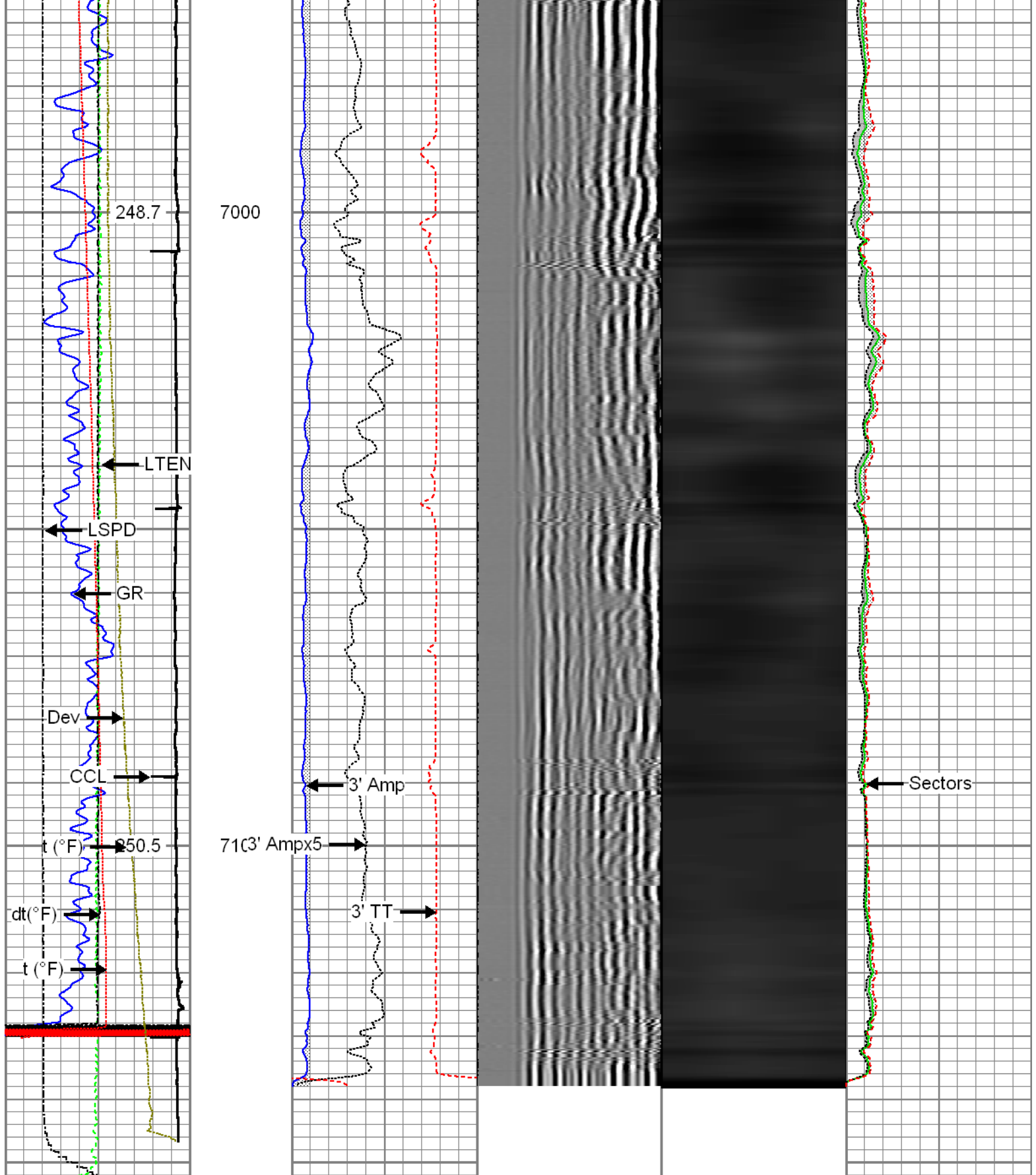
6500












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



# Repeat Pass

Recorded with 