



Multifinger Imaging Tool
Gamma Ray
Casing Collar Log

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

Well Newby 2N-33HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-44568

SEC 33 TWP 3N RGE 68W

Permanent Datum Ground Level Elevation 4895'

Log Measured From Kelly Bushing 32 FT

Drilling Measured From Kelly Bushing

Other Services
RBL
JBGR

Elevation

K.B. 4927'
D.F. ---
G.L. 4895'

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Newby 2N-33HZ
Field Wattenberg
County Weld
State Colorado

Date	20-MAR-2018			
Run Number	Two			
Depth Driller	12713 FT			
Depth Logger	7367 FT			
Bottom Logged Interval	7362 FT			
Top Log Interval	Surface			
Open Hole Size	---			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	224°F			
Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	08:50			
Equipment Number	HD-363			
Location	Fort Lupton, CO			
Recorded By	Greg Lueck			
Witnessed By	Kyle Carver			
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	4 1/2	11.6	HCP-110	5887 FT
				12707 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 5887 FT
Adjusted +27 FT to correlate with Liner Top
Gauge Ring/Junk Basket ran to 7409 FT with no debris
Log ran from 50 FT above JBGR to Surface
Recorded with 2800 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass (7 inch Casing)

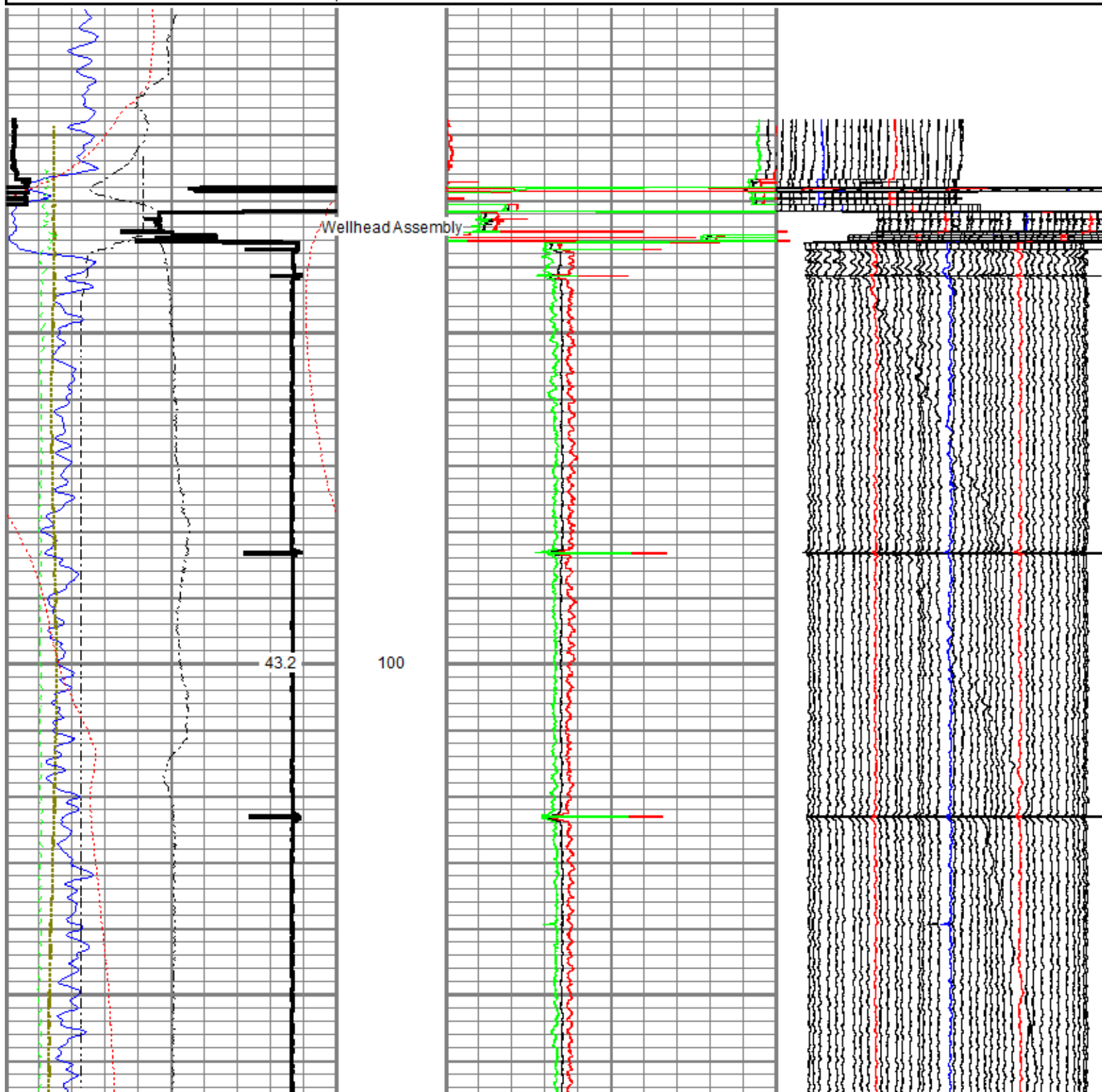


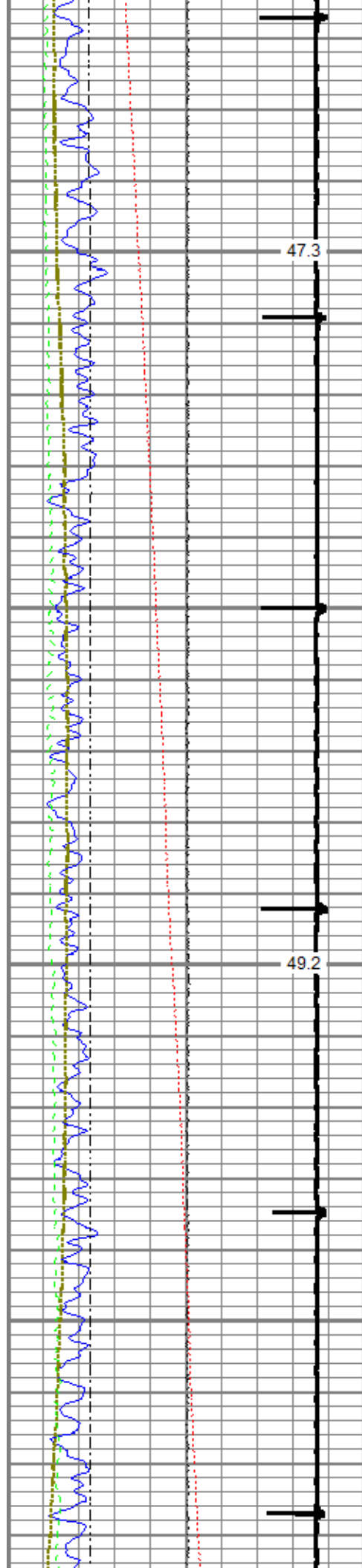
Recorded With 2800 PSI Surface Induced Pressure

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Dataset Pathname	merge1
Presentation Format	ros_70mit40sx
Dataset Creation	Tue Mar 20 12:13:36 2018
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		

