



Multifinger Imaging Tool
Gamma Ray
Casing Collar Log

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

Well Wagner 2N-10HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-43471

SEC 22 TWP 1N RGE 67W

Permanent Datum Ground Level Elevation 4974'

Log Measured From Kelly Bushing 21 FT

Drilling Measured From Kelly Bushing

Other Services
RBL
JBGR

Elevation

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

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

Date	30-DEC-2017			
Run Number	Two			
Depth Driller	15590 FT			
Depth Logger	7565 FT			
Bottom Logged Interval	7560 FT			
Top Log Interval	Surface			
Open Hole Size	---			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	234°F			
E. Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	13:15			
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	---	---	5772 FT
	4 1/2	11.6	HCP-110	5788 FT
				15585 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 5772 FT
Adjusted -2 FT to correlate with Liner Top
Gauge Ring/Junk Basket ran to 7675 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

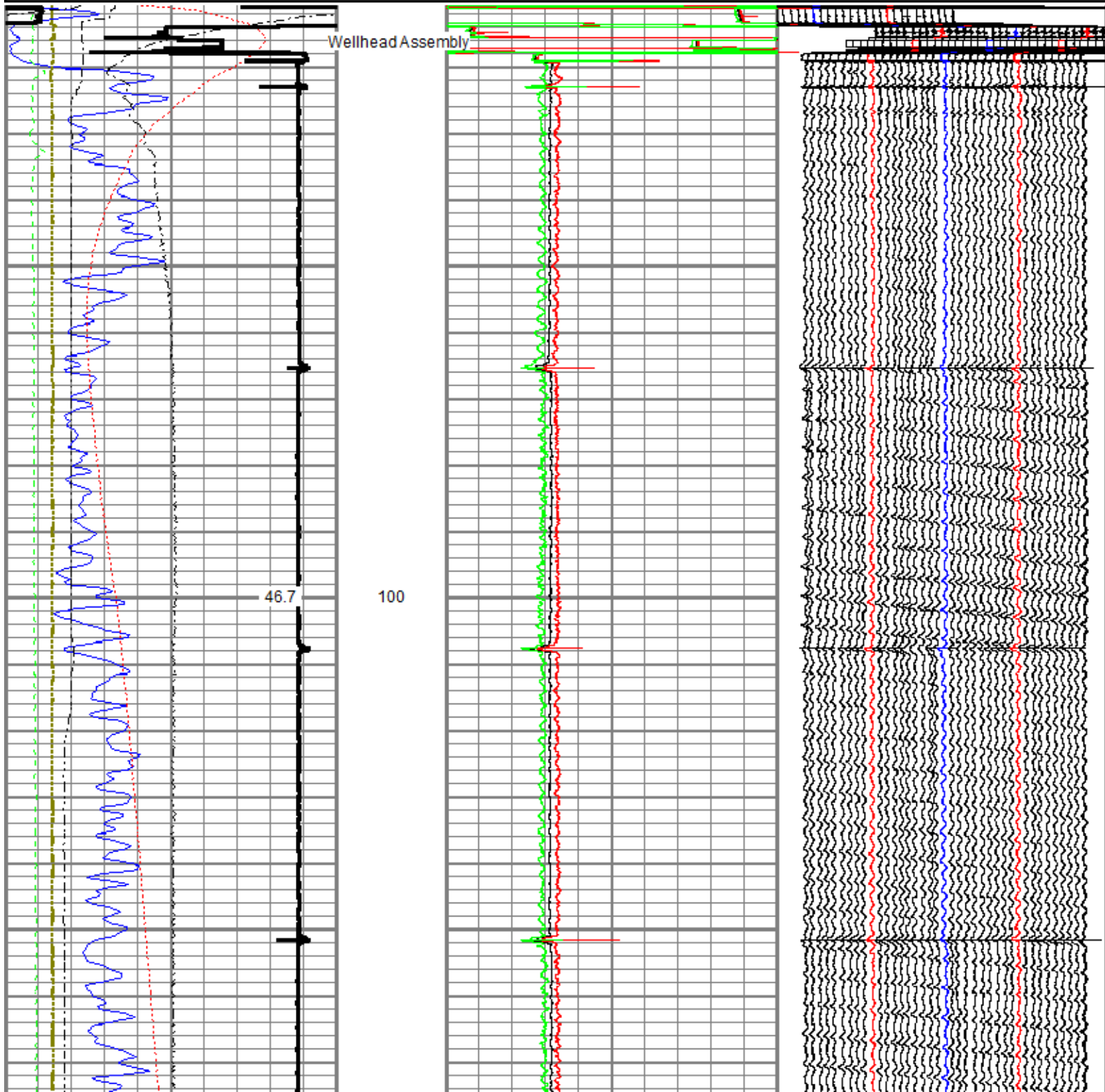


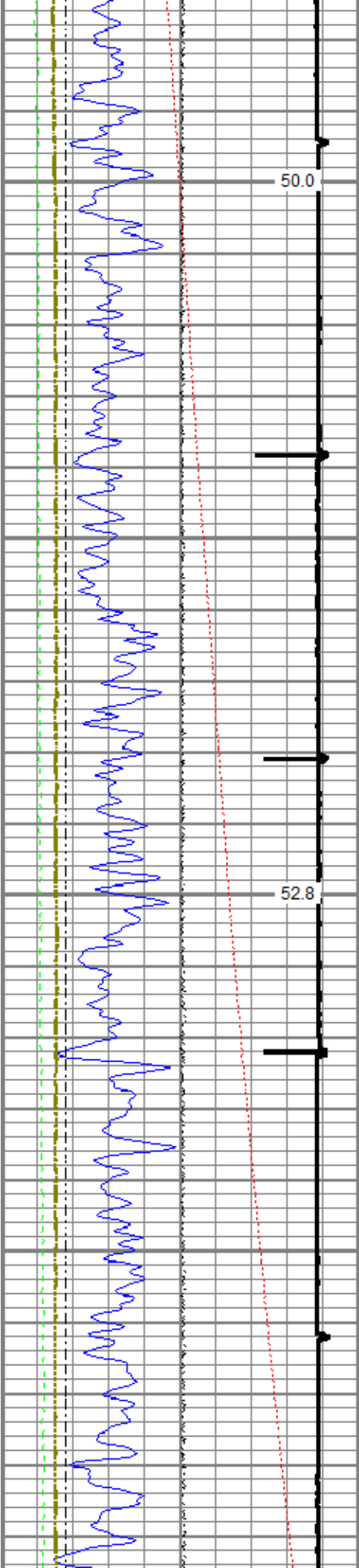
Recorded With 2800 PSI Surface Induced Pressure

Database File	0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17\processed_0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17
Dataset Pathname	pass6
Presentation Format	ros_70mit40sx
Dataset Creation	Sat Dec 30 14:05:48 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		

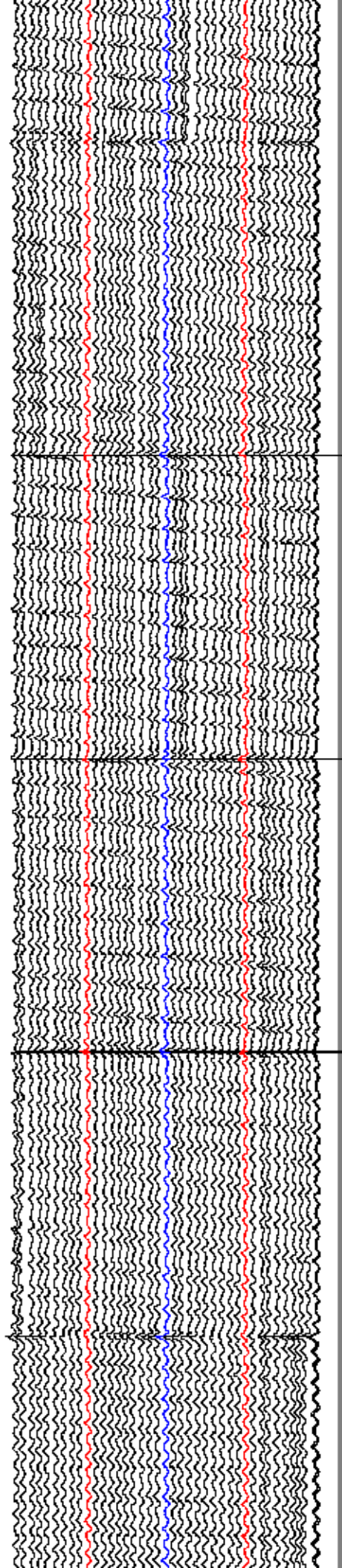
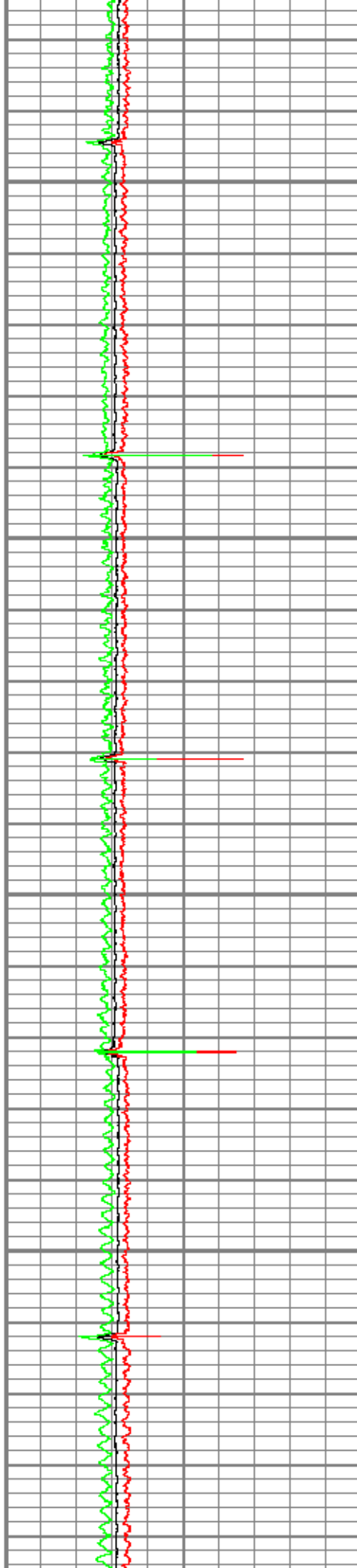
6	Average Diameter (in)	7	Caliper #10
6	Maximum Diameter (in)	7	Caliper #20
6	Minimum Diameter (in)	7	Caliper #30

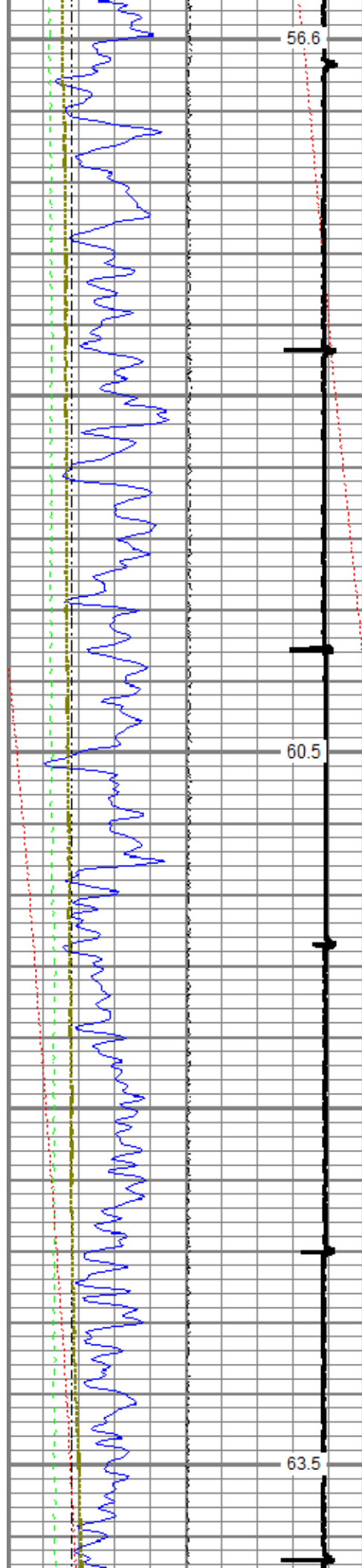




200

300

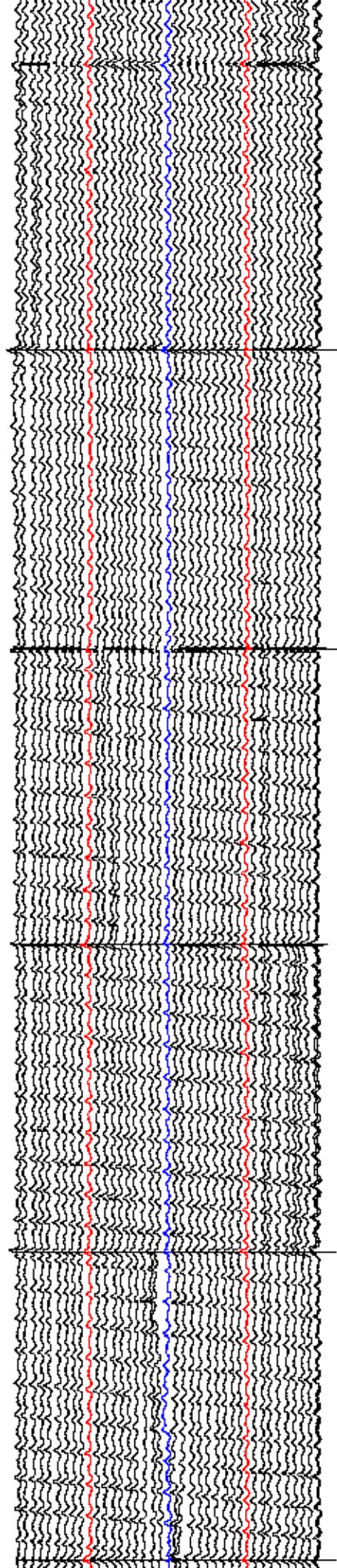
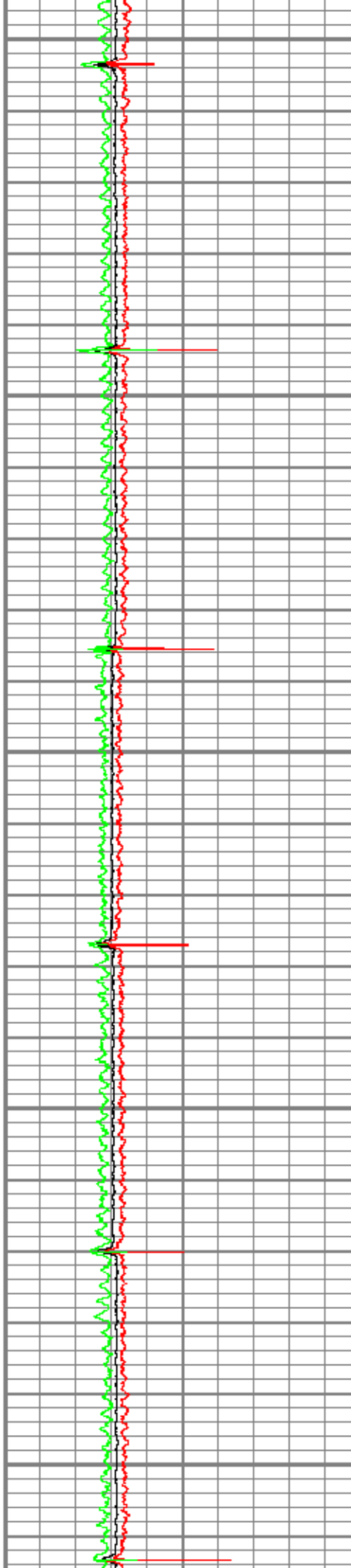


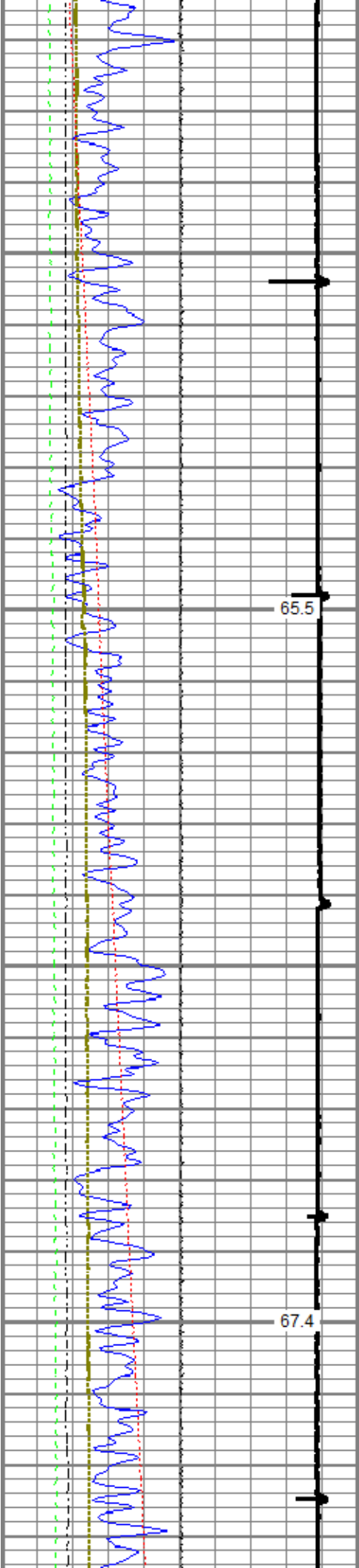


400

500

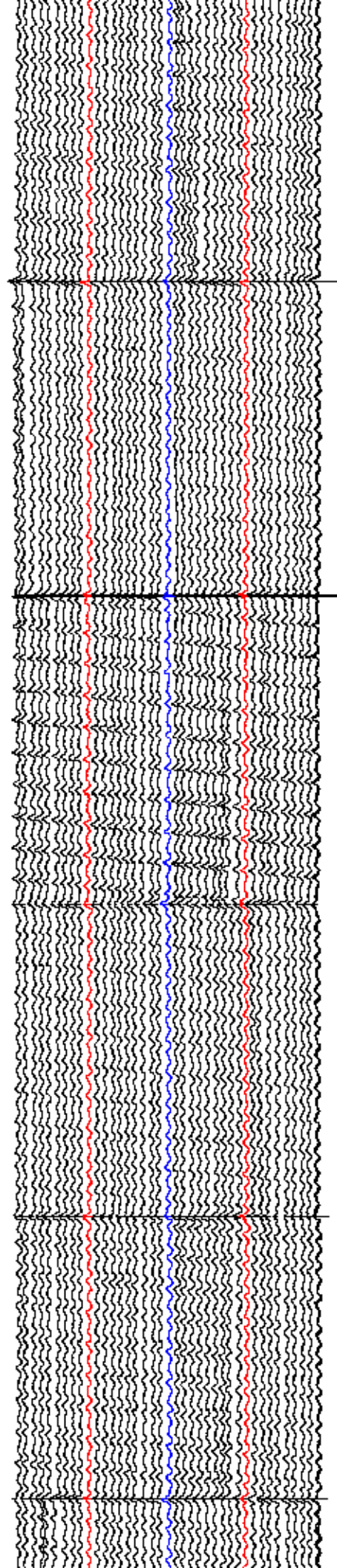
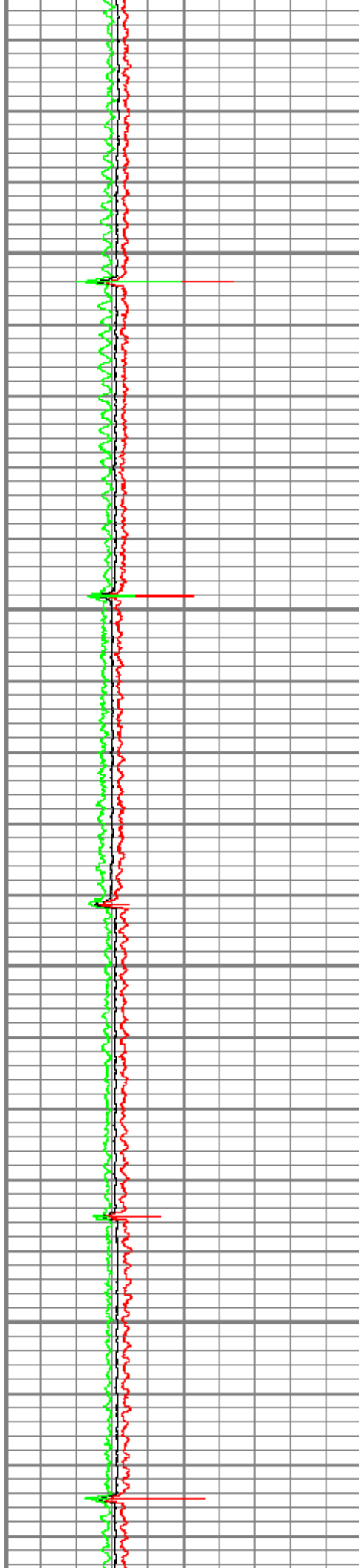
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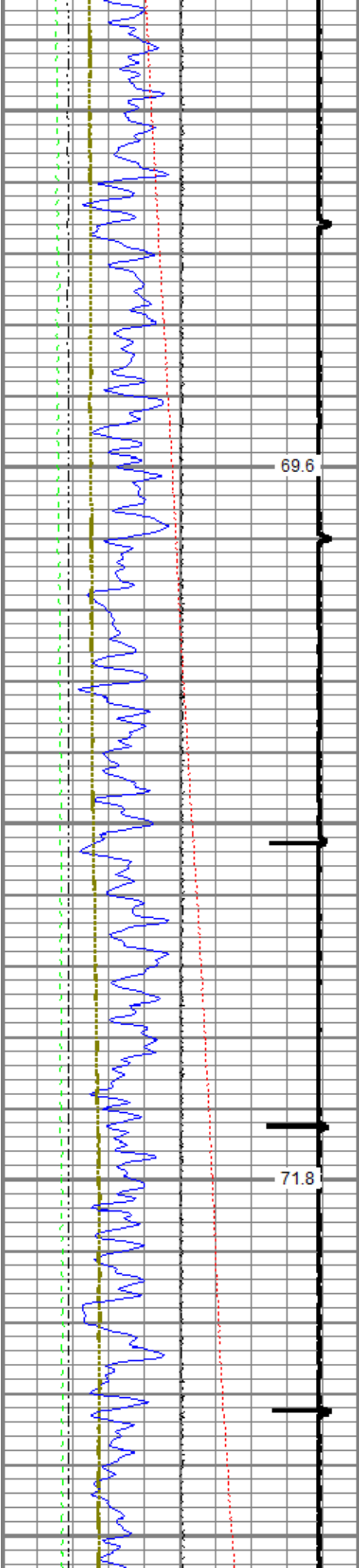