2500 PSI Surface Induced Pressure

Database File: 12-19-15\_noble\_moser h22-715\_mit\_rbl.db

Dataset Pathname: pass3

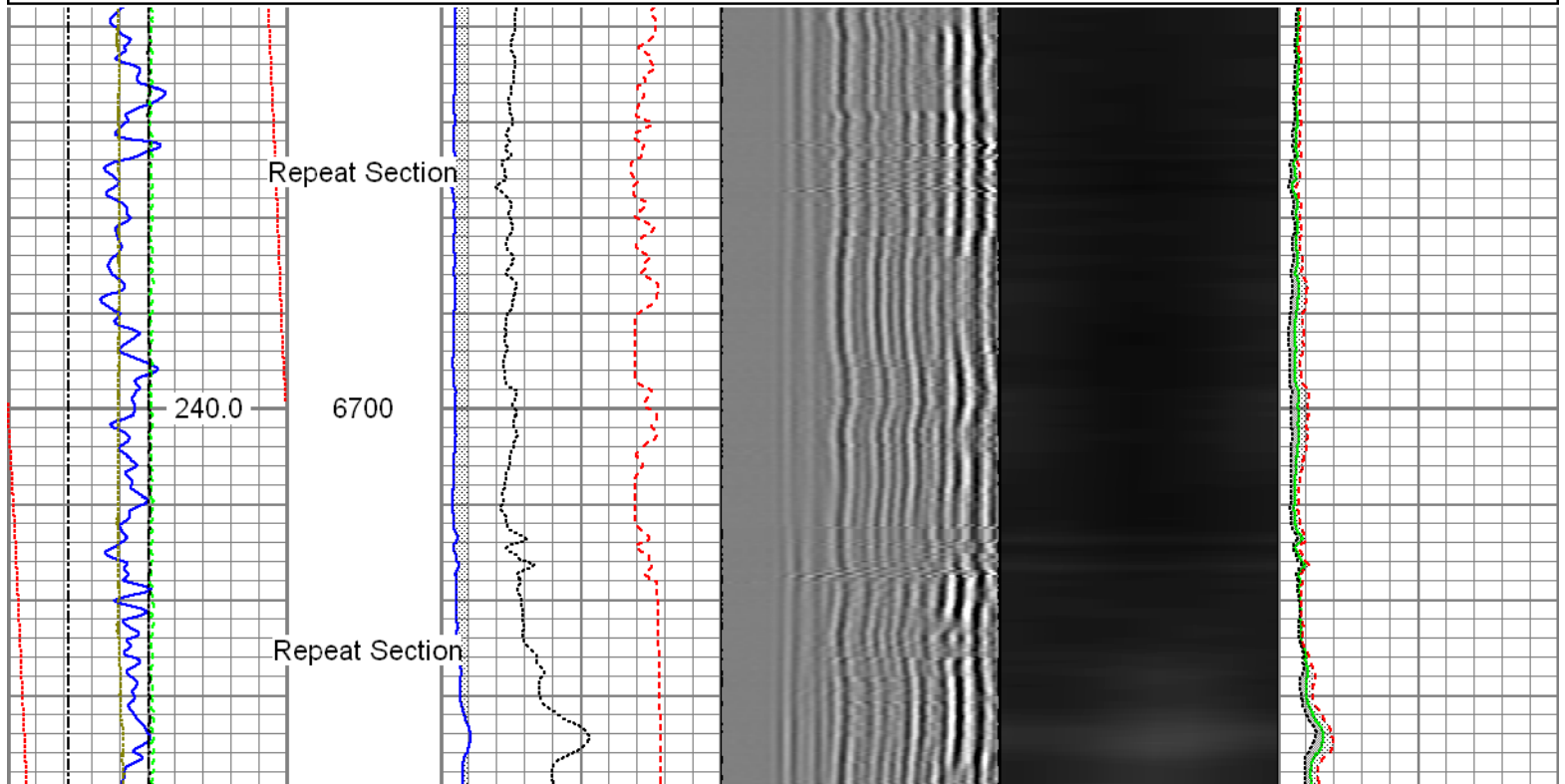