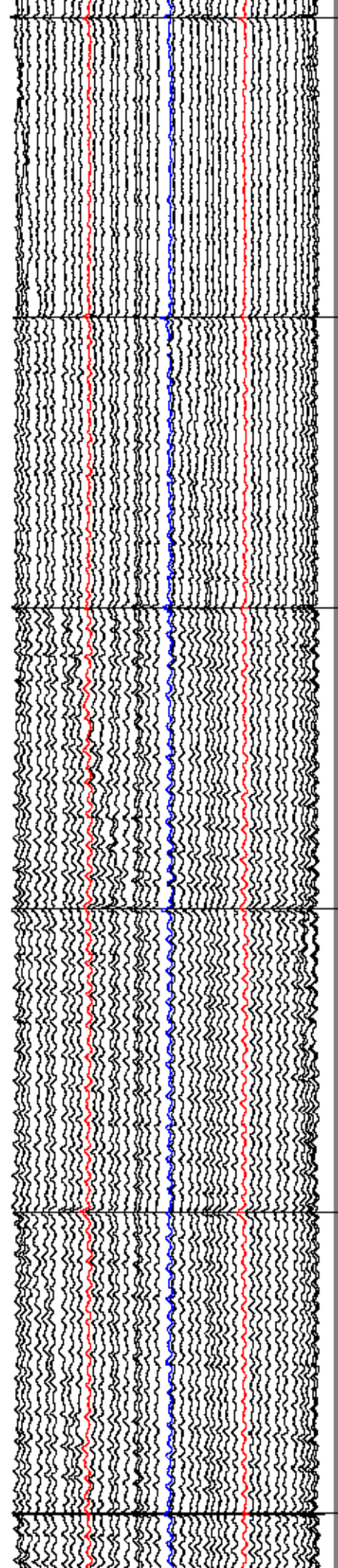
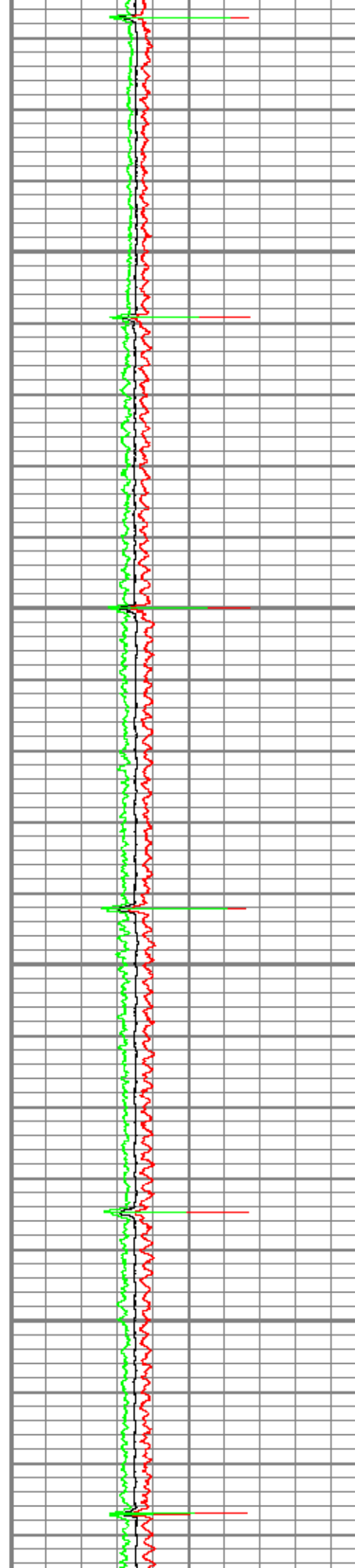
6	Average Diameter (in)	7	Caliper #10
6	Maximum Diameter (in)	7	Caliper #20
6	Minimum Diameter (in)	7	Caliper #30

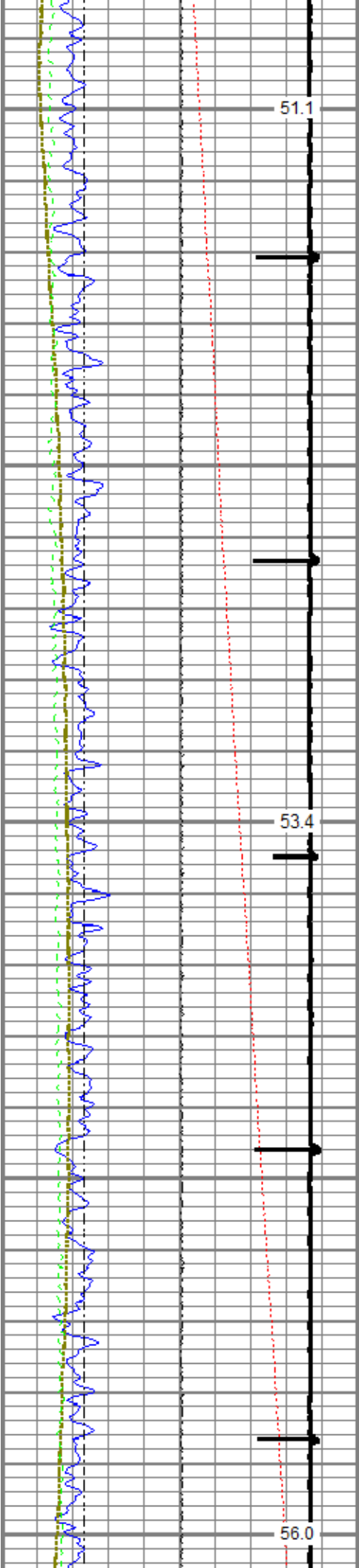




200

300

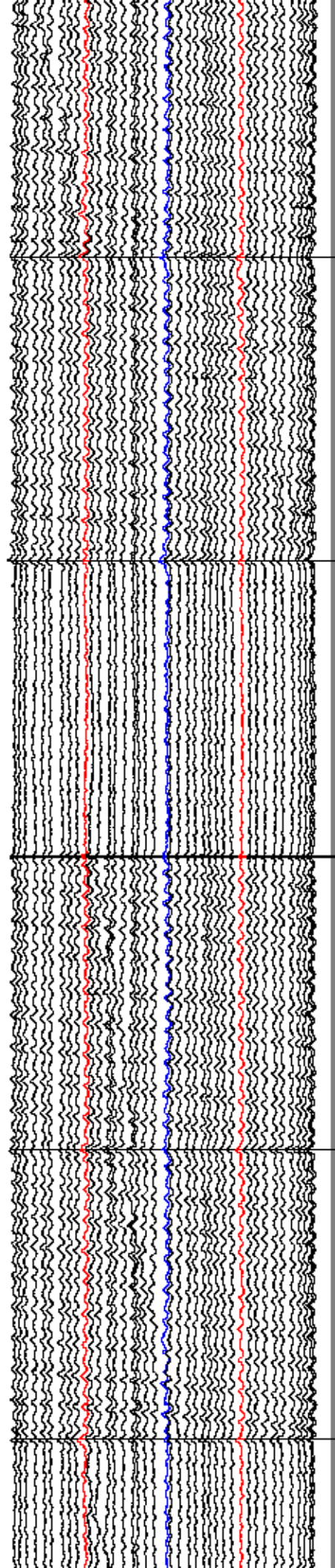
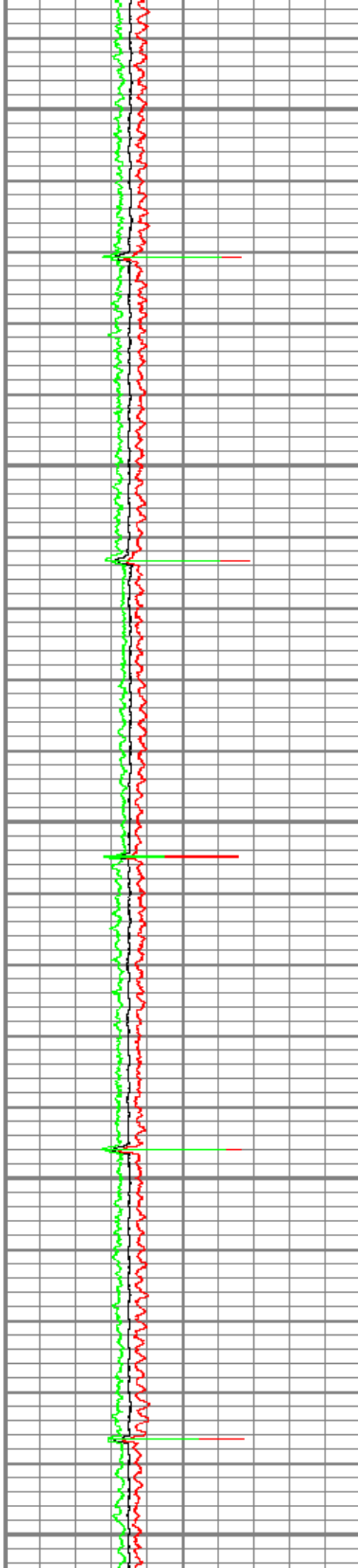