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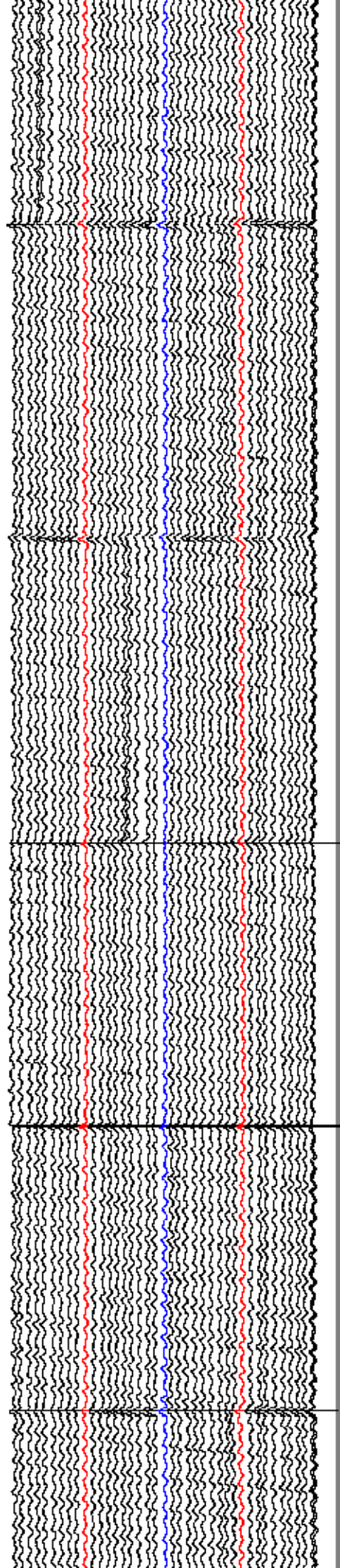
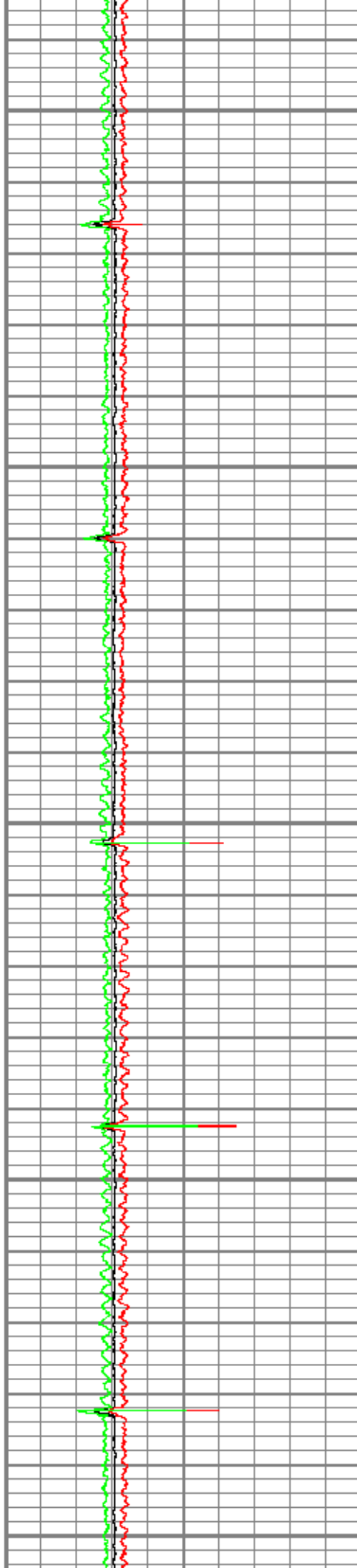


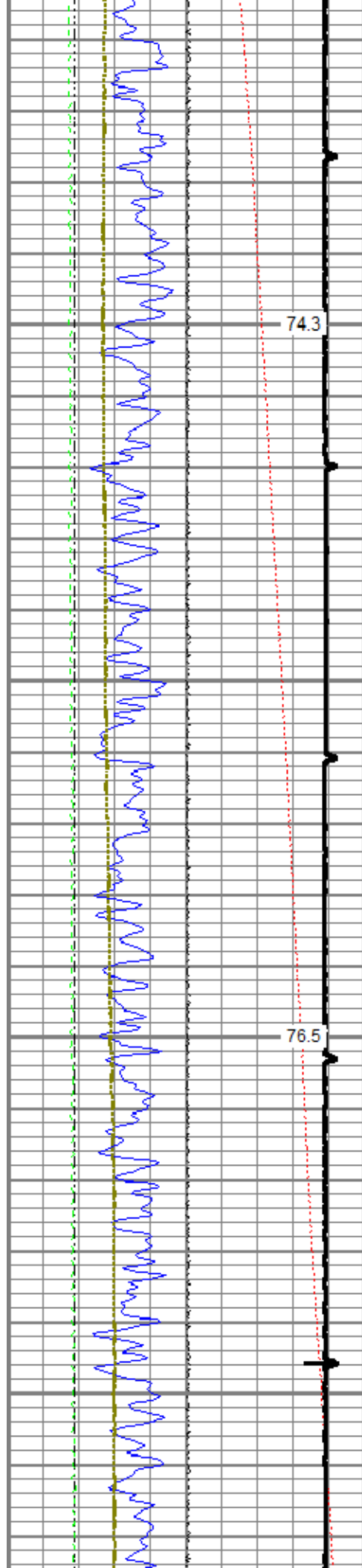
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71.8

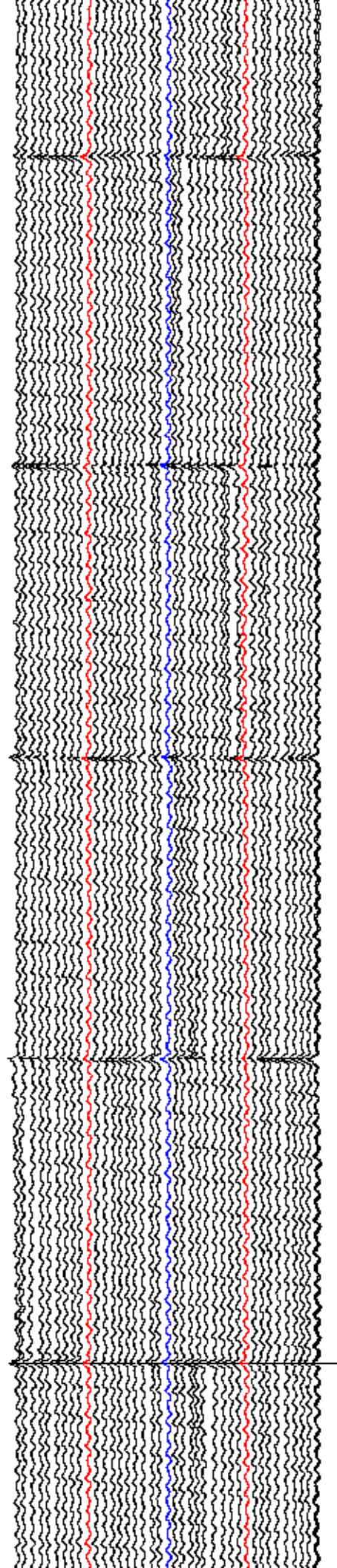
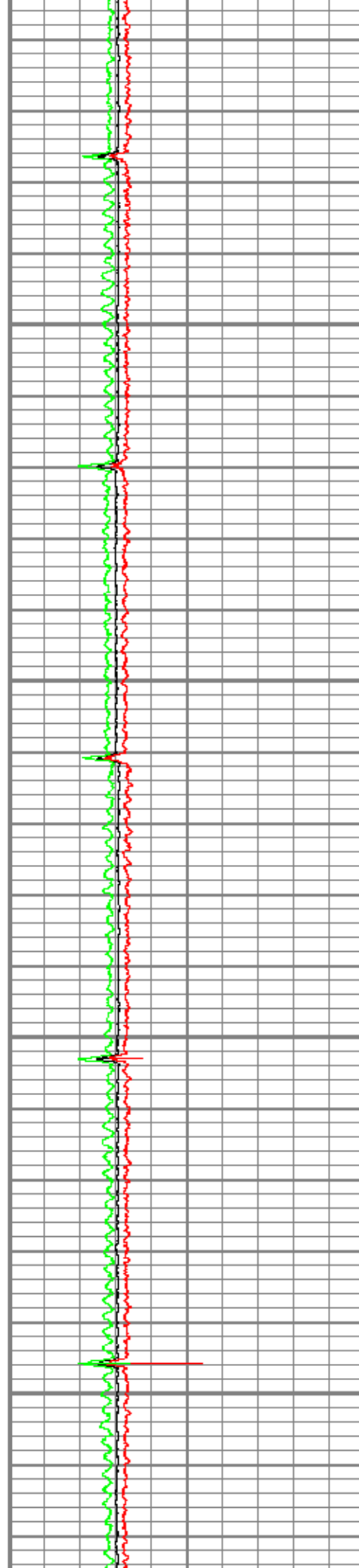
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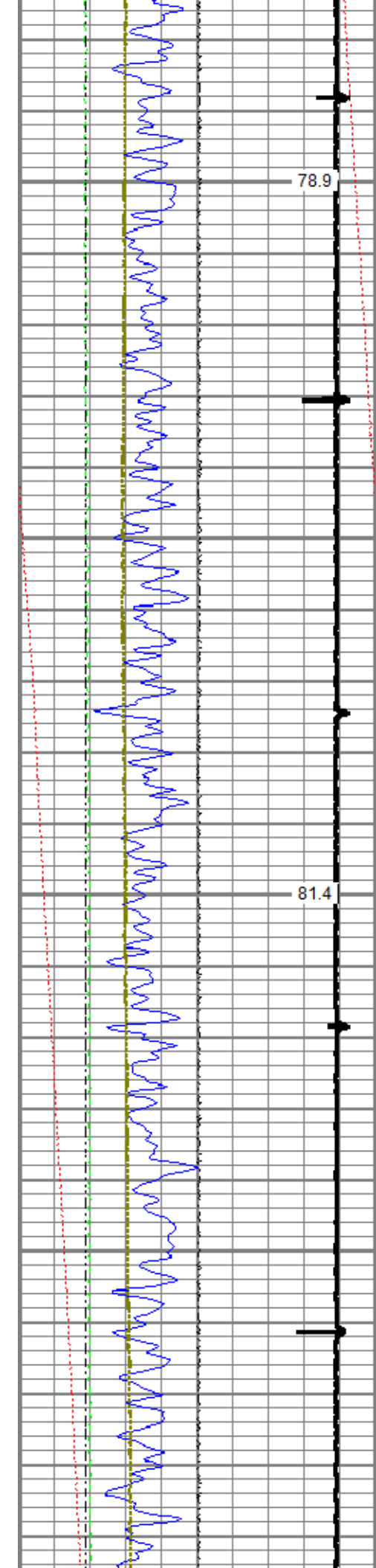




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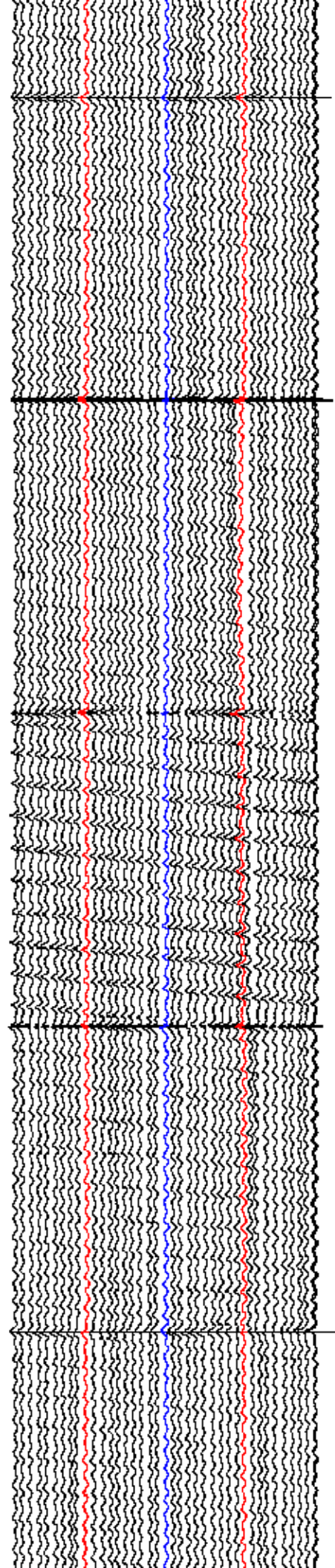
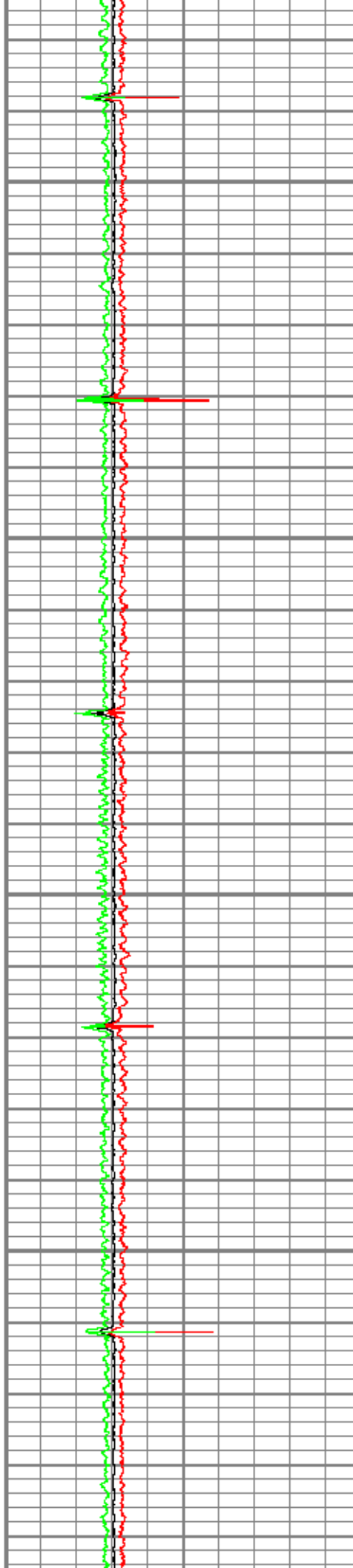
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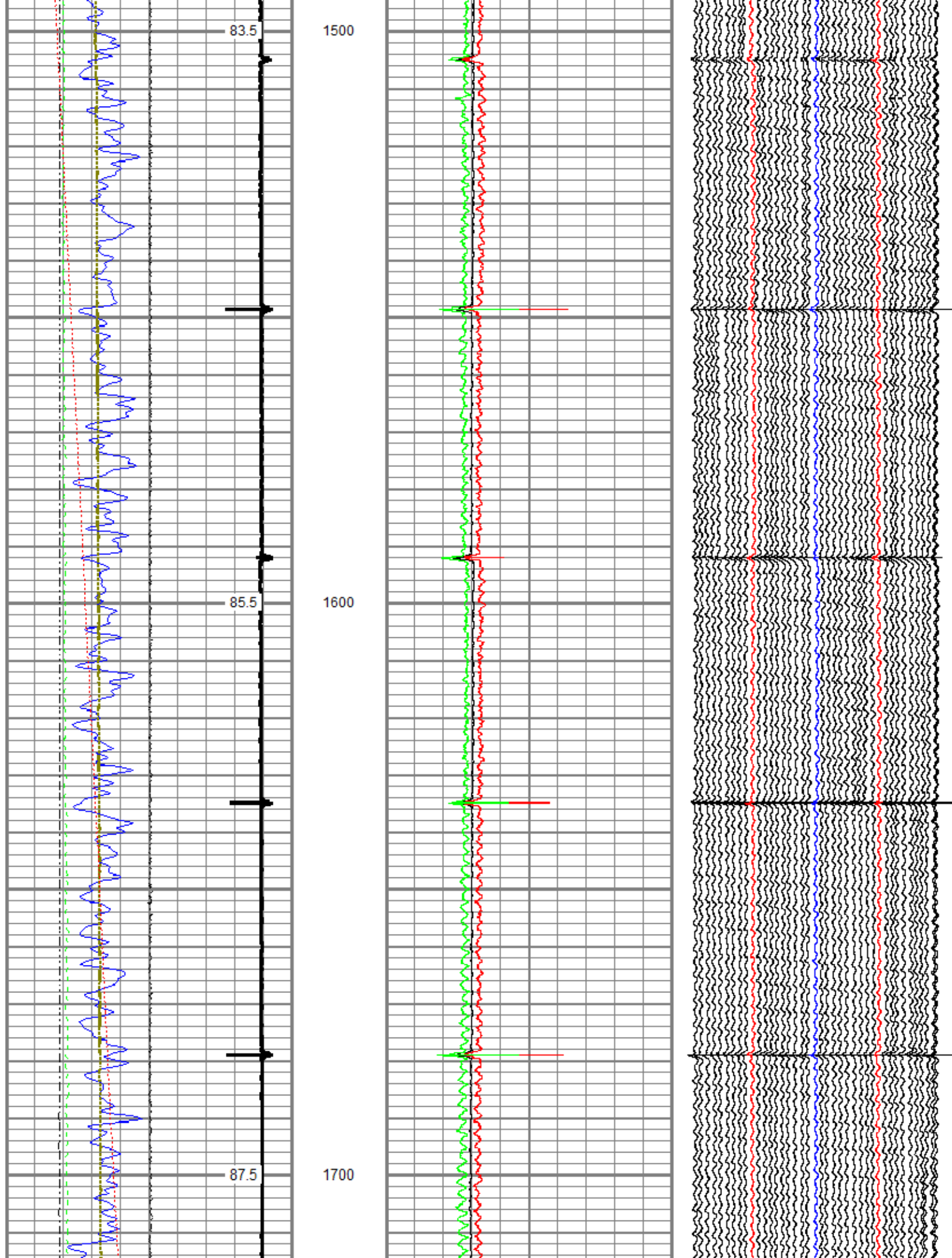


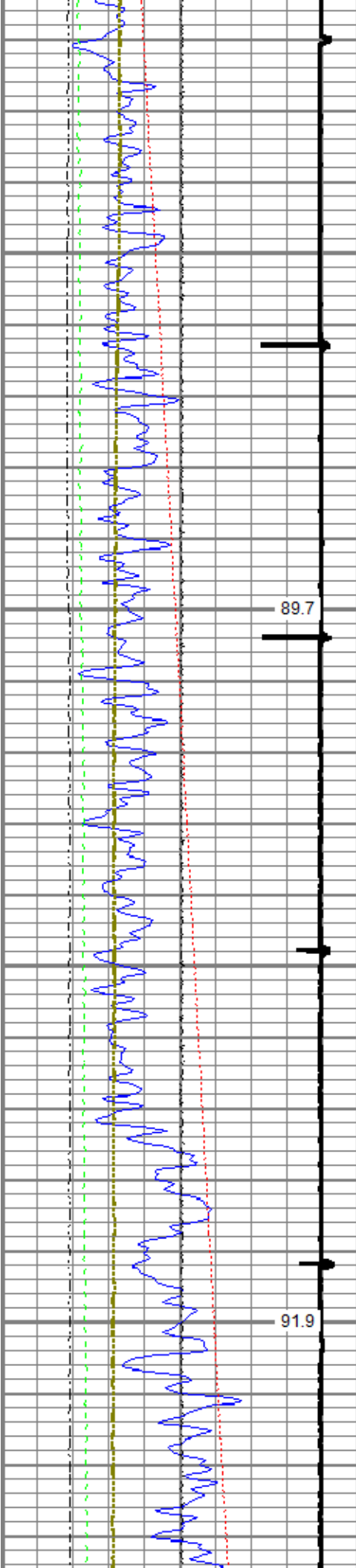


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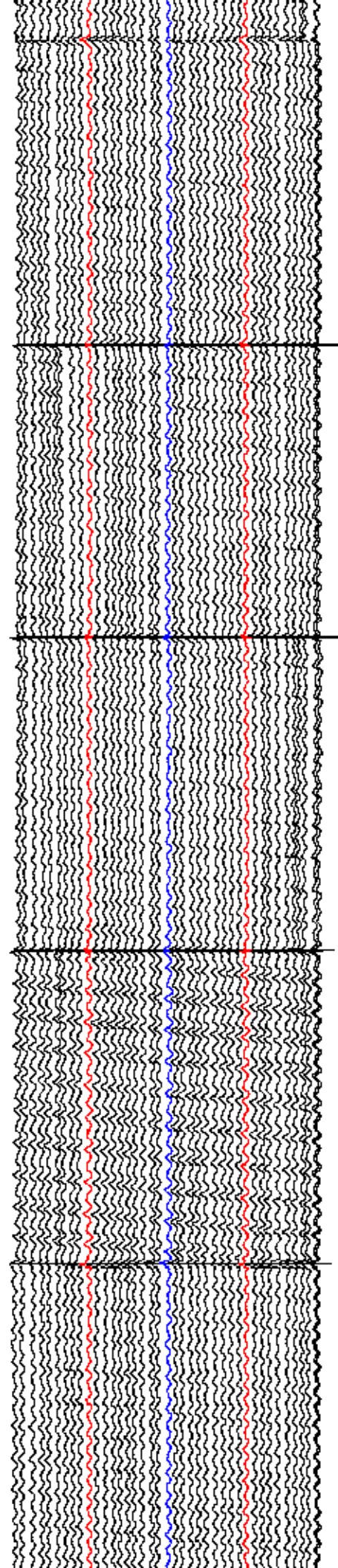
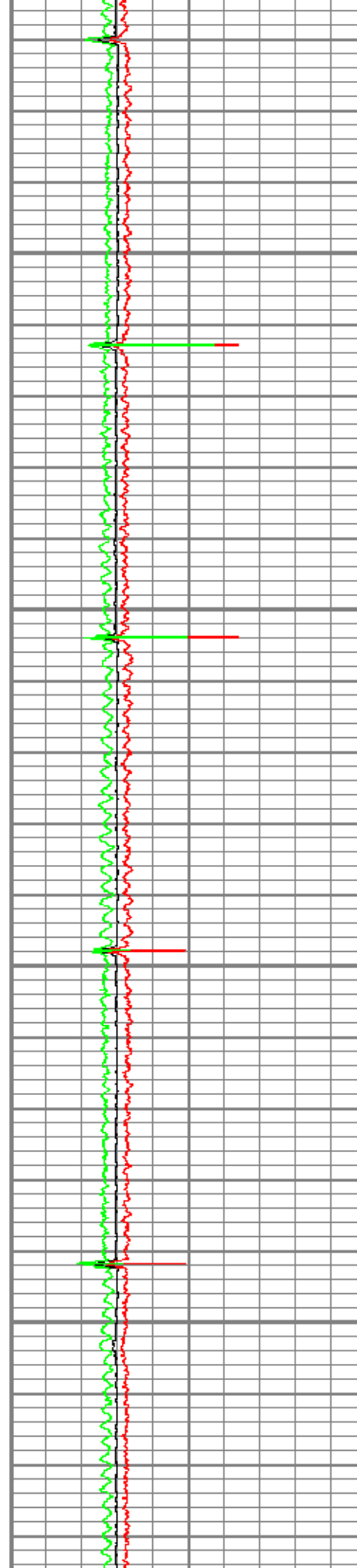