Presentation Format: rbt4\_mit

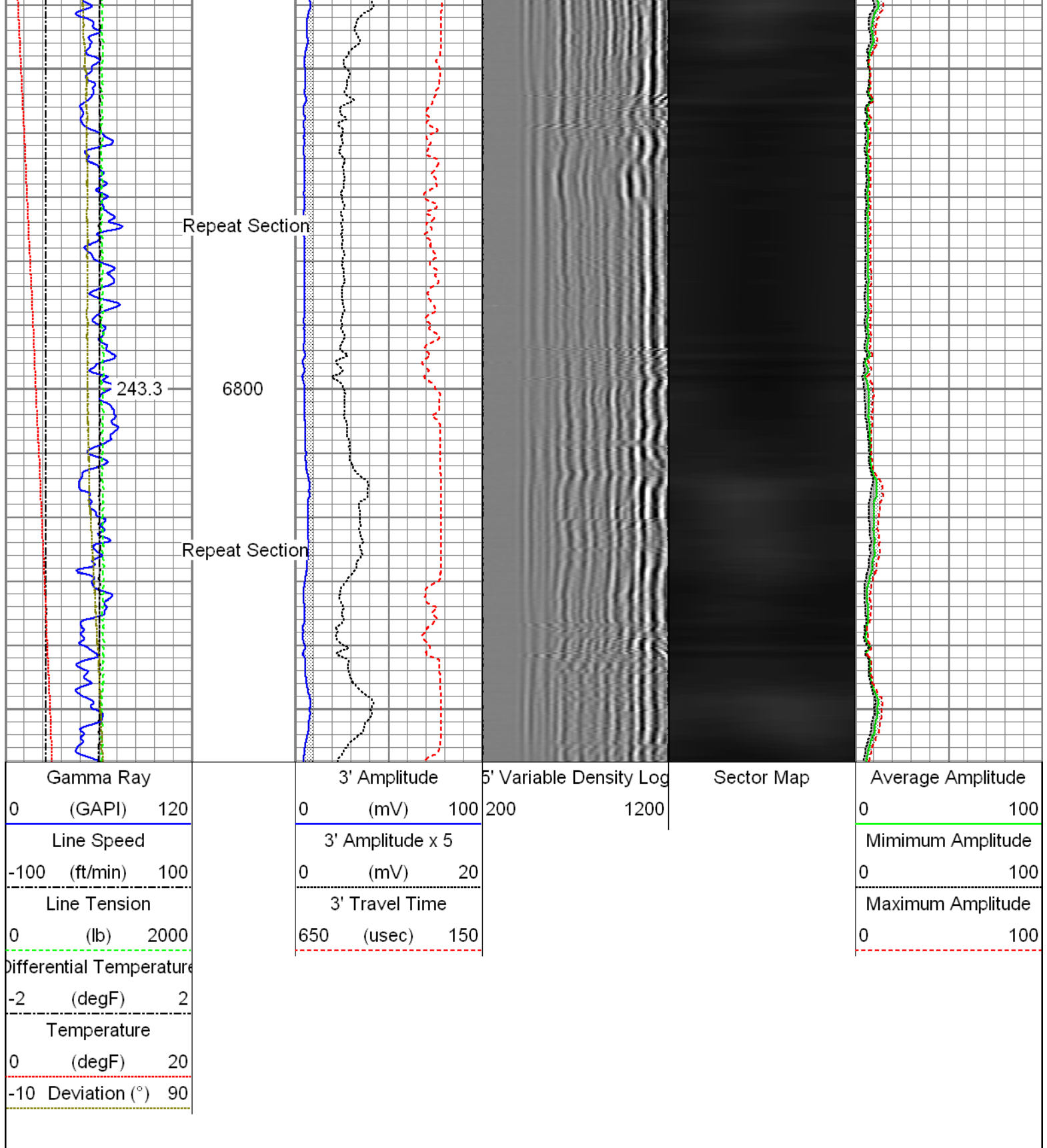
Dataset Creation: Sat Dec 19 12:47:17 2015 by Log 7.0 B1