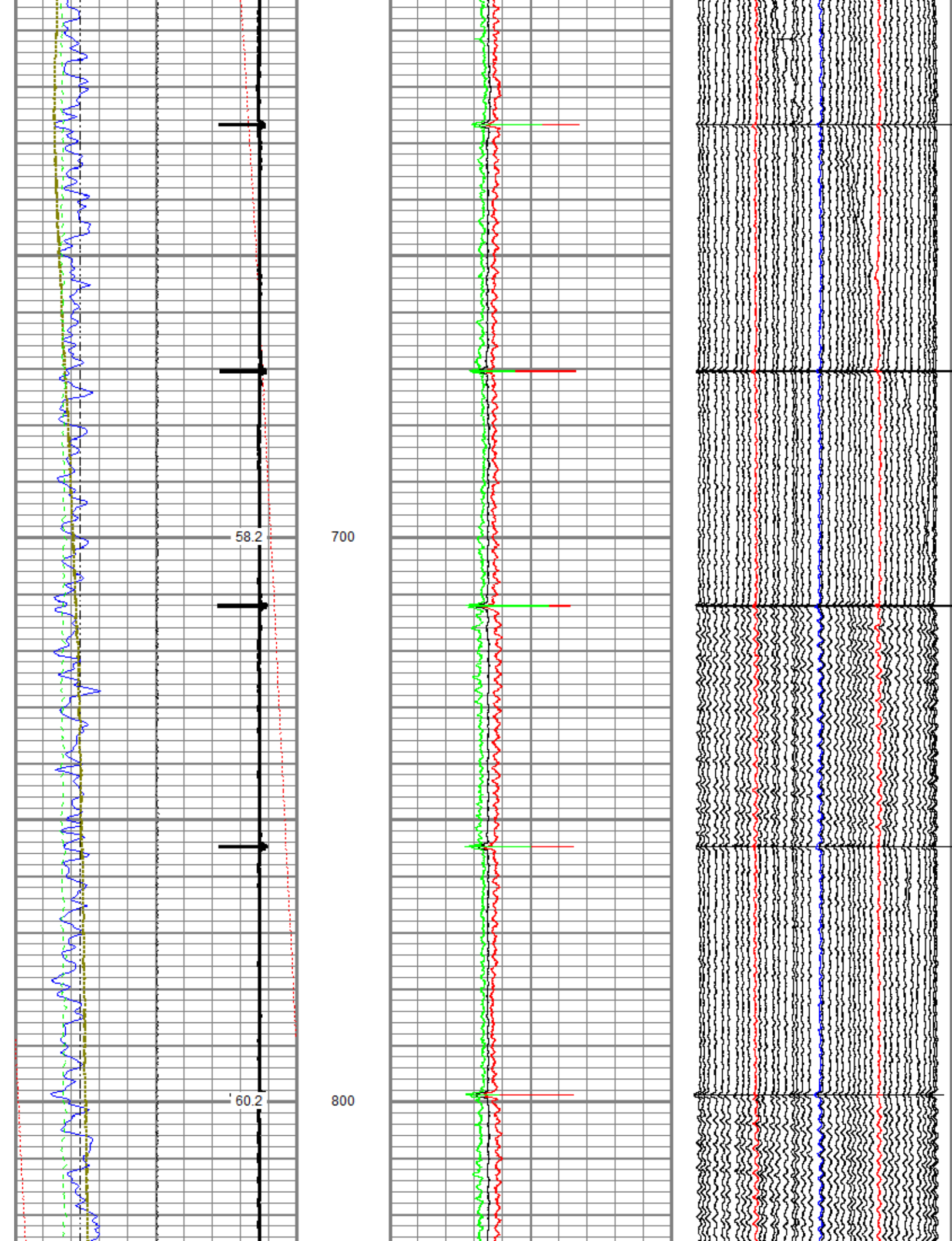


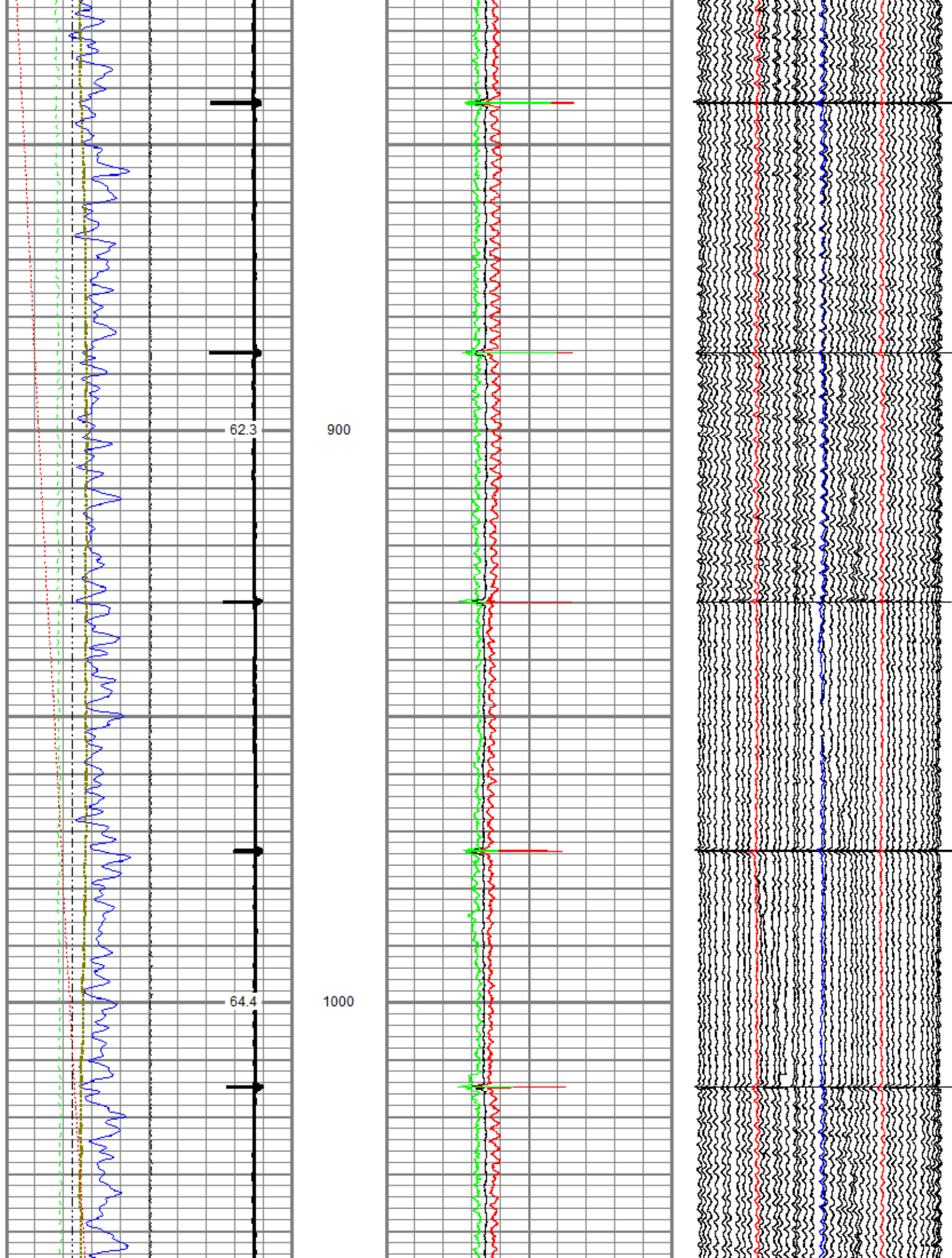
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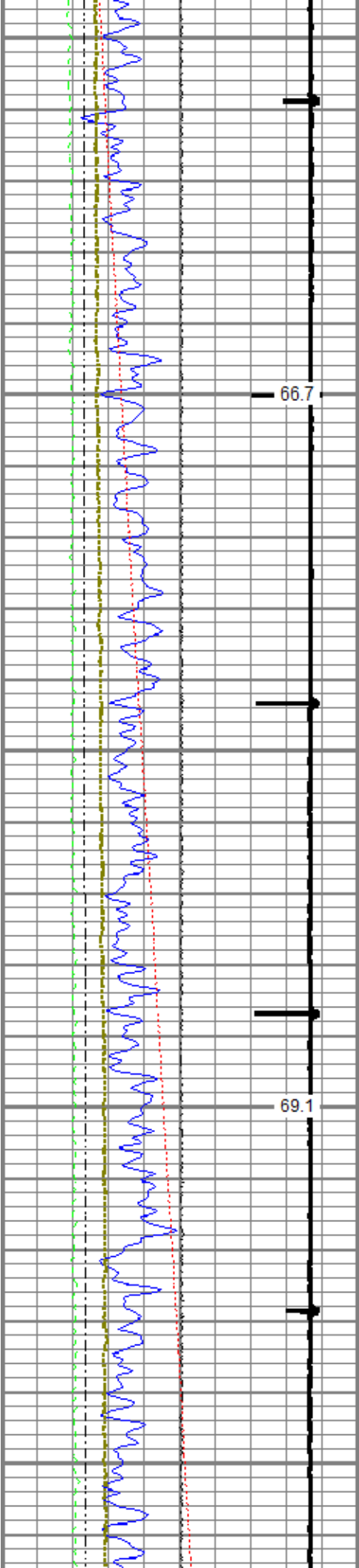