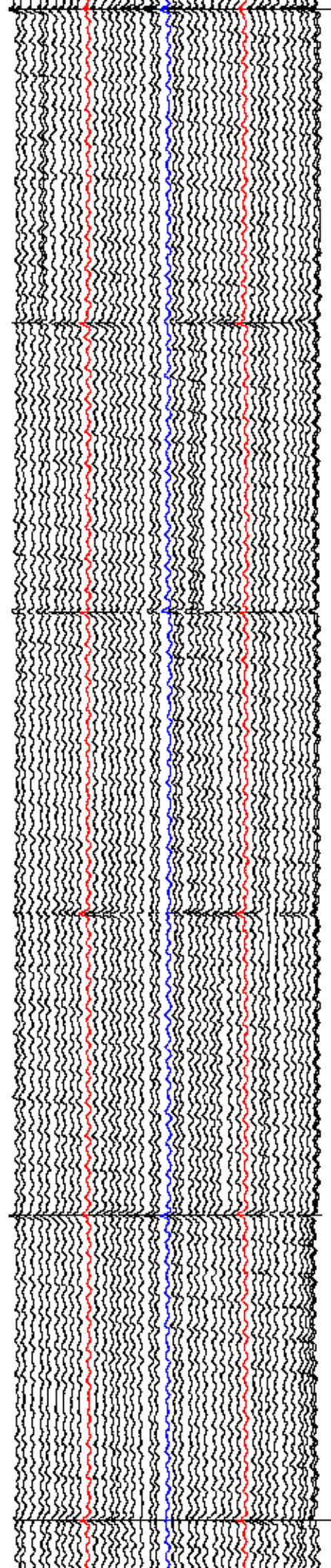
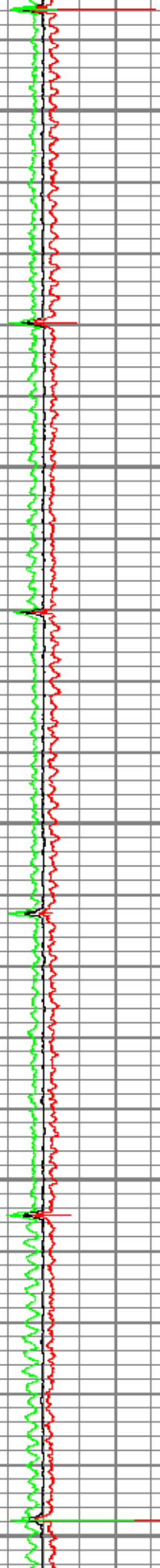
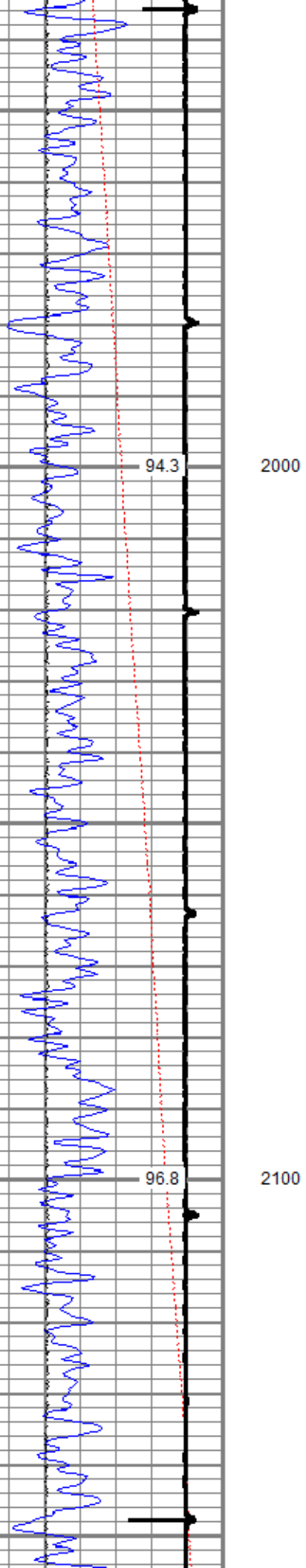


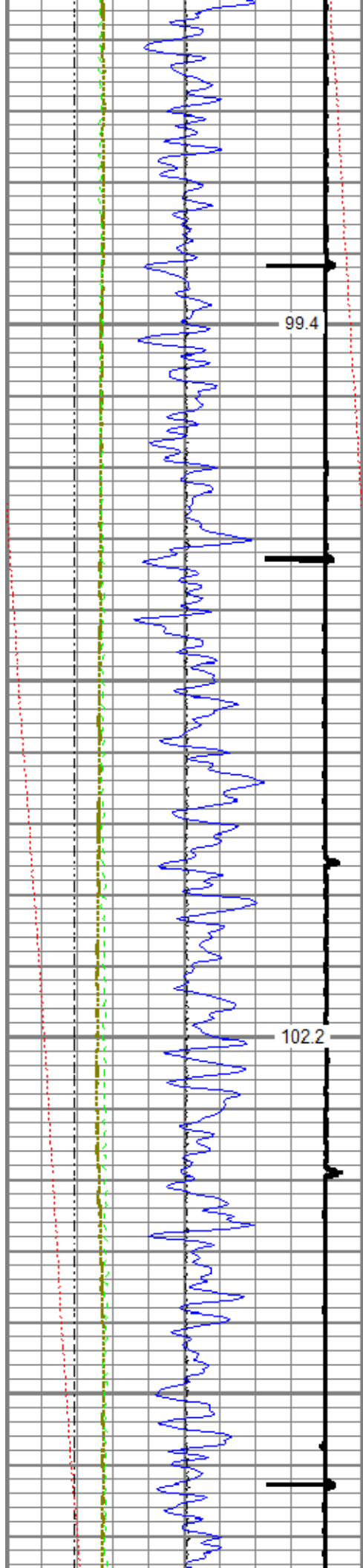


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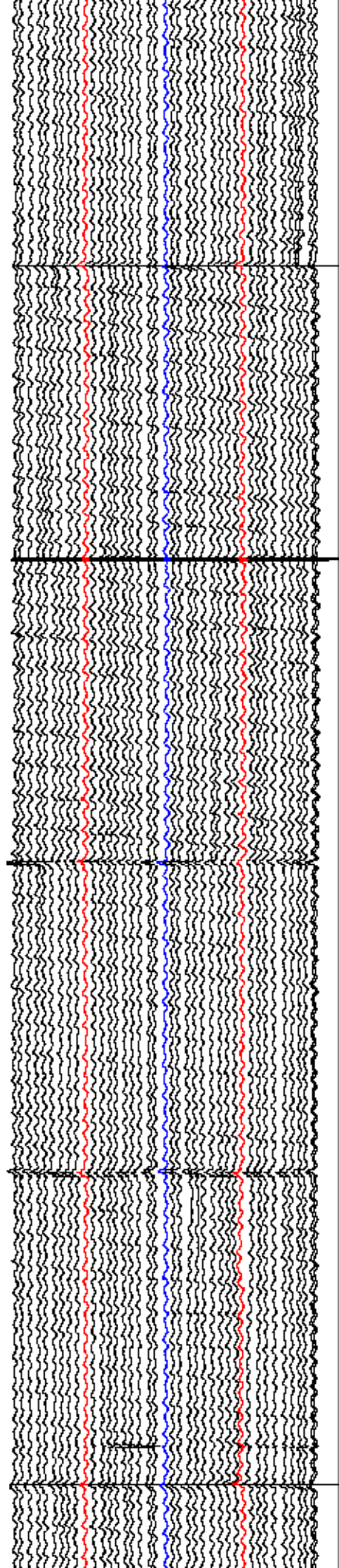
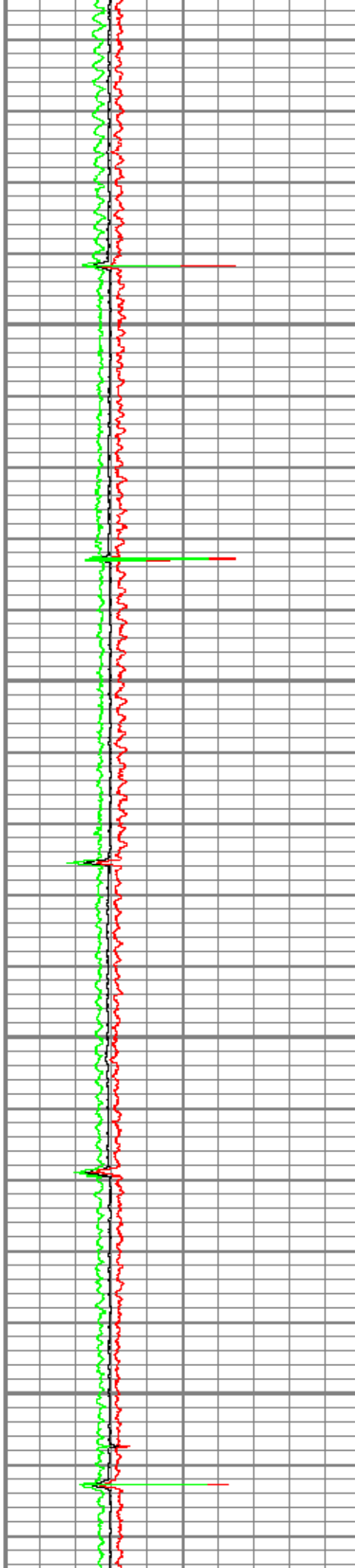


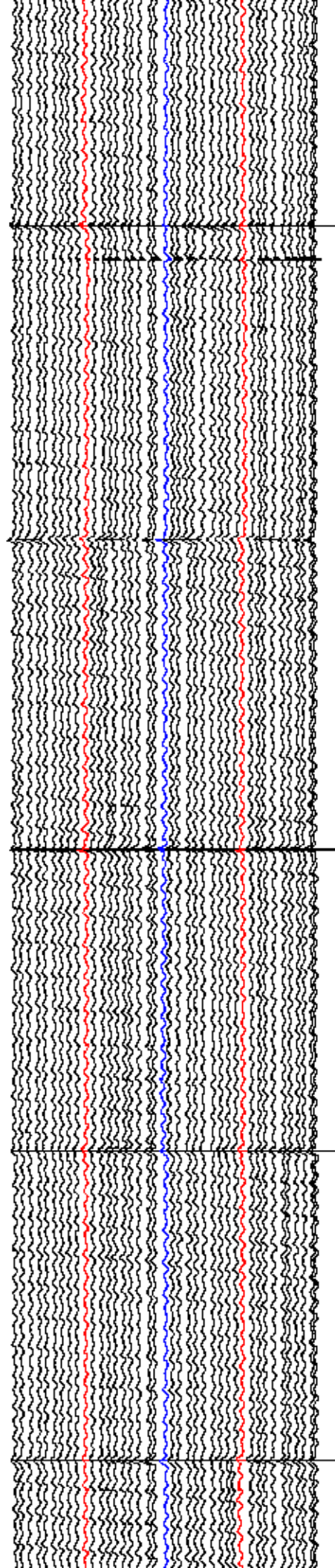
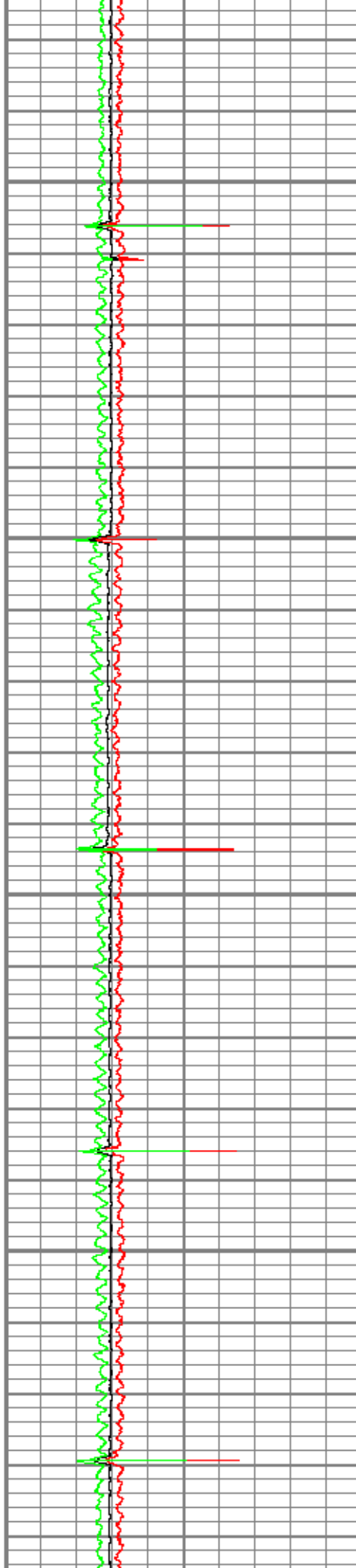
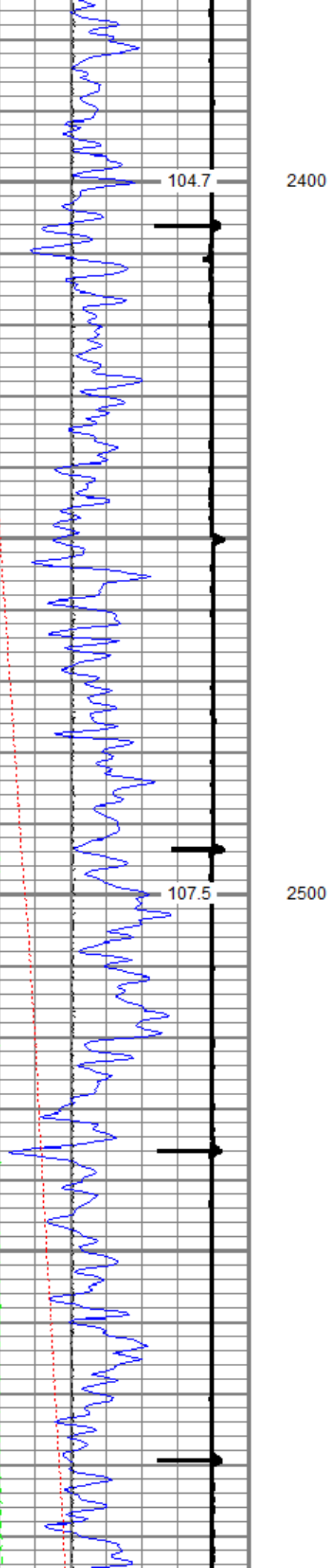
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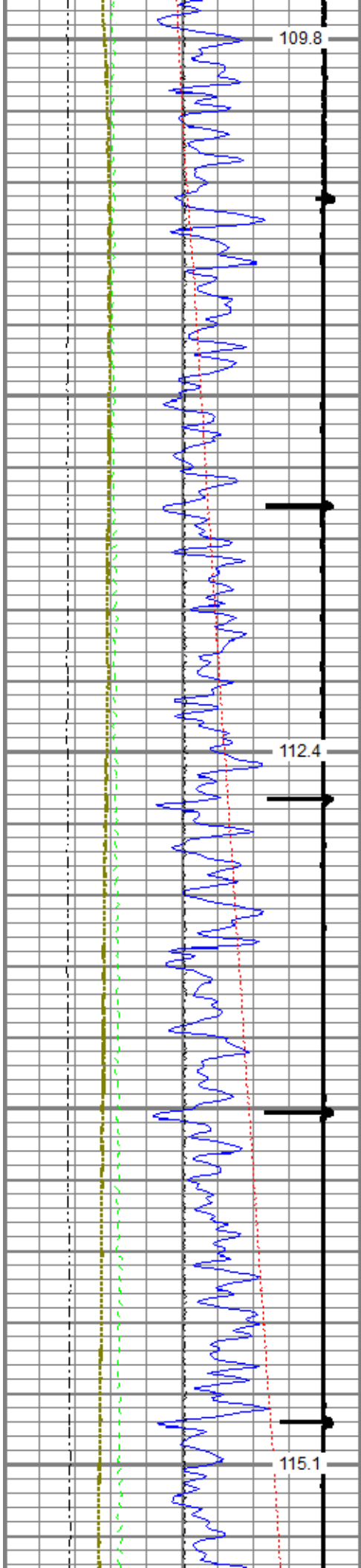
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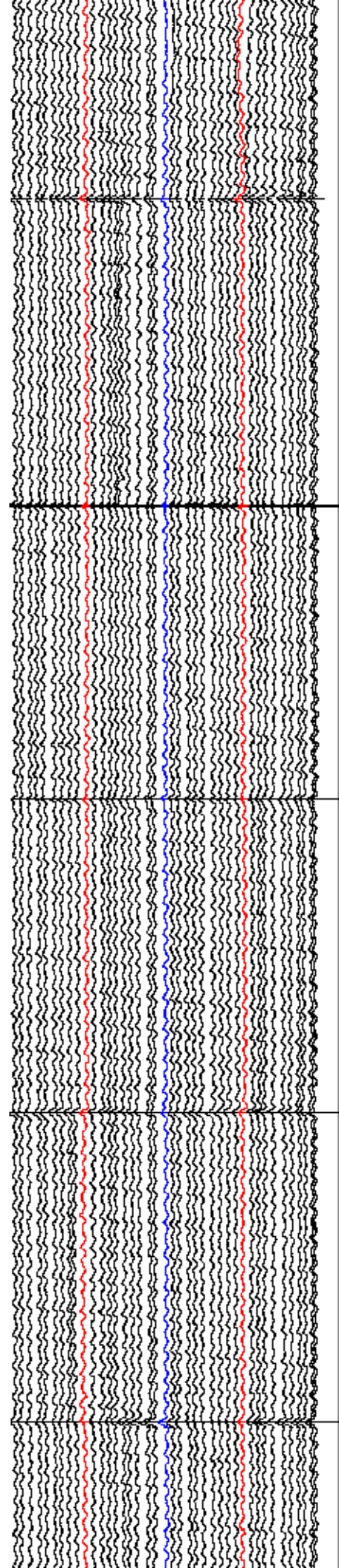
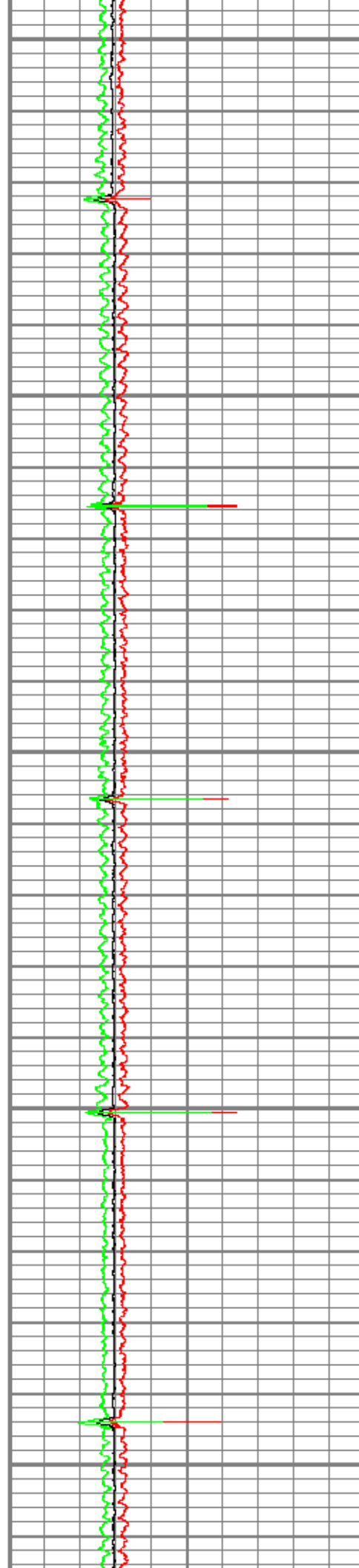


