



Multifinger Imaging Tool
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well Wagner 2C-10HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-43473

Other Services
CNL/RBL
JBGR

SEC 22 TWP 1N RGE 67W

Elevation

Permanent Datum Ground Level Elevation 4974'
Log Measured From Kelly Bushing 21 FT
Drilling Measured From Kelly Bushing

K.B. 4995'
D.F. ---
G.L. 4974'

Date	30-DEC-2017			
Run Number	Two			
Depth Driller	15970 FT			
Depth Logger	7740 FT			
Bottom Logged Interval	7729 FT			
Top Log Interval	Surface			
Open Hole Size	---			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	237°F			
E. Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	8:05			
Equipment Number	HD-363			
Location	Fort Lupton, CO			
Recorded By	Carlos Sisneros			
Witnessed By	Mr. Jeff Hammond			
Borehole Record				
Run Number	Bit	From	To	Size
				Weight
				From
				To
Tubing Record				
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top
Surface Casing	9 5/8	36	J-55	Surface
Intermediate #1	7	26	HCP-110	Surface
Intermediate #2				
Liner	5	---	---	5748 FT
	4 1/2	11.6	HCP-110	5764 FT
				15965 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 Casing Tally reported Liner Top at 5748 FT
Adjusted -3 FT to correlate with Liner Top
Gauge Ring/Junk Basket ran to 7840 FT with no debris
Log ran from as deep as possible in heel to Surface
Recorded with 2800 PSI Surface Induced Pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass

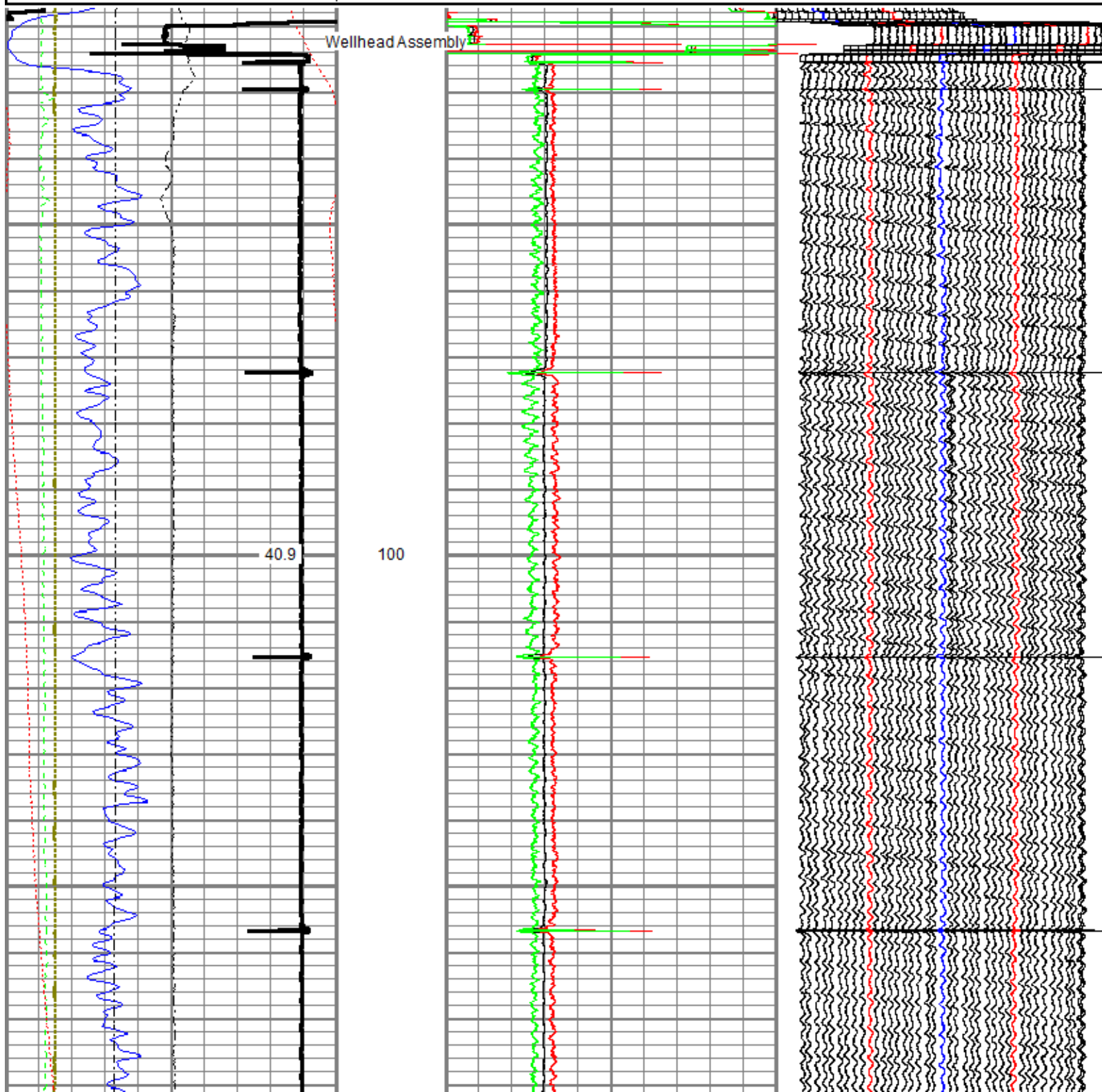


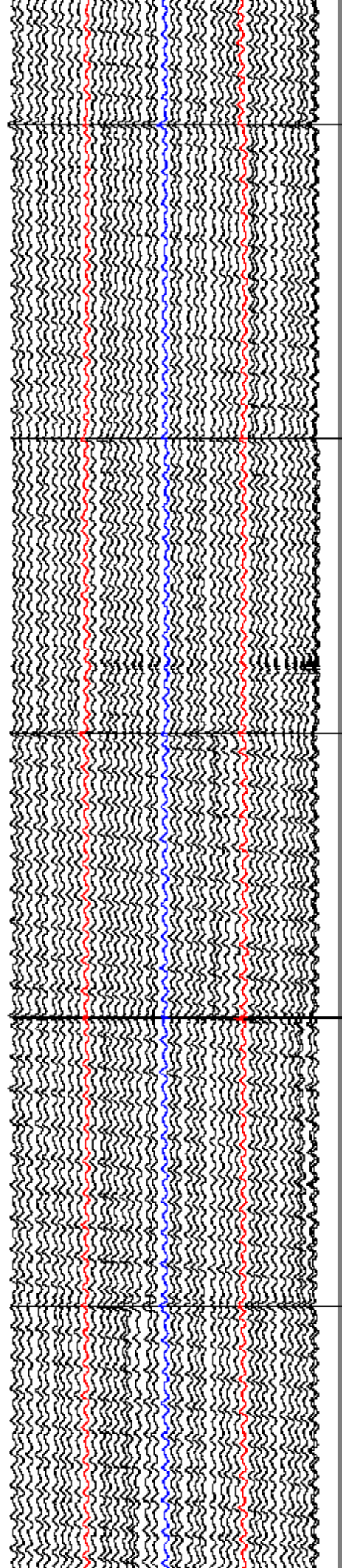
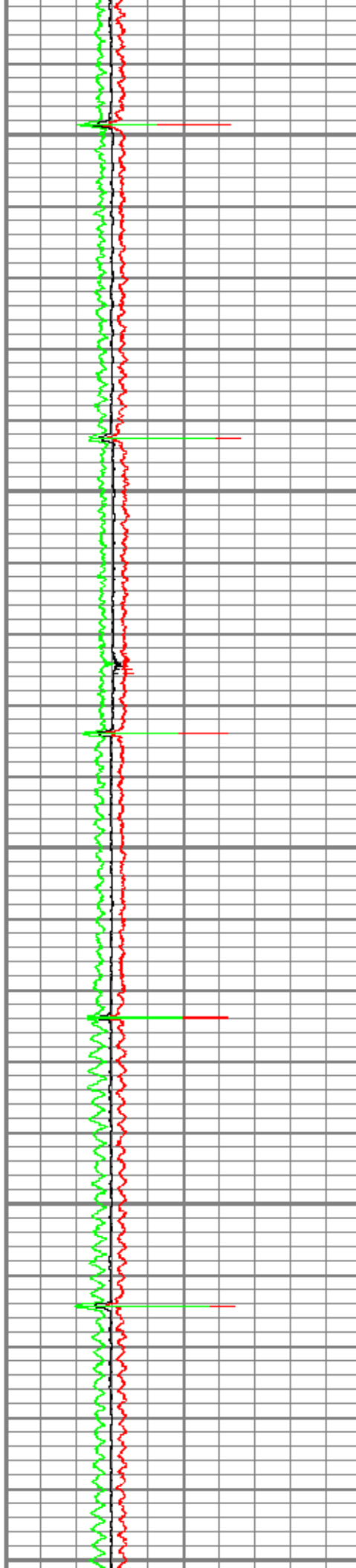
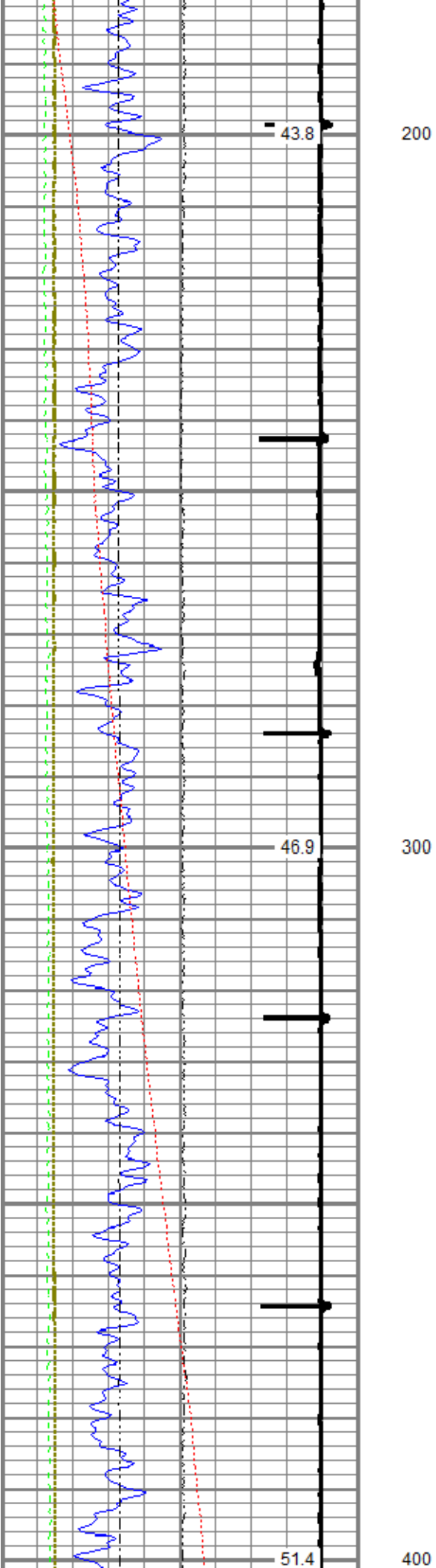
Recorded With 2800 PSI Surface Induced Pressure

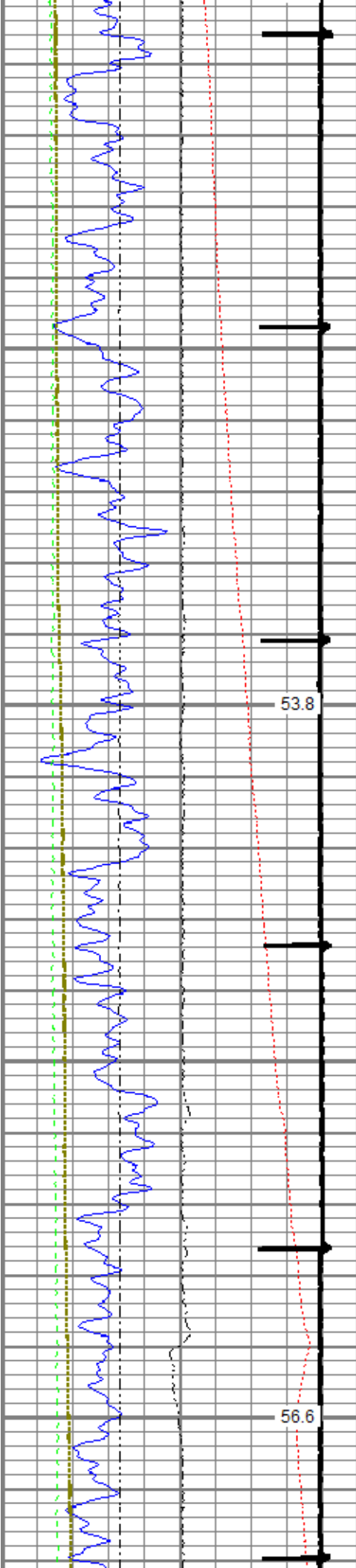
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Dataset Pathname	pass5
Presentation Format	ros_70mit40sx
Dataset Creation	Sat Dec 30 08:14:21 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20
Casing Collar Locator		

6	Average Diameter (in)	7	Caliper #10
6	Maximum Diameter (in)	7	Caliper #20
6	Minimum Diameter (in)	7	Caliper #30

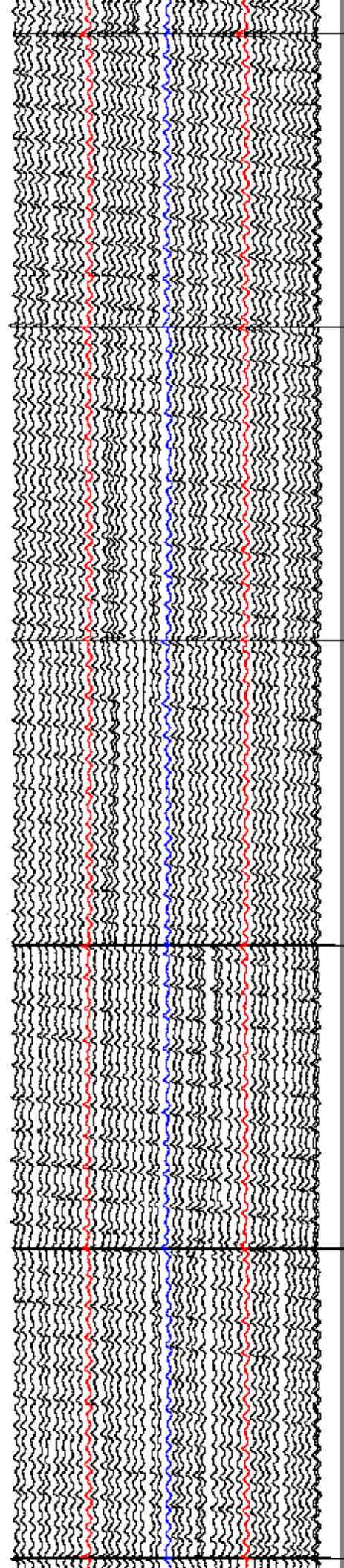
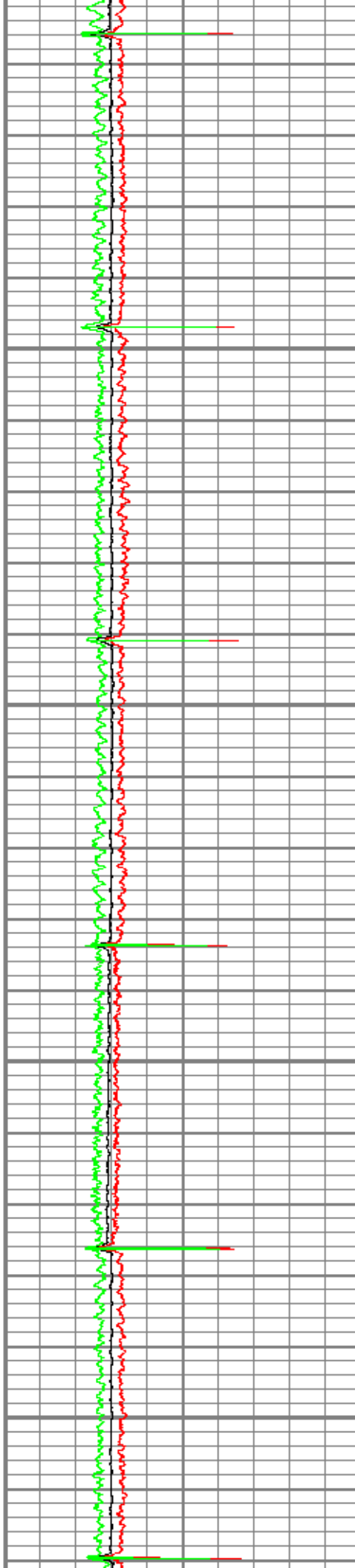


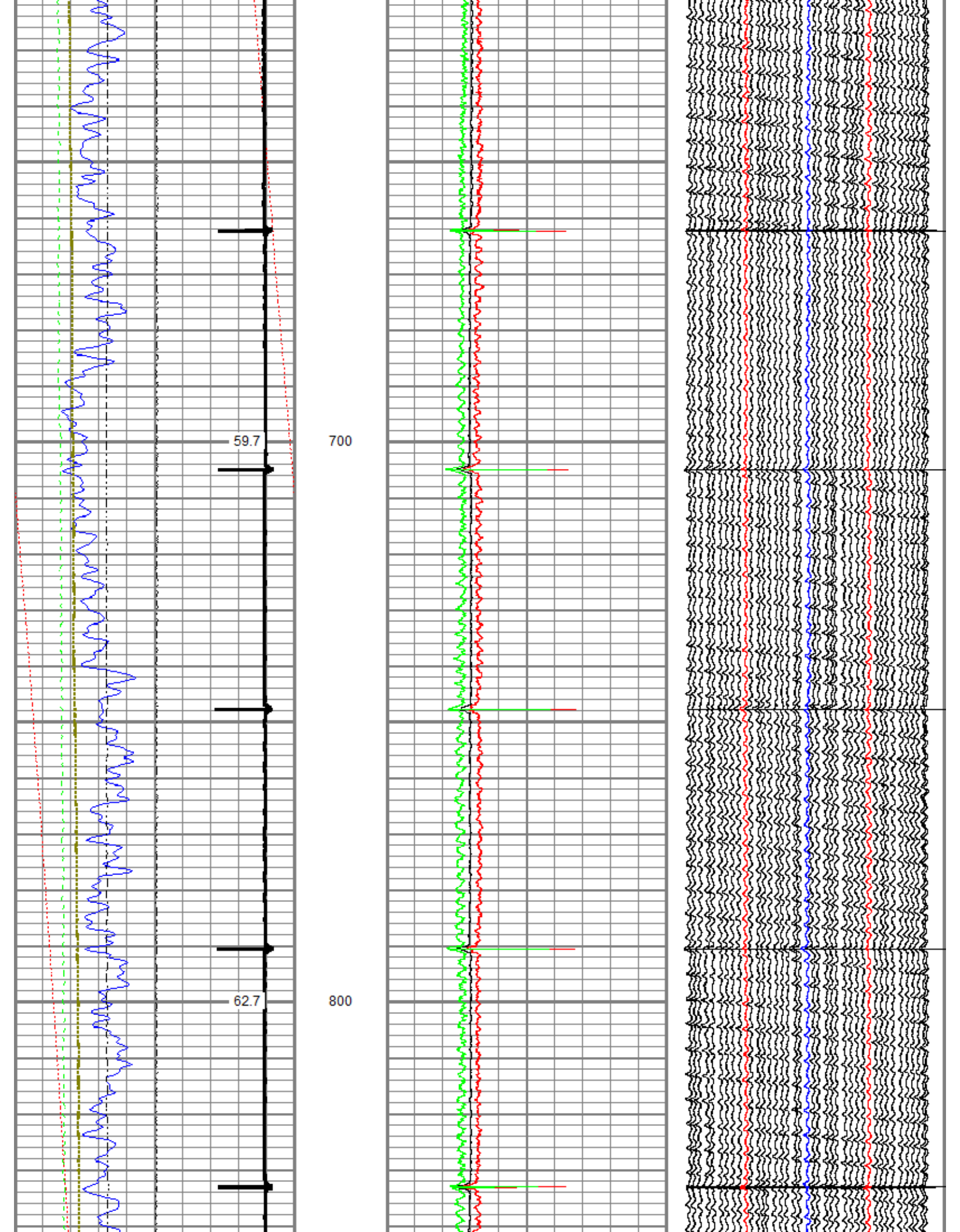


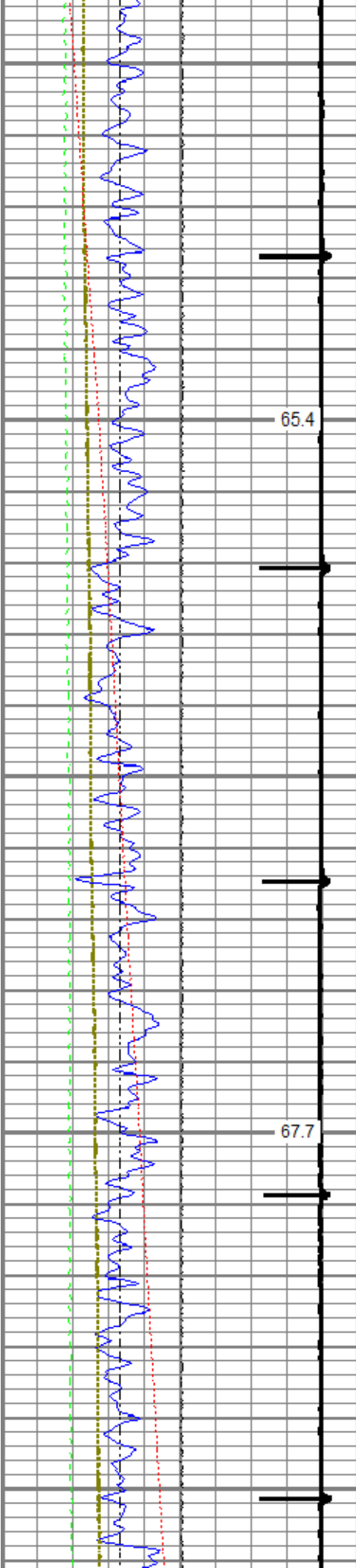


500

600







65.4

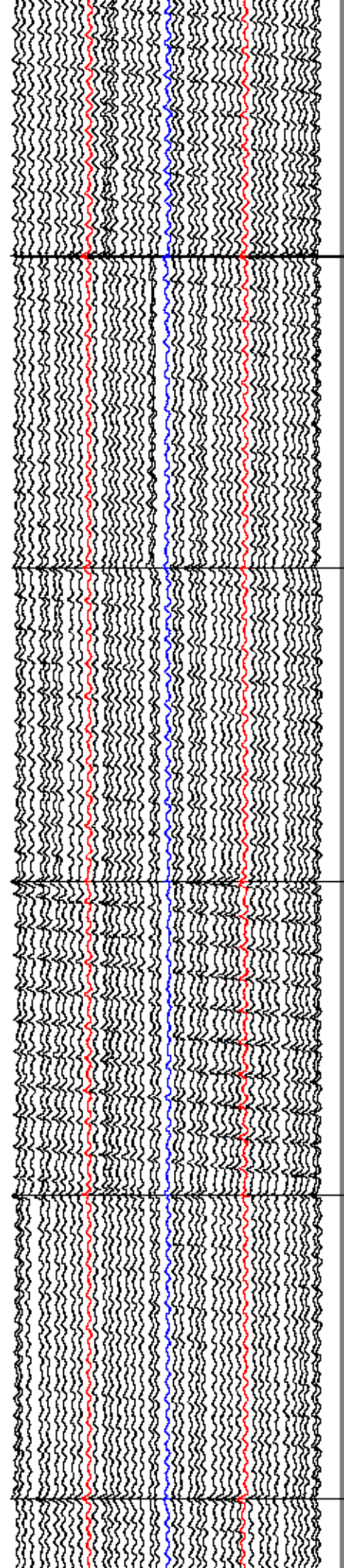
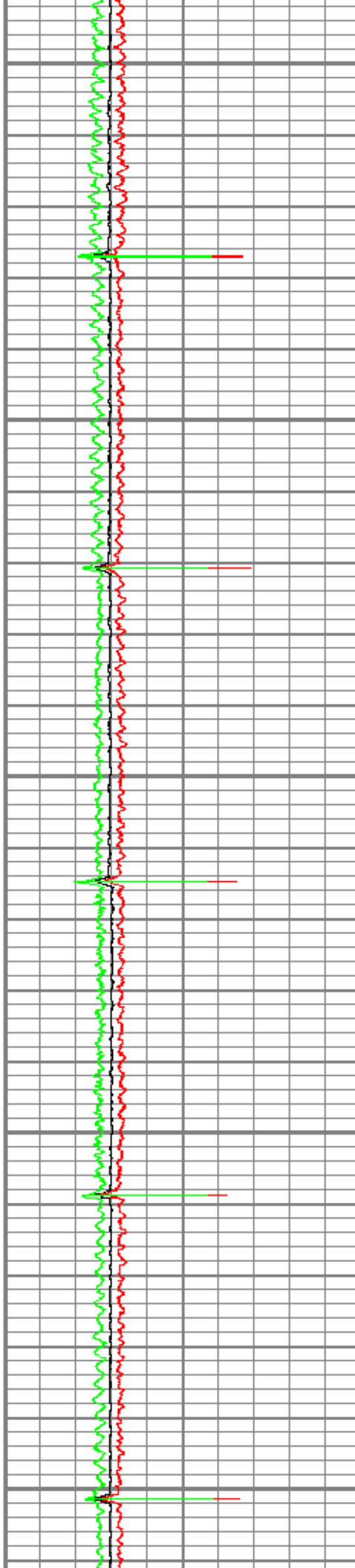