Charted by: Depth in Feet scaled 1:240

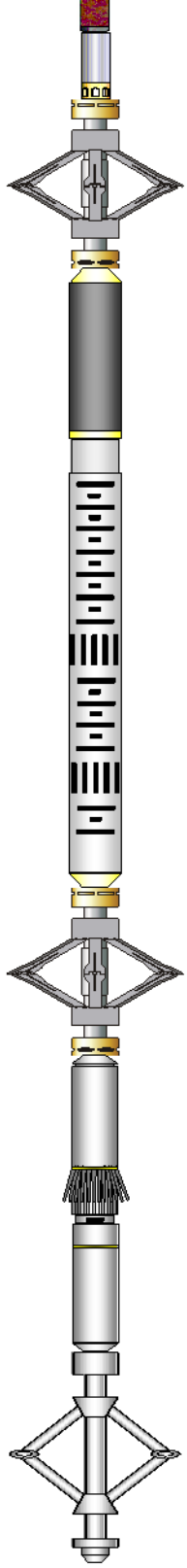
<div>Gamma Ray</div> <div>0 (GAPI) 120</div> <div>Line Speed</div> <div>-100 (ft/min) 100</div> <div>Line Tension</div> <div>0 (lb) 2000</div>	<div>3' Amplitude</div> <div>0 (mV) 100</div> <div>3' Amplitude x 5</div> <div>0 (mV) 20</div> <div>3' Travel Time</div> <div>650 (usec) 150</div>	<div>5' Variable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





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GP	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

GR	25.85		Production Gamma Ray			
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
WVF3FT	15.42					
WVFS1	15.42		UW_RBT-UW_RBT_004 (10022773) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
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 #3 -DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	5.41		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
			UW_BUL-UW_BUL_006 (10019616) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
TSTAMP	0.00					
Dataset: 12-19-15_Noble_Moser H22-715_MIT_RBL.db: field/well/run1/pass5.1 Total Length: 28.09 ft Total Weight: 324.50 lb O.D. 3.13 in						

Calibration Report	
Database File:	12-19-15_Noble_Moser H22-715_MIT_RBL.db
Dataset Pathname:	pass6
Dataset Creation:	Sat Dec 19 15:05:05 2015 by Log 7.0 B1
Multi-finger Imaging Tool Calibration Report	
Serial Number:	10012912
Number of Fingers:	40

## Inclinometer Calibration Report

Performed:

Mon Jul 15 09:39:36 2013

Calibration Angle:

45

Vertical:

Inc X

Inc Y

Finger 1 up:

1968

1974

Finger 31 up:

1740

1744

Finger 21 up:

2215

1741

Finger 11 up:

2205

2224

Sensitivity ratio:

0.992868

1731

2217

X-axis angle:

134.307

Deviation const.:

335.589

## Finger Calibration Report

Performed:

Sat Dec 19 12:10:41 2015

Ring size:  
(in)