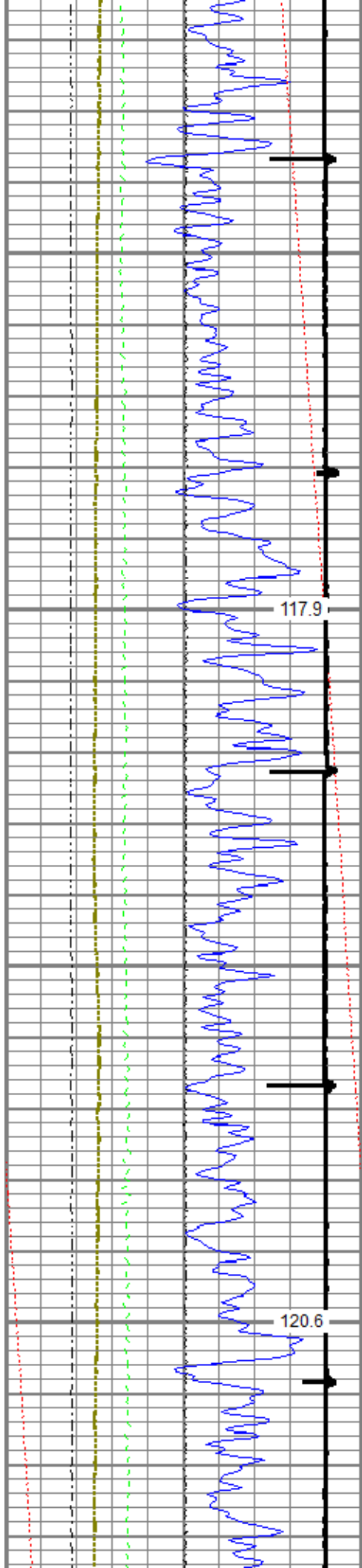


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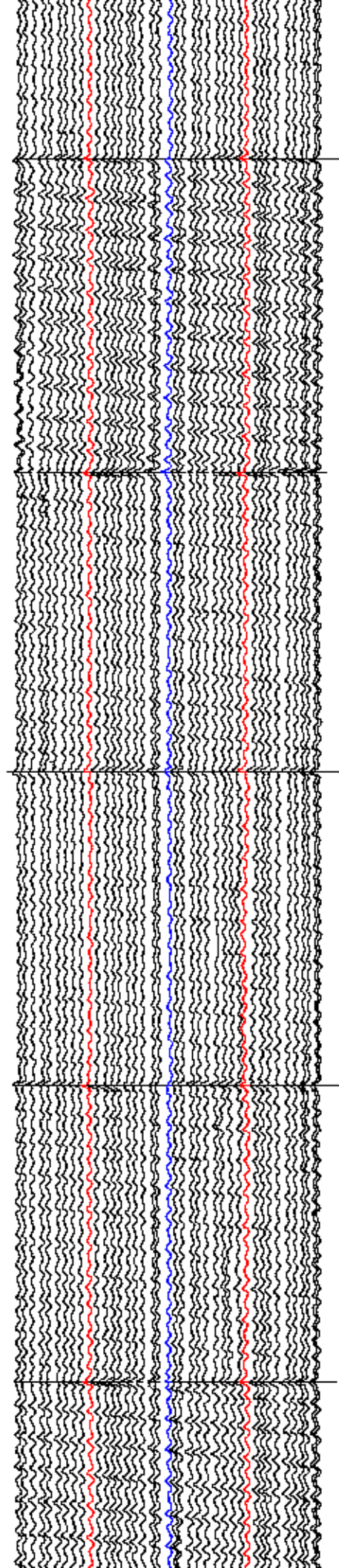
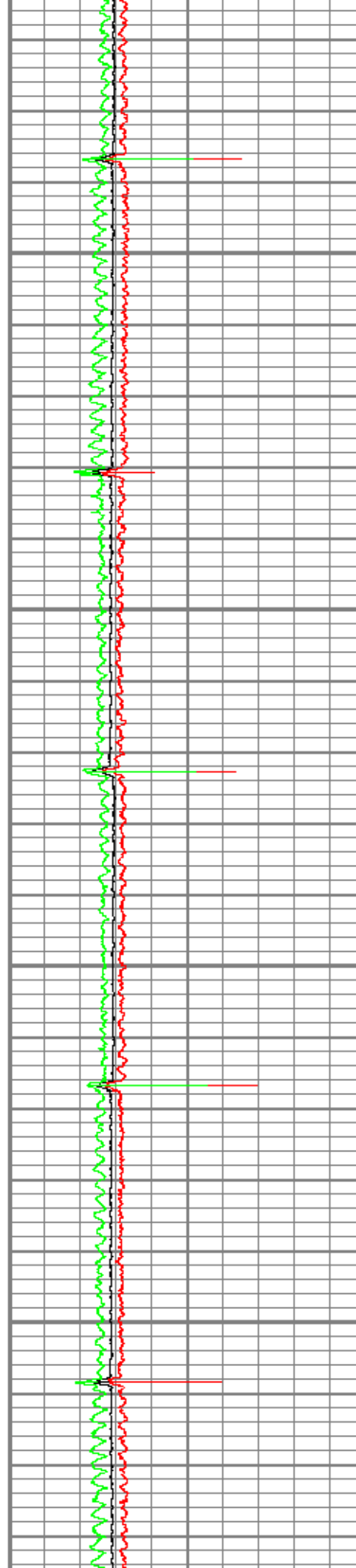
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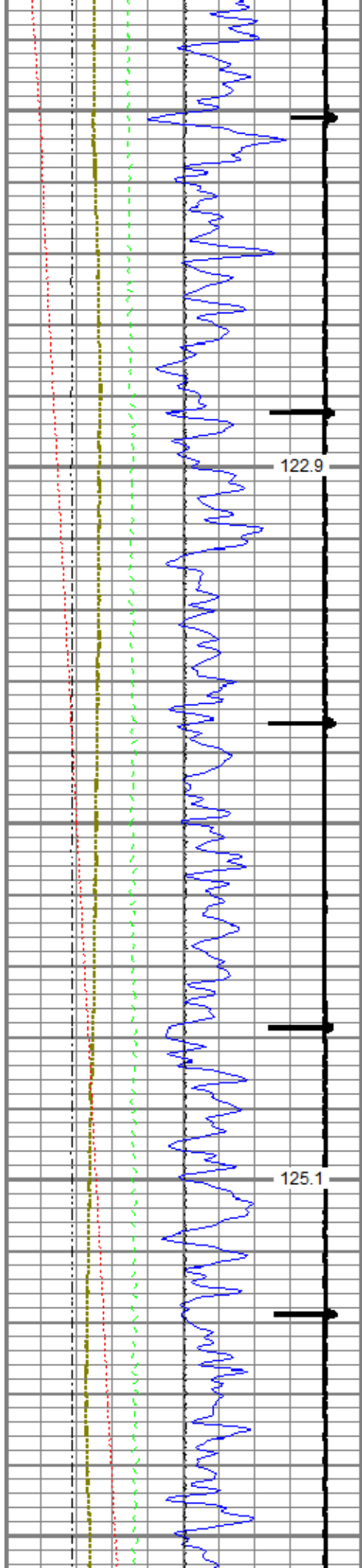




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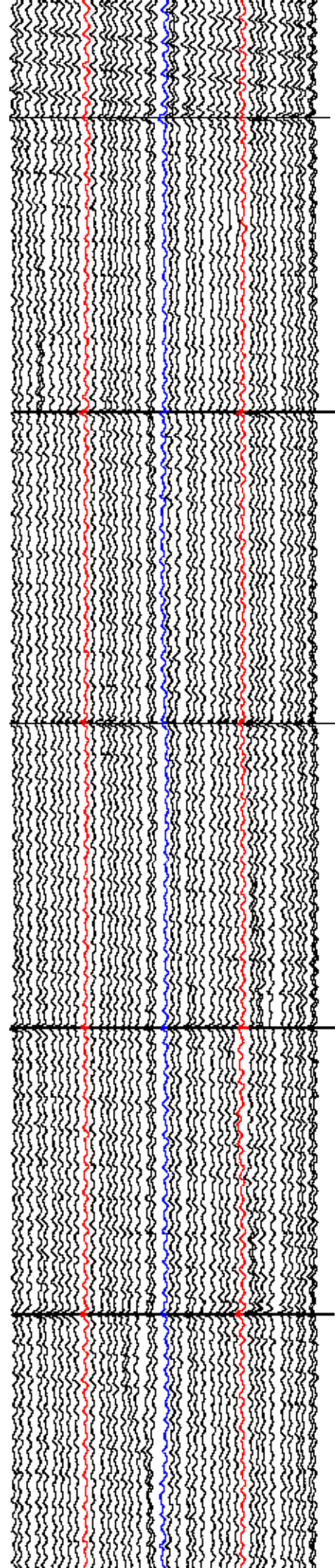
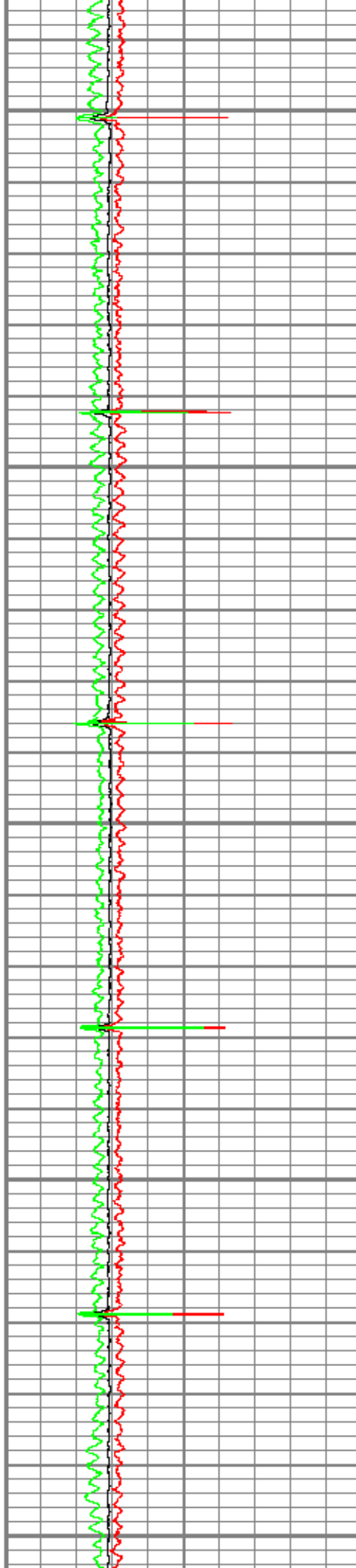
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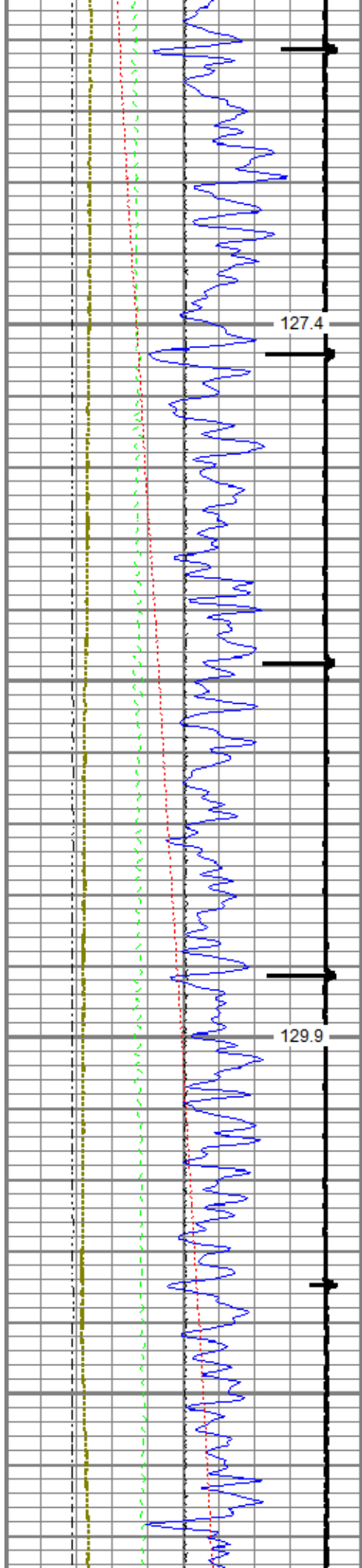




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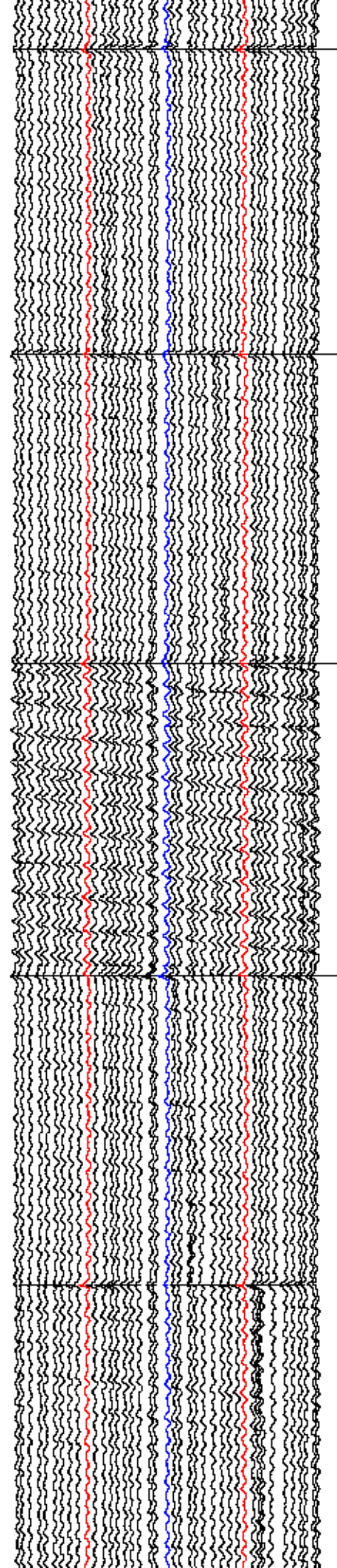
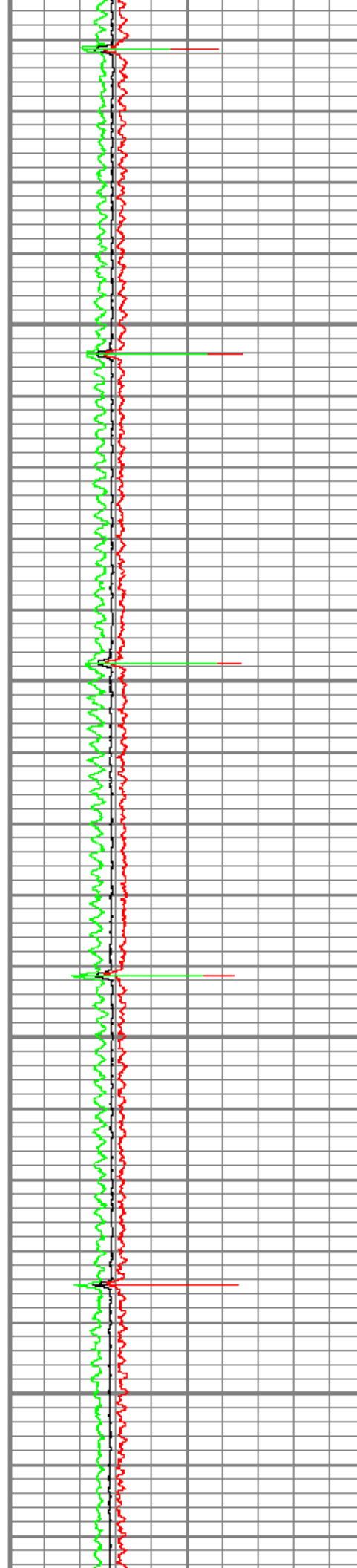
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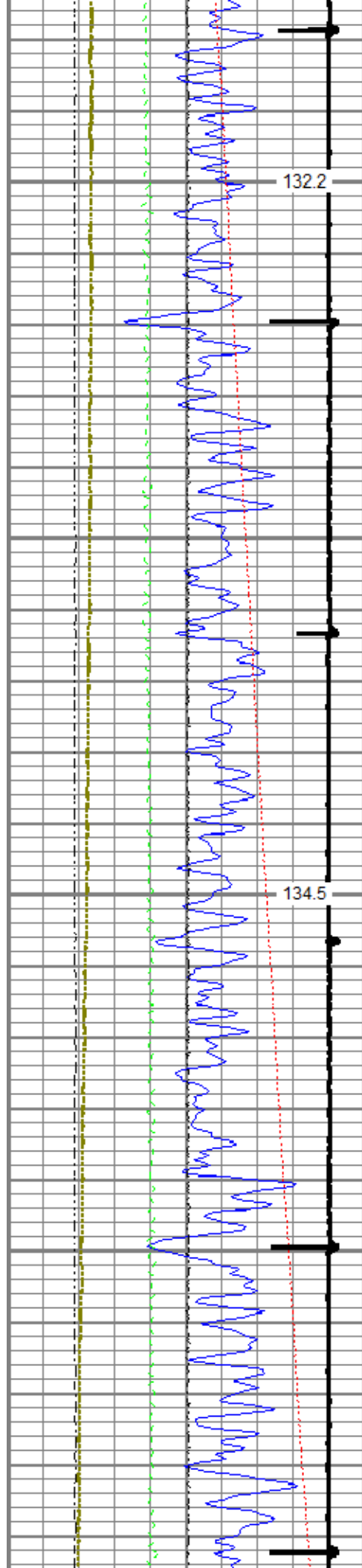




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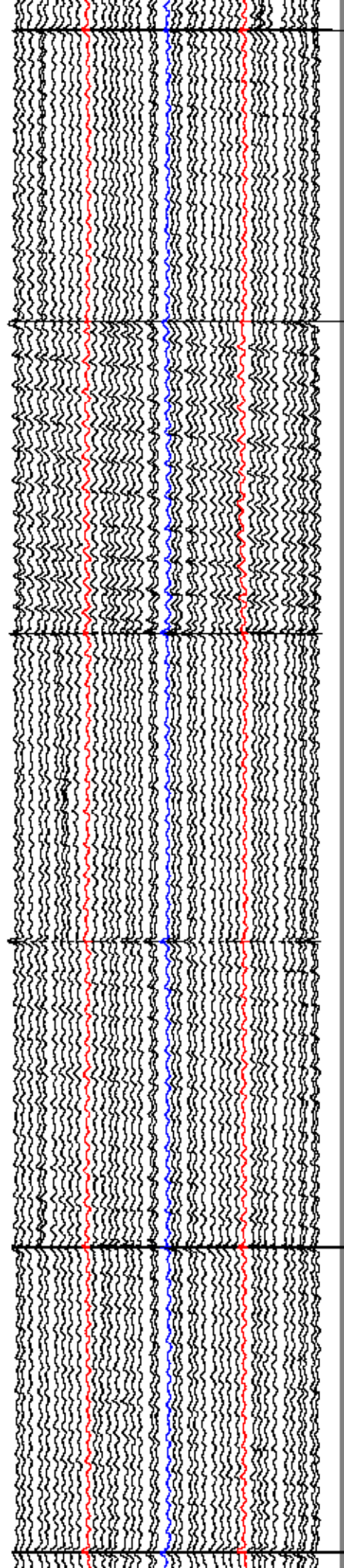
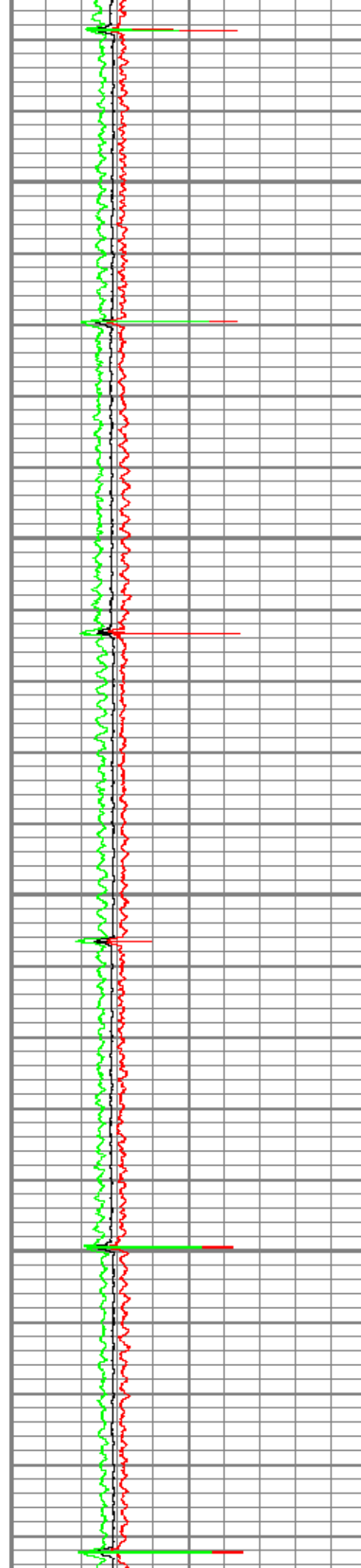
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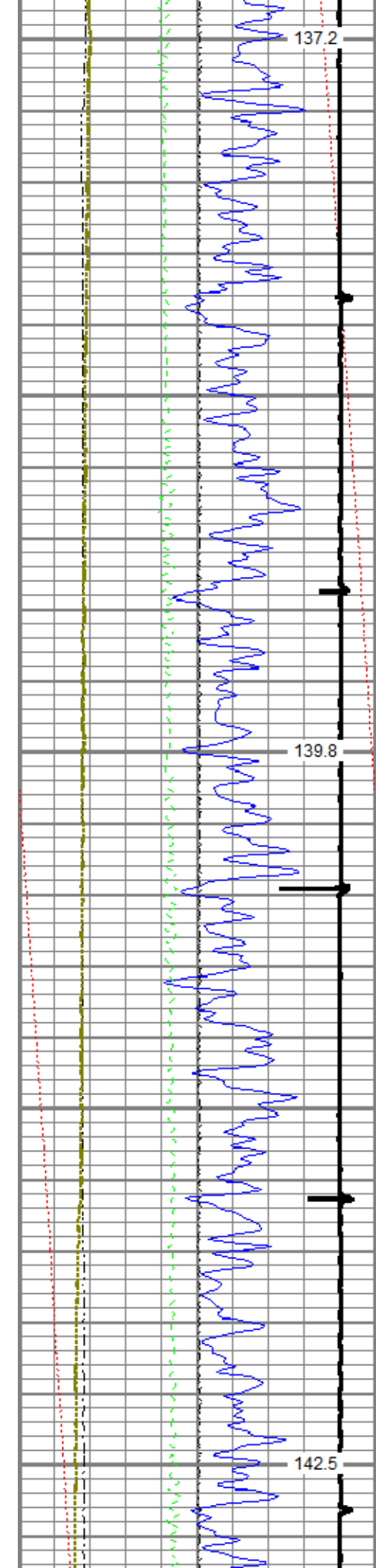