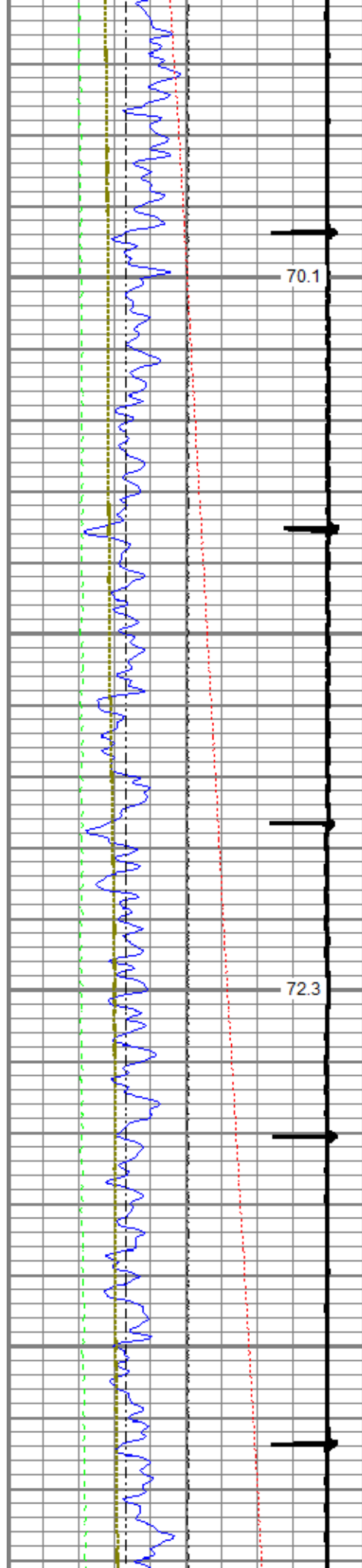
67.7



900

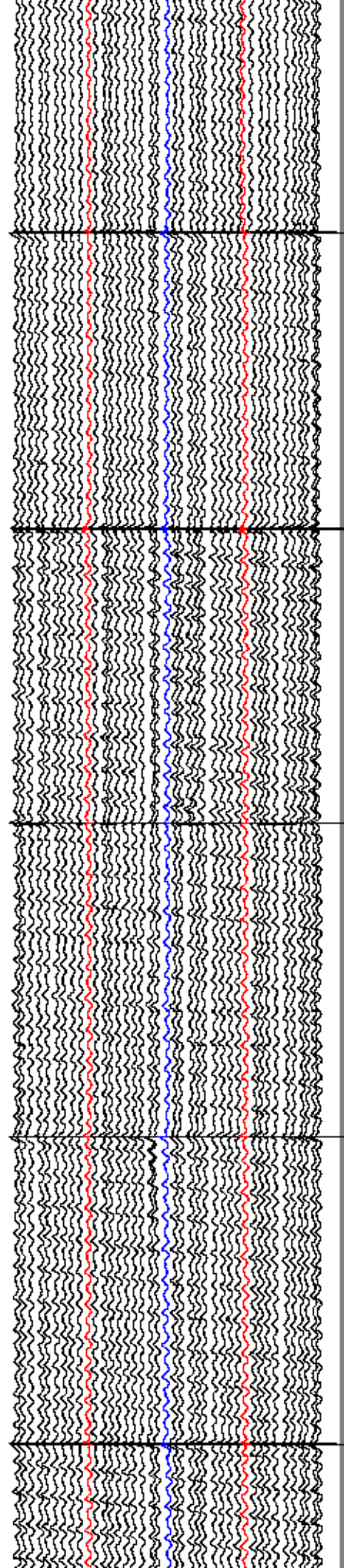
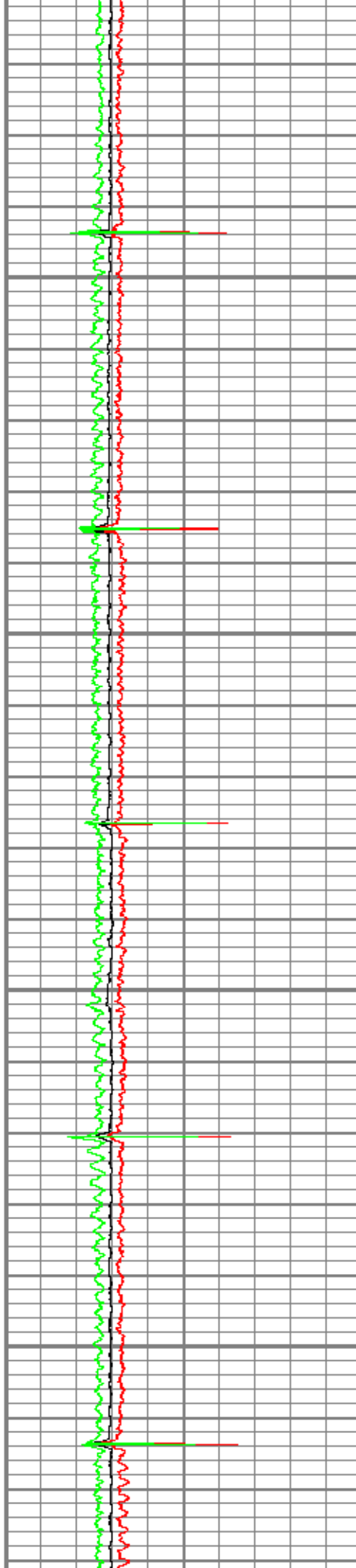
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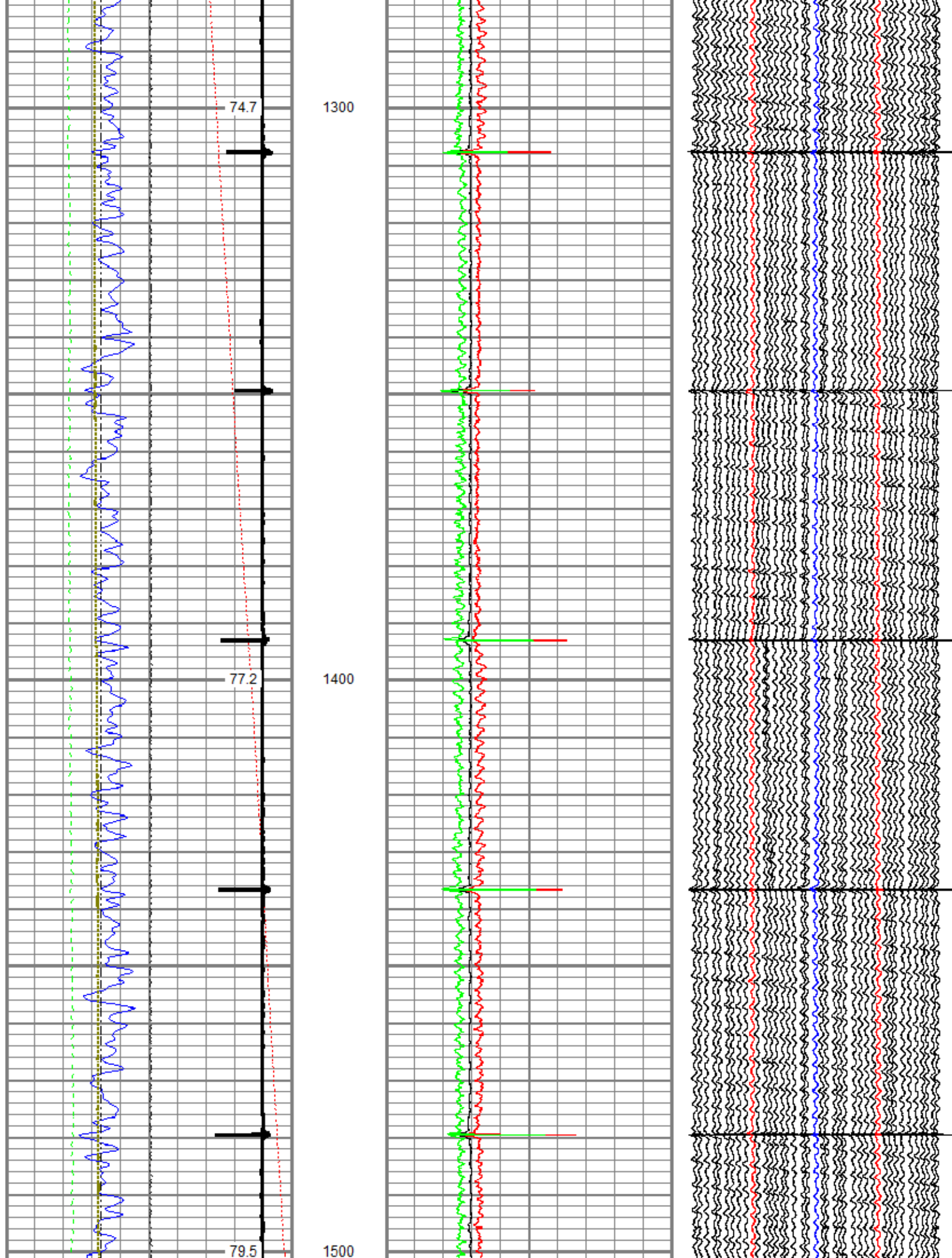


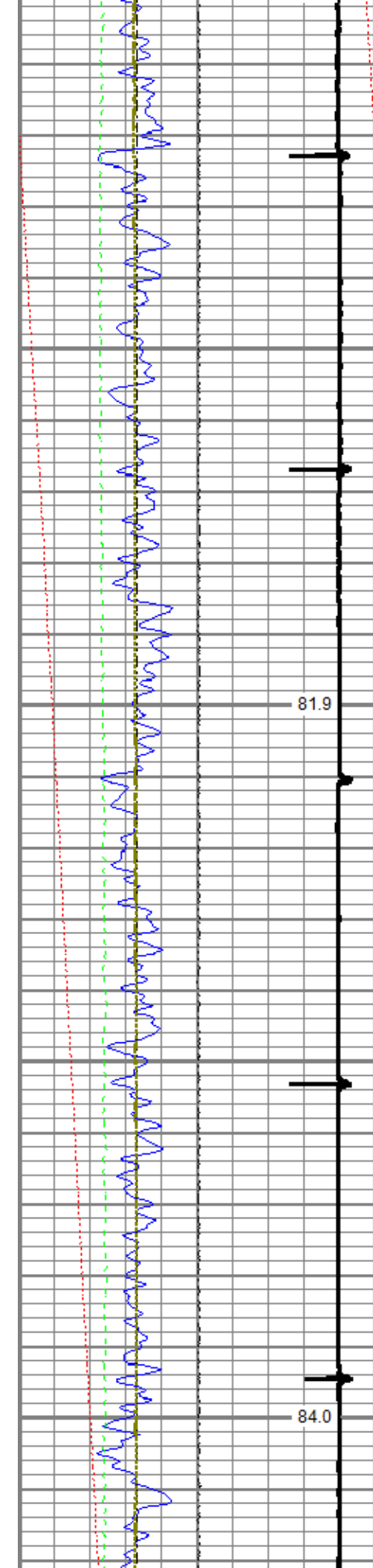


1100

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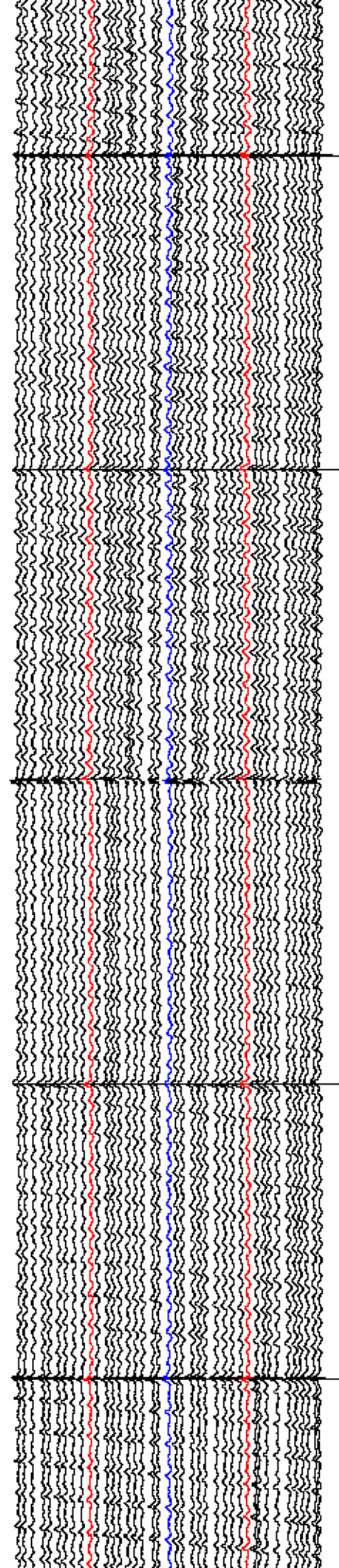
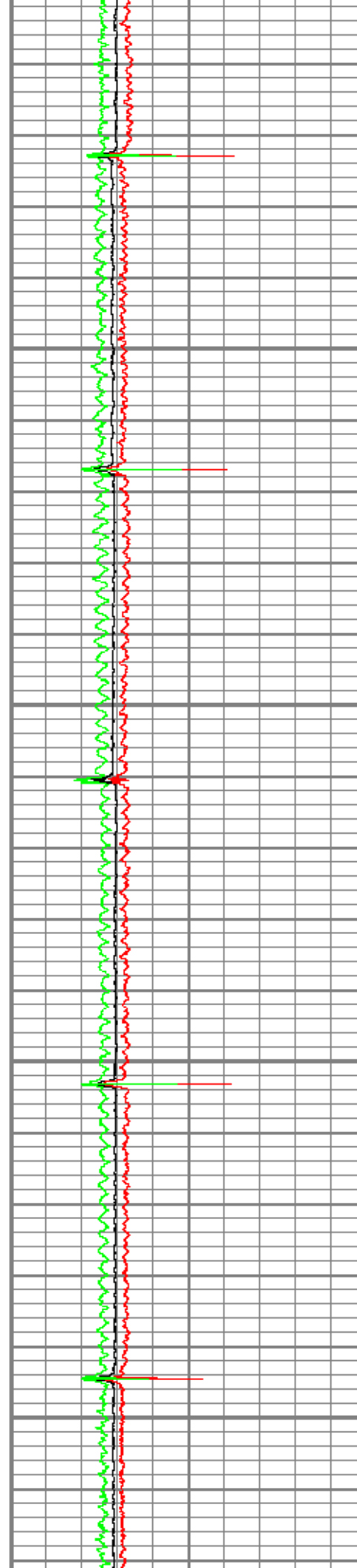


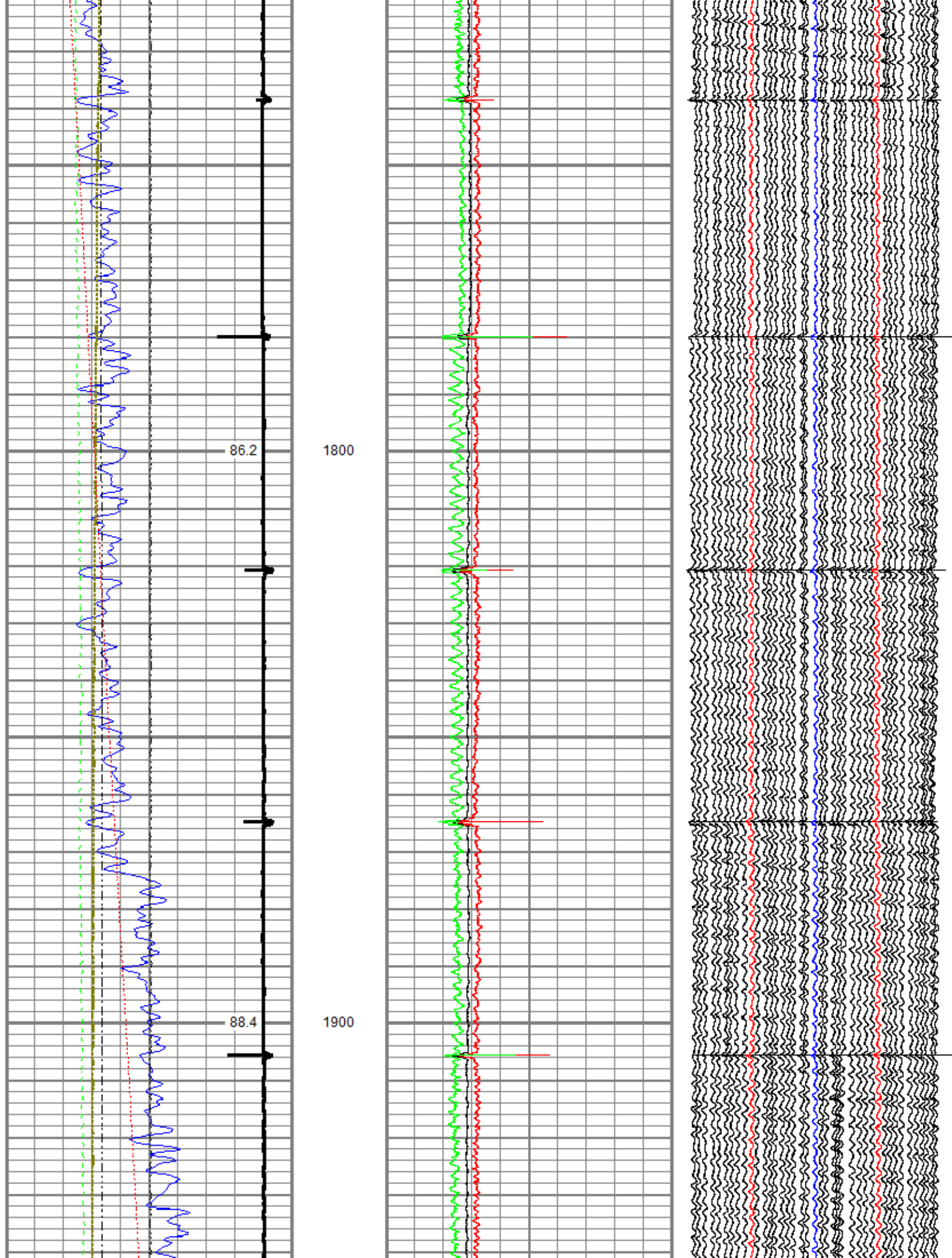


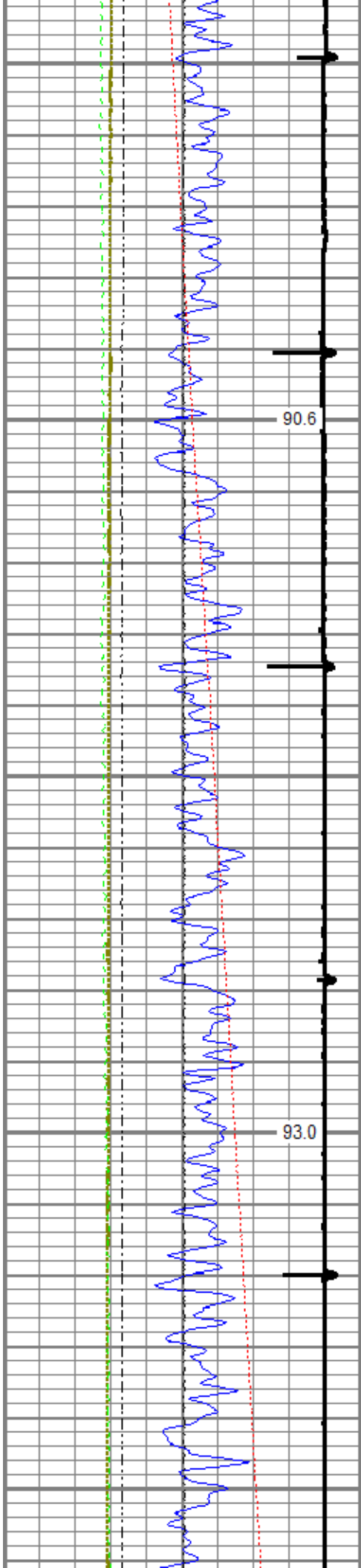


1600

1700

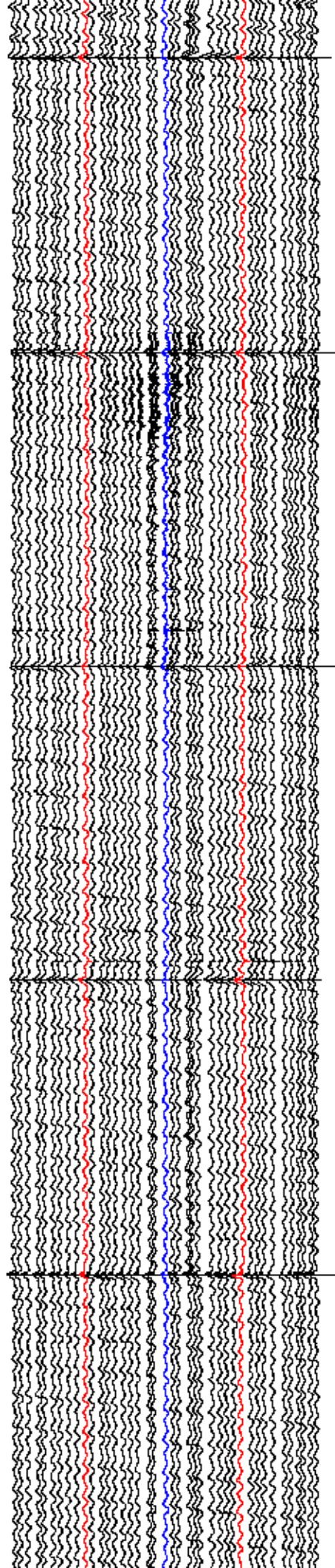
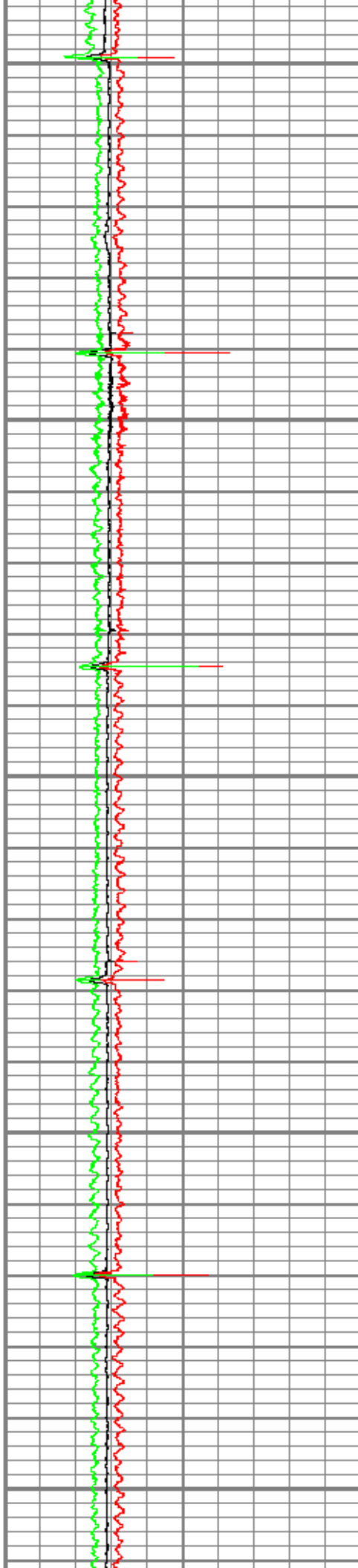