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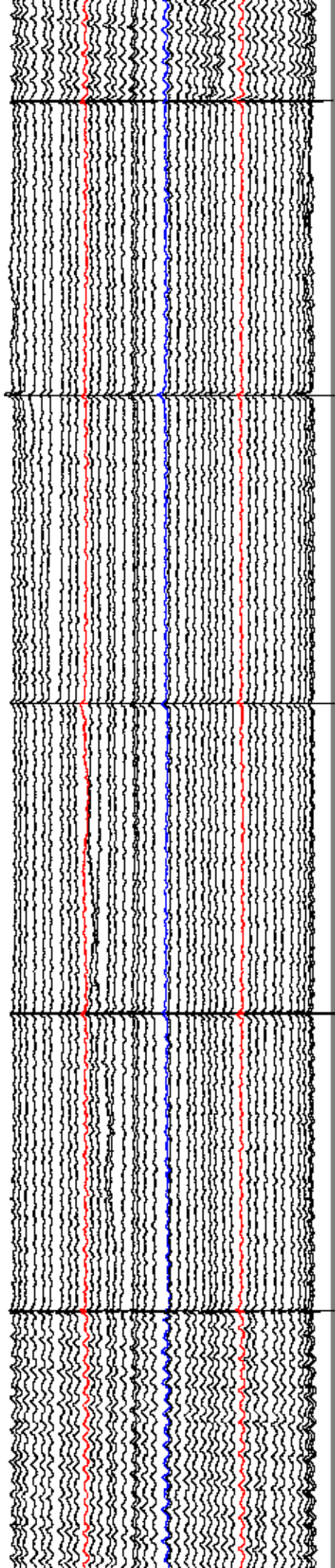
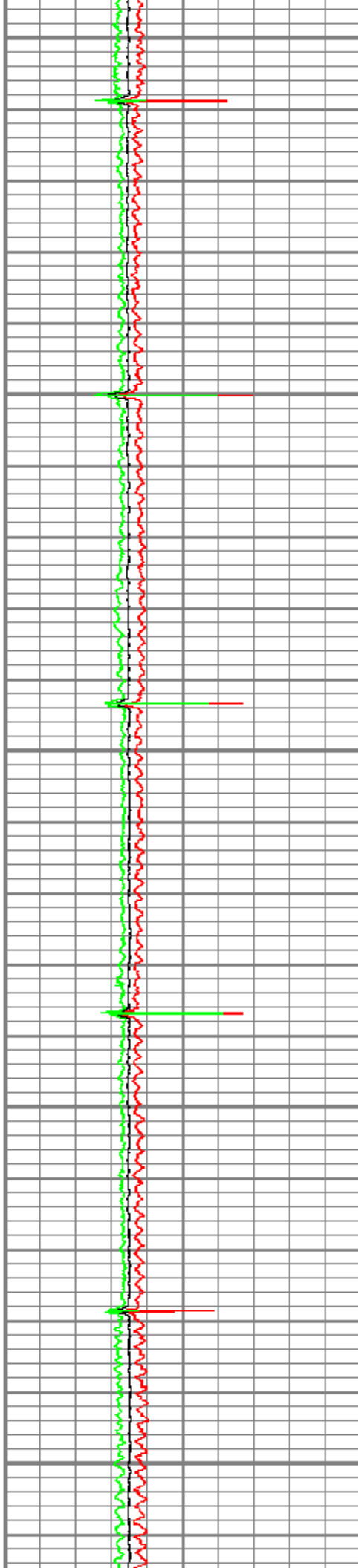