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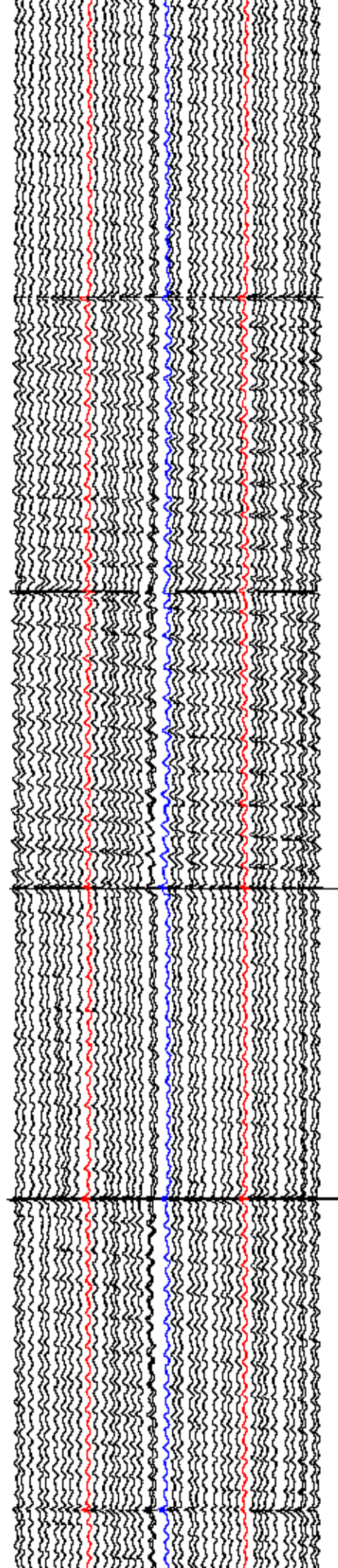
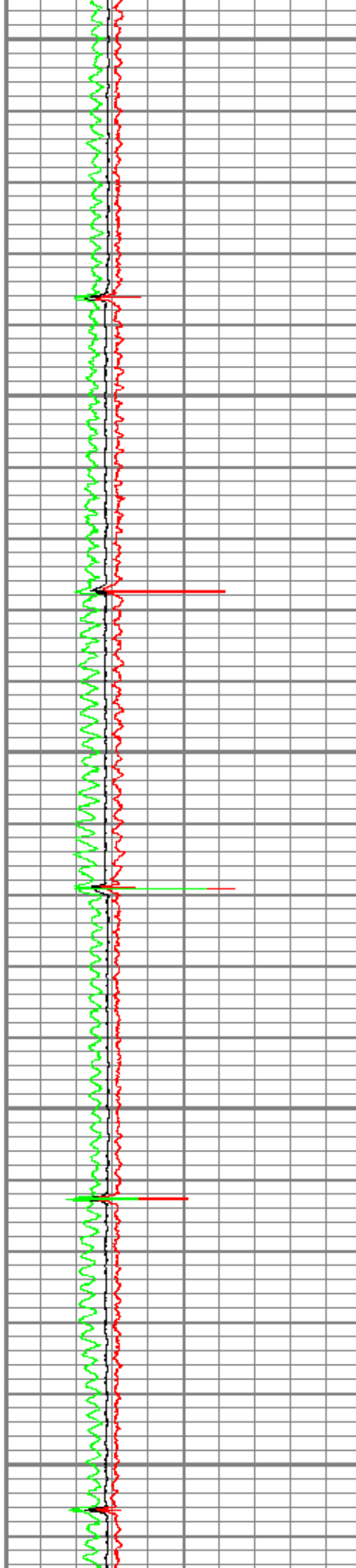


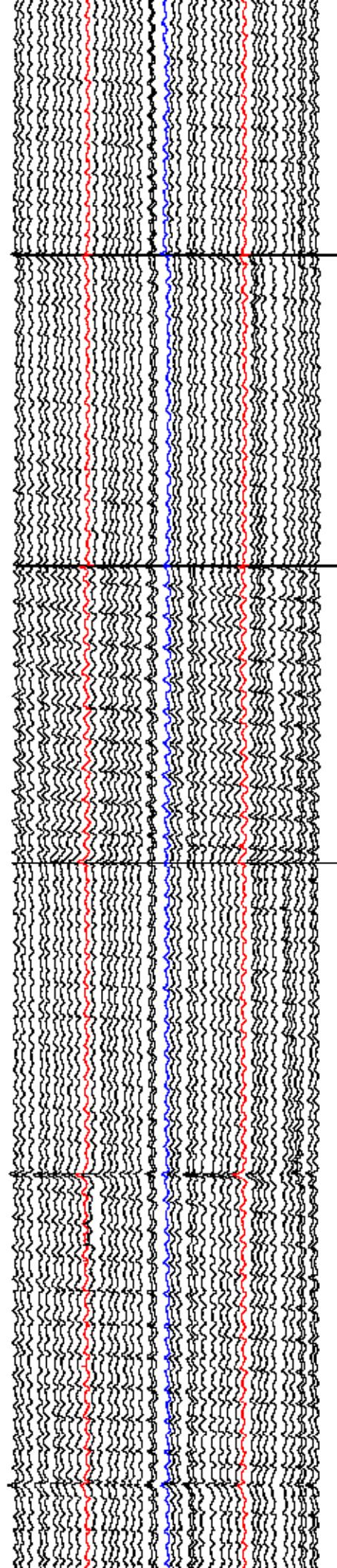
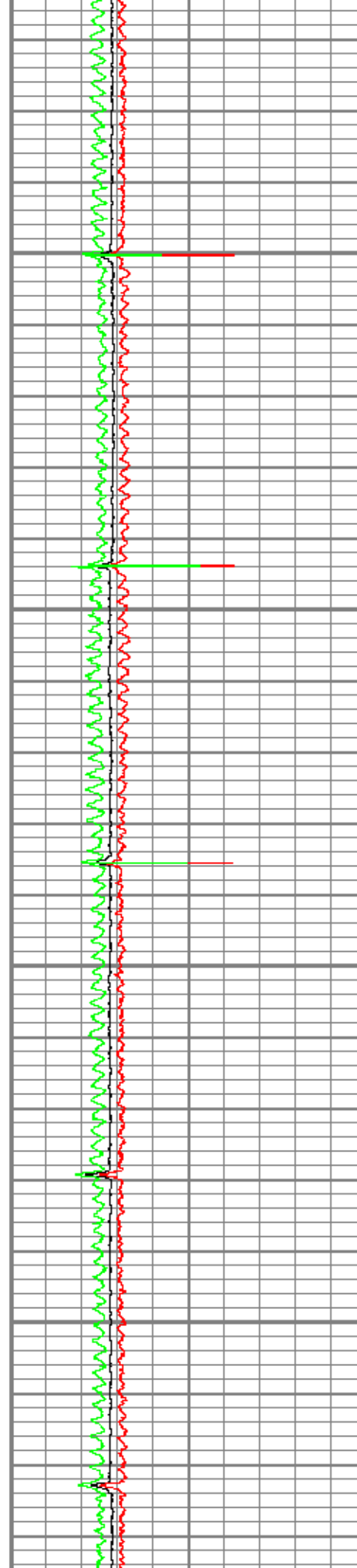
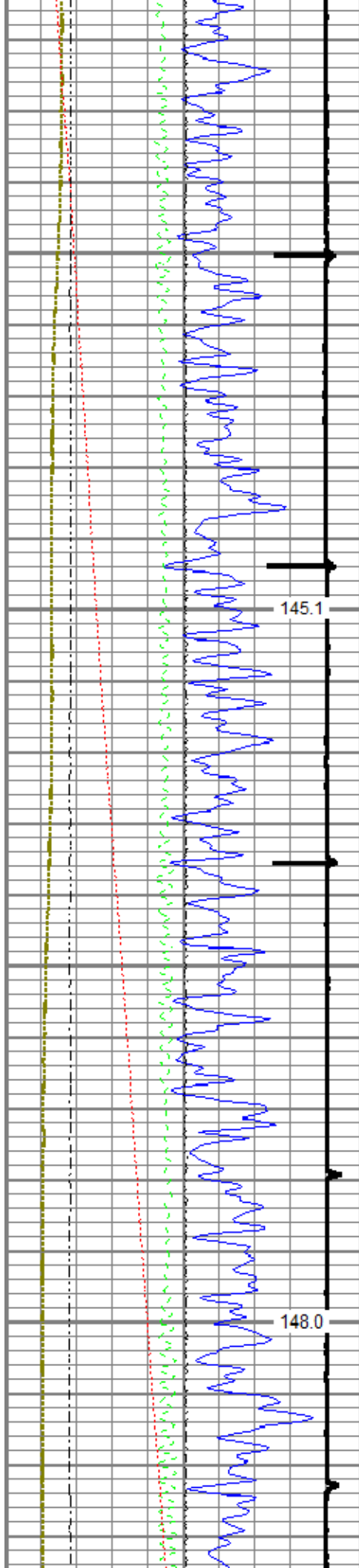


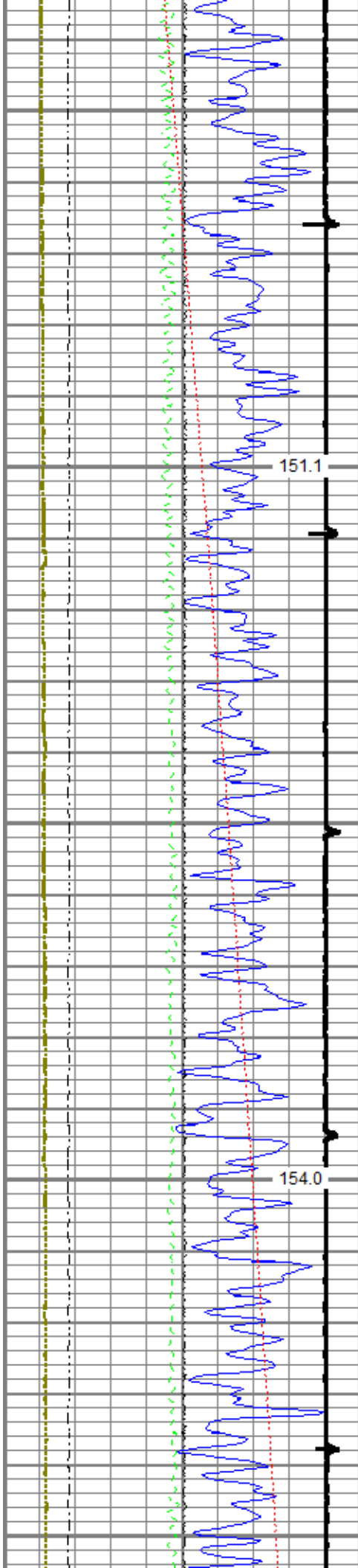
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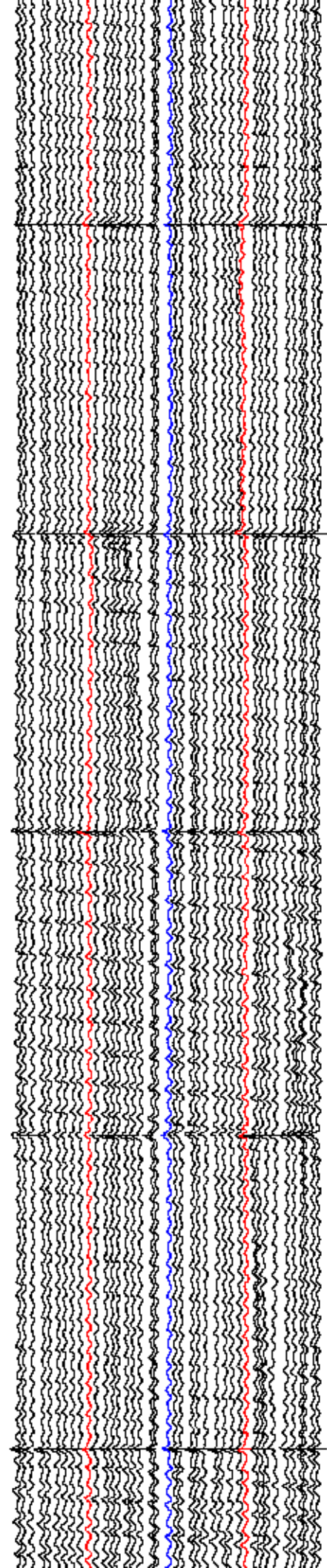
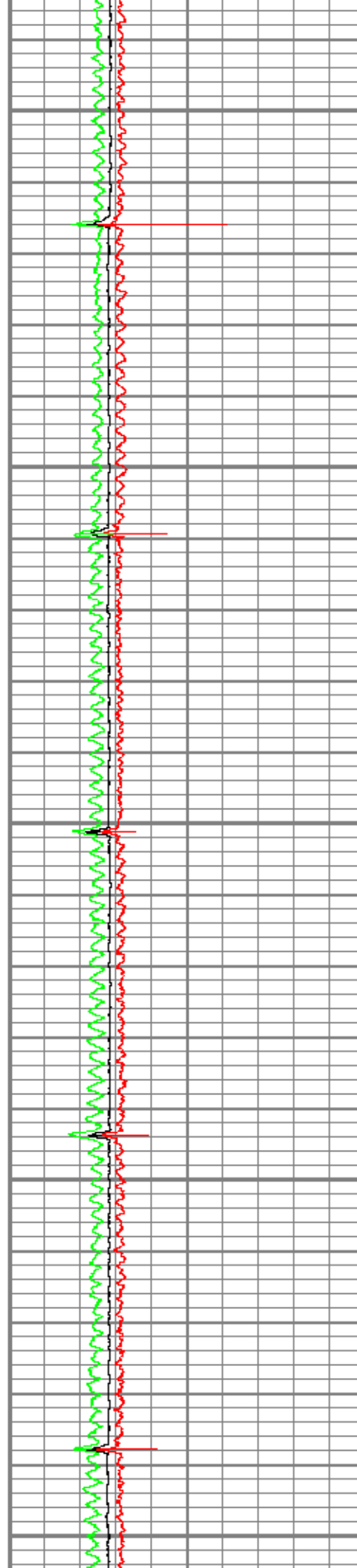


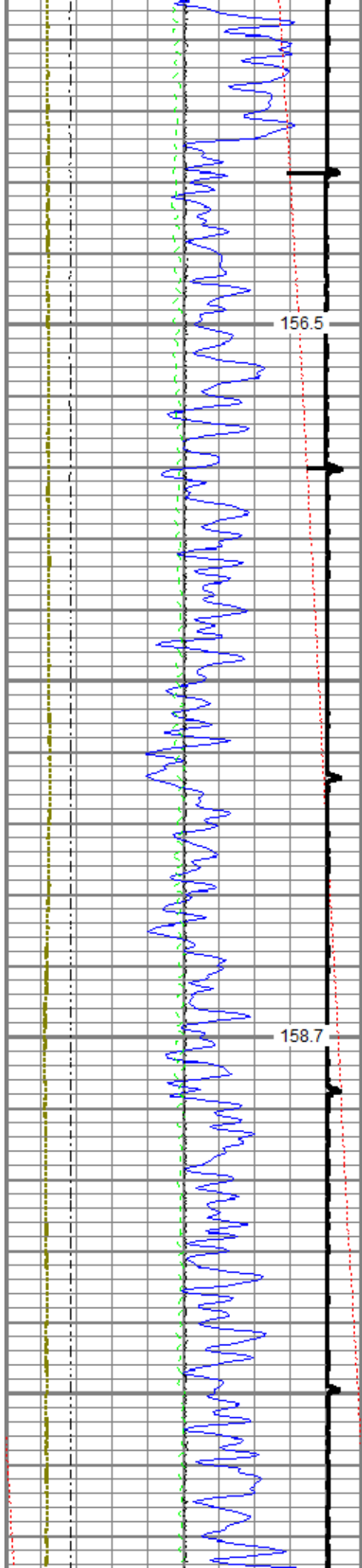




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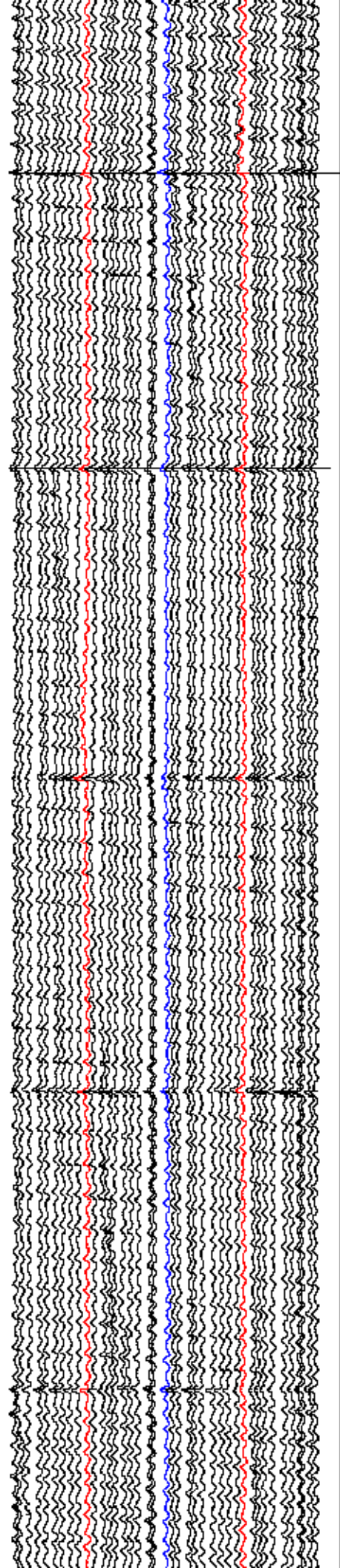
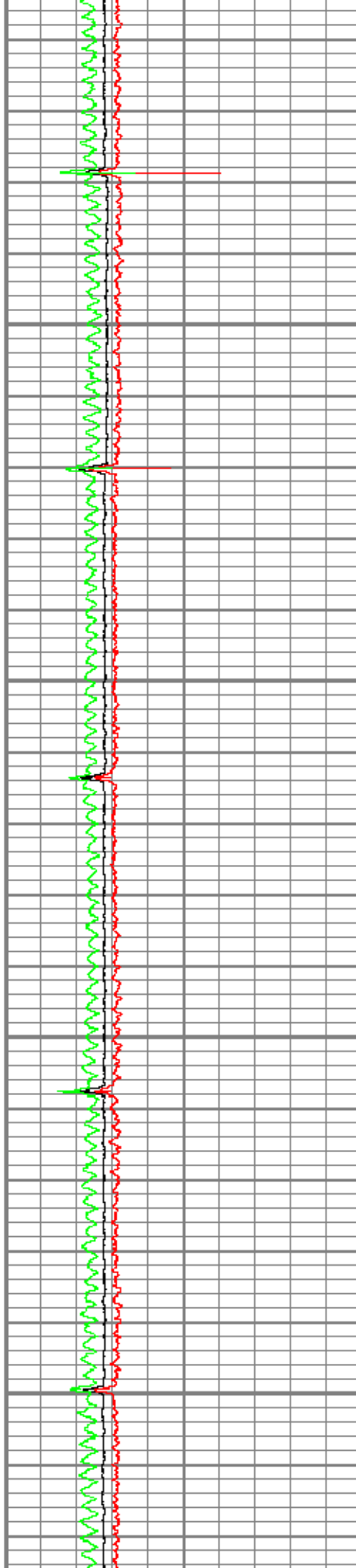