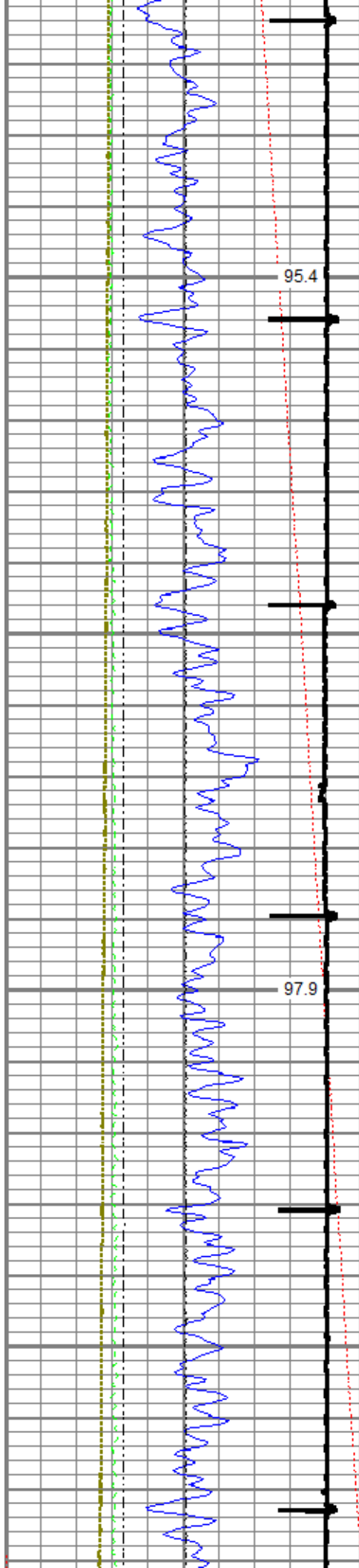




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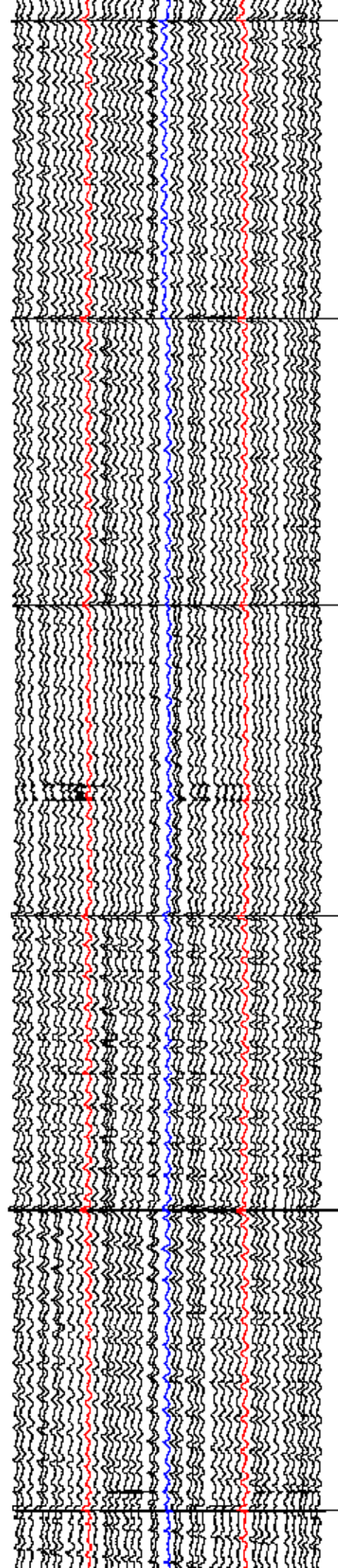
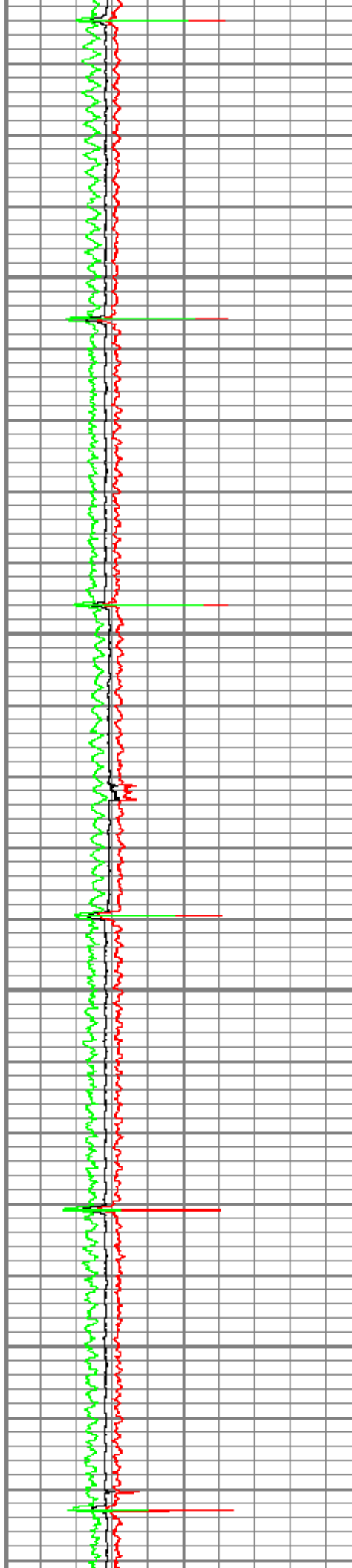
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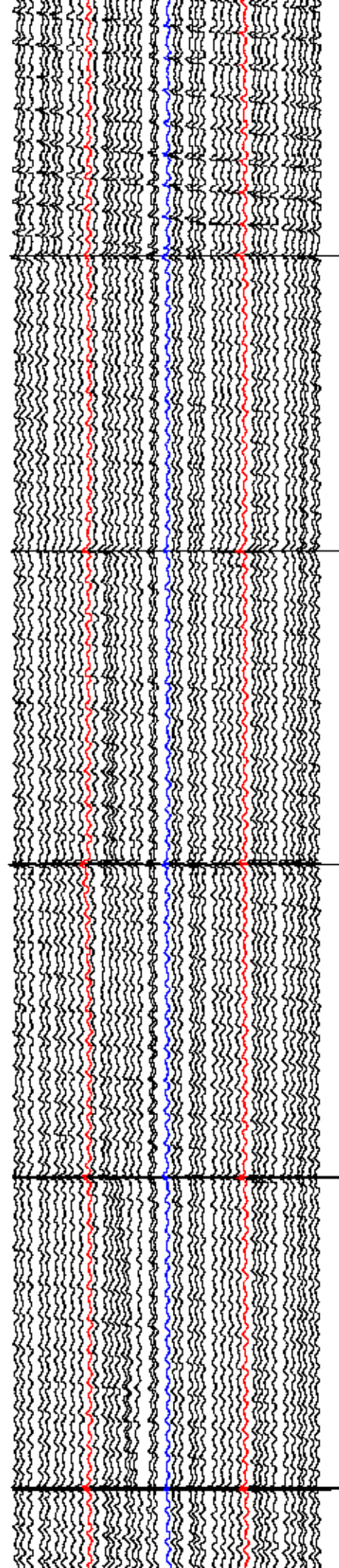
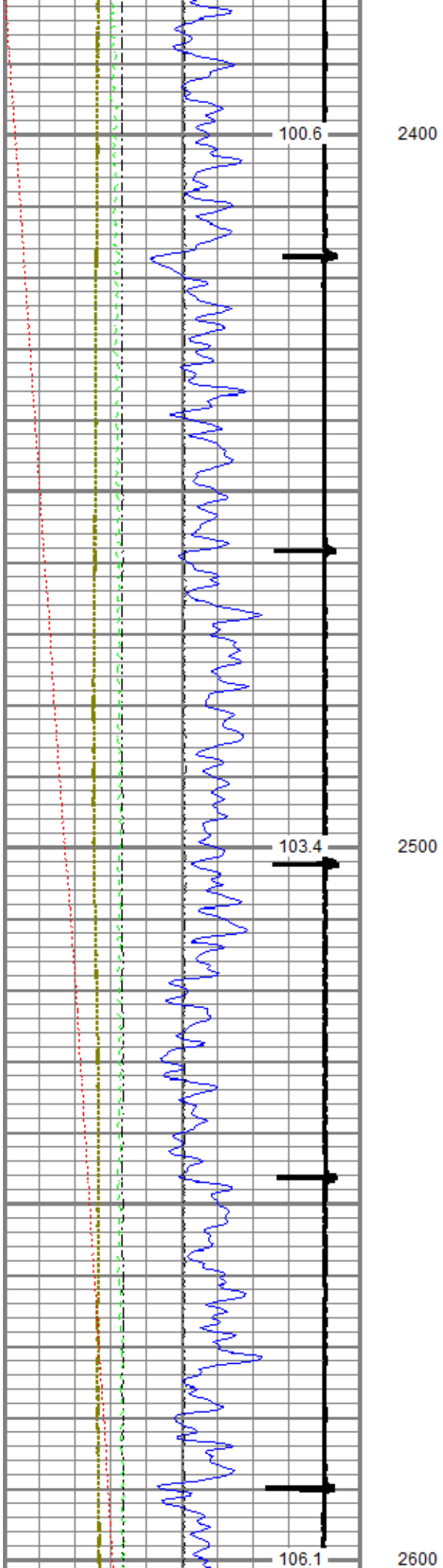


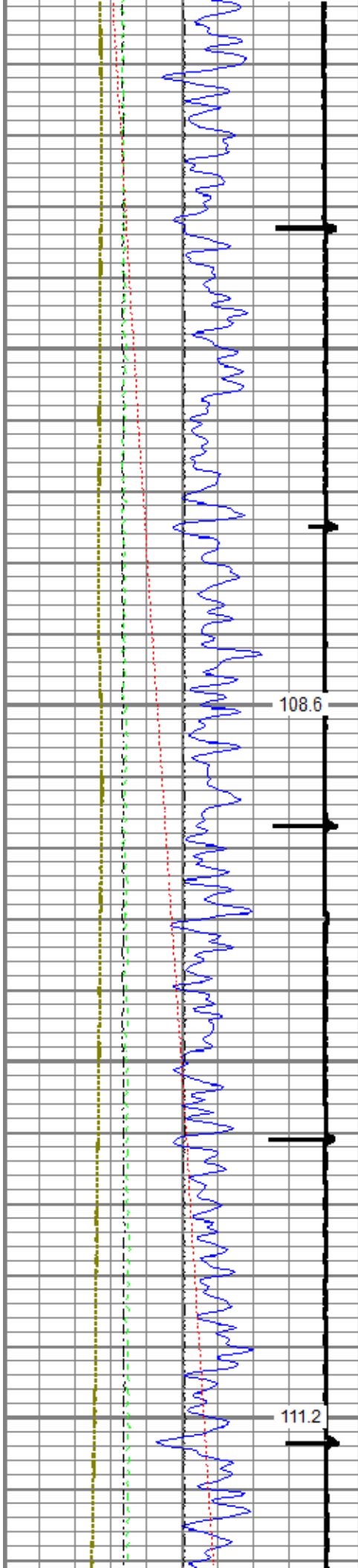


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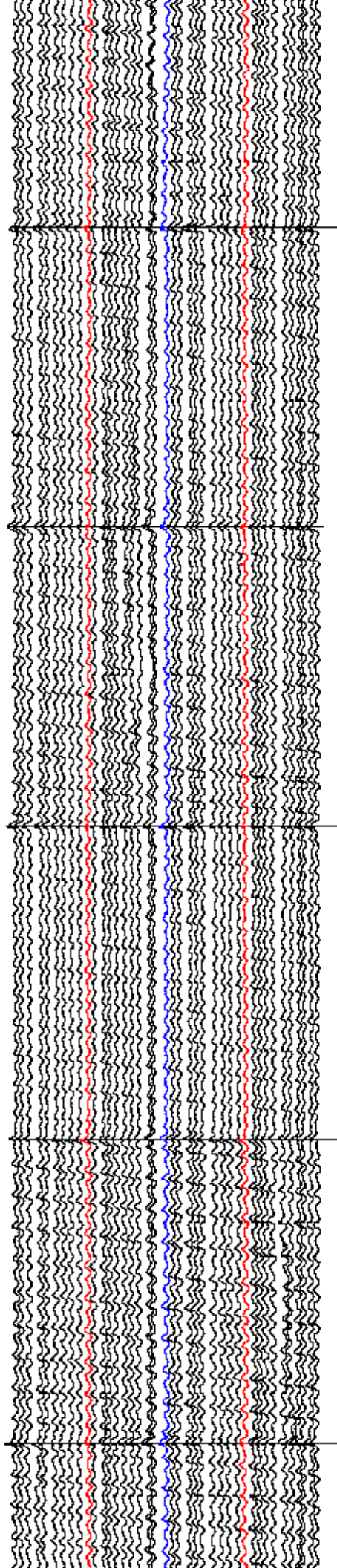
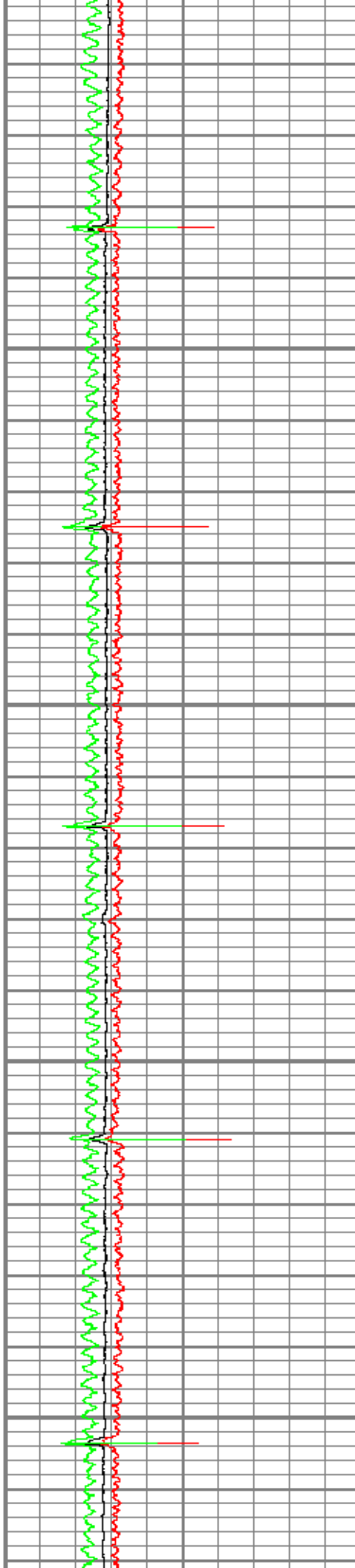


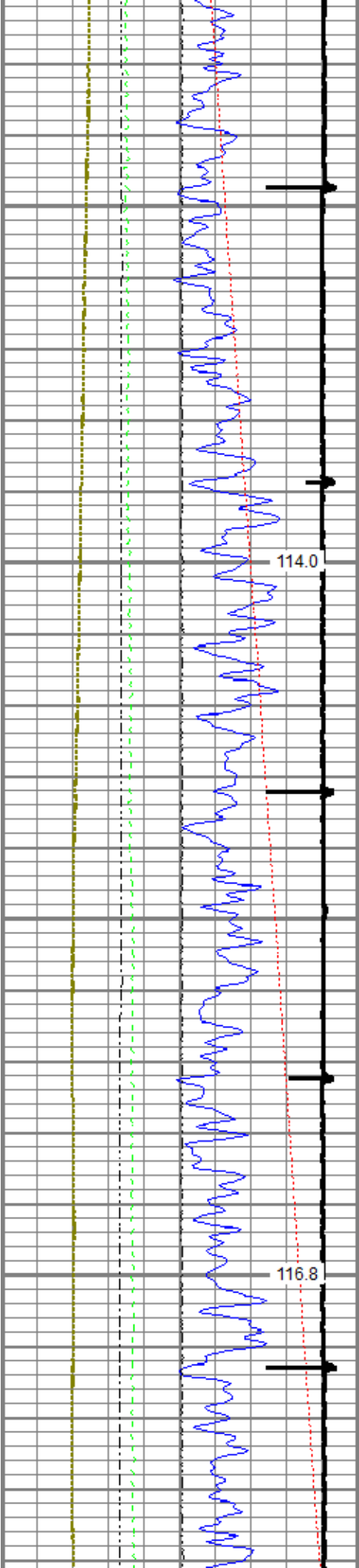




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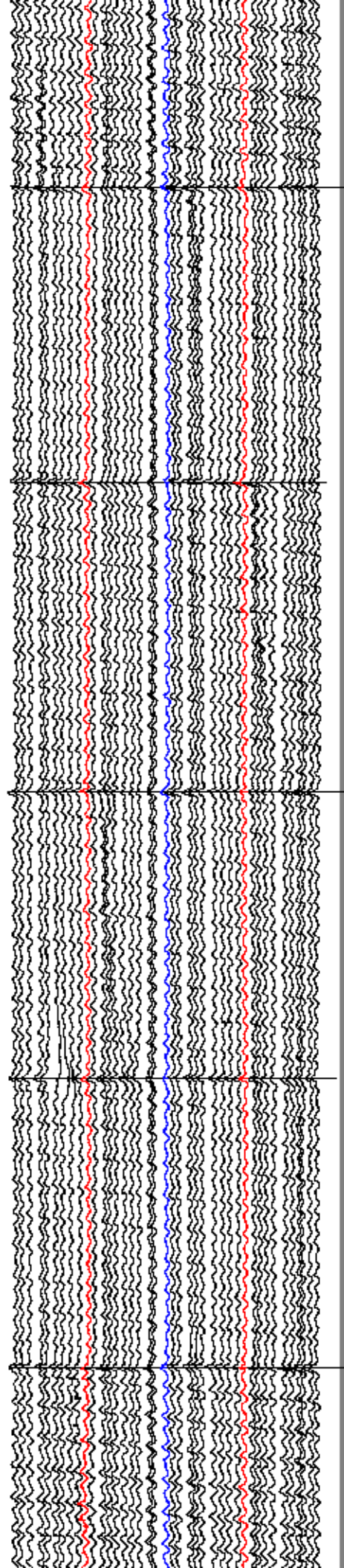
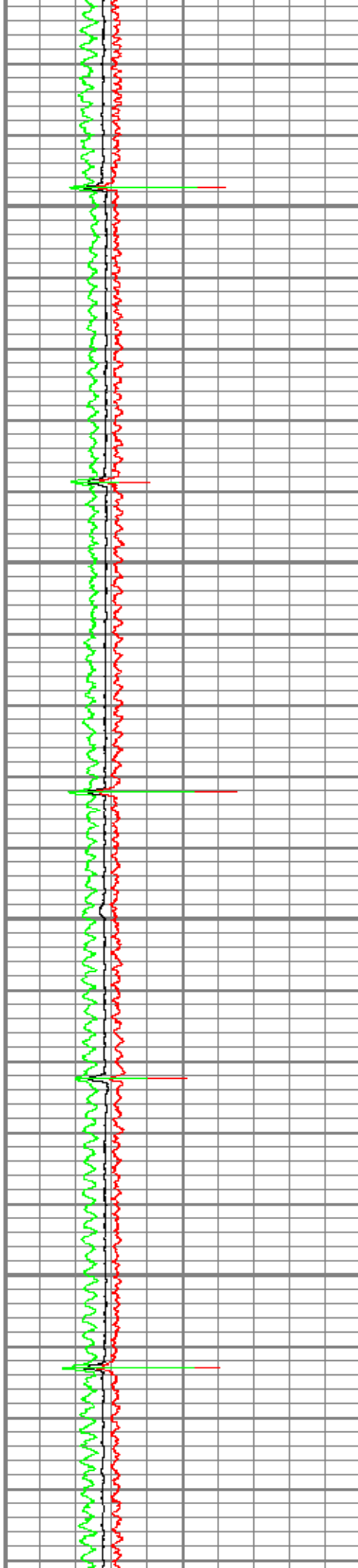
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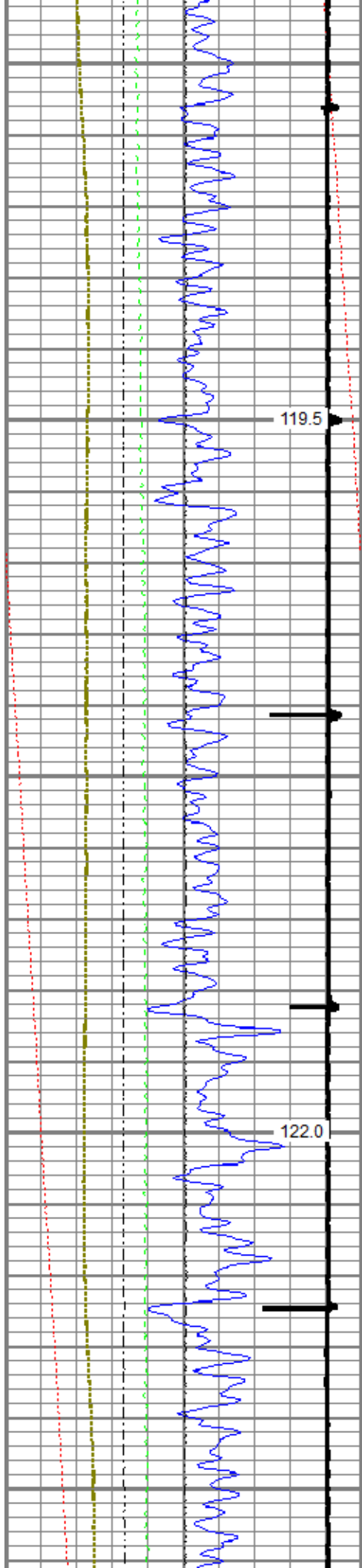