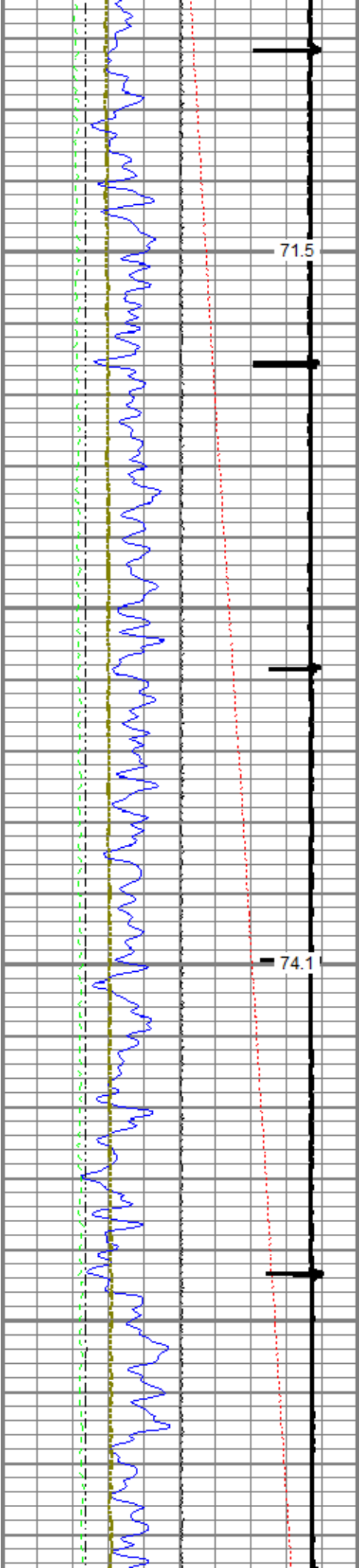




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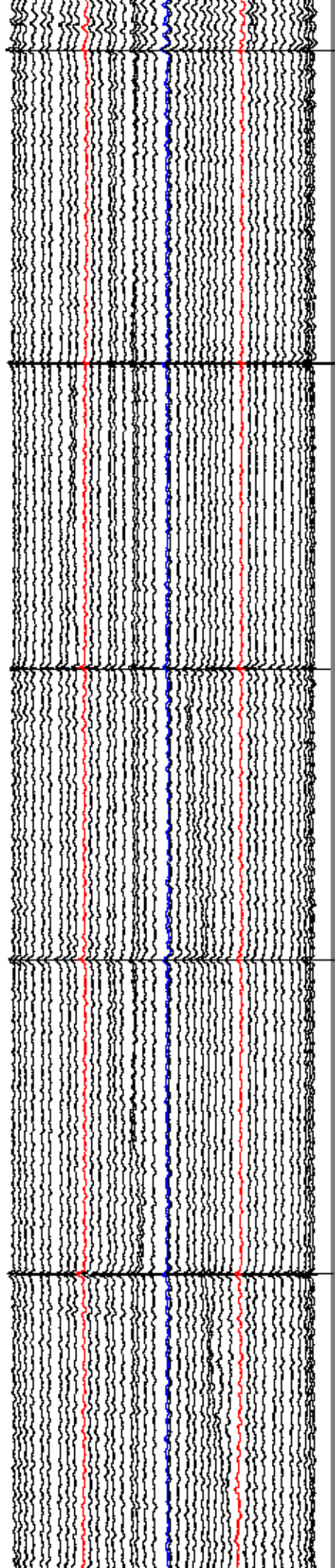
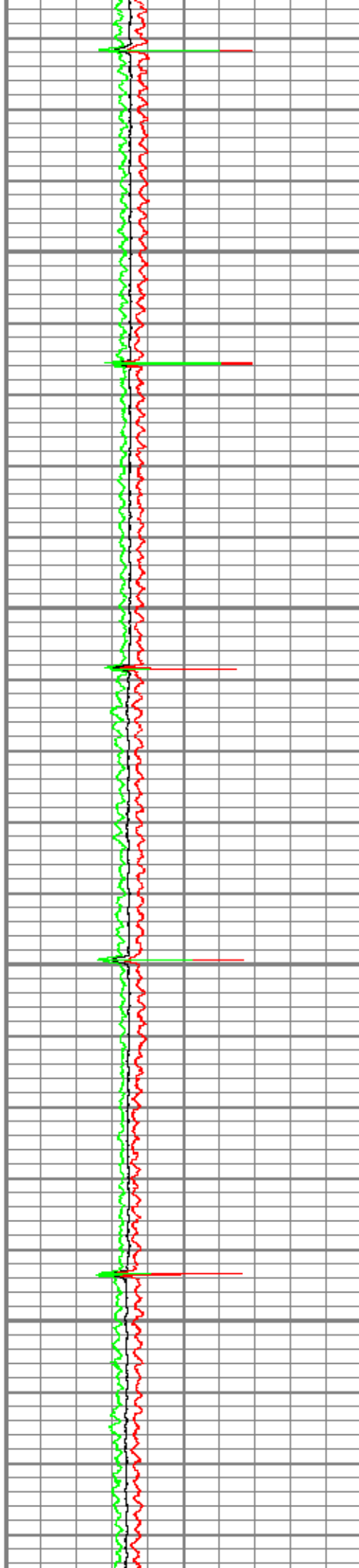
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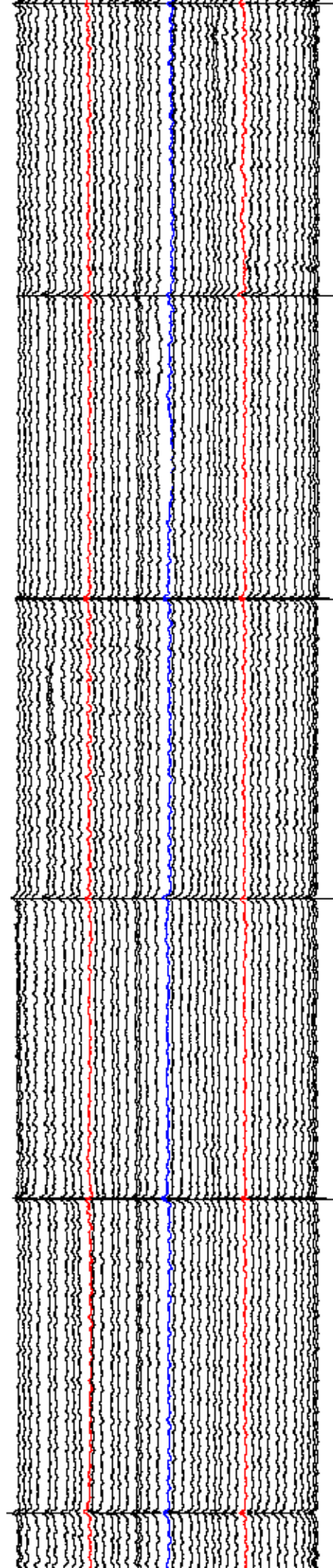
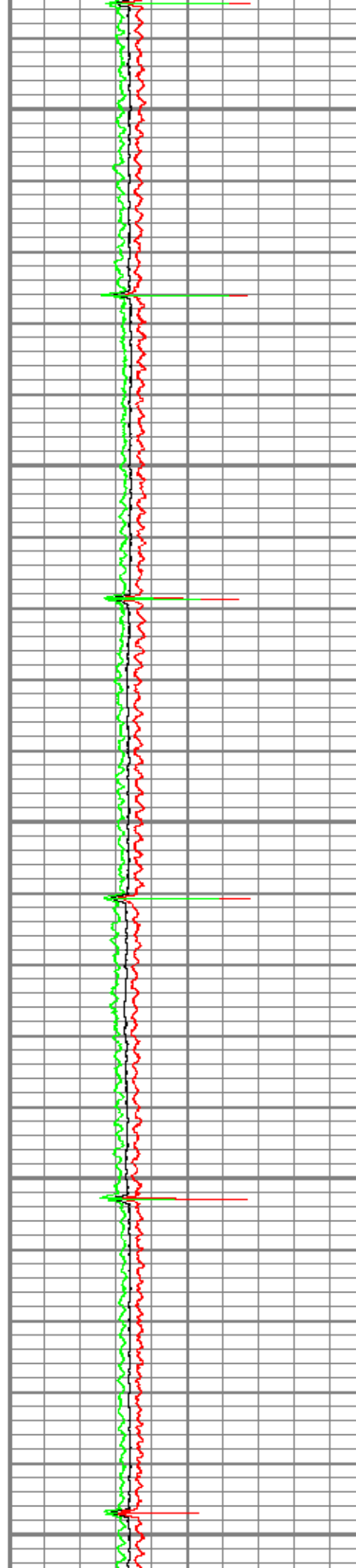
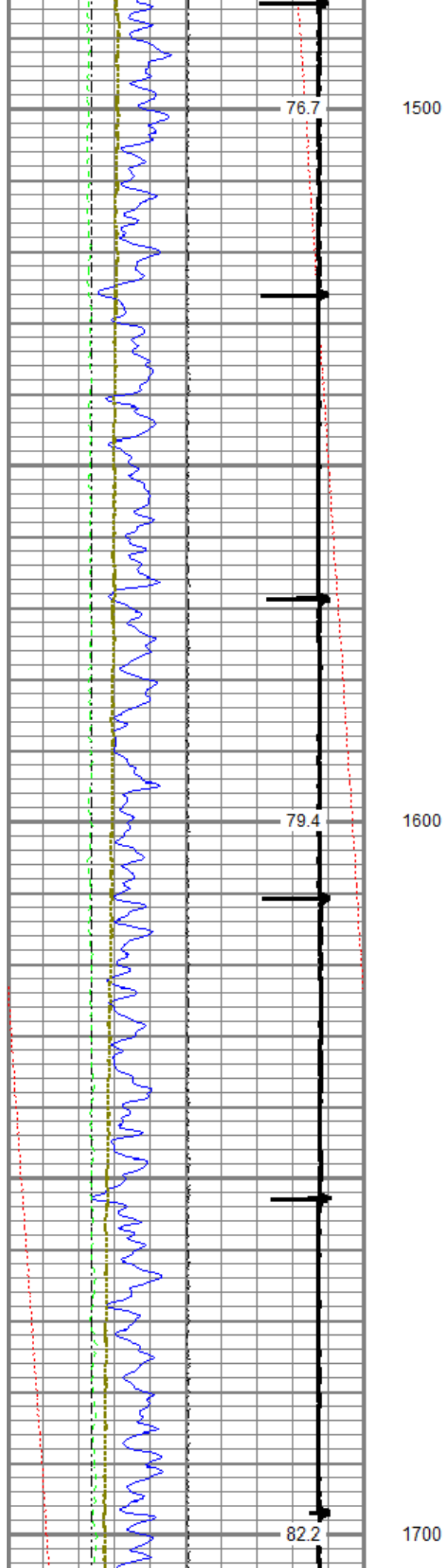