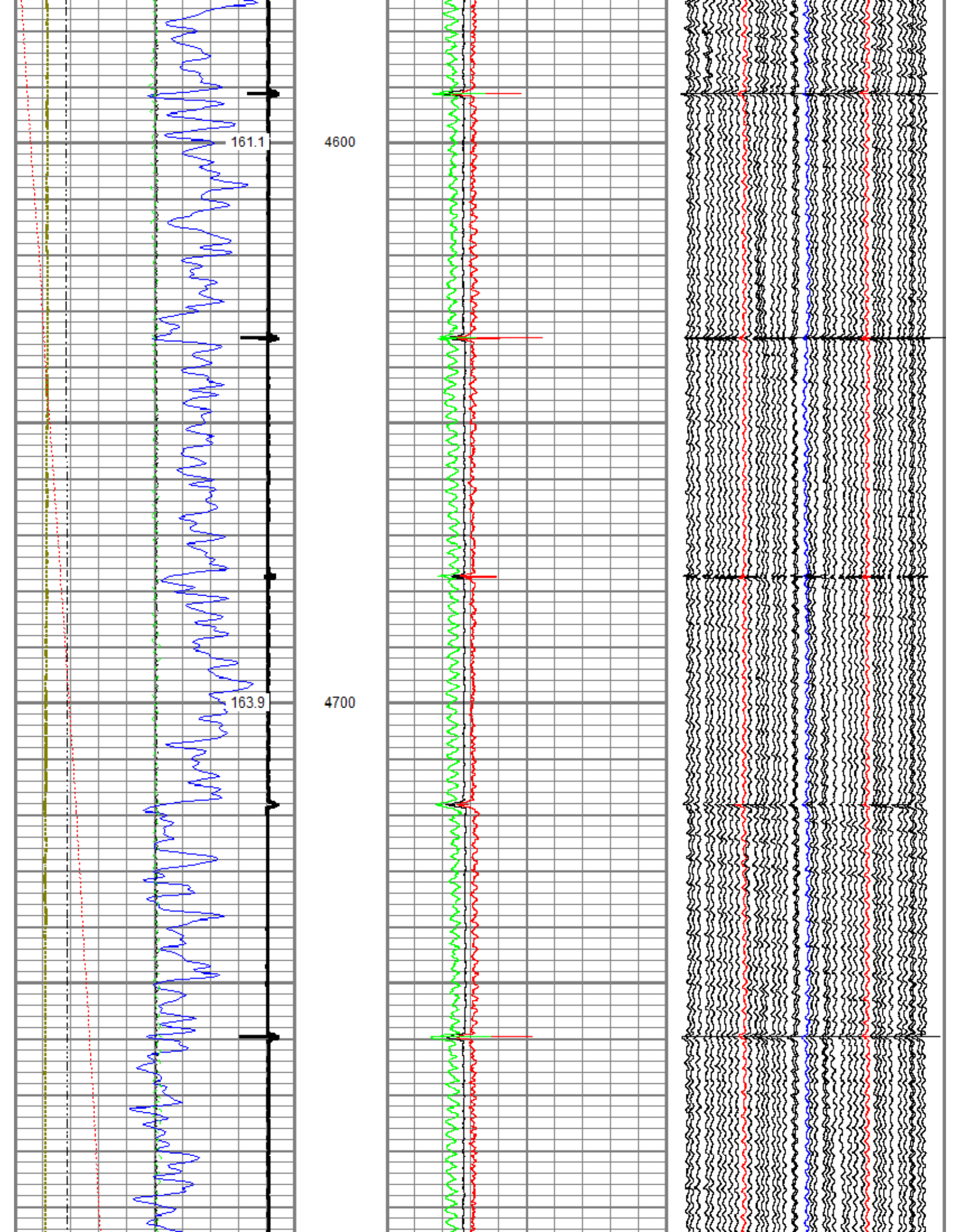
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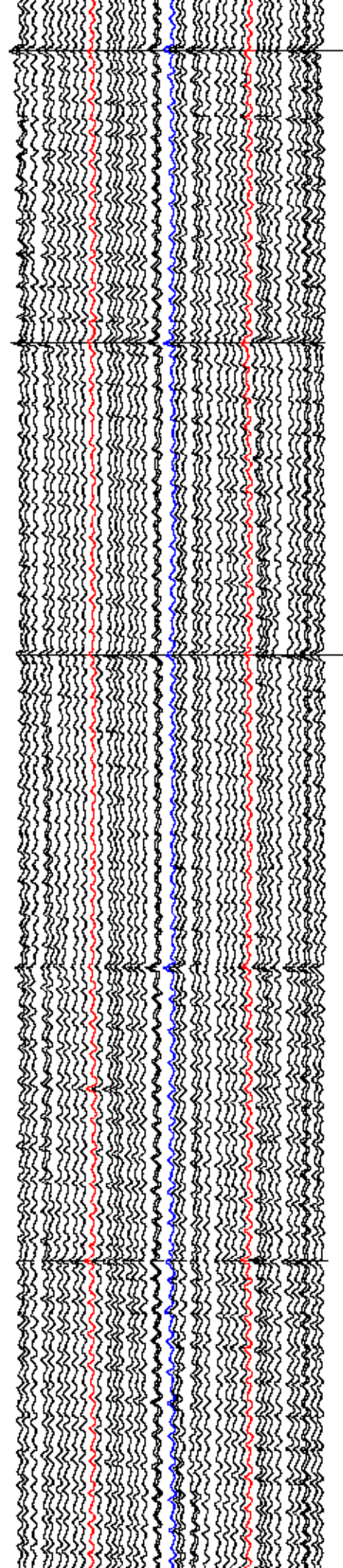
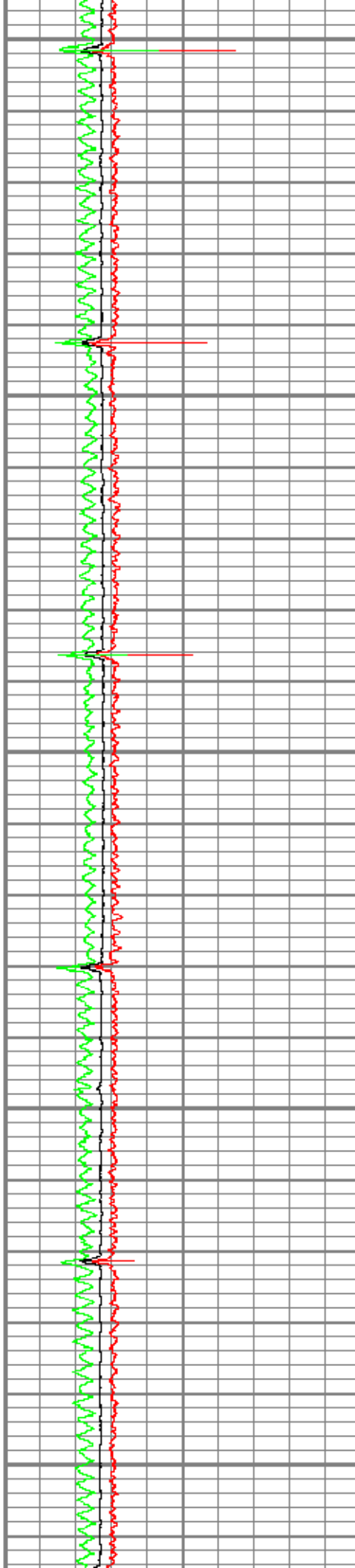
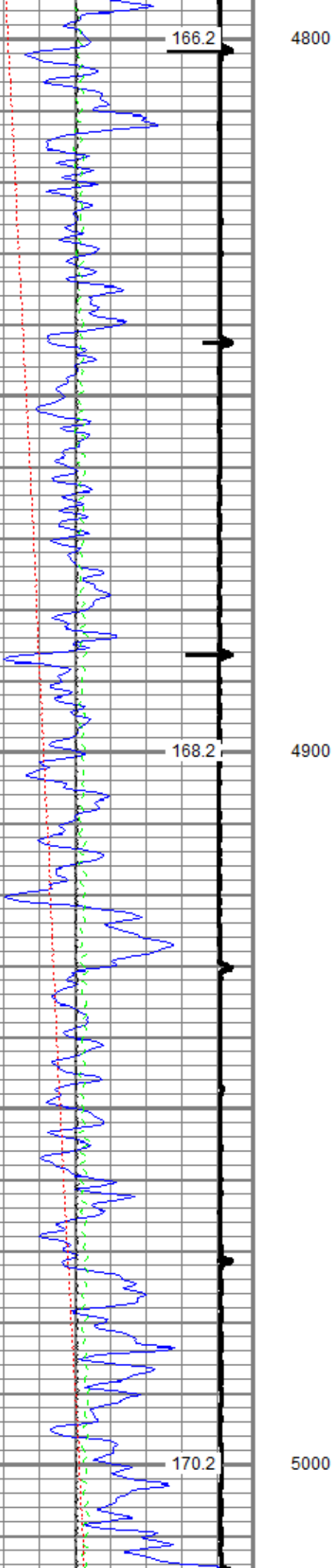
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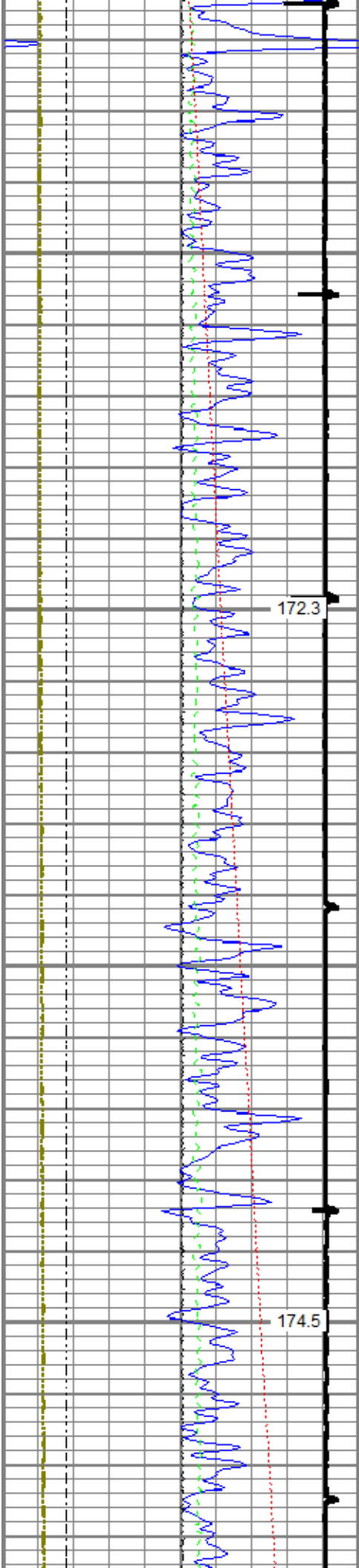
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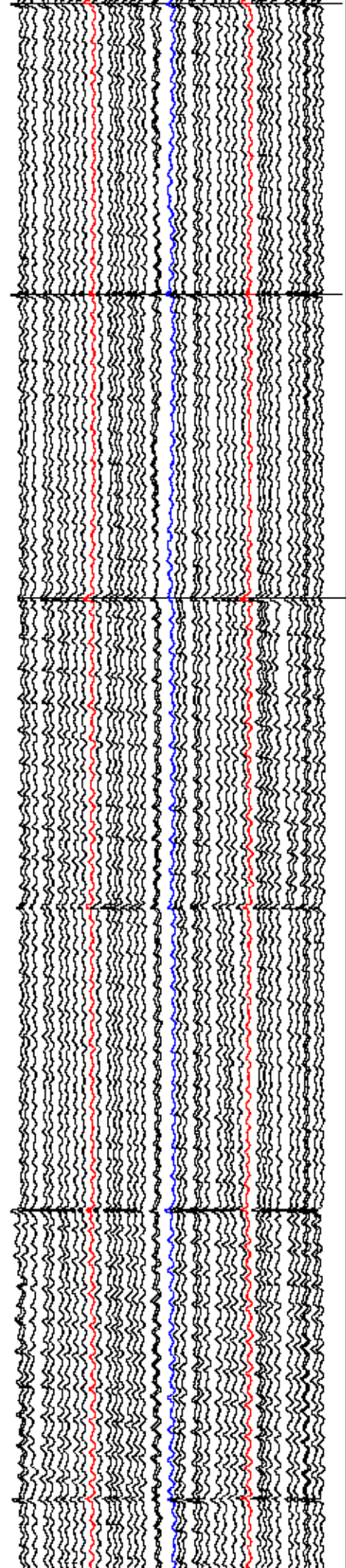
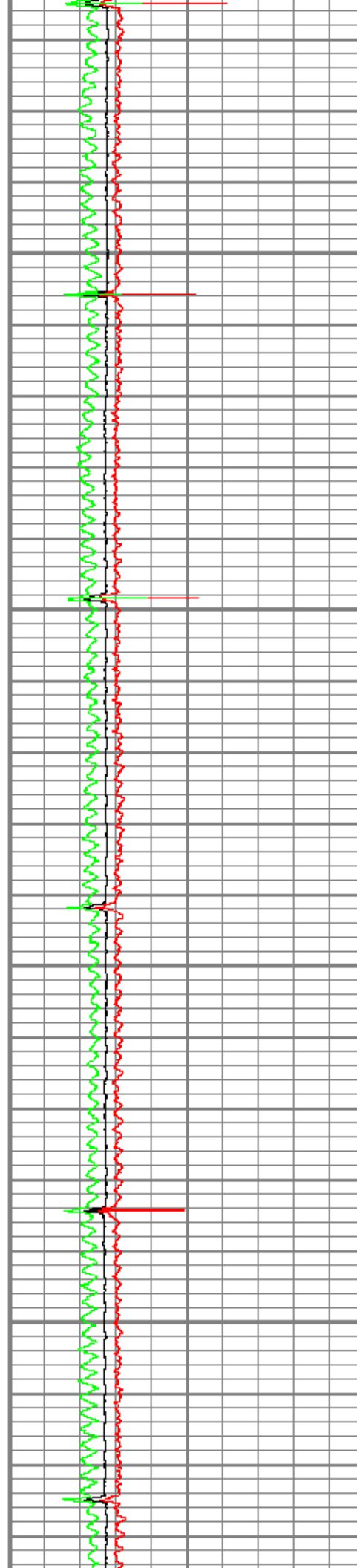


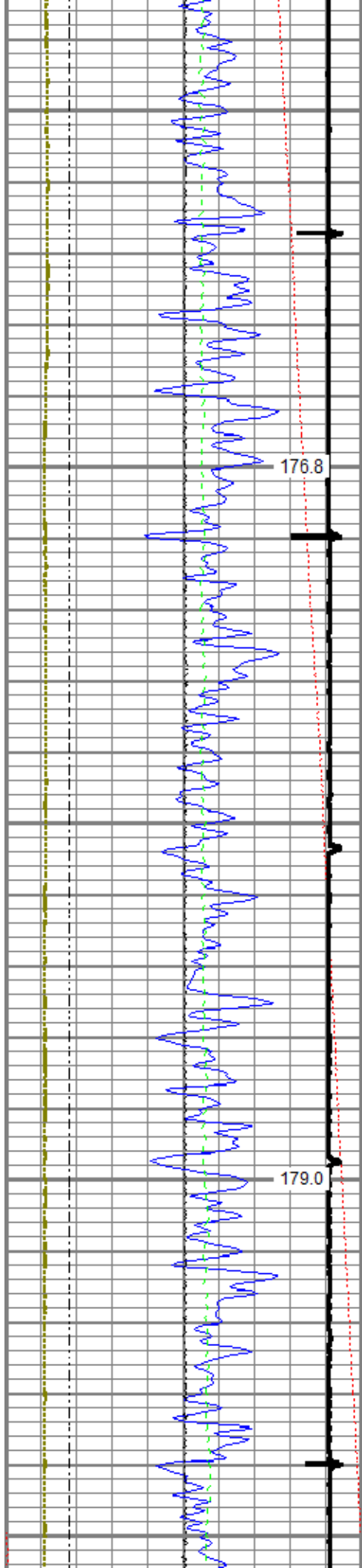




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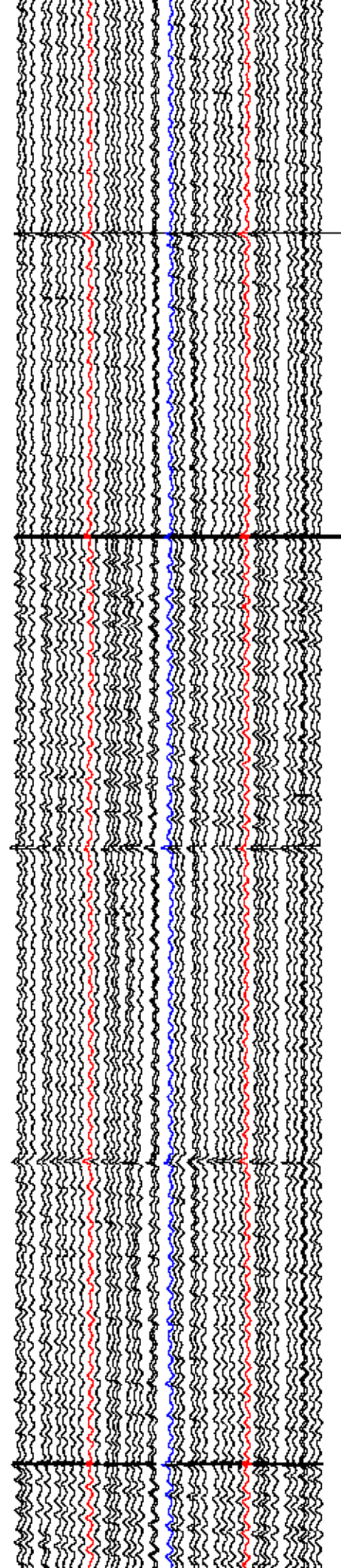
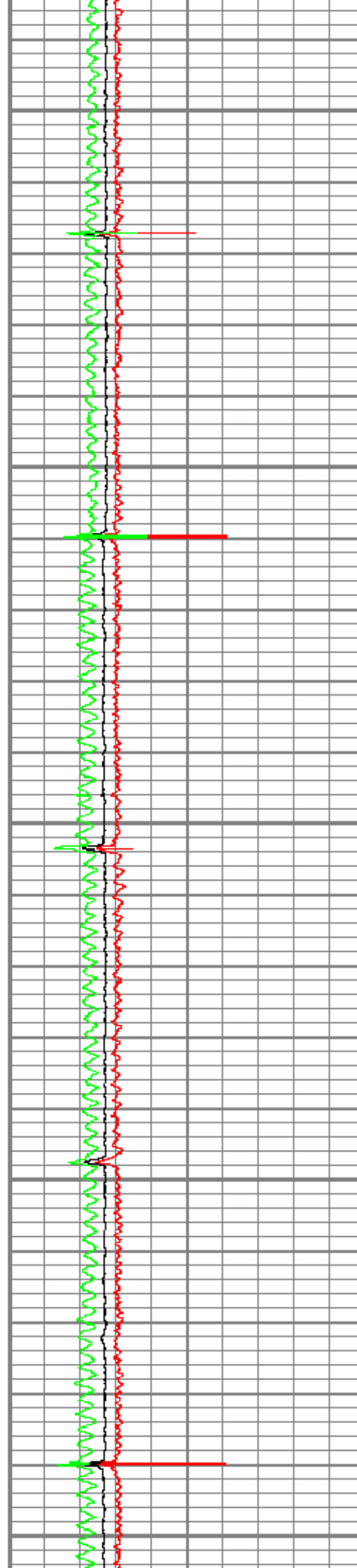
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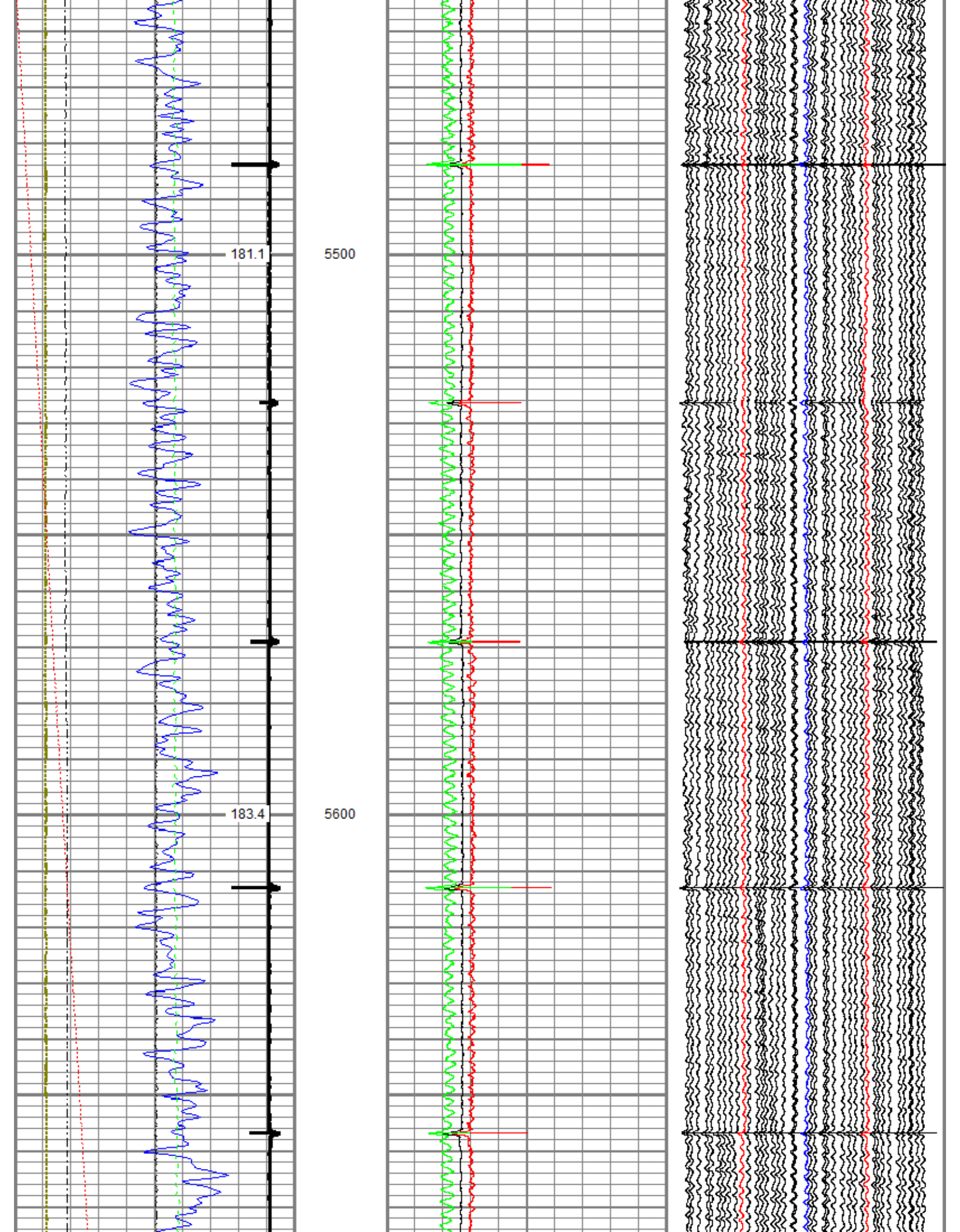