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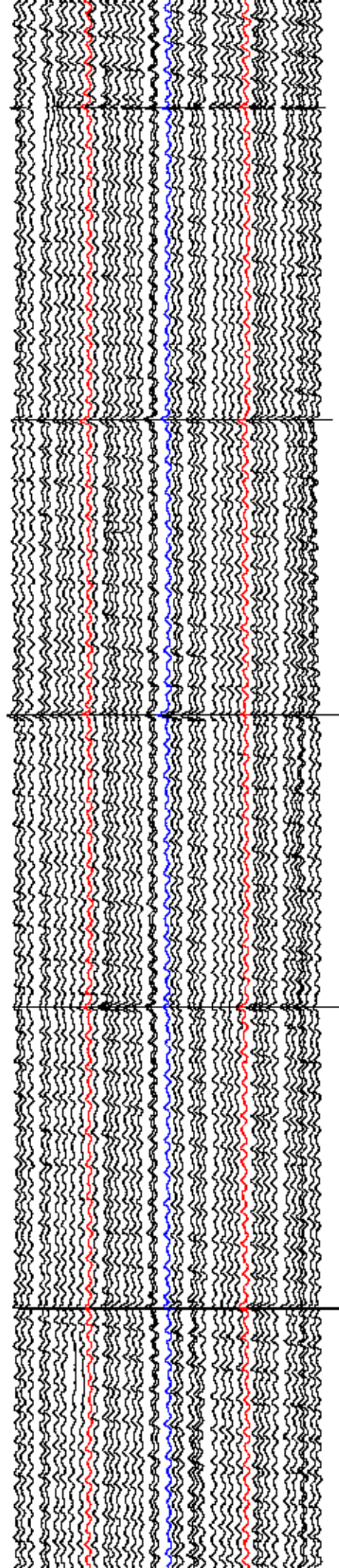
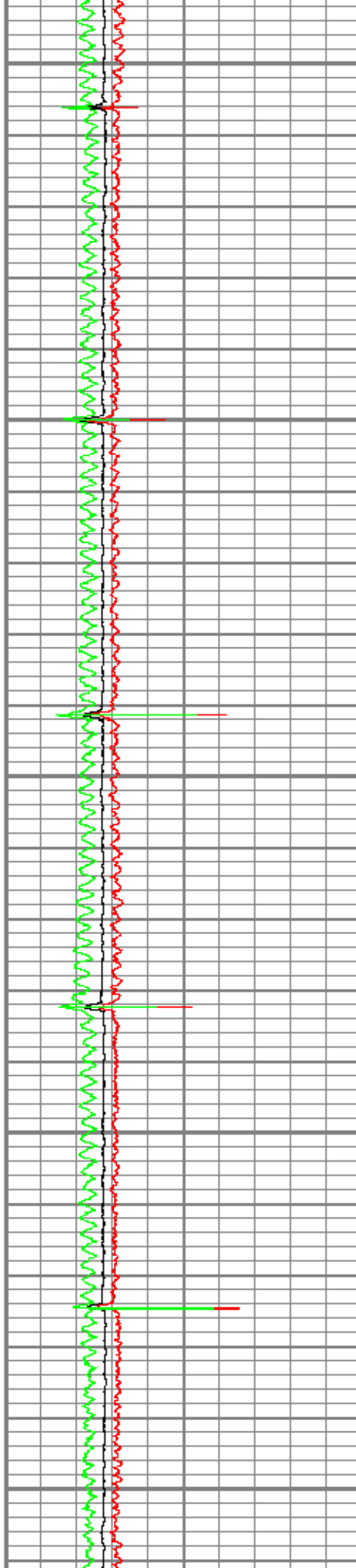
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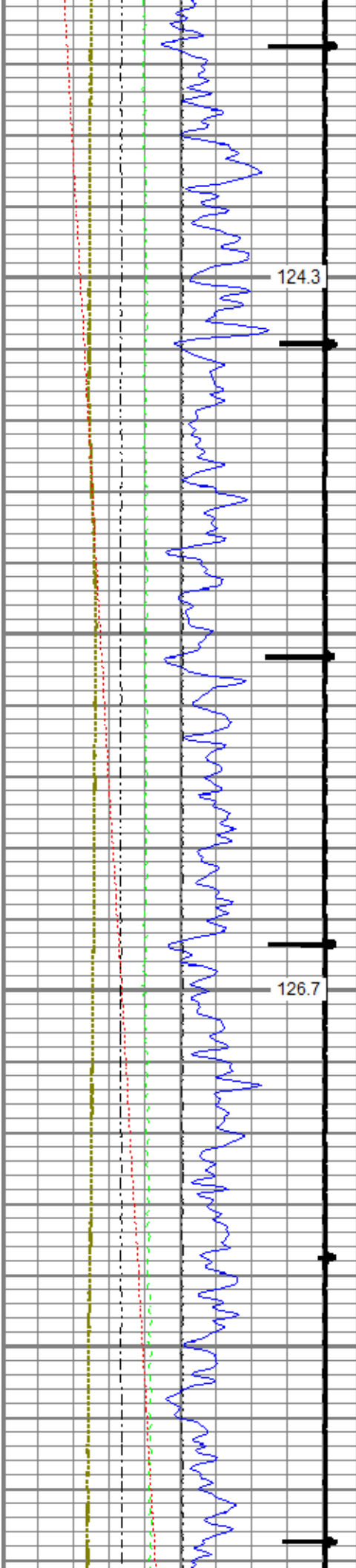




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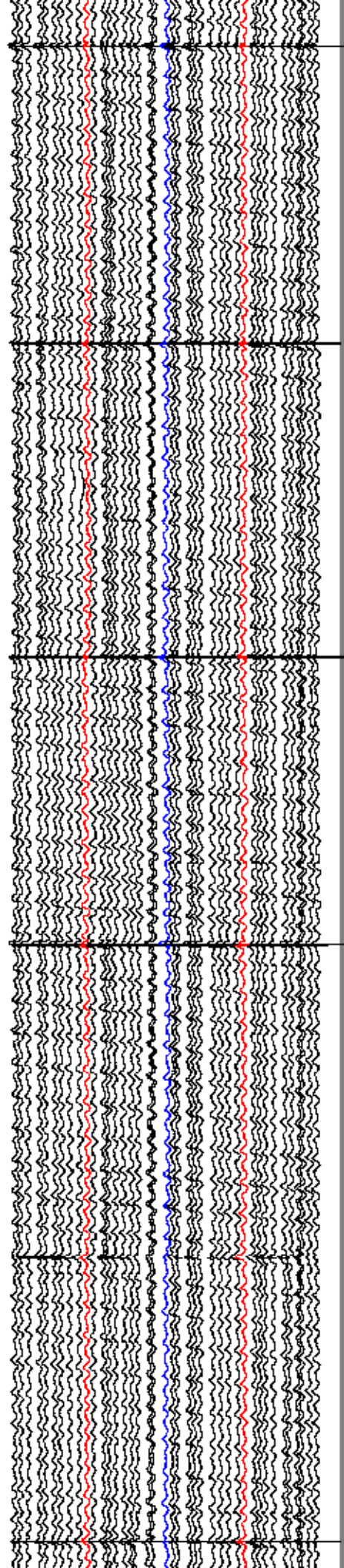
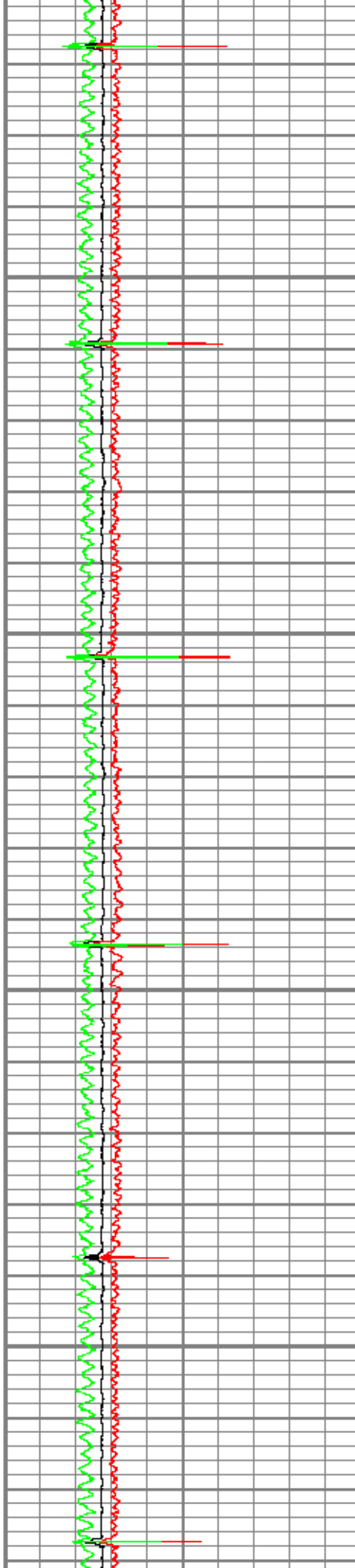
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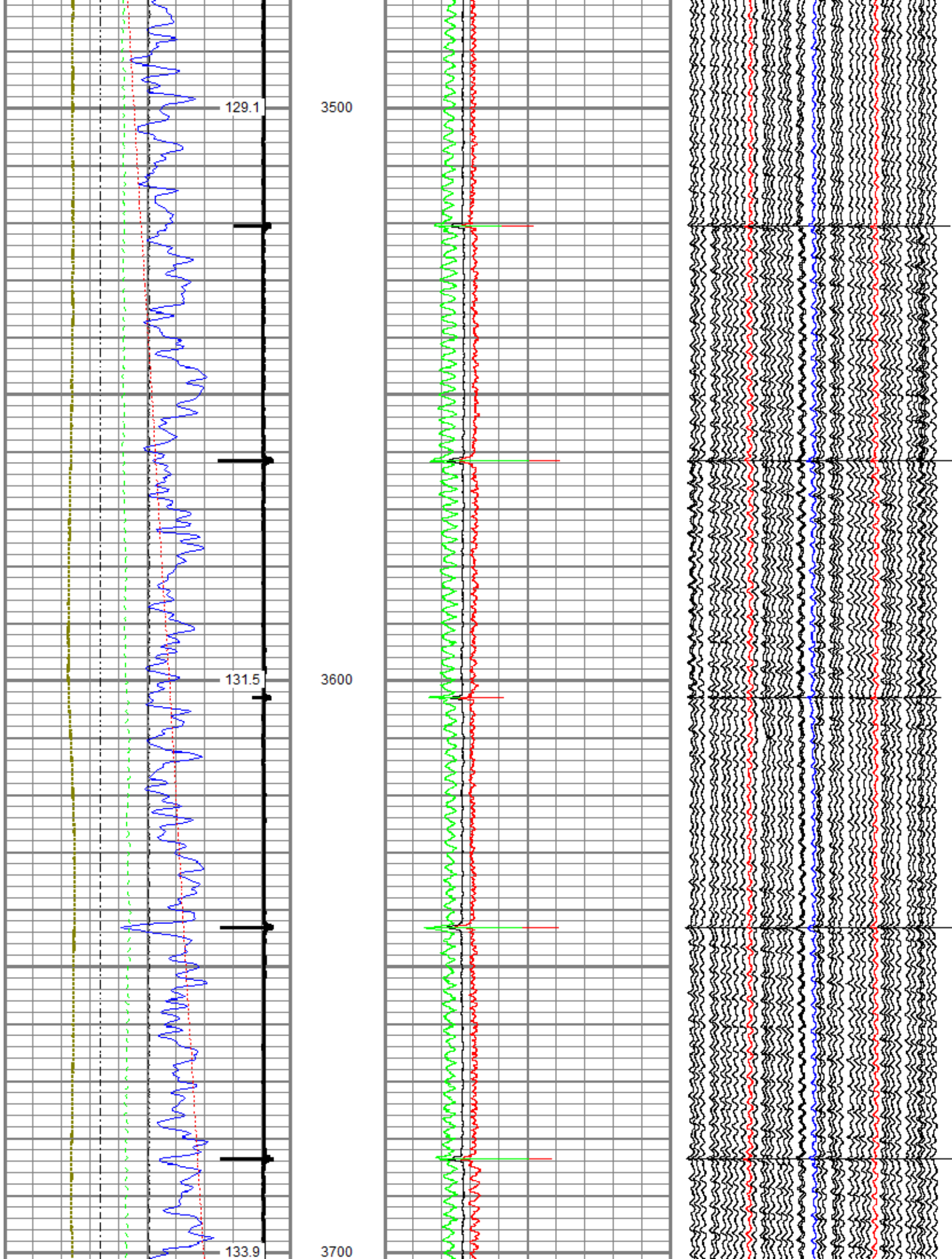


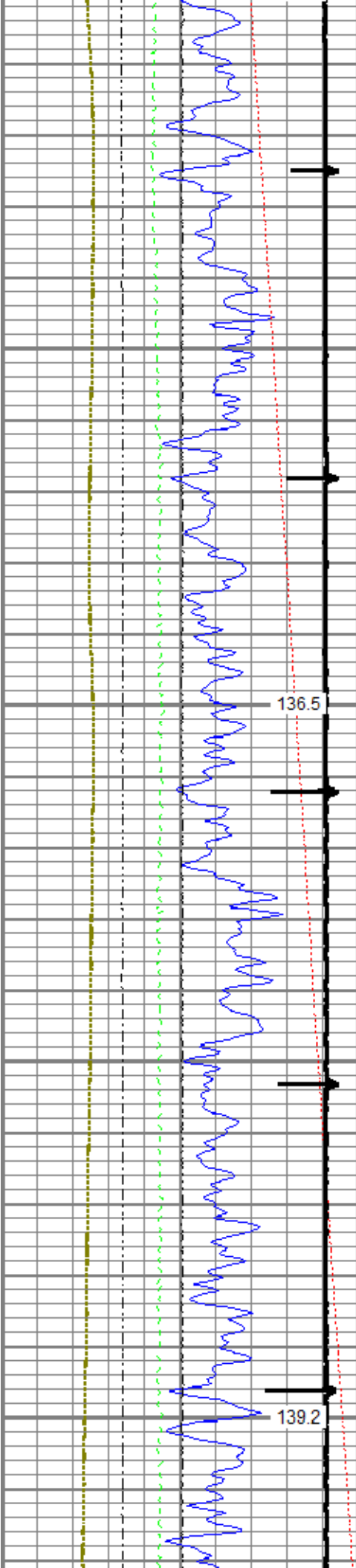


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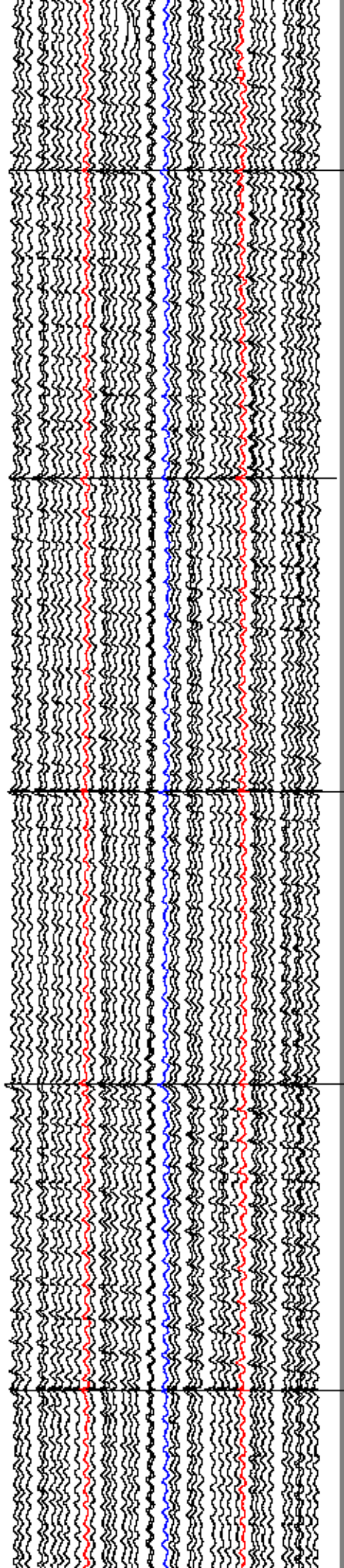
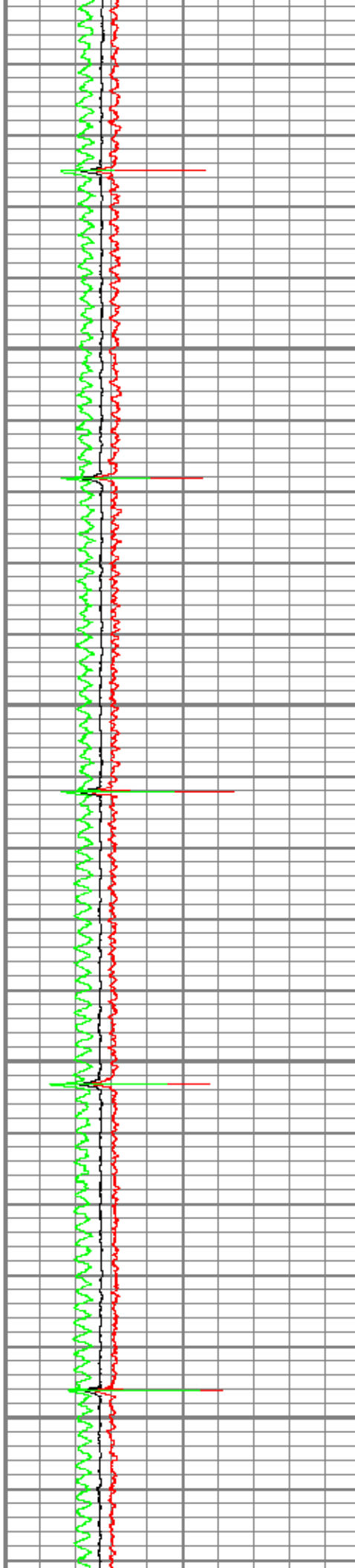