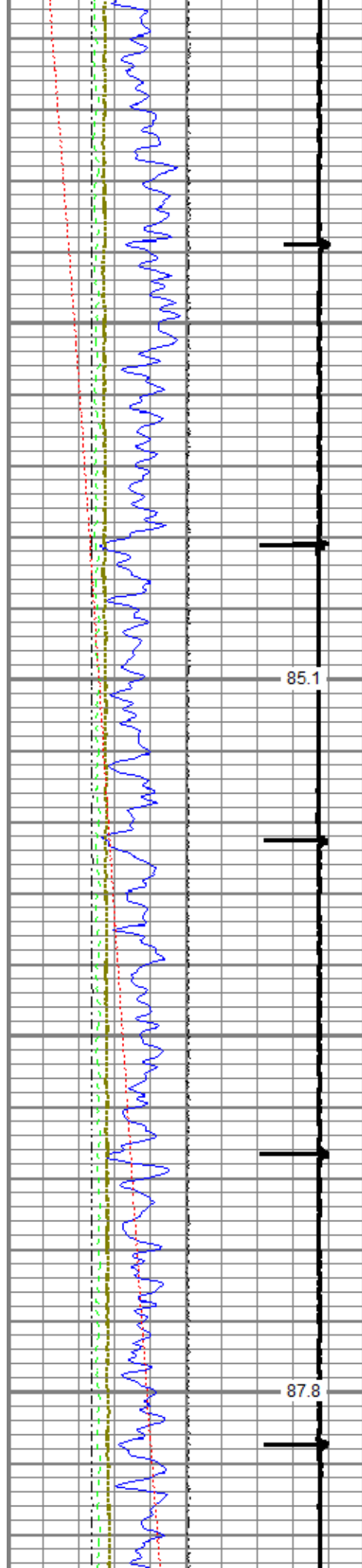


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1400





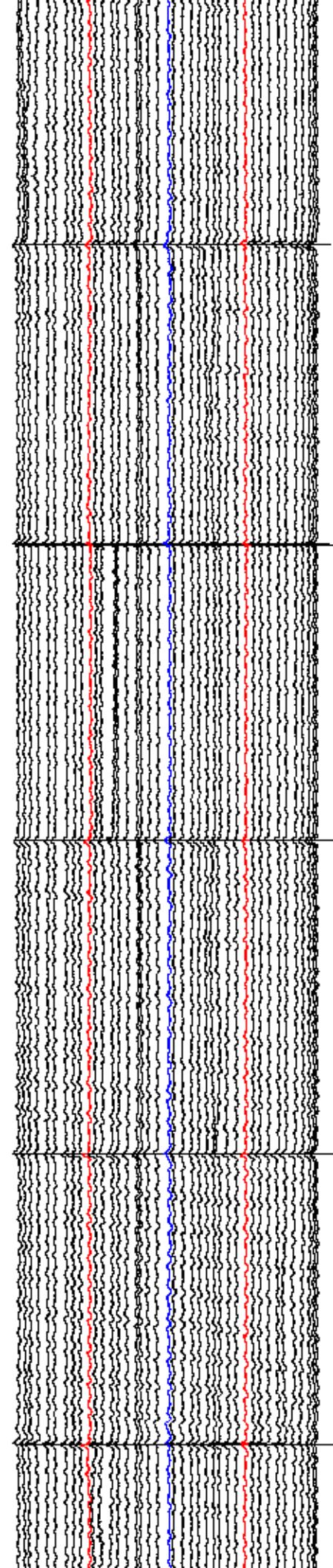
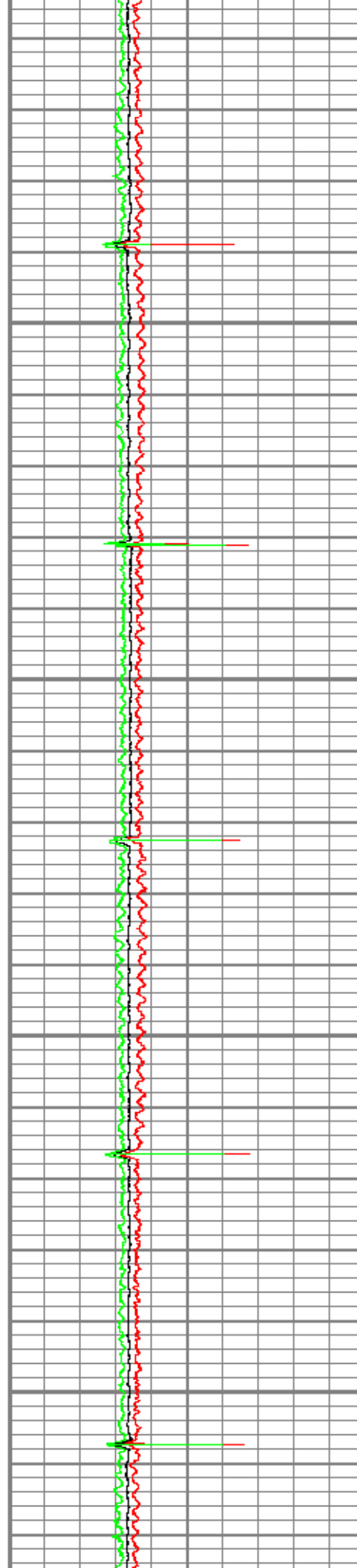


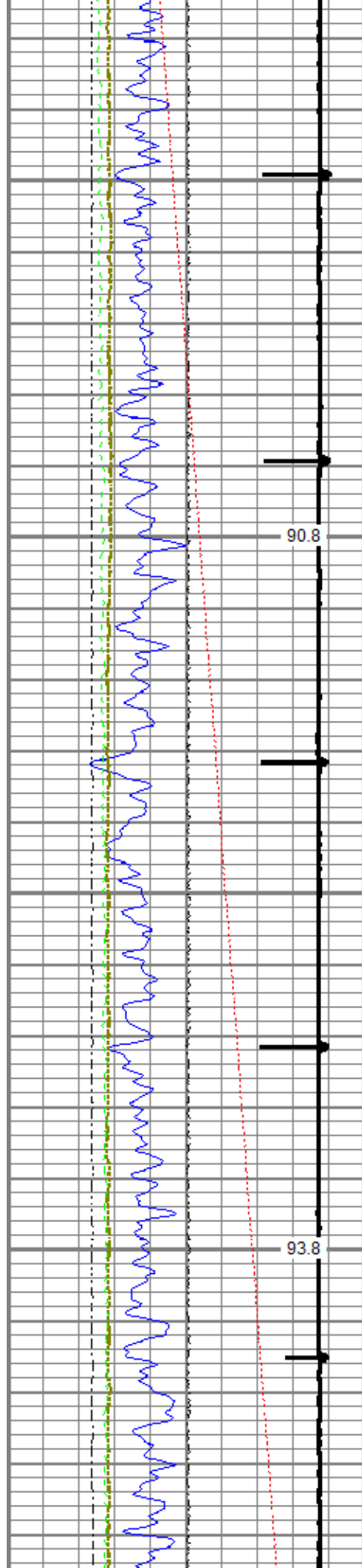