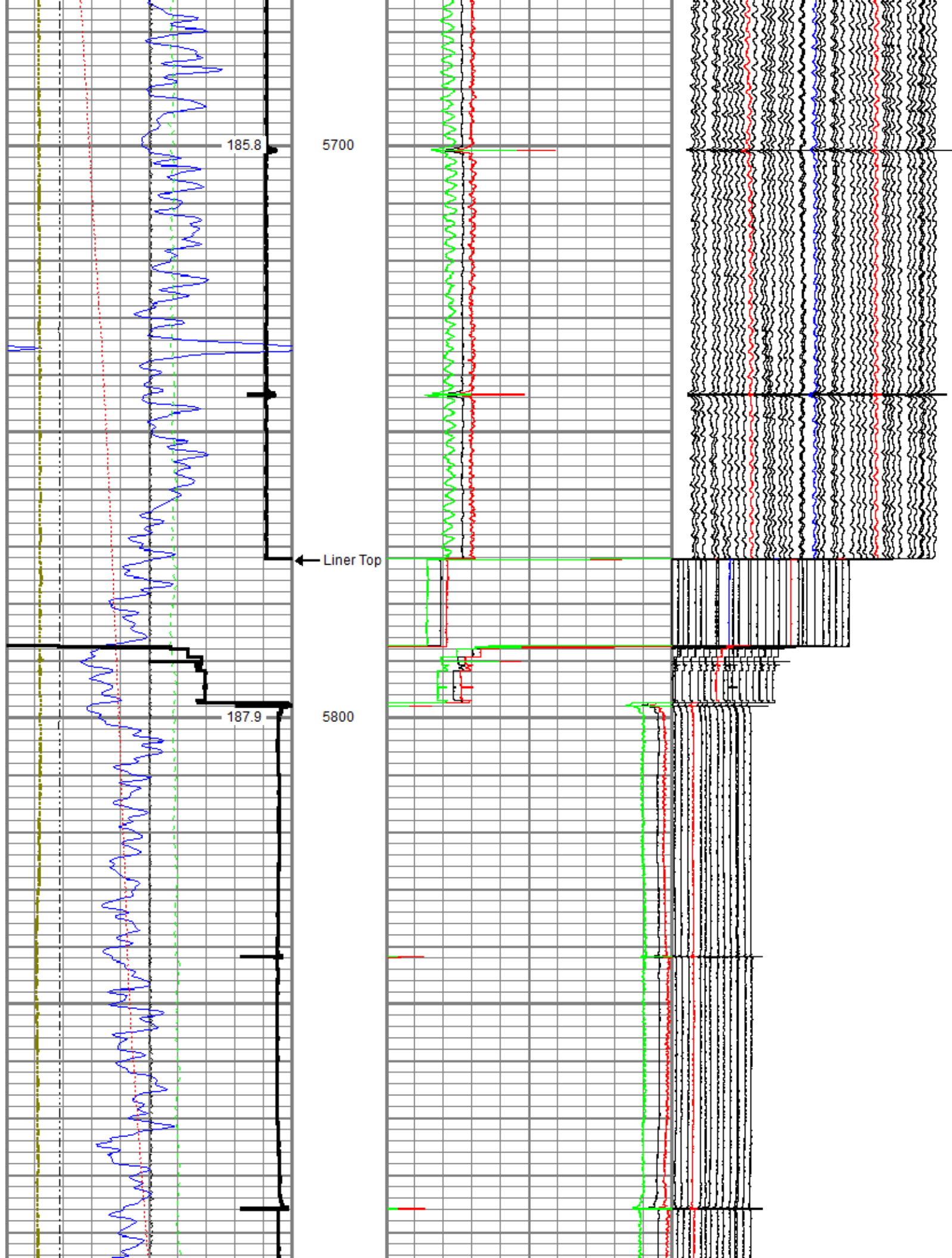


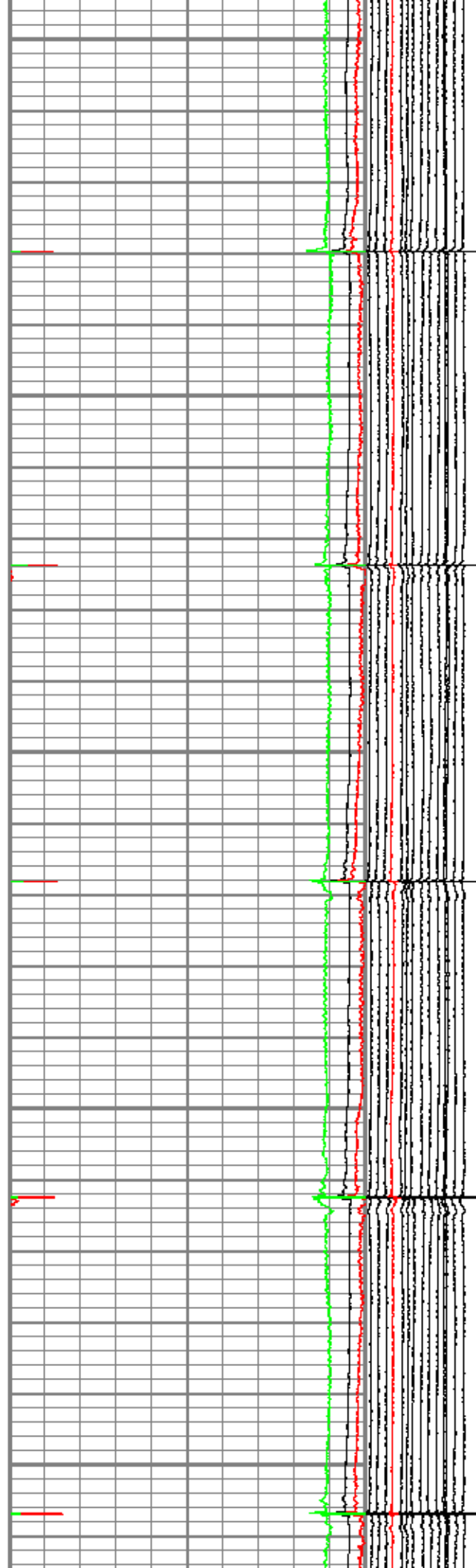
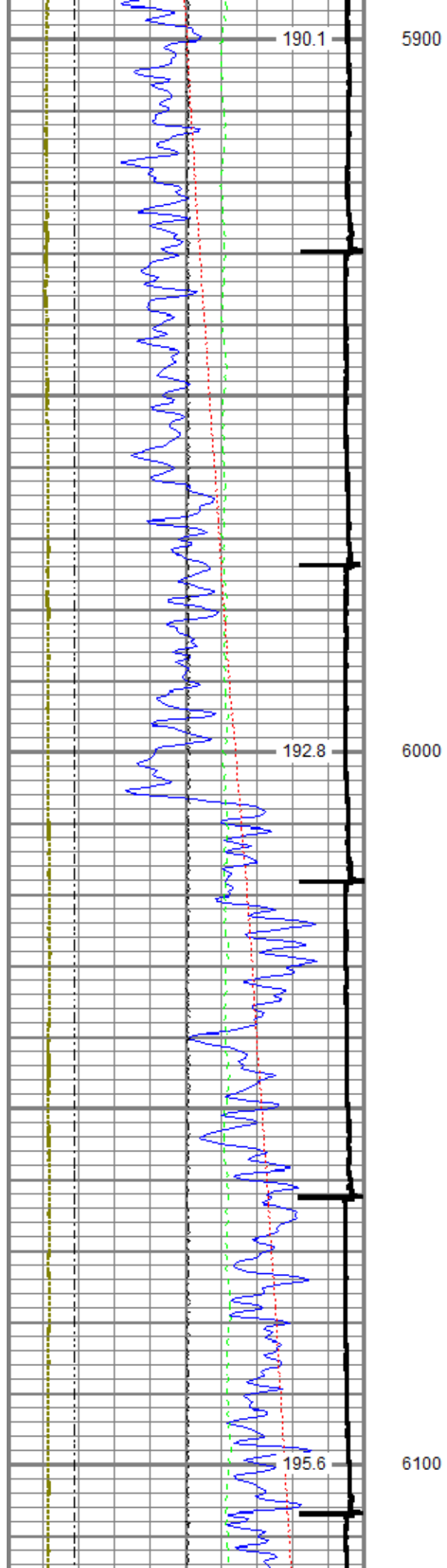
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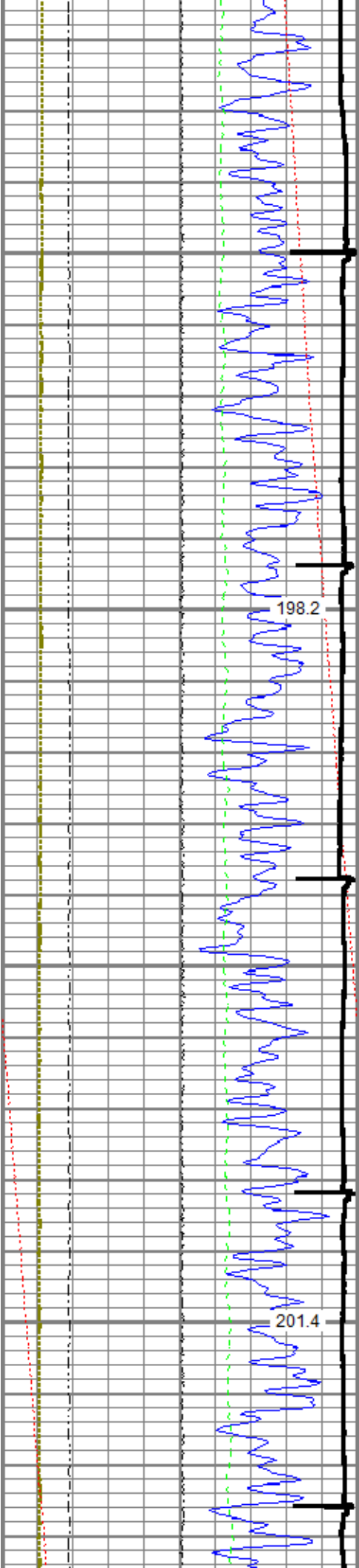
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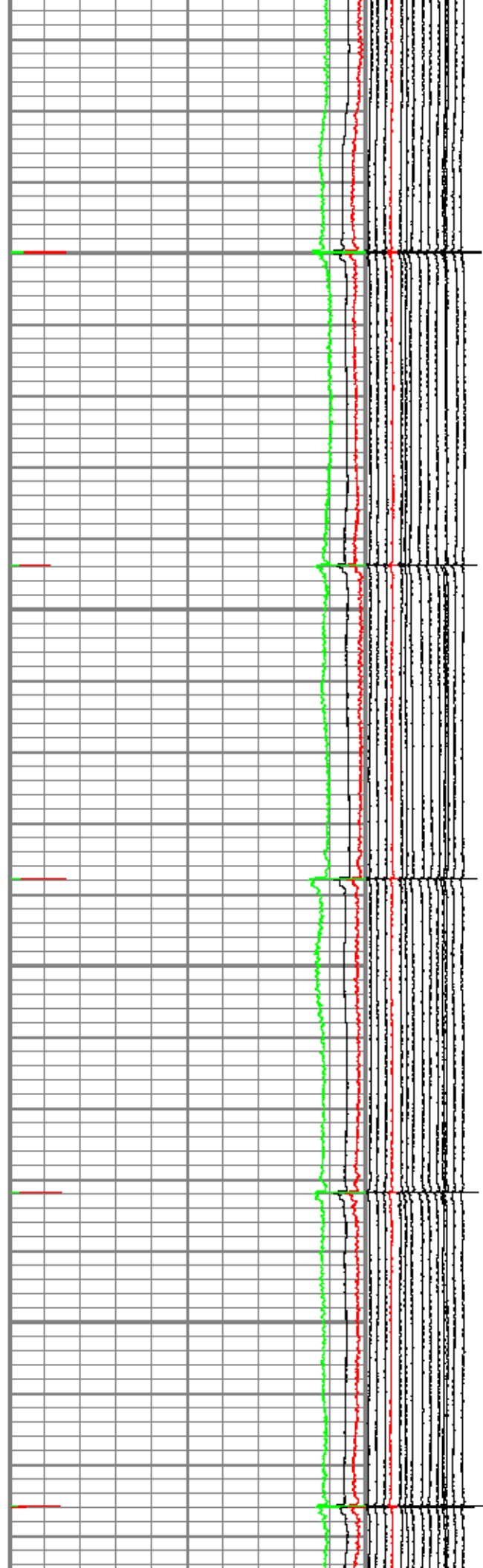


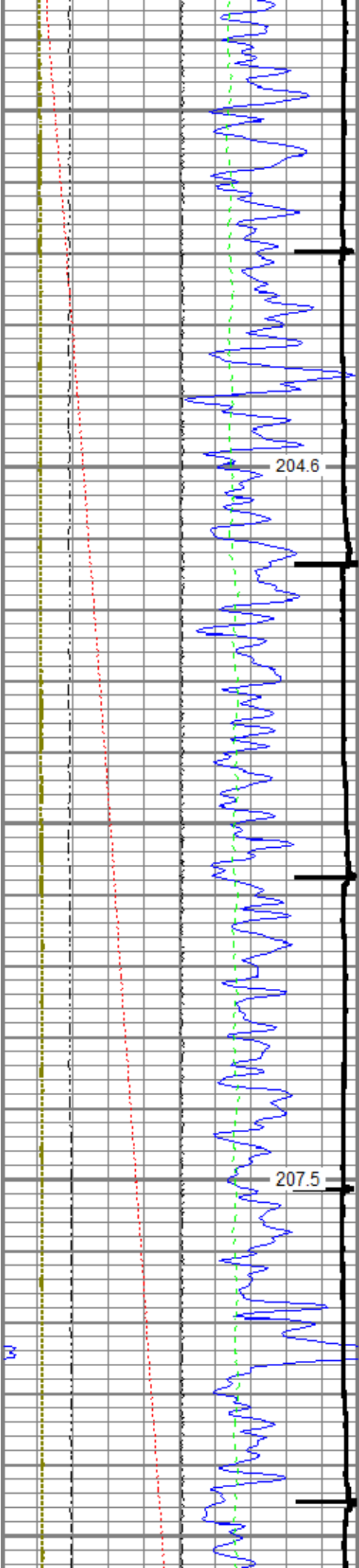
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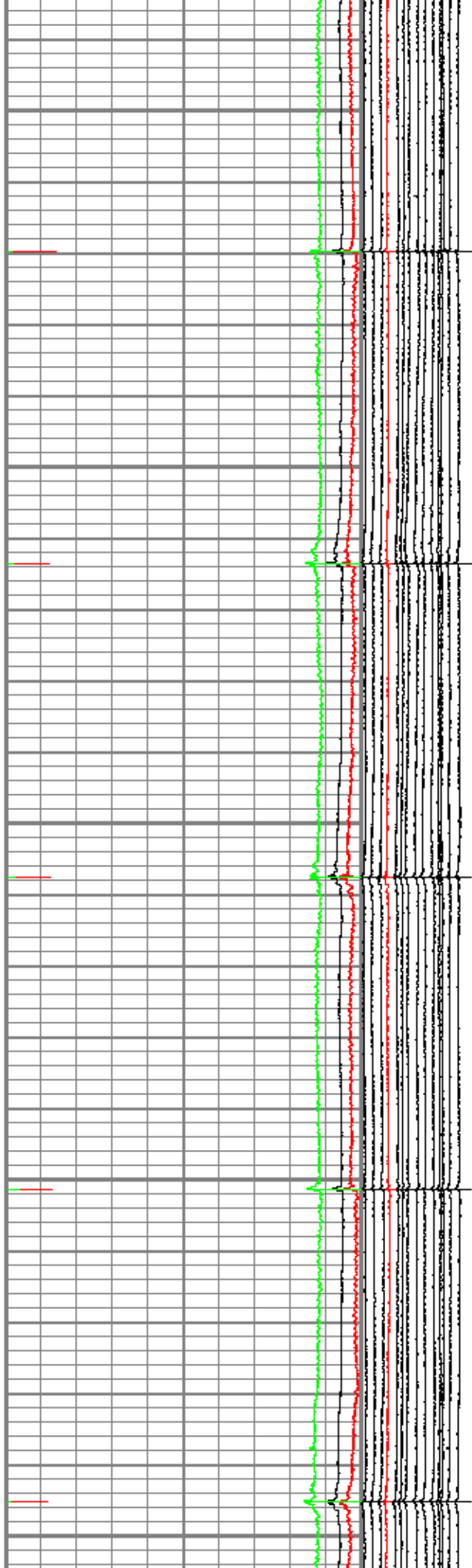


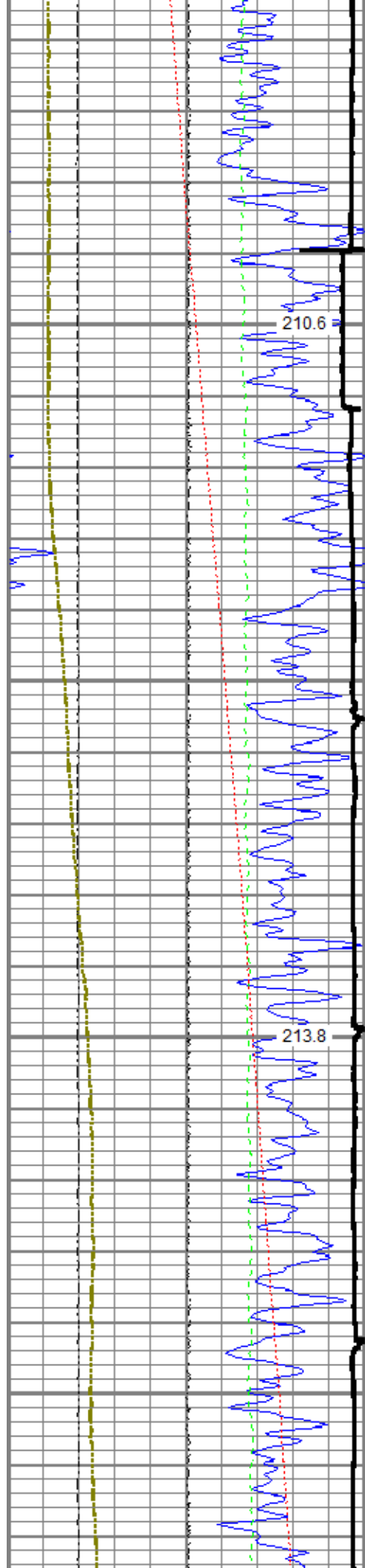
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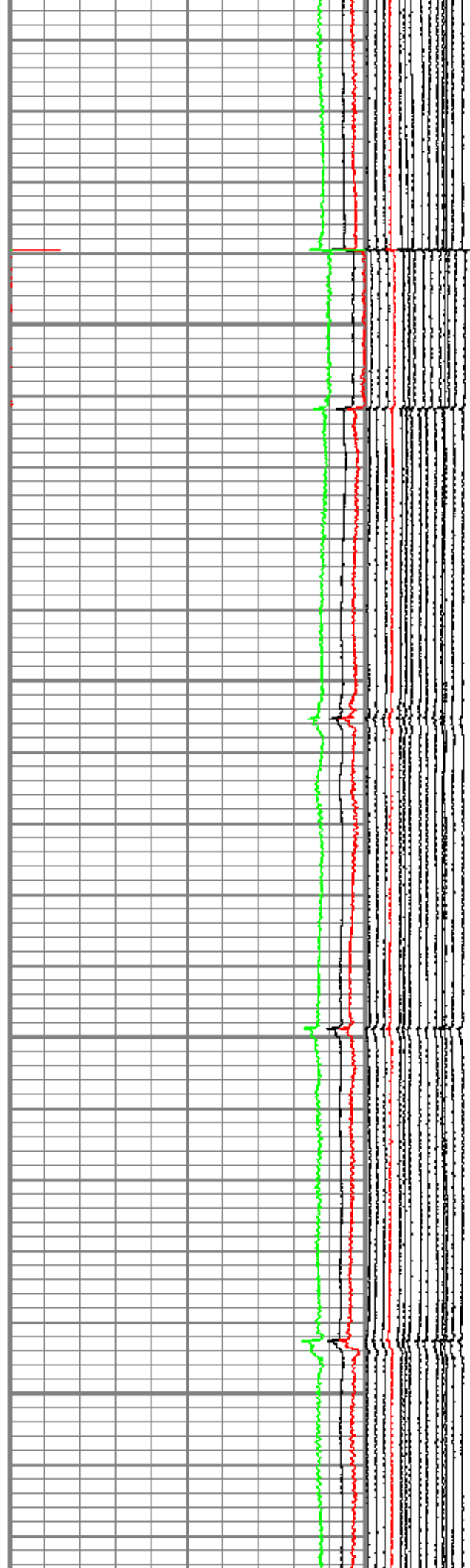
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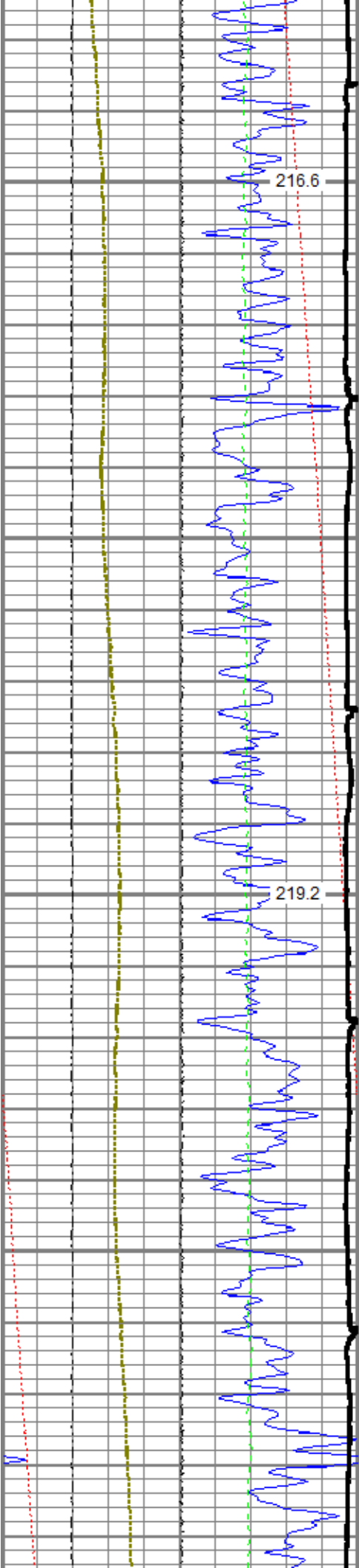