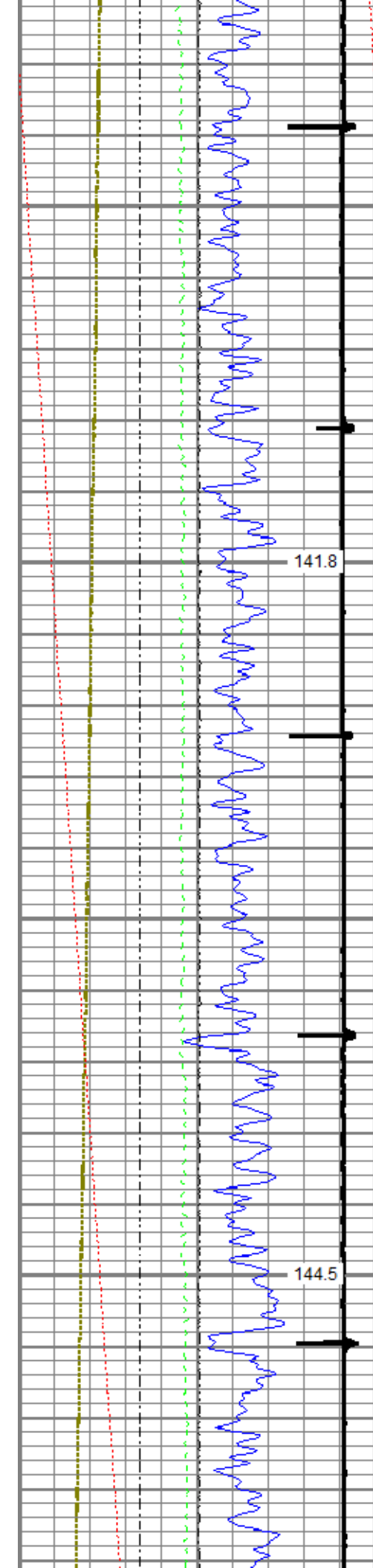




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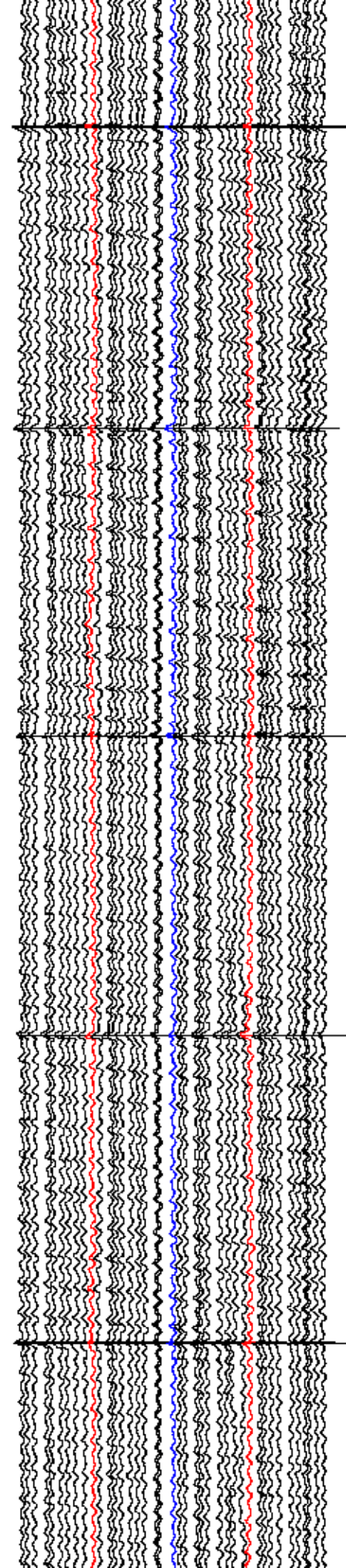
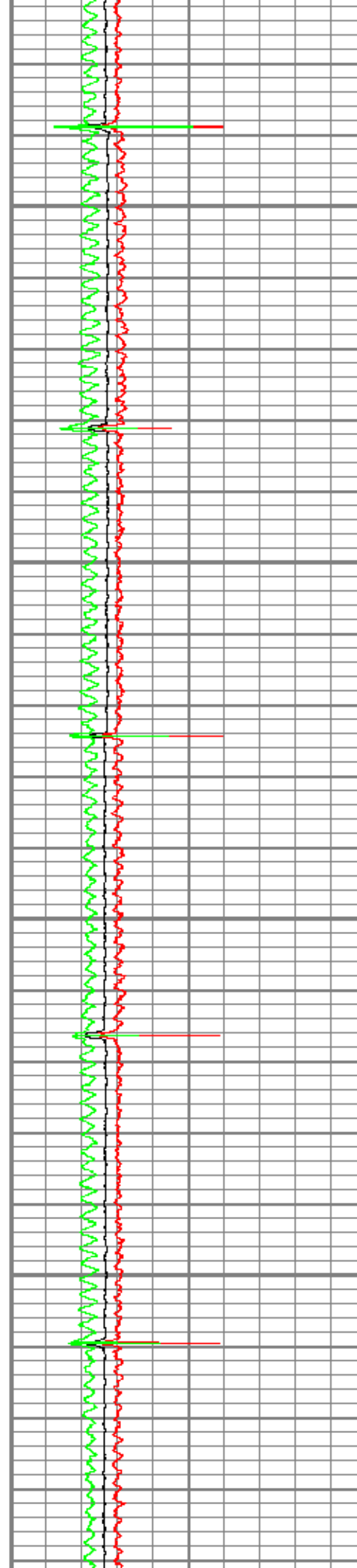
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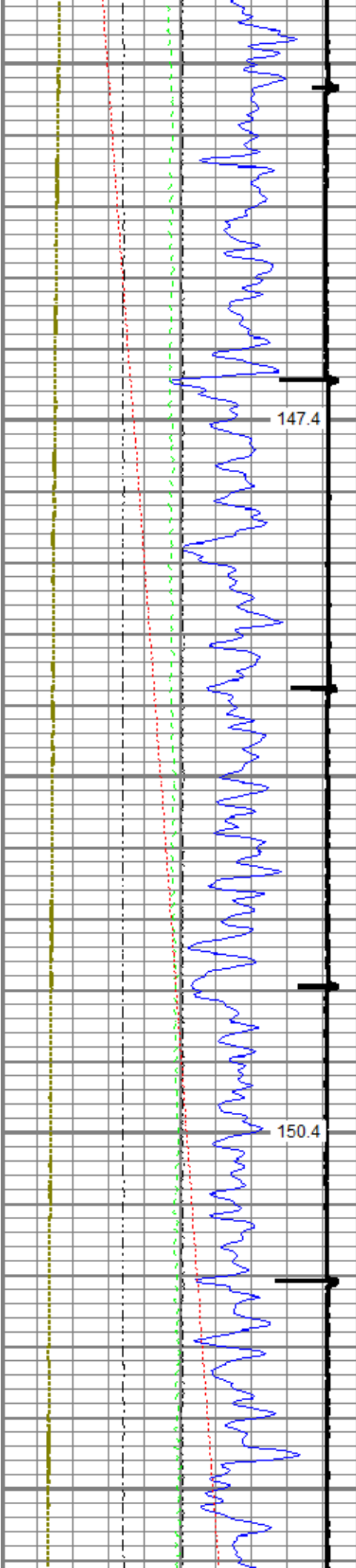




4000

4100



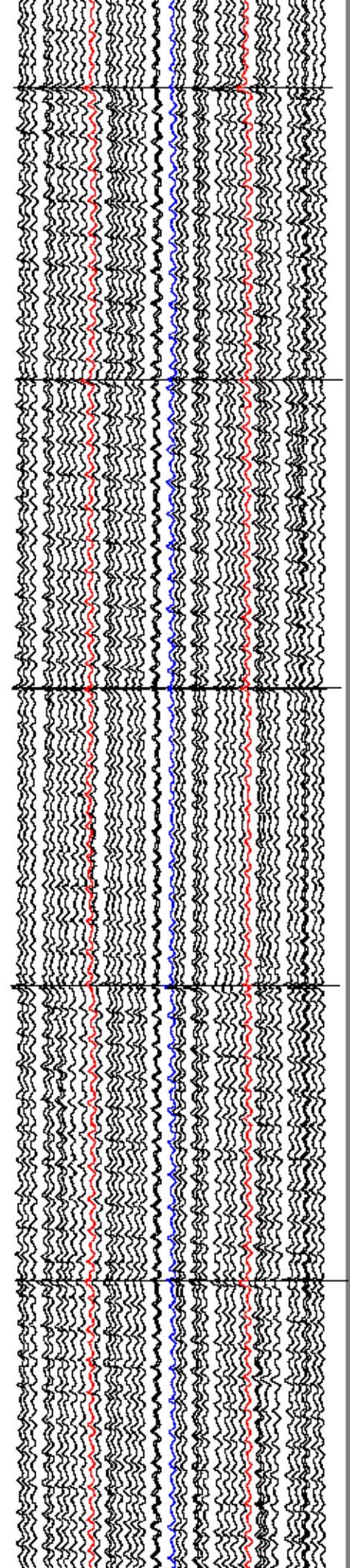
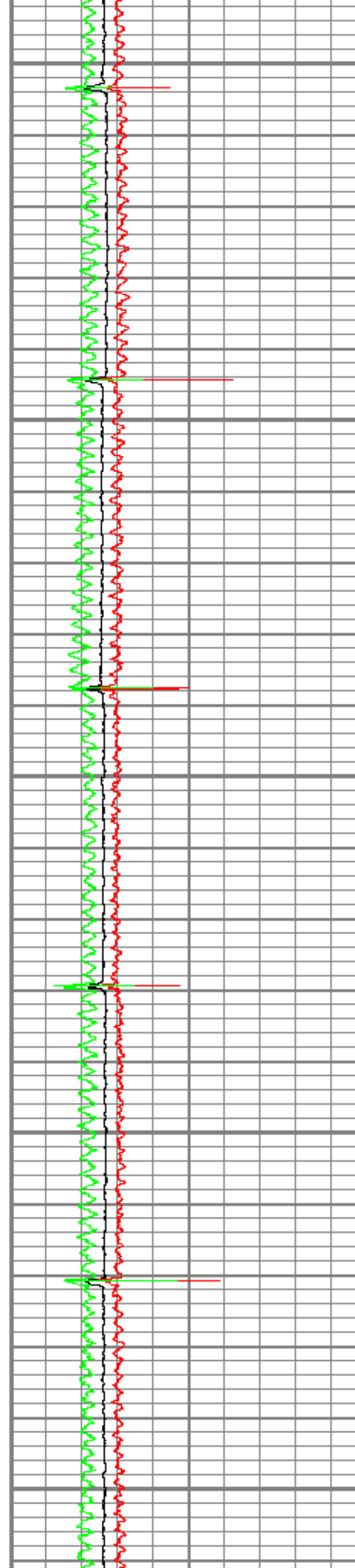


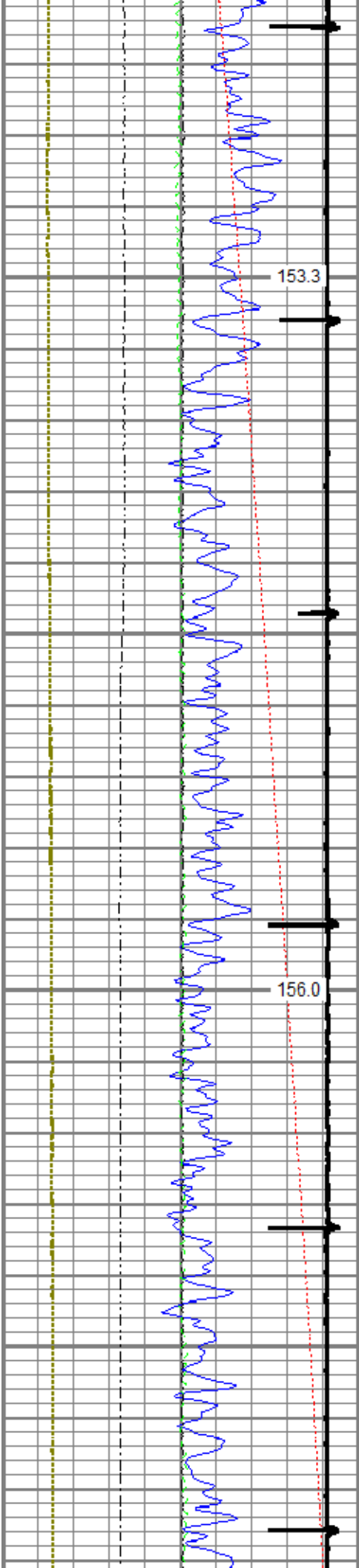
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150.4

4200

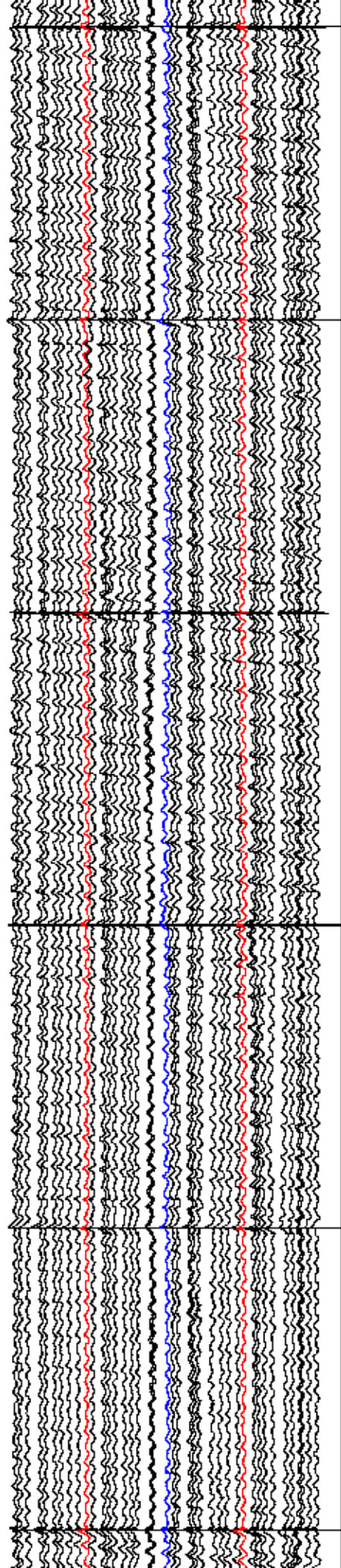
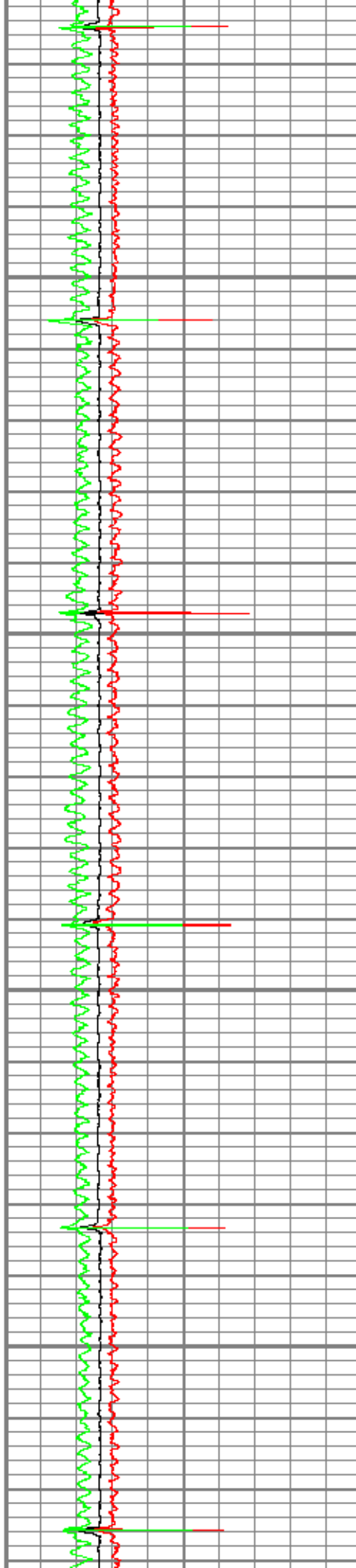
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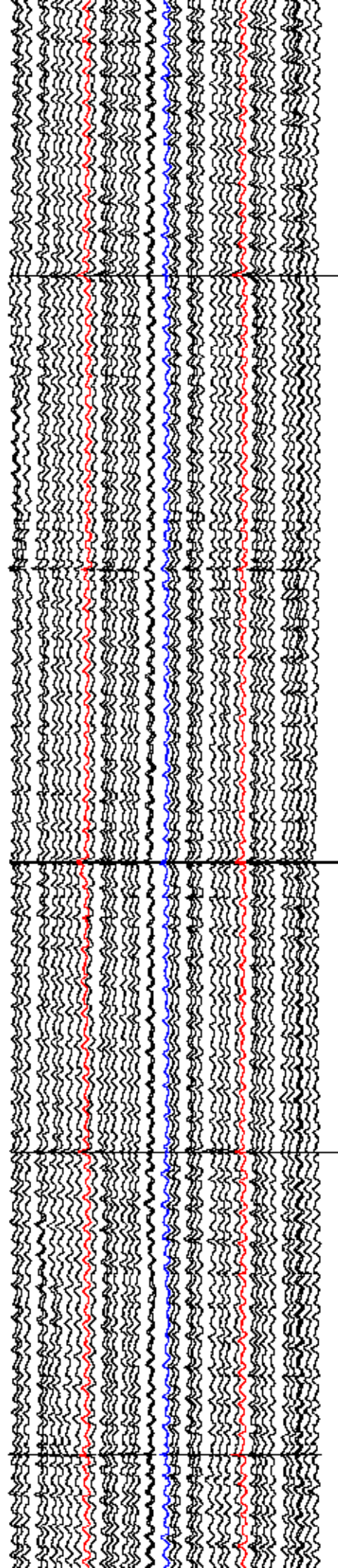
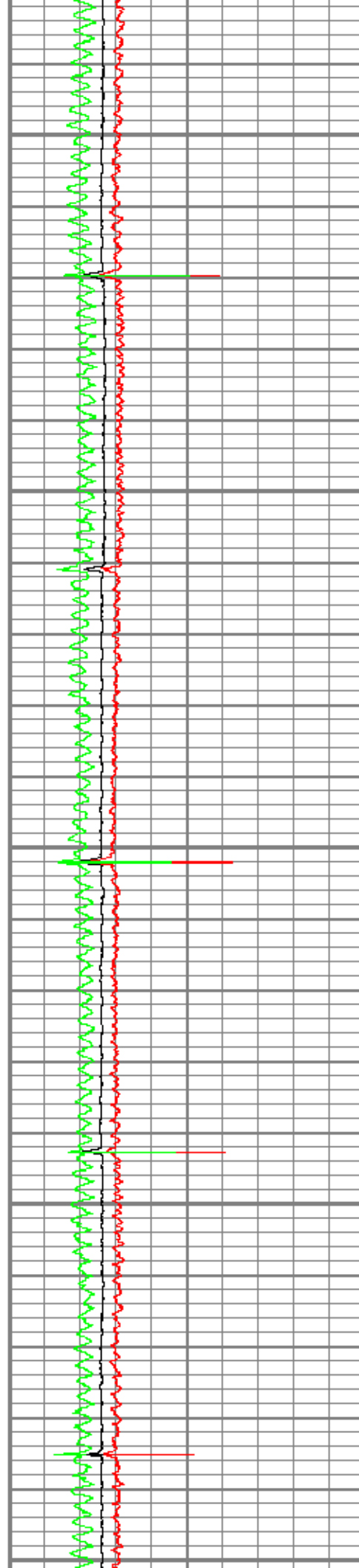
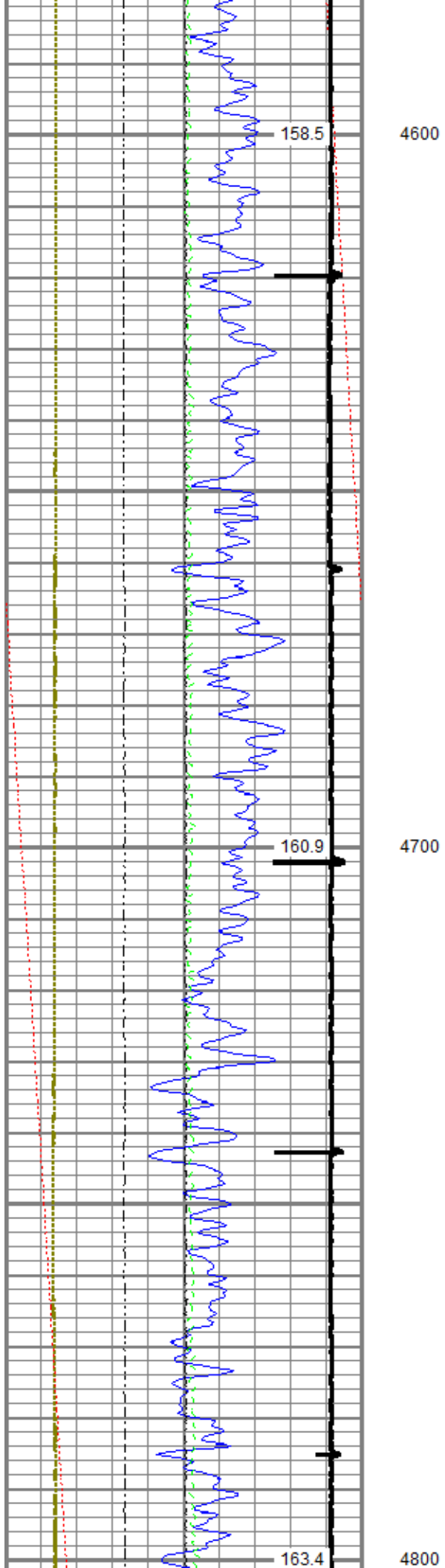


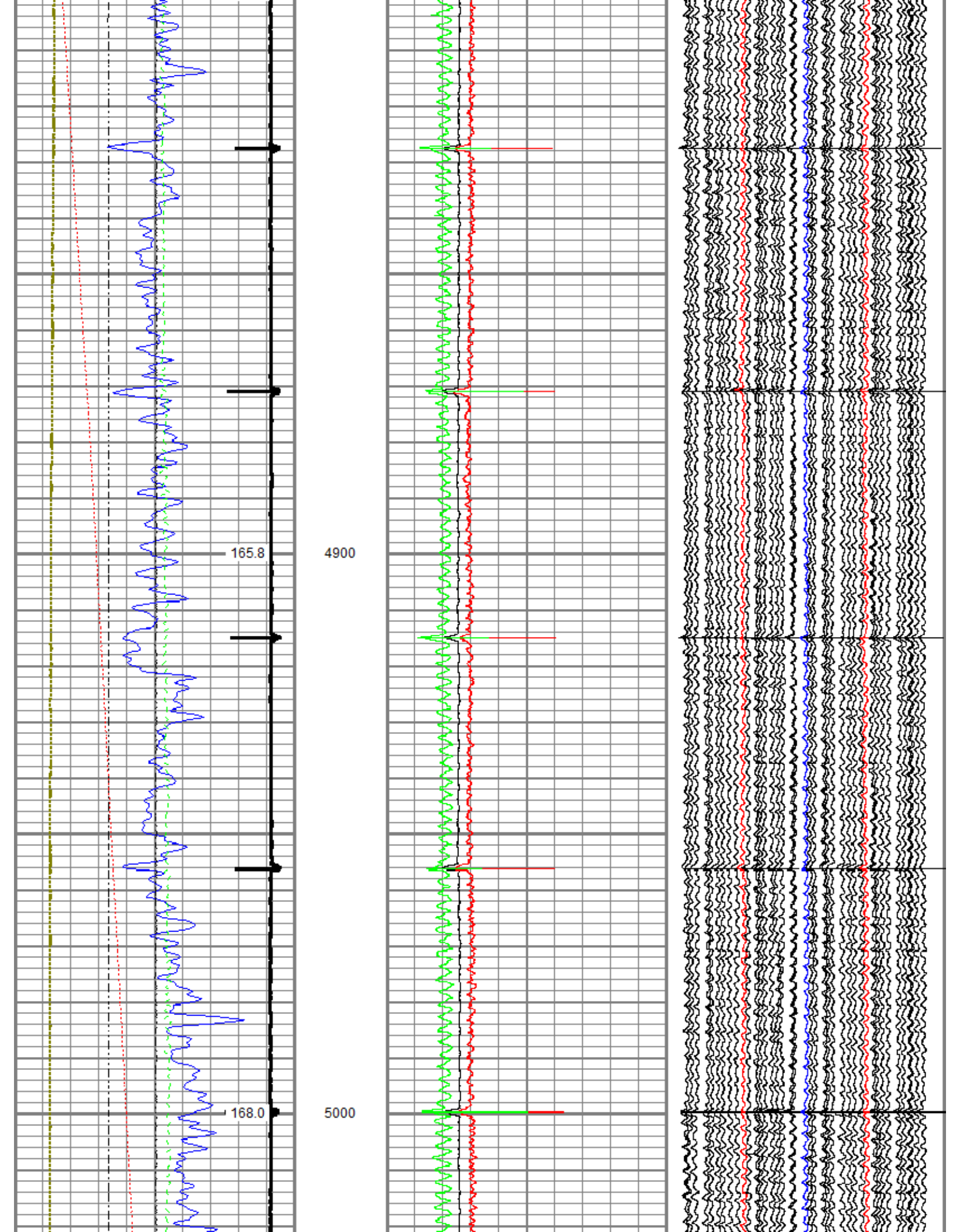


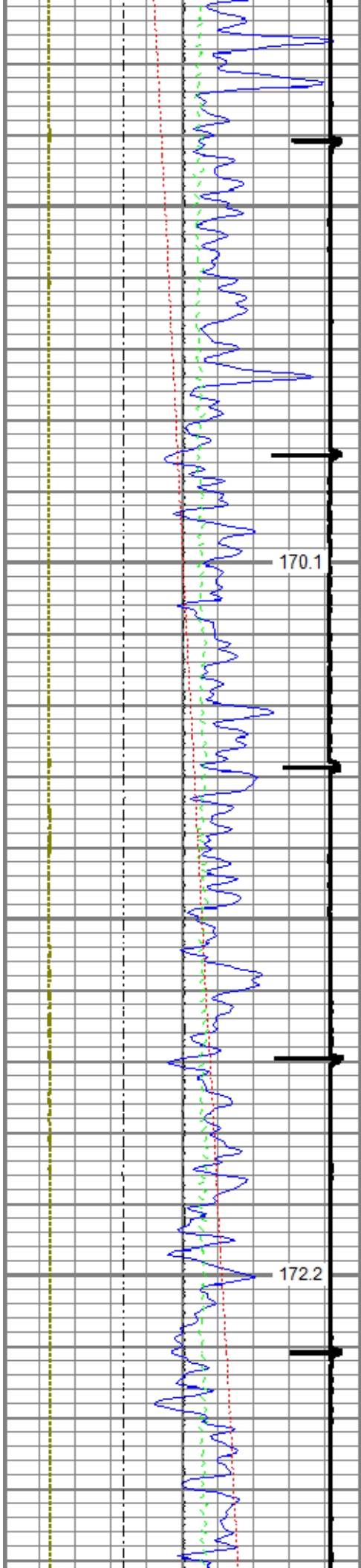
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4500