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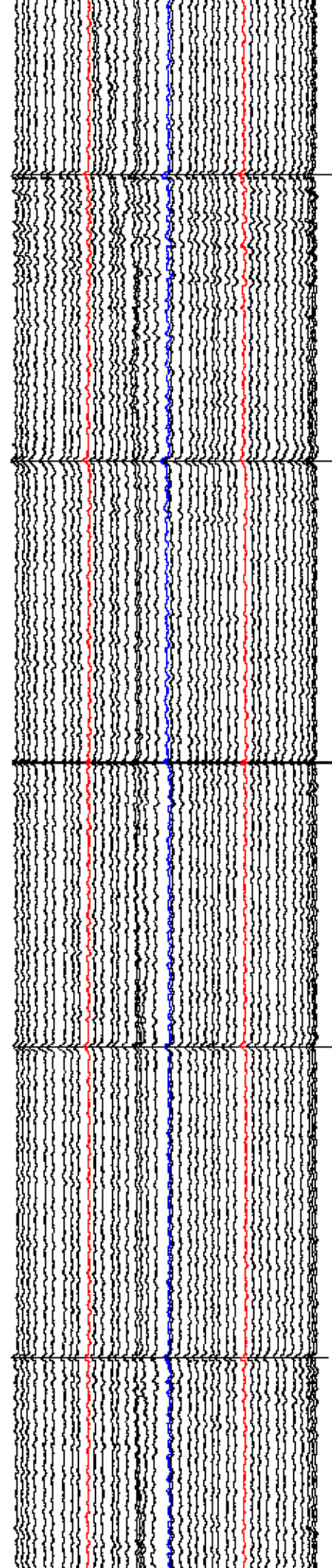
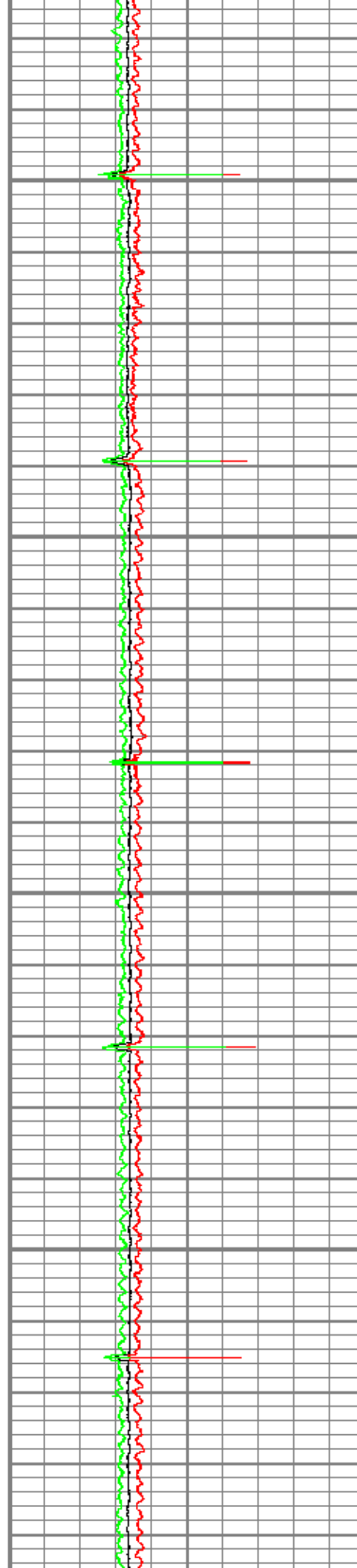
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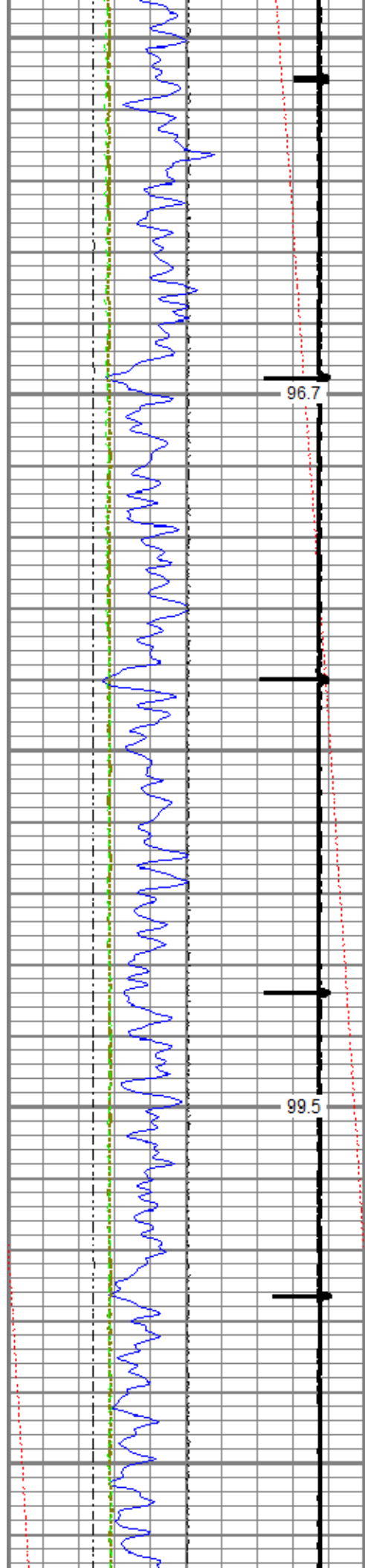