4

5

6

7

Sens

Sens

Sens

Finger 01:	1070	364.0	1434	384.0	1818	413.0	2231
Finger 02:	1200	379.0	1579	384.0	1963	402.0	2365
Finger 03:	1088	380.0	1468	405.0	1873	435.0	2308
Finger 04:	1128	372.0	1500	393.0	1893	421.0	2314
Finger 05:	1153	379.0	1532	397.0	1929	417.0	2346
Finger 06:	1147	386.0	1533	399.0	1932	417.0	2349
Finger 07:	1098	383.0	1481	398.0	1879	424.0	2303
Finger 08:	1169	377.0	1546	398.0	1944	418.0	2362
Finger 09:	1137	378.0	1515	396.0	1911	411.0	2322
Finger 10:	1127	370.0	1497	393.0	1890	414.0	2304
Finger 11:	1130	366.0	1496	391.0	1887	409.0	2296
Finger 12:	1178	373.0	1551	394.0	1945	411.0	2356
Finger 13:	1174	363.0	1537	387.0	1924	398.0	2322
Finger 14:	1137	368.0	1505	398.0	1903	414.0	2317
Finger 15:	1102	372.0	1474	408.0	1882	426.0	2308
Finger 16:	1117	372.0	1489	413.0	1902	426.0	2328
Finger 17:	1037	350.0	1387	397.0	1784	425.0	2209
Finger 18:	1141	354.0	1495	389.0	1884	406.0	2290
Finger 19:	1115	362.0	1477	393.0	1870	419.0	2289
Finger 20:	1083	358.0	1441	407.0	1848	428.0	2276
Finger 21:	1097	362.0	1459	407.0	1866	410.0	2276
Finger 22:	1059	361.0	1420	411.0	1831	432.0	2263
Finger 23:	1065	367.0	1432	418.0	1850	439.0	2289
Finger 24:	1080	353.0	1433	392.0	1825	398.0	2223
Finger 25:	1043	360.0	1403	416.0	1819	430.0	2249
Finger 26:	1152	347.0	1499	384.0	1883	397.0	2280
Finger 27:	1053	353.0	1406	403.0	1809	418.0	2227
Finger 28:	1102	350.0	1452	389.0	1841	408.0	2249
Finger 29:	1039	354.0	1393	408.0	1801	427.0	2228
Finger 30:	1081	358.0	1439	400.0	1839	420.0	2259
Finger 31:	1121	358.0	1479	394.0	1873	410.0	2283
Finger 32:	1156	386.0	1542	420.0	1962	438.0	2400
Finger 33:	1138	357.0	1495	375.0	1870	390.0	2260
Finger 34:	1092	369.0	1461	397.0	1858	427.0	2285
Finger 35:	950	334.0	1284	376.0	1660	412.0	2072
Finger 36:	1063	364.0	1427	397.0	1824	428.0	2252
Finger 37:	1150	366.0	1516	390.0	1906	414.0	2320
Finger 38:	1182	363.0	1545	383.0	1928	393.0	2321
Finger 39:	1199	360.0	1559	379.0	1938	396.0	2334
Finger 40:	1105	370.0	1475	395.0	1870	419.0	2289

## Post Survey Calibration Check

Performed:

Sat Dec 19 15:03:59 2015

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.008	0.004	5.003	0.002	5.784	-0.108	6.659	-0.171
Finger 02:	4.011	0.005	4.999	-0.000	5.779	-0.110	6.653	-0.174
Finger 03:	4.007	0.003	4.994	-0.003	5.784	-0.108	6.647	-0.177
Finger 04:	4.003	0.002	4.988	-0.006	5.776	-0.112	6.649	-0.175
Finger 05:	4.010	0.005	4.996	-0.002	5.777	-0.112	6.669	-0.165
Finger 06:	4.004	0.002	5.008	0.004	5.777	-0.111	6.668	-0.166
Finger 07:	4.005	0.002	4.976	-0.012	5.758	-0.121	6.637	-0.181
Finger 08:	4.006	0.003	5.004	0.002	5.773	-0.114	6.663	-0.168
Finger 09:	4.007	0.003	4.998	-0.001	5.770	-0.115	6.664	-0.168
Finger 10:	4.012	0.006	5.004	0.002	5.782	-0.109	6.666	-0.167
Finger 11:	3.992	-0.004	4.991	-0.004	5.772	-0.114	6.647	-0.176
Finger 12:	4.024	0.012	5.006	0.003	5.784	-0.108	6.669	-0.166
Finger 13:	3.993	-0.004	4.997	-0.001	5.778	-0.111	6.665	-0.168
Finger 14:	4.005	0.002	5.004	0.002	5.786	-0.107	6.661	-0.170
Finger 15:	4.005	0.002	4.998	-0.001	5.780	-0.110	6.660	-0.170
Finger 16:	4.002	0.001	5.000	0.000	5.780	-0.110	6.661	-0.170
Finger 17:	3.996	-0.002	4.998	-0.001	5.786	-0.107	6.658	-0.171
Finger 18:	4.003	0.001	5.006	0.003	5.786	-0.107	6.667	-0.166
Finger 19:	4.004	0.002	4.985	-0.007	5.777	-0.111	6.652	-0.174
Finger 20:	4.006	0.003	5.003	0.002	5.780	-0.110	6.660	-0.170
Finger 21:	4.000	0.000	5.001	0.001	5.762	-0.119	6.653	-0.173
Finger 22:	4.008	0.004	5.002	0.001	5.786	-0.107	6.662	-0.169
Finger 23:	4.006	0.003	5.000	0.000	5.790	-0.105	6.669	-0.166
Finger 24:	4.005	0.003	4.986	-0.007	5.771	-0.115	6.654	-0.173
Finger 25:	4.006	0.003	5.000	0.000	5.776	-0.112	6.662	-0.169
Finger 26:	4.008	0.004	4.998	-0.001	5.771	-0.114	6.659	-0.170
Finger 27:	4.016	0.008	5.004	0.002	5.772	-0.114	6.655	-0.172
Finger 28:	4.004	0.002	4.997	-0.001	5.773	-0.114	6.654	-0.173
Finger 29:	4.008	0.004	4.999	-0.001	5.771	-0.114	6.657	-0.171
Finger 30:	4.000	-0.000	4.991	-0.005	5.779	-0.111	6.655	-0.172
Finger 31:	4.008	0.004	4.996	-0.002	5.779	-0.111	6.666	-0.167
Finger 32:	4.004	0.002	4.993	-0.004	5.776	-0.112	6.657	-0.172
Finger 33:	4.000	-0.000	5.001	0.000	5.786	-0.107	6.661	-0.170
Finger 34:	4.003	0.002	4.994	-0.003	5.781	-0.109	6.657	-0.172
Finger 35:	4.007	0.003	5.004	0.002	5.781	-0.109	6.651	-0.175
Finger 36:	4.002	0.001	4.998	-0.001	5.782	-0.109	6.670	-0.165
Finger 37:	3.997	-0.001	5.010	0.005	5.781	-0.110	6.670	-0.165
Finger 38:	3.999	-0.000	5.000	-0.000	5.763	-0.118	6.664	-0.168
Finger 39:	4.005	0.002	5.002	0.001	5.779	-0.110	6.669	-0.166
Finger 40:	4.002	0.001	4.999	-0.000	5.790	-0.105	6.660	-0.170
Average:	4.005	0.002	4.998	-0.001	5.778	-0.111	6.660	-0.170

Segmented Cement Bond Log Calibration Report						
Serial Number:		10022773				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		23.998	ft			
Master Calibration, performed Sat Dec 19 12:07:49 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.001	0.863	0.800	62.165	71.175	0.716
5FT	-0.002	0.874	0.800	62.165	70.088	0.923
S1	0.001	0.837	0.000	100.000	119.607	-0.146
S2	0.000	0.846	0.000	100.000	118.148	0.000
S3	0.001	0.828	0.000	100.000	120.944	-0.092
S4	0.000	0.816	0.000	100.000	122.499	0.000



S5	0.001	0.846	0.000	100.000	118.421	-0.132
S6	0.000	0.849	0.000	100.000	117.825	0.000
S7	0.000	0.856	0.000	100.000	116.847	0.000
S8	0.000	0.852	0.000	100.000	117.317	-0.009

### 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  
 Sensitivity: 0.6000 GAPI/cps



Company: Noble Energy Inc.  
 Well: Moser H22-715  
 Field: Wattenberg  
 County: Weld  
 State: Colorado