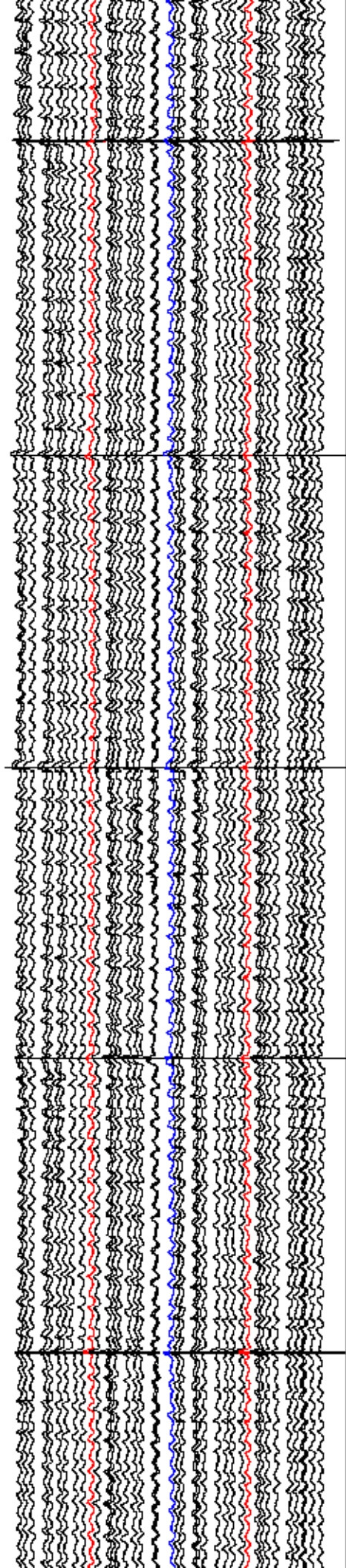
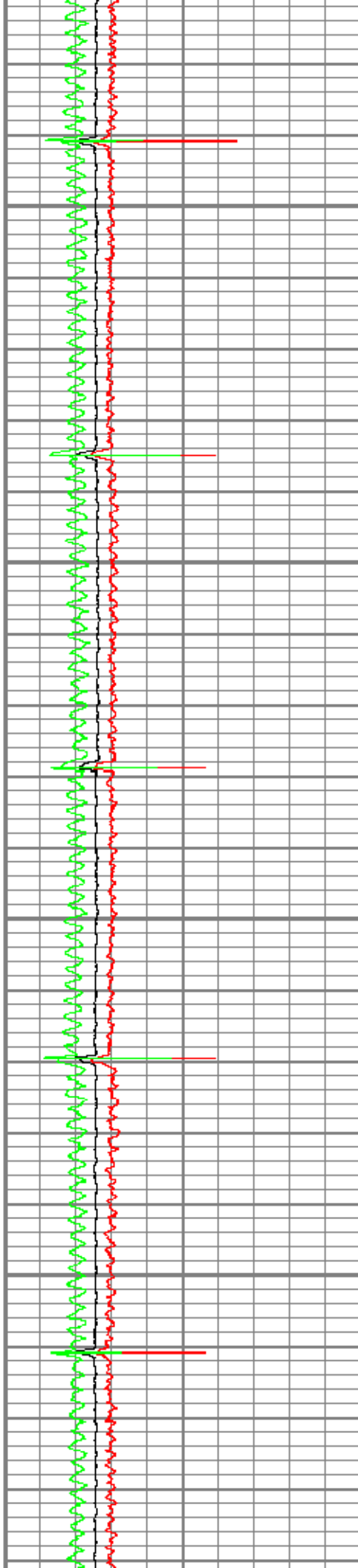


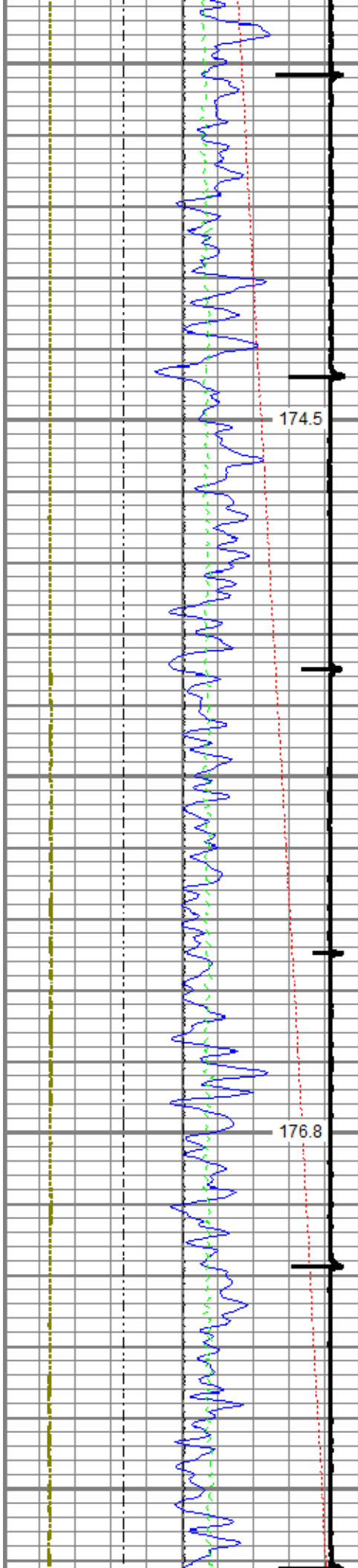
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5100

172.2

5200



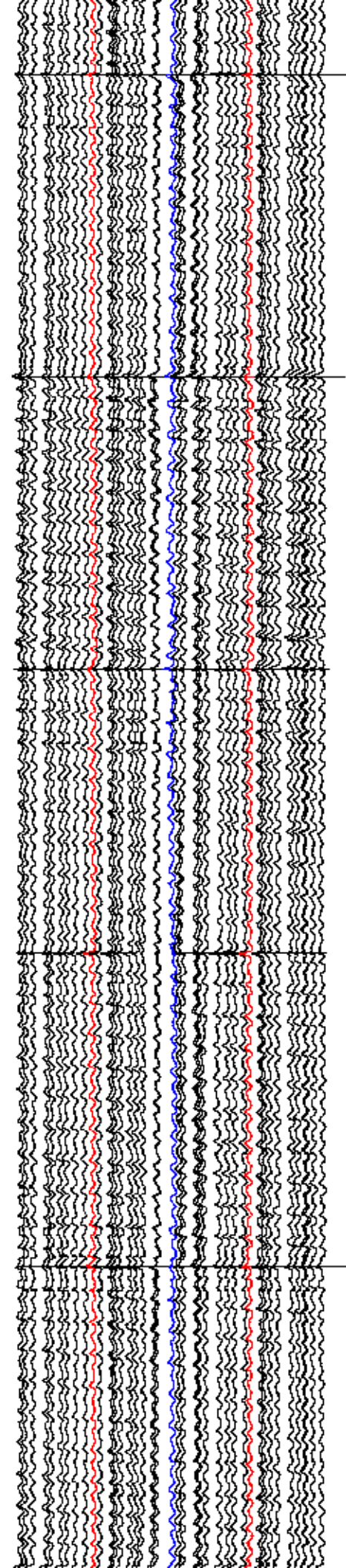
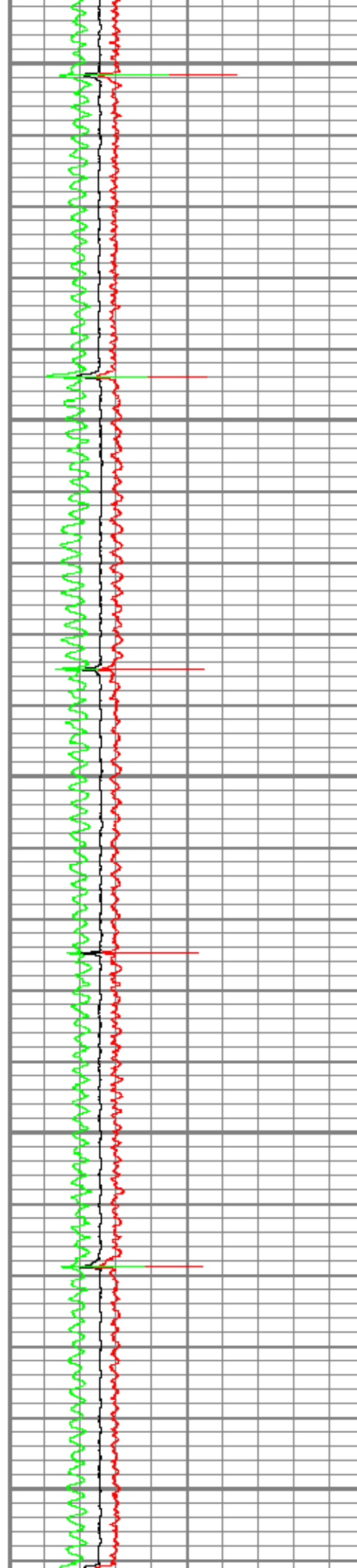


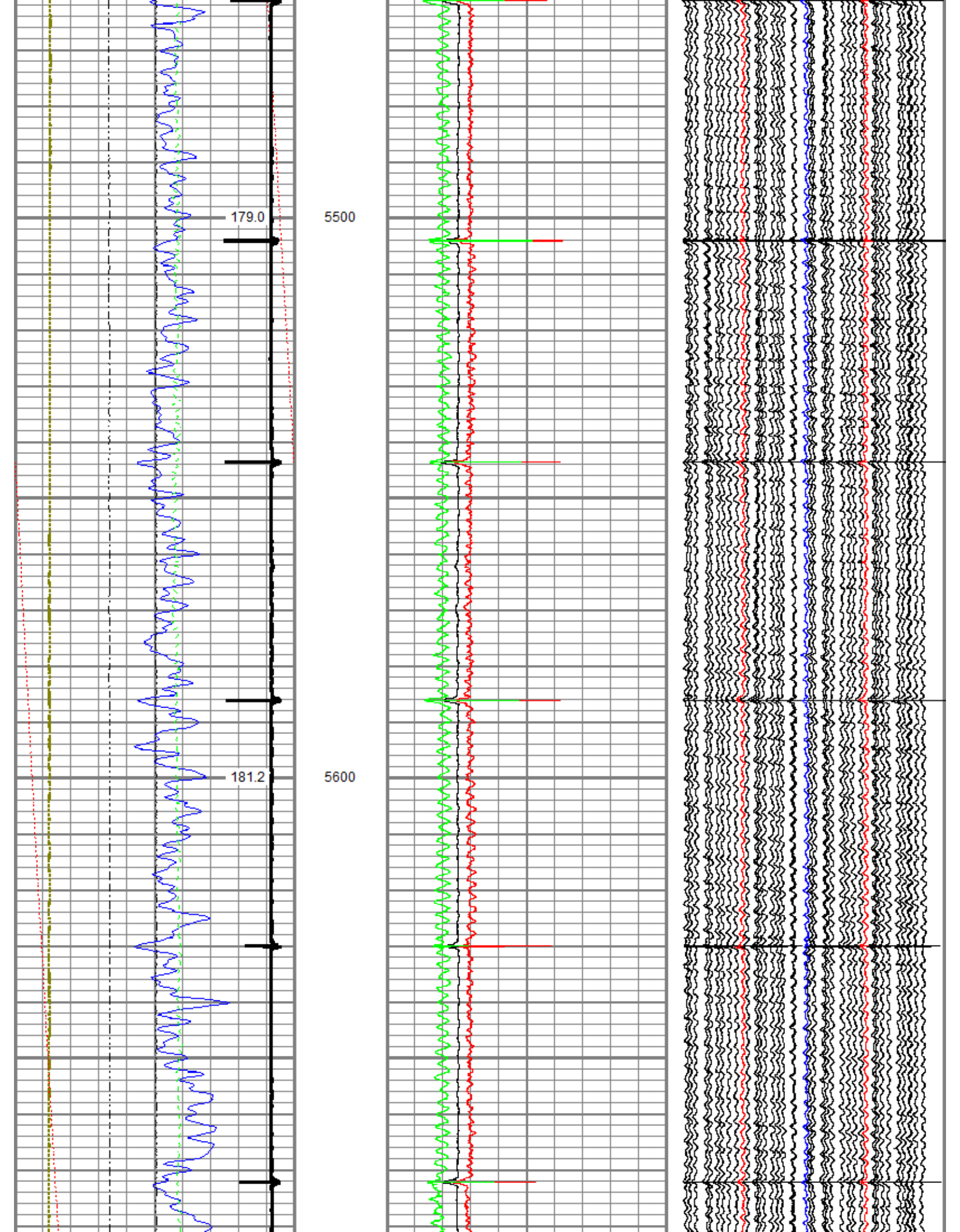
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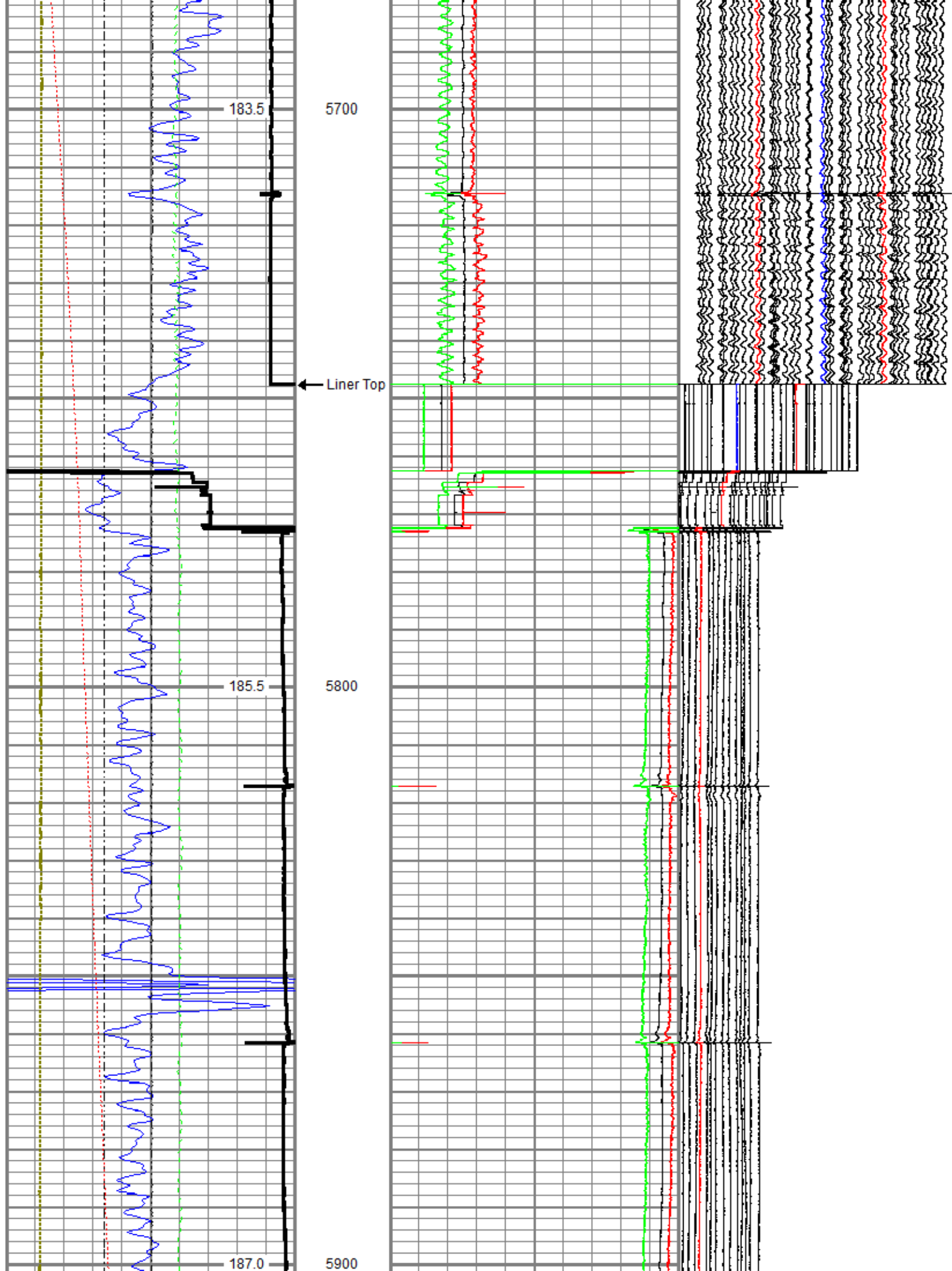
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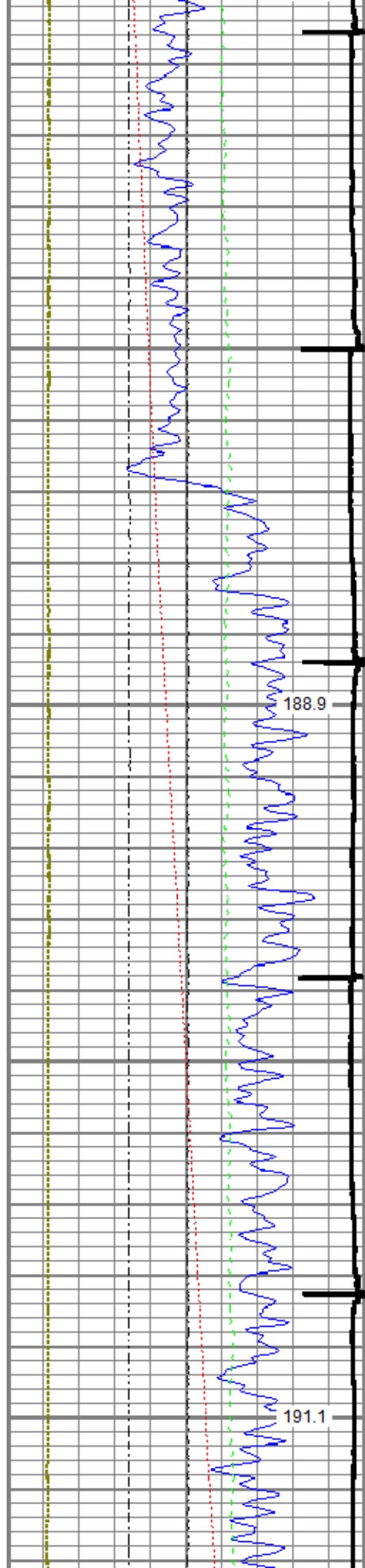
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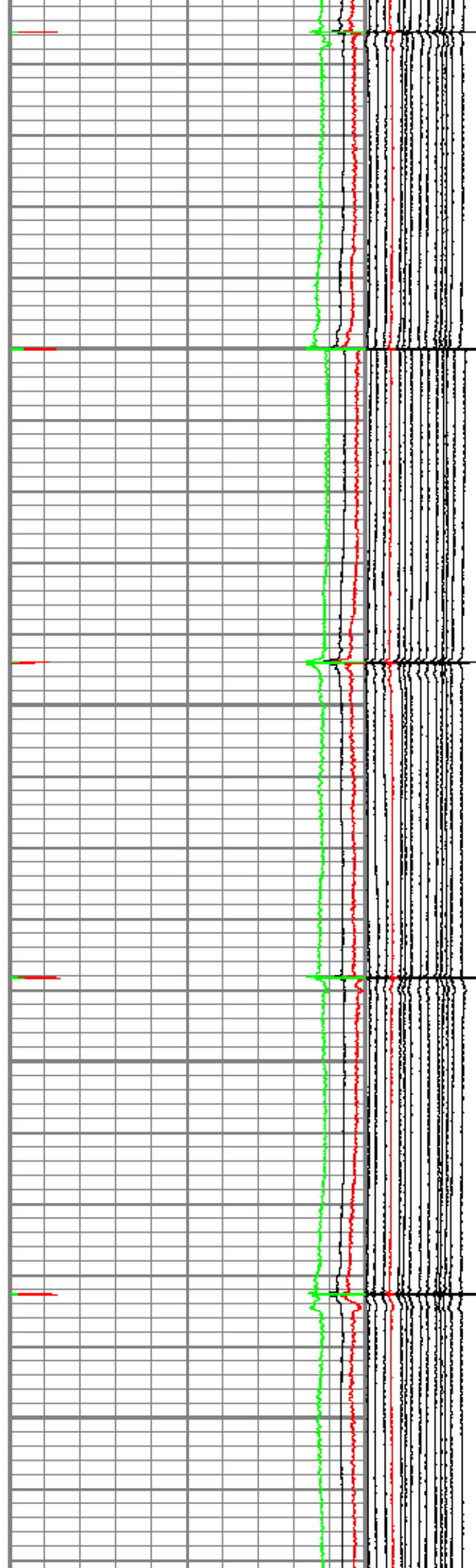


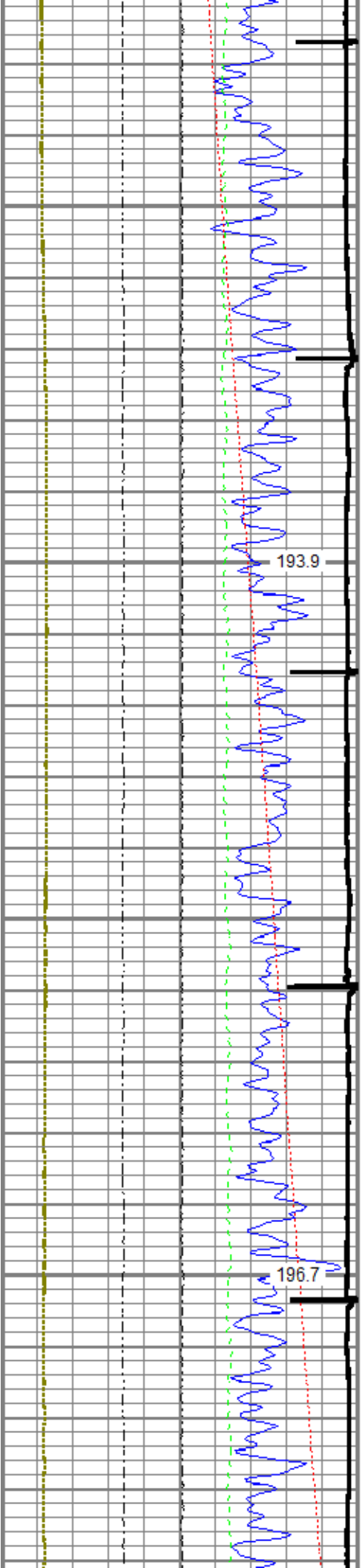
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191.1