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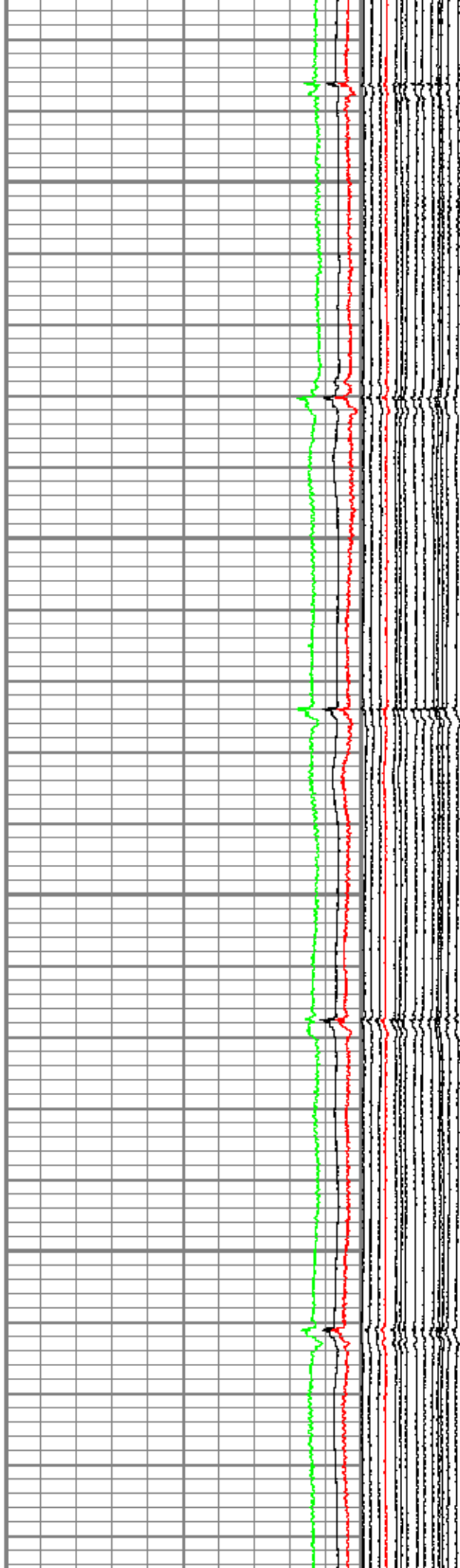
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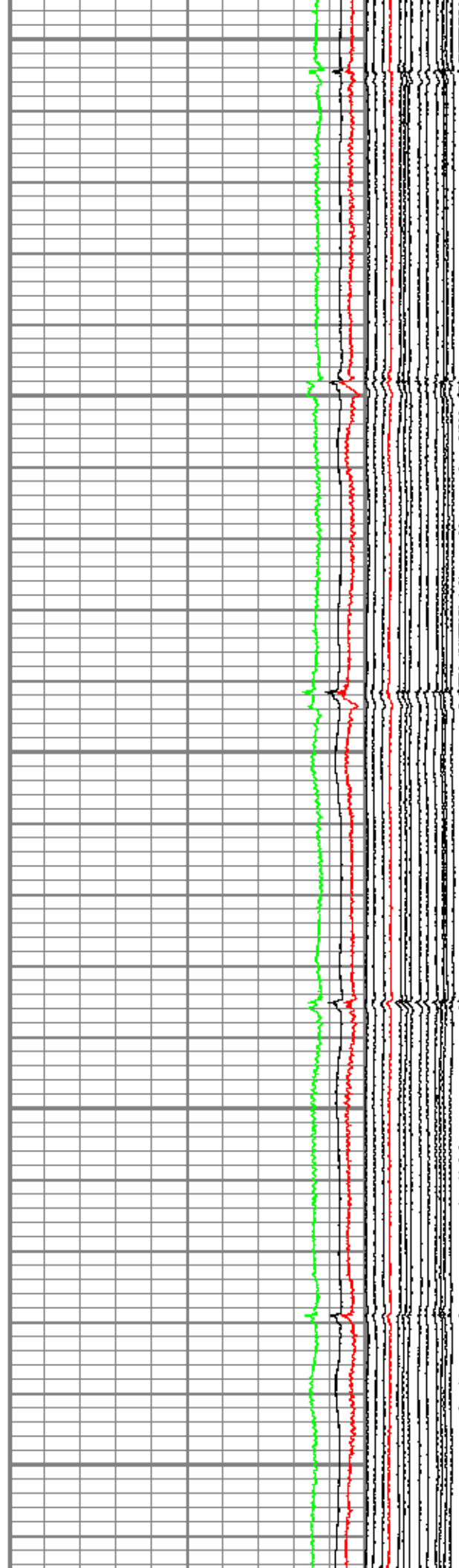
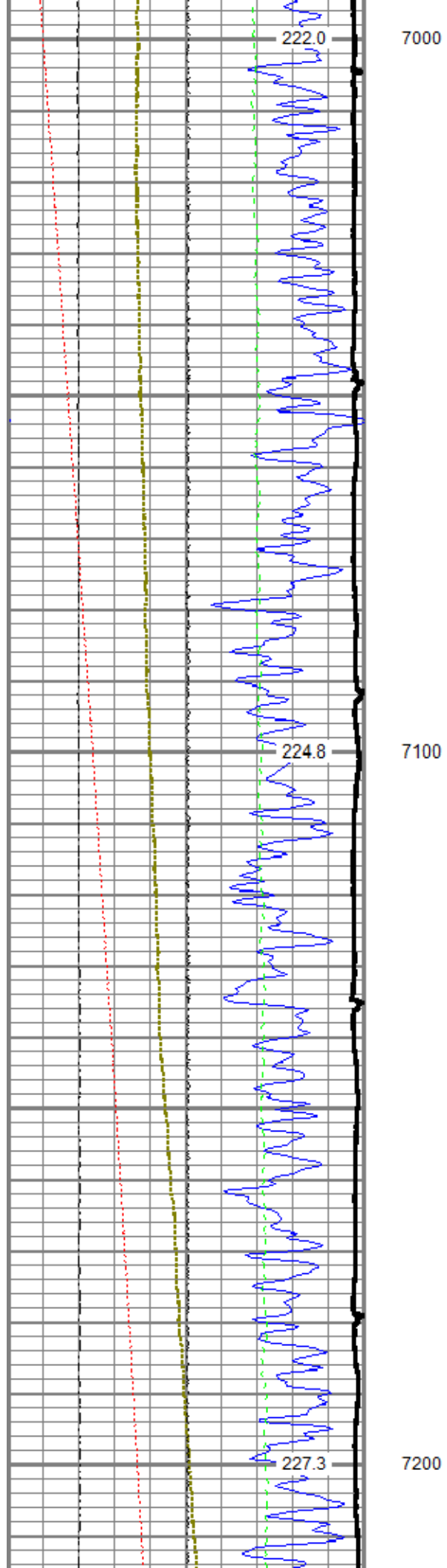


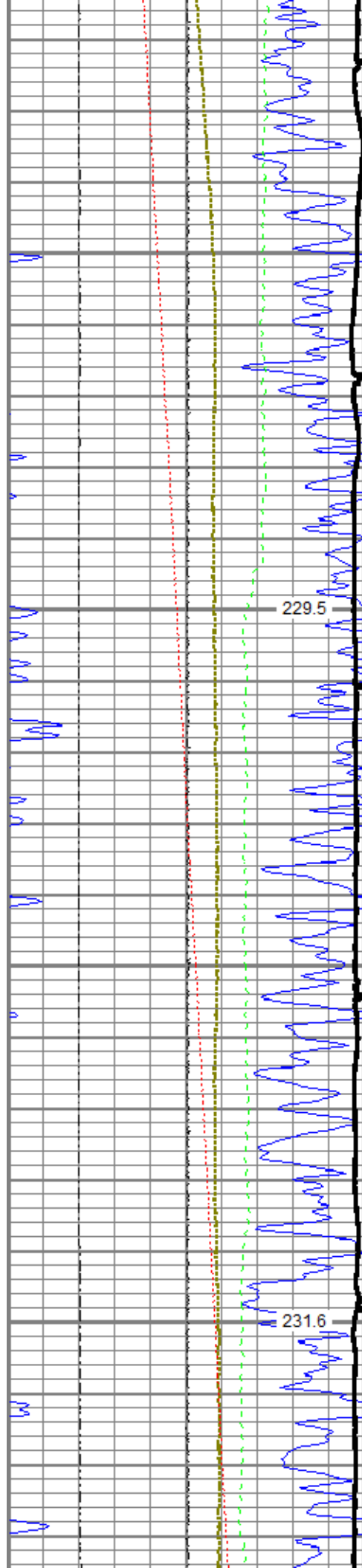


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6900

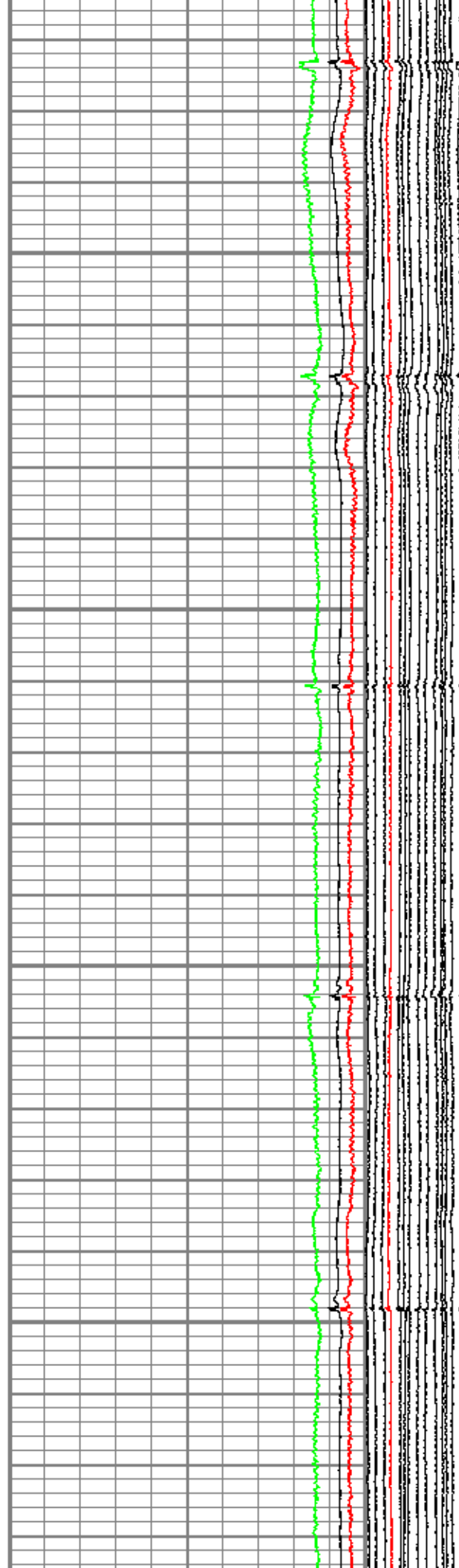


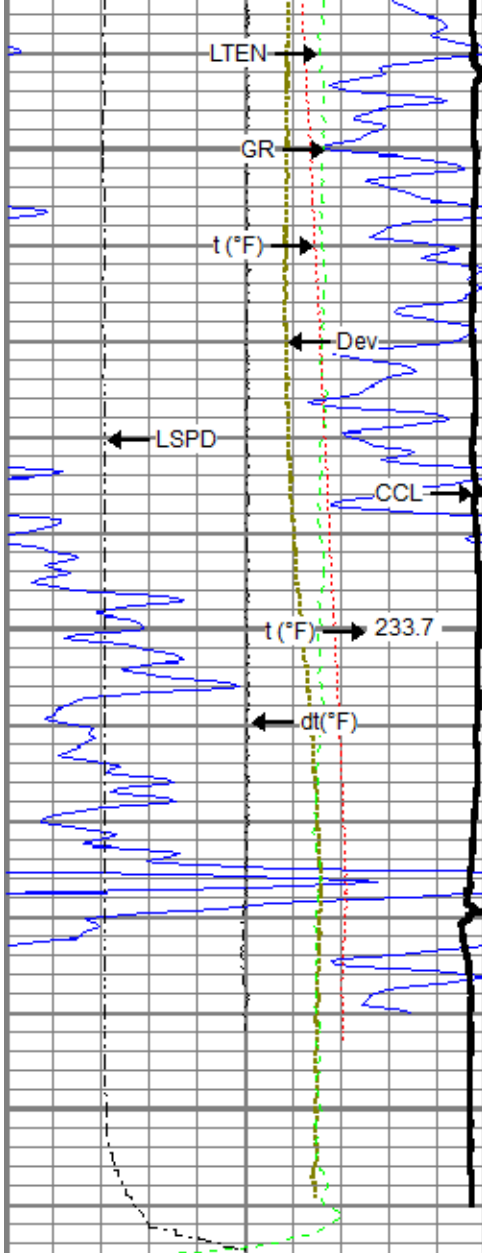




7300

7400





7500

IDMN

IDAV

IDMX

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
6	Maximum Diameter (in)	7
6	Minimum Diameter (in)	7

Caliper #10
Caliper #20
Caliper #30



Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure

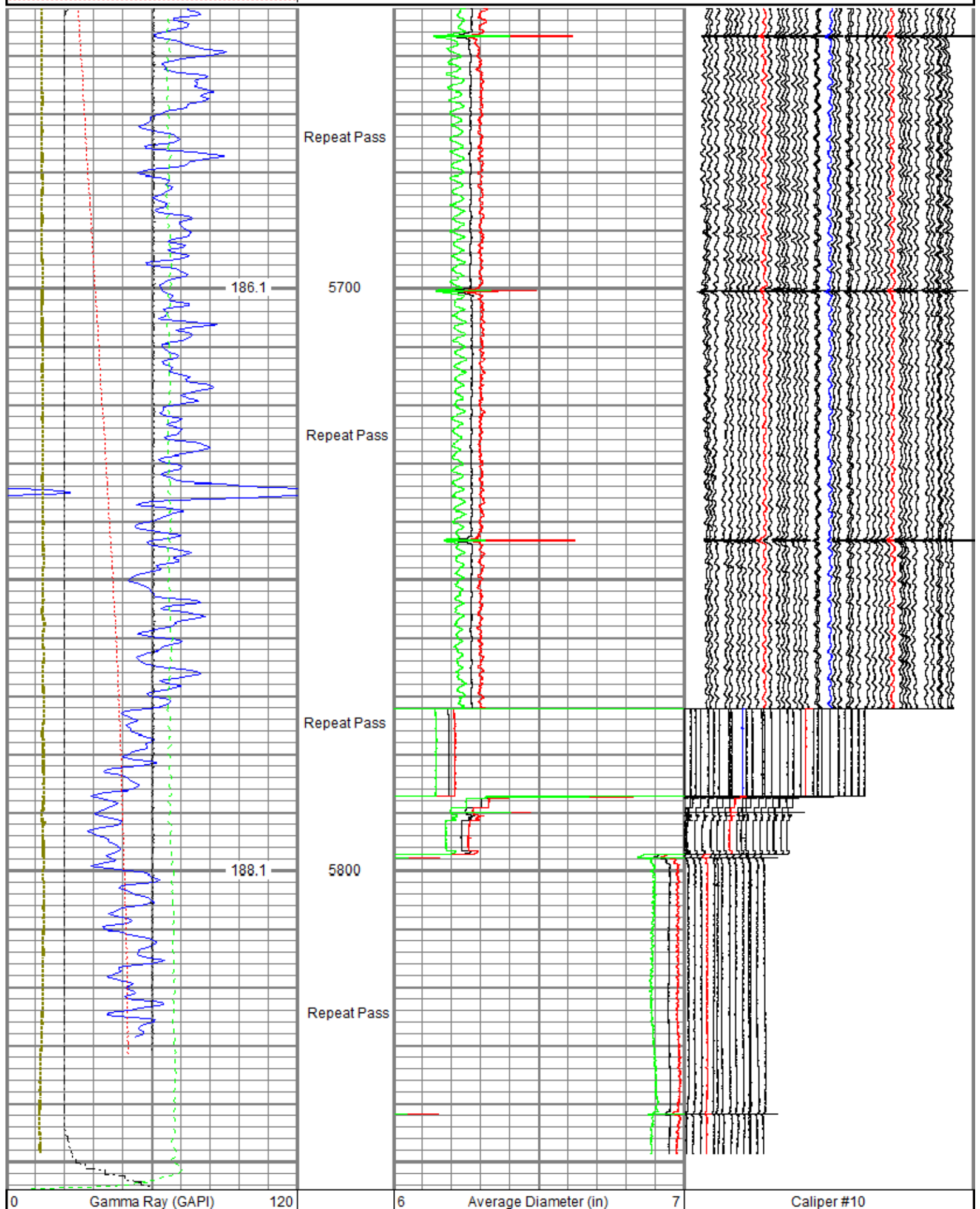
Database File	0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17\processed_0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17
Dataset Pathname	pass4
Presentation Format	ros_70mit40sx
Dataset Creation	Sat Dec 30 13:51:21 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90


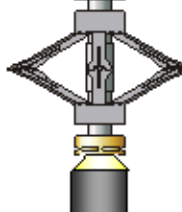
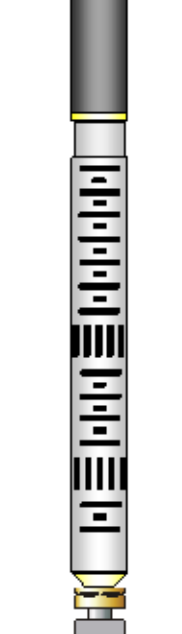
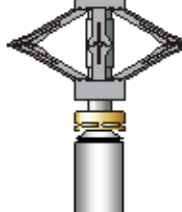
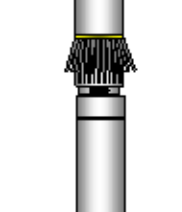
6	Average Diameter (in)	7
6	Maximum Diameter (in)	7
6	Minimum Diameter (in)	7


Caliper #10
Caliper #20
Caliper #30

0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20



-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)
GR	23.41		Titan_Electric_Cable_Heads-Titan_1-11/16" Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40
			UW_AGS-UW_AGS_001 (219135) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (051219) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray	1.92	1.69	9.50
TEMP	22.02		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	14.99		UW_RBT-UW_RBT_004 (10022773) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00
CBLTEMP	14.99					
WVFS8	14.99					
WVFS7	14.99					
WVFS6	14.99					
WVFS5	14.99					
WVFS4	14.99					
WVFS3	14.99					
WVFS2	14.99					
WVFS1	14.99					
WVF3FT	14.99					
WVF5FT	13.99					
CBLTEMP	9.85		DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
						
MIT	5.11		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

HVOLTX	0.00		5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
ITEMPX	0.00					
TSTAMP	0.00		UW_BUL-UW_BUL_006 (031422) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: processed_0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17.db: field/well/run1/pass6 Total length: 27.66 ft Total weight: 329.80 lb O.D.: 3.13 in						

Calibration Report			
Database File	c:\programdata\warrior\data\0512343471_anadarko_wagner 2n-10hz_mit_rbl_12-30-17\processed_0512343471_anadarko_wa		
Dataset Pathname	pass6		
Dataset Creation	Sat Dec 30 14:05:48 2017		
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 12:41:33 2017		
Ring size:	4	5	6	7		
(in)	Sens	Sens	Sens			
Finger 01:	1068	357.0	1425	380.0	1805	410.0
Finger 02:	1206	366.0	1572	385.0	1957	402.0
Finger 03:	1087	370.0	1457	399.0	1856	429.0
Finger 04:	1119	363.0	1482	393.0	1875	420.0
Finger 05:	1120	370.0	1490	393.0	1883	419.0
Finger 06:	1120	368.0	1488	394.0	1882	419.0
Finger 07:	1109	369.0	1478	399.0	1877	421.0
Finger 08:	1139	365.0	1504	393.0	1897	421.0
Finger 09:	1124	368.0	1492	396.0	1888	415.0
Finger 10:	1134	362.0	1496	396.0	1892	415.0
Finger 11:	1132	361.0	1493	392.0	1885	408.0
Finger 12:	1135	358.0	1493	393.0	1886	410.0
Finger 13:	1148	354.0	1502	389.0	1891	401.0
Finger 14:	1134	361.0	1495	401.0	1896	413.0
Finger 15:	1087	364.0	1451	415.0	1866	425.0
Finger 16:	1093	366.0	1459	411.0	1870	425.0
Finger 17:	1006	339.0	1345	397.0	1742	426.0
Finger 18:	1138	355.0	1493	393.0	1886	409.0
Finger 19:	1114	347.0	1461	401.0	1862	412.0
Finger 20:	1094	355.0	1449	407.0	1856	421.0
Finger 21:	1097	358.0	1455	404.0	1859	404.0
Finger 22:	1071	360.0	1431	408.0	1839	423.0
Finger 23:	1018	356.0	1374	419.0	1793	439.0
Finger 24:	1105	352.0	1457	394.0	1851	394.0
Finger 25:	1038	360.0	1398	409.0	1807	432.0
Finger 26:	1162	344.0	1506	379.0	1885	393.0
Finger 27:	1094	354.0	1448	400.0	1848	414.0
Finger 28:	1126	351.0	1477	384.0	1861	401.0
Finger 29:	1056	358.0	1414	403.0	1817	421.0
Finger 30:	1085	358.0	1443	392.0	1835	417.0
Finger 31:	1119	358.0	1477	384.0	1861	410.0
Finger 32:	1177	357.0	1561	416.0	1989	421.0

Finger 32:	1177	387.0	1564	416.0	1980	434.0	2414
Finger 33:	1174	364.0	1538	370.0	1908	385.0	2293
Finger 34:	1112	364.0	1476	395.0	1871	421.0	2292
Finger 35:	987	336.0	1323	372.0	1695	410.0	2105
Finger 36:	1085	361.0	1446	394.0	1840	424.0	2264
Finger 37:	1128	364.0	1492	384.0	1876	415.0	2291
Finger 38:	1153	359.0	1512	376.0	1888	400.0	2288
Finger 39:	1166	357.0	1523	375.0	1898	402.0	2300
Finger 40:	1114	368.0	1482	390.0	1872	422.0	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
Well

Kerr-McGee Oil & Gas Onshore, L.P.
Wagner 2N-10HZ



Field
County
State

Wattenberg
Weld
Colorado