6000

6100



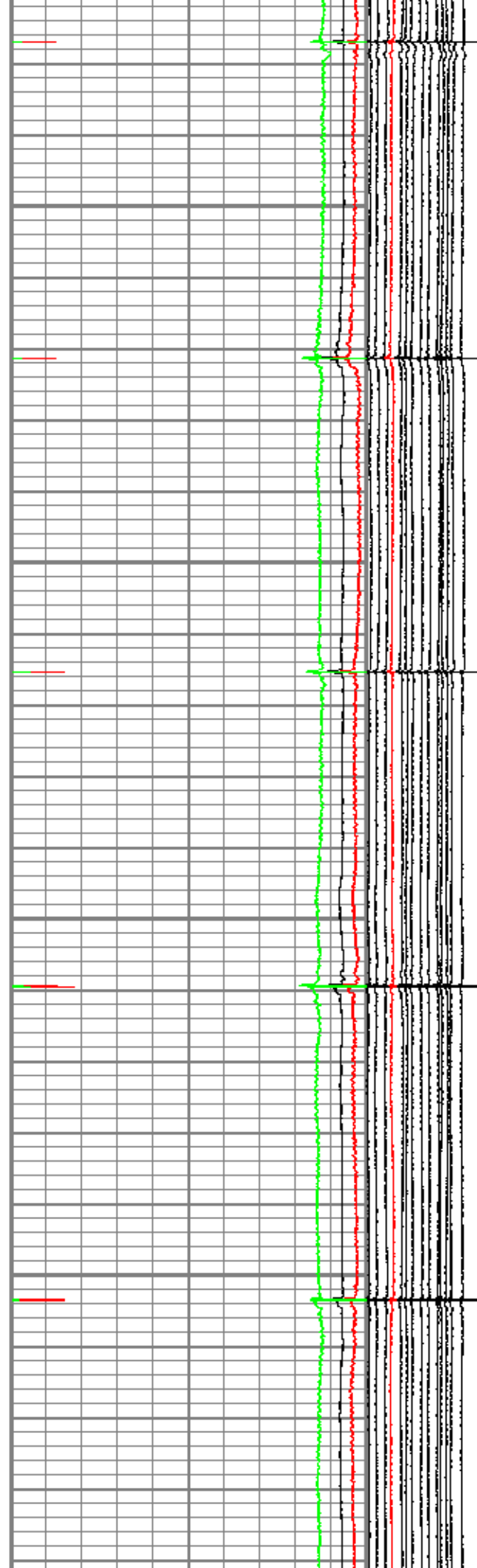


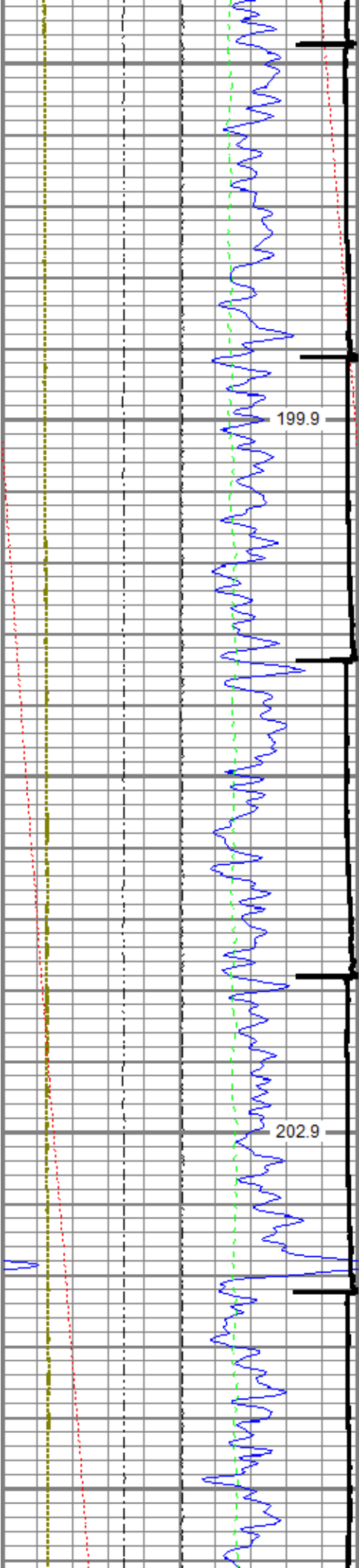
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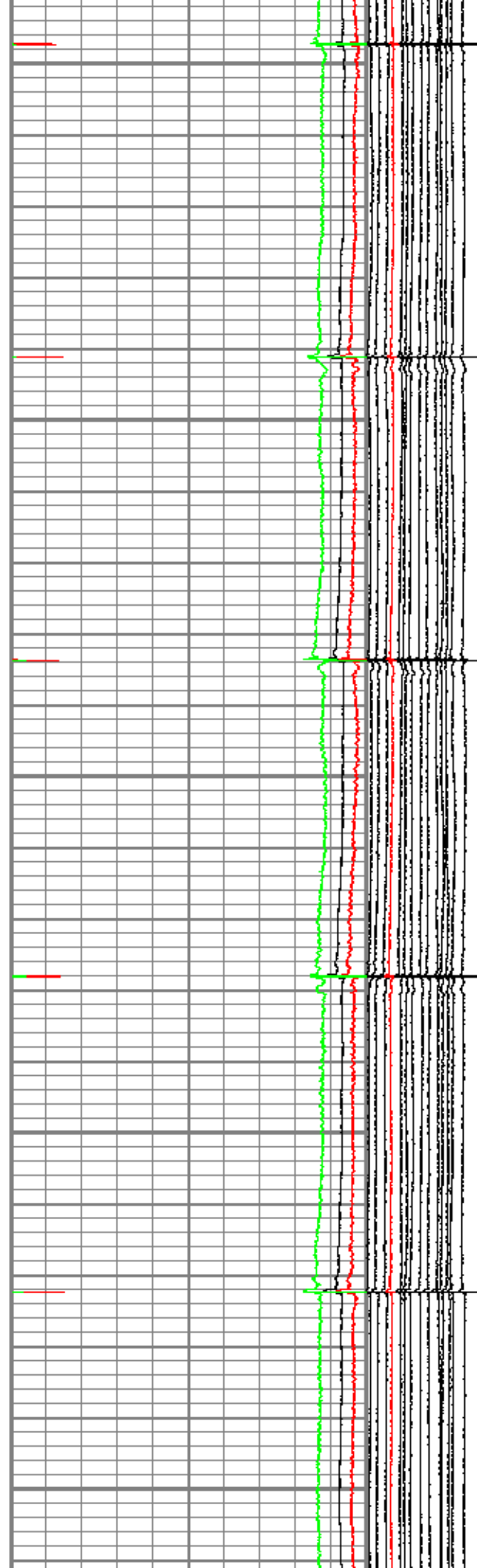
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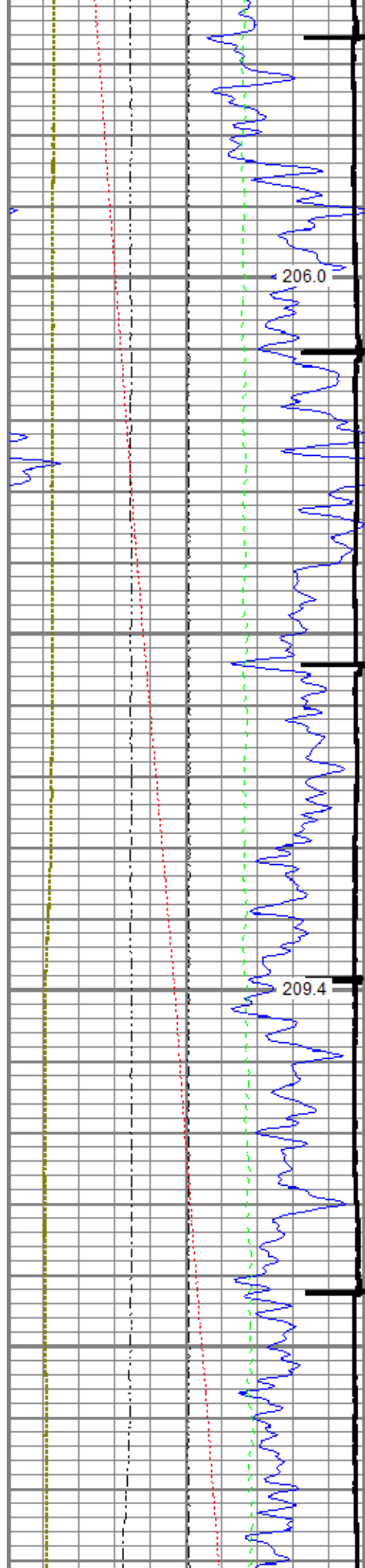




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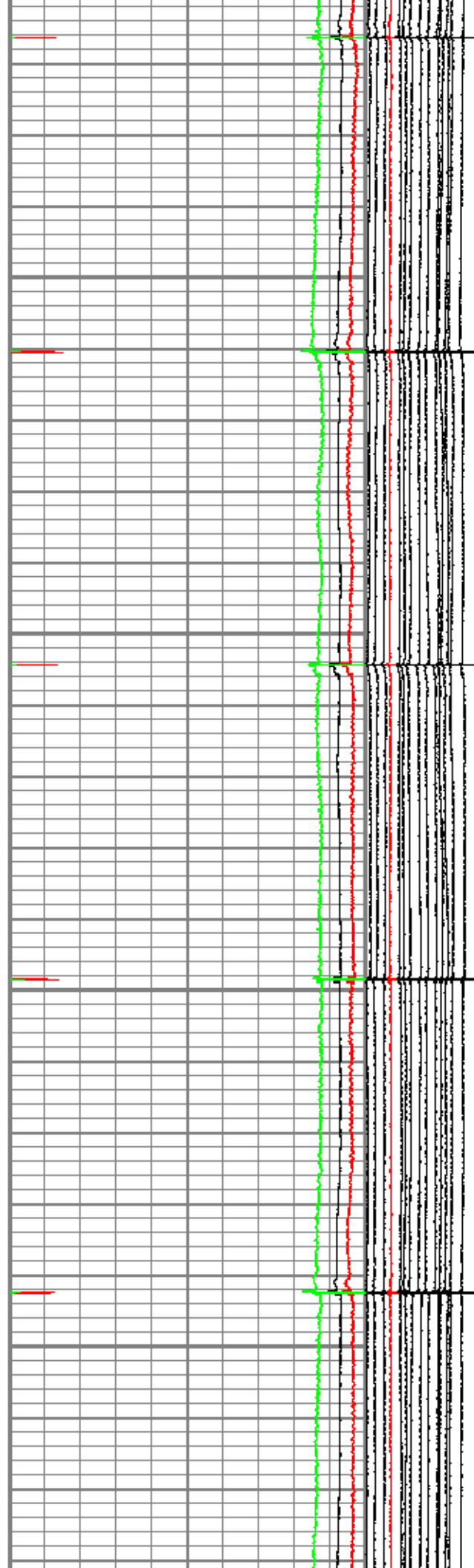
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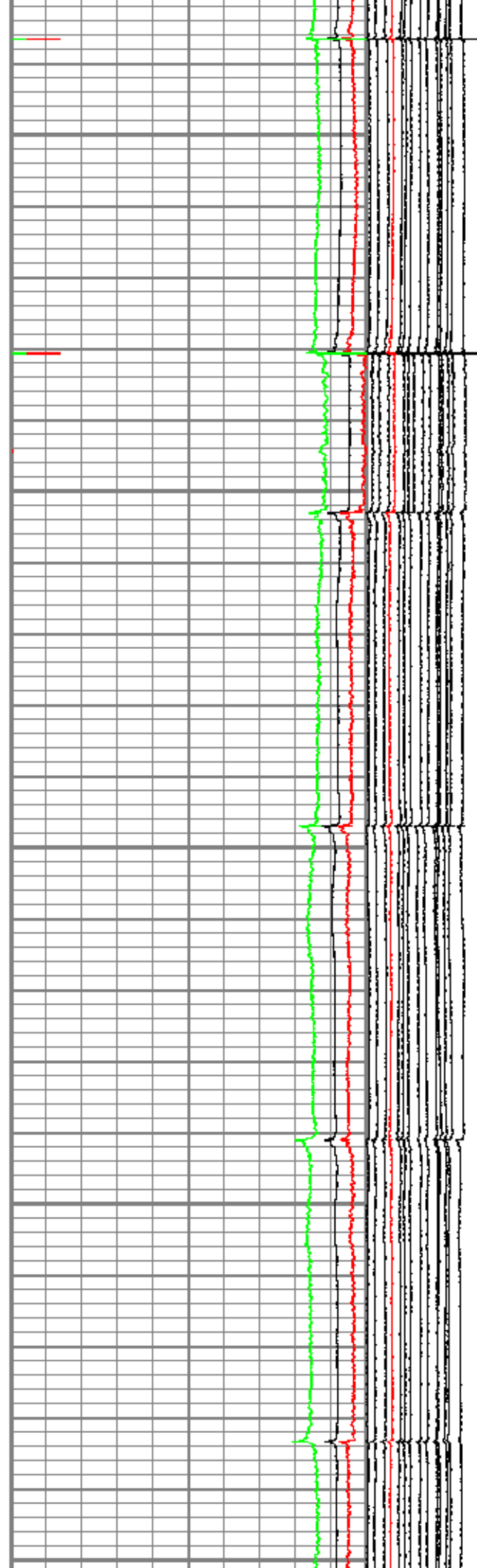
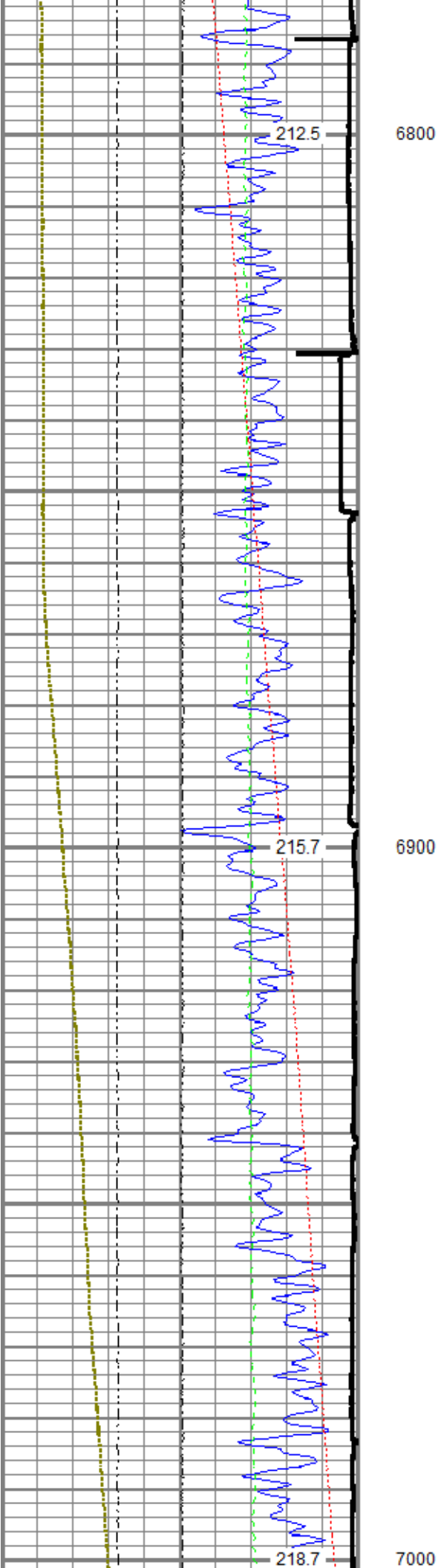


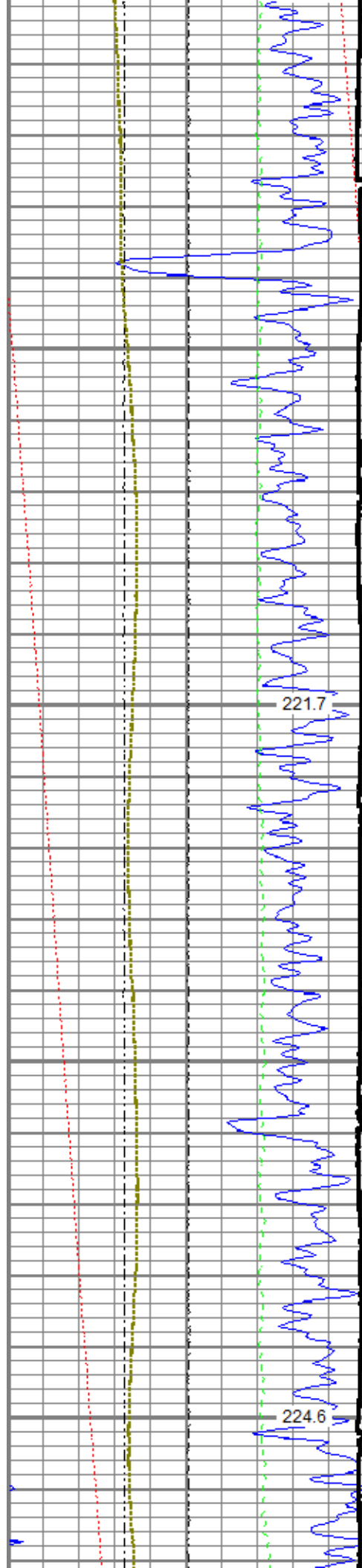


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6700

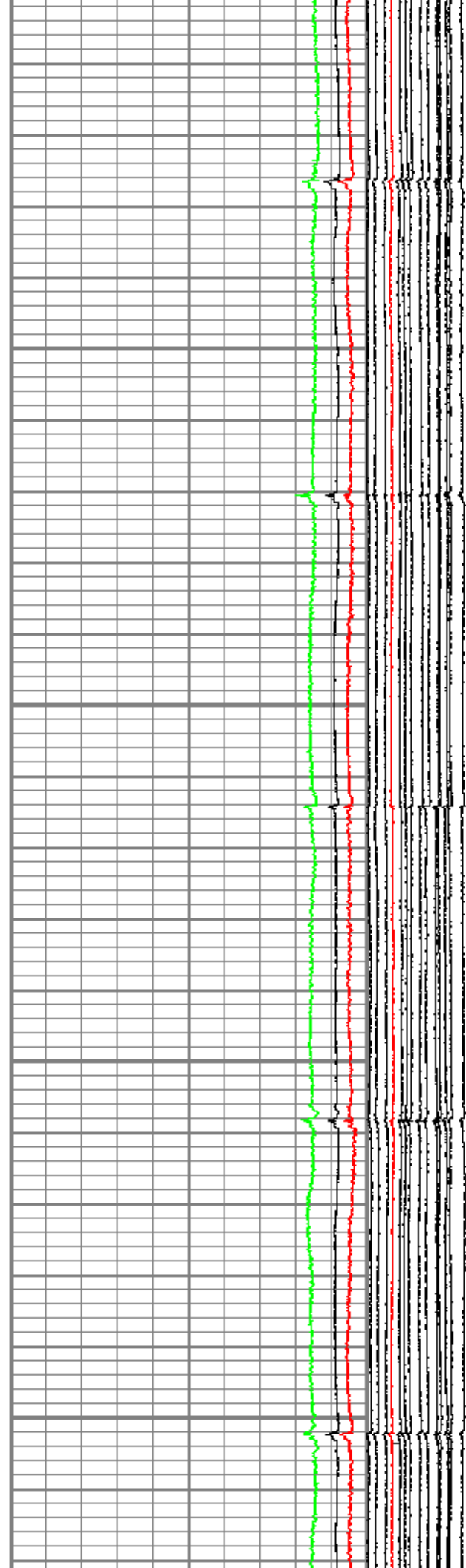


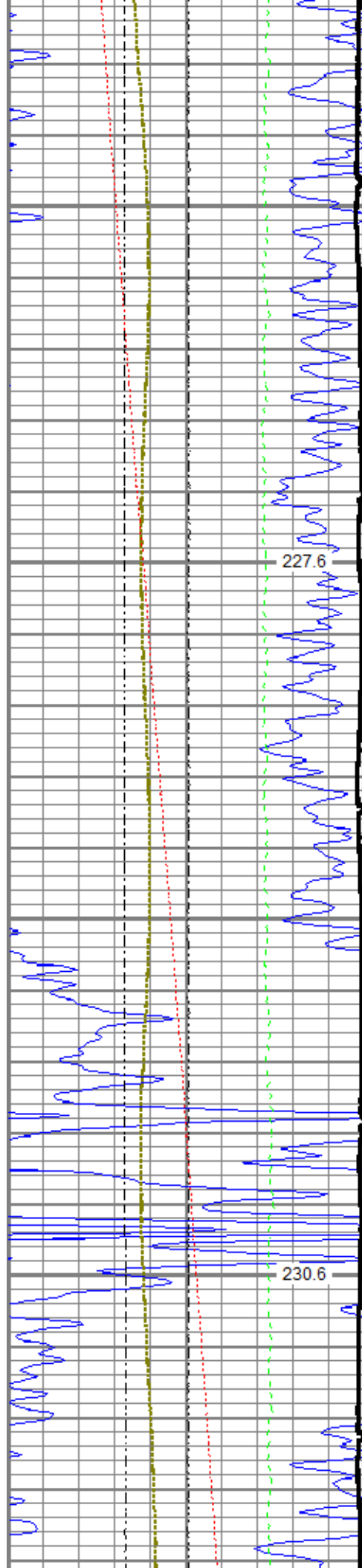




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7200



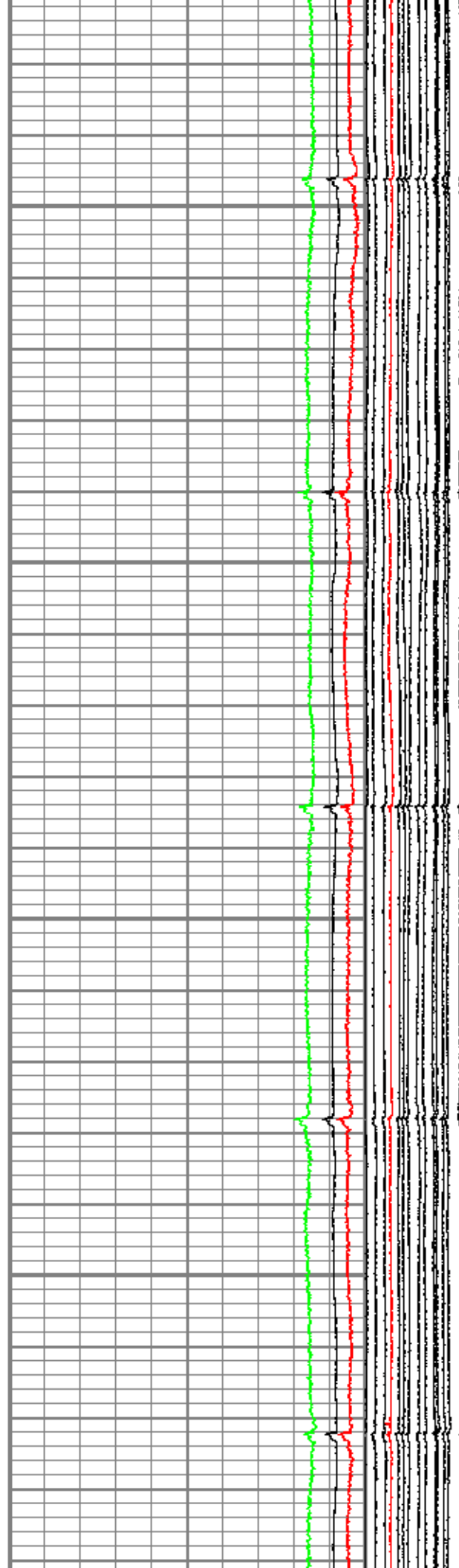


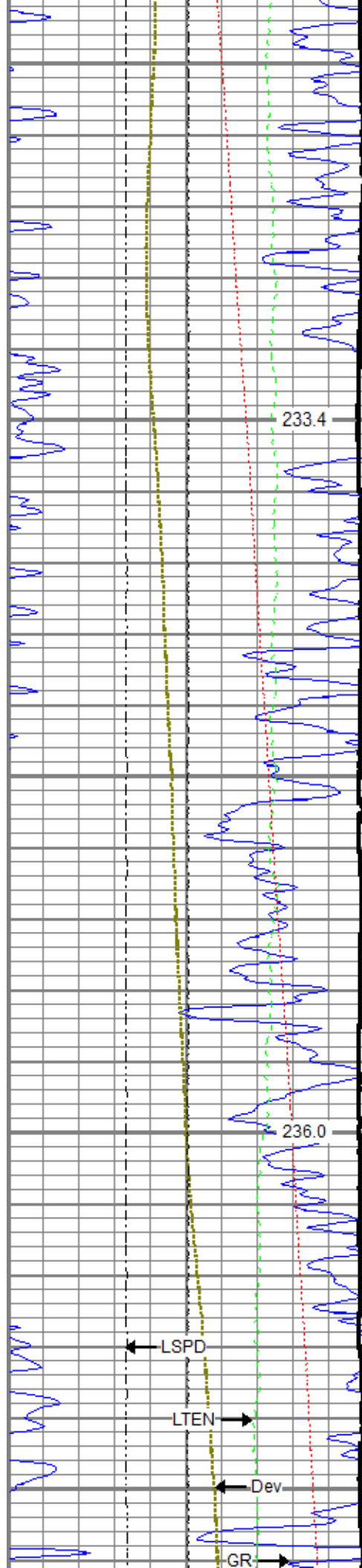
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230.6

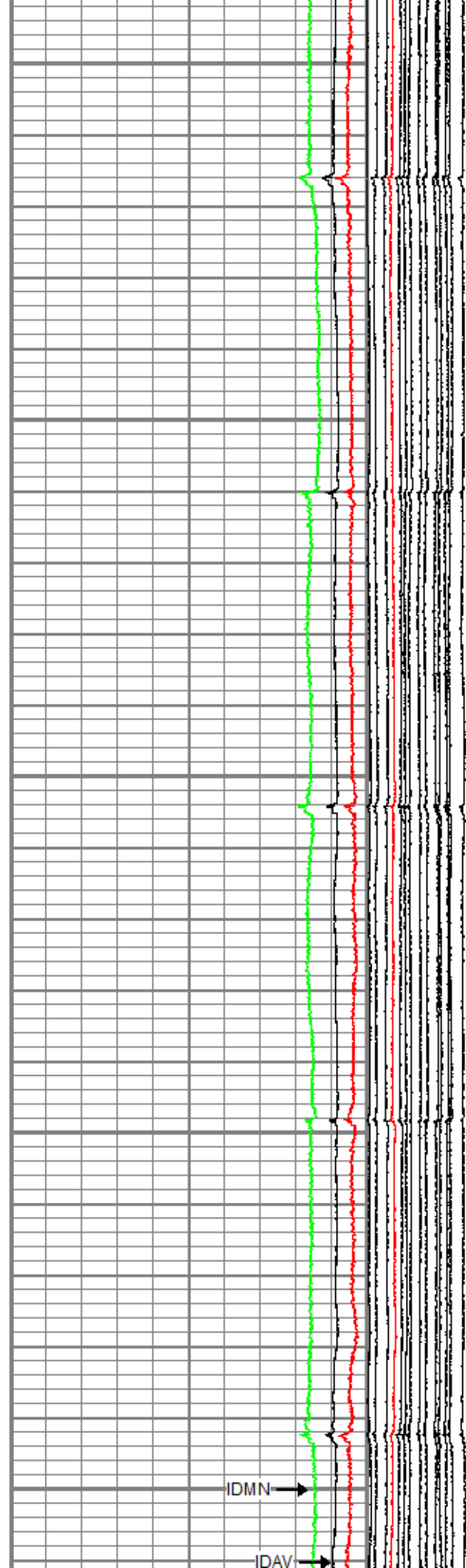
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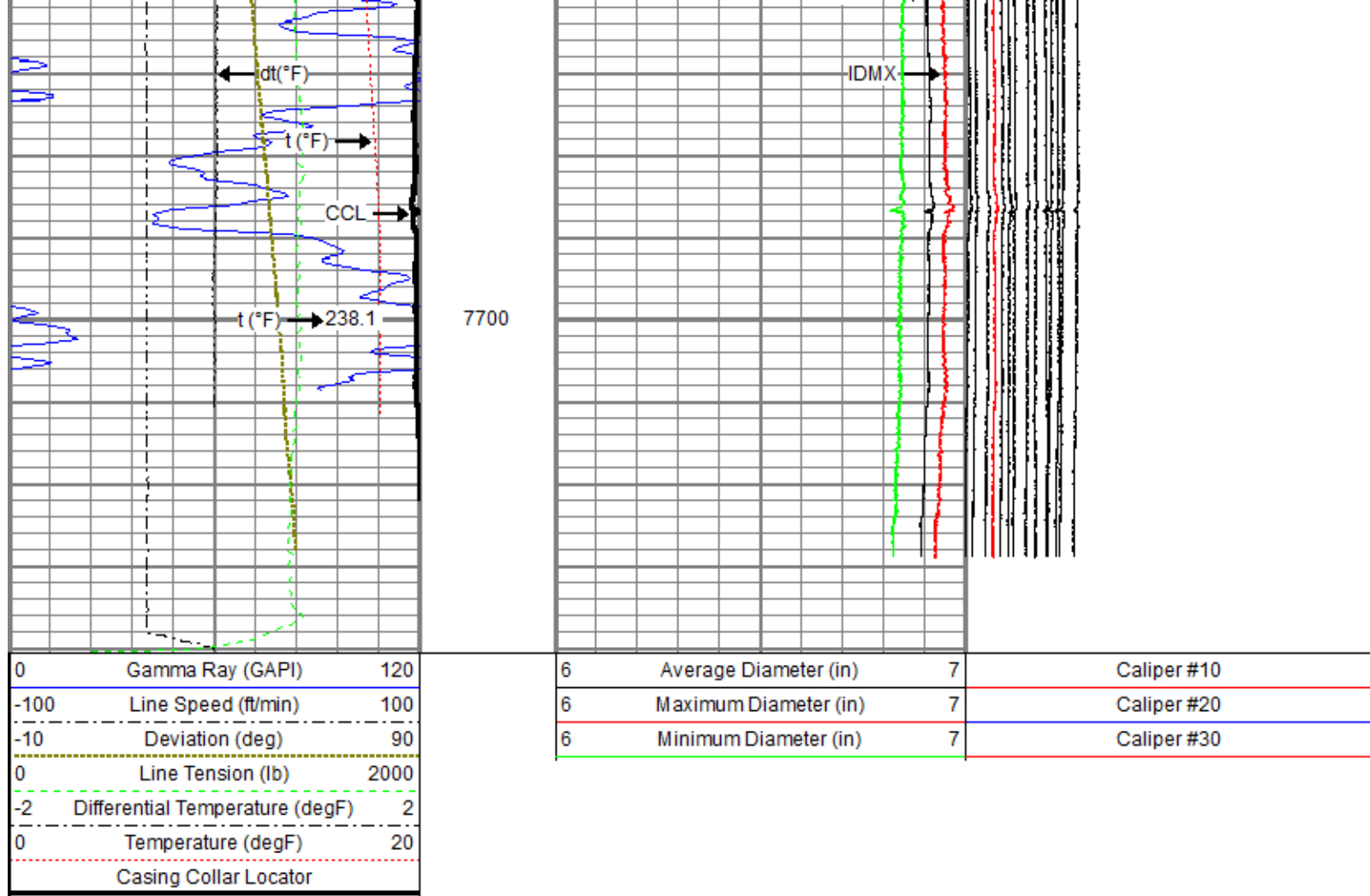




7500

7600



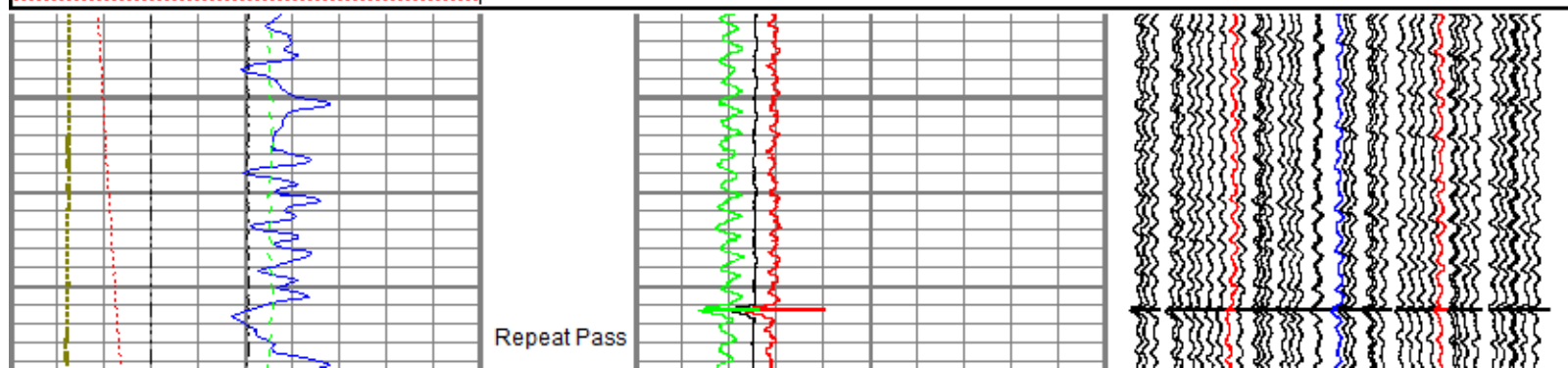


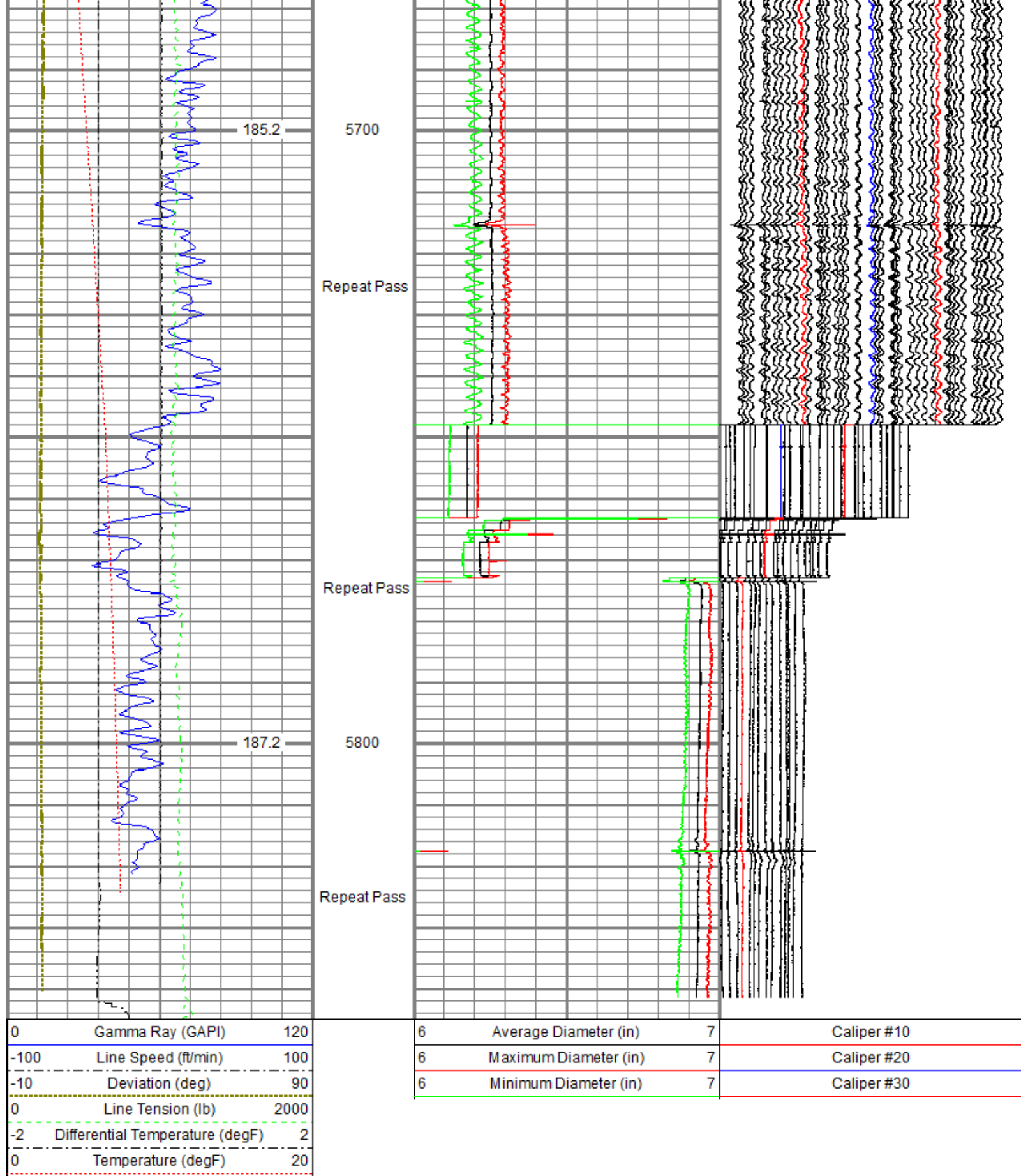
Repeat Pass


Recorded With 2800 PSI Surface Induced Pressure

Database File 0512343473_anadarko_wagner 2c-10hz_mit_rbl_cnl_12-30-17\processed_0512343473_anadarko_wagner 2c-10hz_mit_rbl_cnl_12-30-17
 Dataset Pathname pass3
 Presentation Format ros_70mit40sx
 Dataset Creation Sat Dec 30 07:56:51 2017
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120	6	Average Diameter (in)	7	Caliper #10
-100	Line Speed (ft/min)	100	6	Maximum Diameter (in)	7	Caliper #20
-10	Deviation (deg)	90	6	Minimum Diameter (in)	7	Caliper #30
0	Line Tension (lb)	2000				
-2	Differential Temperature (degF)	2				
0	Temperature (degF)	20				





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/16"	1.03	1.69	5.40
			Electric Cable Head with 1" Fishing Neck			
			UW_AGS-UW_AGS_001 (219135)	0.21	1.69	1.00
			Sondex Adapter - GO Box to Sondex Pin			
			UW_VTL-UW_VTL_002 (254210)	1.50	1.69	2.50

				UW_XIU-UW_XIU_002 (051219) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
GR	29.80			UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray	1.92	1.69	9.50
TEMP	28.41			UW_PRT-PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
				DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
CBLROT	21.38			UW_RBT-UW_RBT_004 (10022773) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00
CBLTEMP	21.38						
WVFS8	21.38						
WVFS7	21.38						
WVFS6	21.38						
WVFS5	21.38						
WVFS4	21.38						
WVFS3	21.38						
WVFS2	21.38						
WVFS1	21.38			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
WVF3FT	21.38						
WVF5FT	20.38						
CBLTEMP	16.24						
MIT	11.50			UW_MIT-UW_MIT40_042 (10012912) 40 Multifinger Imaging Tool Ext.	4.54	2.75	65.00
				DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
CNLSC	1.53			UW_CNL-UW_CNL_007 (1005) Sondex Compensated Neutron Logging Tool	6.61	1.69	30.00
CNSSC	1.12						
HVOLT	0.00						
ITEMP	0.00						
TSTAMP	0.00						
Dataset: processed_0512343473_anadarko_wagner 2c-10hz_mit_rbl_cnl_12-30-17.db: field/well/run1/pass5 Total length: 34.05 ft Total weight: 358.60 lb O.D.: 3.13 in							

Calibration Report	
Database File	c:\programdata\warrior\data\0512343473_anadarko_wagner 2c-10hz_mit_rbl_cnl_12-30-17\processed_0512343473_anadarko
Dataset Pathname	pass5
Dataset Creation	Sat Dec 30 08:14:21 2017

Compensated Neutron Calibration Report

Serial Number:	1005		
Tool Model:	UW_CNL_007		
Master Calibration		Sun Feb 07 11:39:11 2016	
Detector	Readings		
Short Space	240.87	cps	
Long Space	303.55	cps	
Ratio	Measured	Reference	
	0.8150	Sleeve: 1.0000	
CNRAT Gain K	1.0271		

Before Survey			
Detector	Readings		
Short Space		cps	
Long Space		cps	
	Measured	Reference	
Ratio			

After Survey			
Detector	Readings		
Short Space		cps	
Long Space		cps	
	Measured	Reference	
Ratio			

Multifinger 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:	Sat Dec 30 07:11:10 2017
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Ring size:	4	5	6	7
(in)				
	Sens	Sens	Sens	
Finger 01:	1066 352.0	1418 388.0	1806 417.0	2223
Finger 02:	1205 362.0	1567 394.0	1961 402.0	2363
Finger 03:	1086 367.0	1453 410.0	1863 427.0	2290
Finger 04:	1116 360.0	1476 397.0	1873 419.0	2292
Finger 05:	1117 374.0	1491 398.0	1889 414.0	2303
Finger 06:	1119 364.0	1483 400.0	1883 419.0	2302
Finger 07:	1110 367.0	1477 404.0	1881 418.0	2299
Finger 08:	1142 359.0	1501 397.0	1898 418.0	2316
Finger 09:	1127 359.0	1486 399.0	1885 411.0	2296
Finger 10:	1133 361.0	1494 398.0	1892 409.0	2301
Finger 11:	1139 358.0	1497 393.0	1890 402.0	2292
Finger 12:	1141 352.0	1493 393.0	1886 404.0	2290

Finger 13:	1156	352.0	1508	392.0	1900	387.0	2287
Finger 14:	1144	362.0	1506	398.0	1904	404.0	2308
Finger 15:	1096	362.0	1458	413.0	1871	415.0	2286
Finger 16:	1103	364.0	1467	407.0	1874	418.0	2292
Finger 17:	1019	340.0	1359	392.0	1751	420.0	2171
Finger 18:	1146	356.0	1502	389.0	1891	399.0	2290
Finger 19:	1122	357.0	1479	394.0	1873	405.0	2278
Finger 20:	1103	355.0	1458	404.0	1862	417.0	2279
Finger 21:	1109	361.0	1470	395.0	1865	400.0	2265
Finger 22:	1084	363.0	1447	402.0	1849	419.0	2268
Finger 23:	1031	357.0	1388	410.0	1798	431.0	2229
Finger 24:	1118	354.0	1472	386.0	1858	395.0	2253
Finger 25:	1054	360.0	1414	410.0	1824	427.0	2251
Finger 26:	1175	344.0	1519	373.0	1892	388.0	2280
Finger 27:	1102	358.0	1460	395.0	1855	413.0	2268
Finger 28:	1134	354.0	1488	380.0	1868	403.0	2271
Finger 29:	1063	361.0	1424	397.0	1821	427.0	2248
Finger 30:	1092	373.0	1465	377.0	1842	418.0	2260
Finger 31:	1126	355.0	1481	385.0	1866	410.0	2276
Finger 32:	1184	389.0	1573	416.0	1989	437.0	2426
Finger 33:	1178	362.0	1540	376.0	1916	387.0	2303
Finger 34:	1115	364.0	1479	401.0	1880	423.0	2303
Finger 35:	990	332.0	1322	375.0	1697	414.0	2111
Finger 36:	1085	361.0	1446	396.0	1842	430.0	2272
Finger 37:	1127	364.0	1491	390.0	1881	419.0	2300
Finger 38:	1160	354.0	1514	382.0	1896	404.0	2300
Finger 39:	1170	354.0	1524	383.0	1907	405.0	2312
Finger 40:	1109	363.0	1472	398.0	1870	424.0	2294

Segmented Cement Bond Log Calibration Report						
Serial Number:		10022773				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		-76.502	ft			
Master Calibration, performed Fri Dec 29 11:27:31 2017:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.002	0.773	0.800	62.165	79.638	0.606
5FT	-0.002	0.768	0.800	62.165	79.716	0.925
S1	0.002	0.769	0.000	100.000	130.427	-0.318
S2	0.001	0.788	0.000	100.000	127.133	-0.155
S3	0.002	0.788	0.000	100.000	127.264	-0.222
S4	0.001	0.788	0.000	100.000	127.085	-0.186
S5	0.002	0.776	0.000	100.000	129.185	-0.279
S6	0.001	0.765	0.000	100.000	130.877	-0.171
S7	0.002	0.750	0.000	100.000	133.710	-0.326
S8	0.002	0.755	0.000	100.000	132.829	-0.281

Temperature Calibration Report					
Serial Number:			10025097		
Tool Model:			PRT_016		
Performed:			Sun Oct 11 12:34:58 2015		
Point #	Reading		Reference		
1	13053.00	cps	68.00	degF	
2	18014.00	cps	104.00	degF	
3	29668.00	cps	176.00	degF	
4	41181.00	cps	248.00	degF	
5	52983.00	cps	320.00	degF	
6	58931.00	cps	356.00	degF	
7		cps		degF	
8		cps		degF	
9		cps		degF	
10		cps		degF	

Gamma Ray Calibration Report		
Serial Number:	10013902	
Tool Model:	UW_PGR_020	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps

	Company	Kerr-McGee Oil & Gas Onshore, L.P.
	Well	Wagner 2C-10HZ
	Field	Wattenberg
	County	Weld
	State	Colorado