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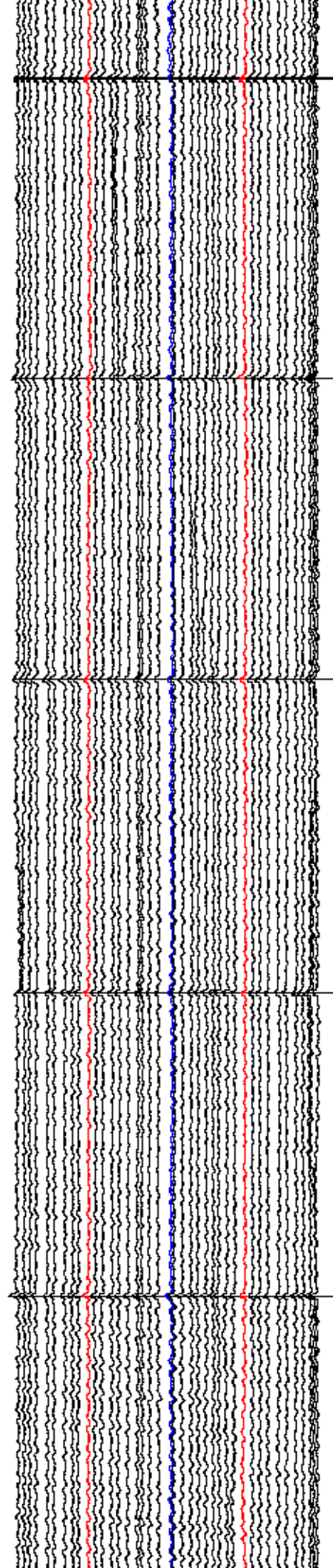
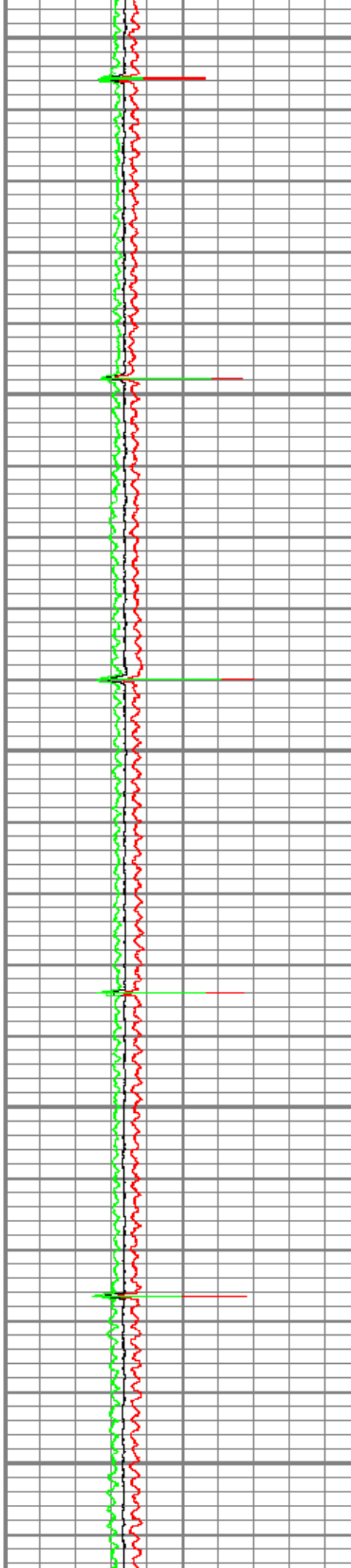
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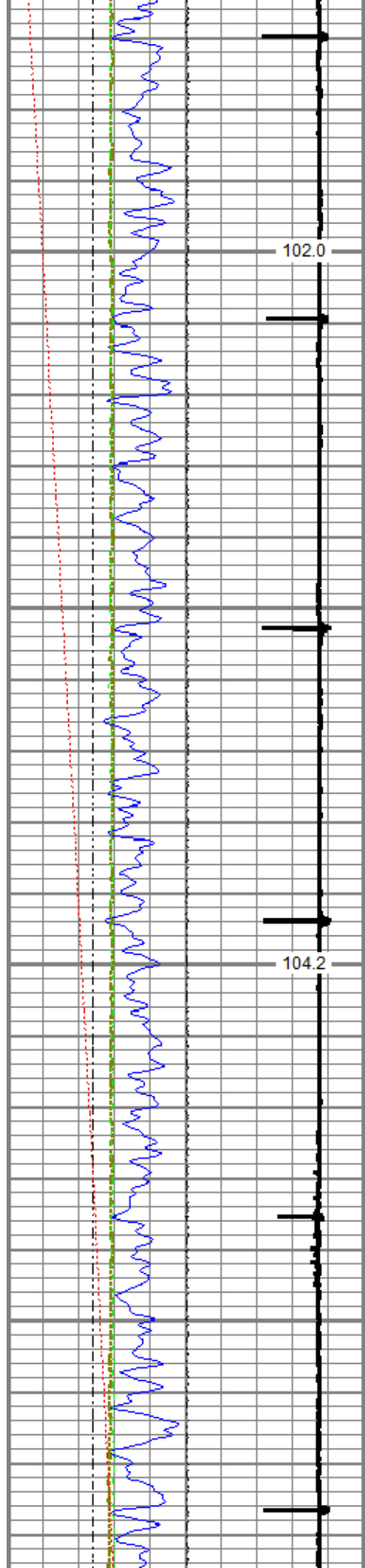




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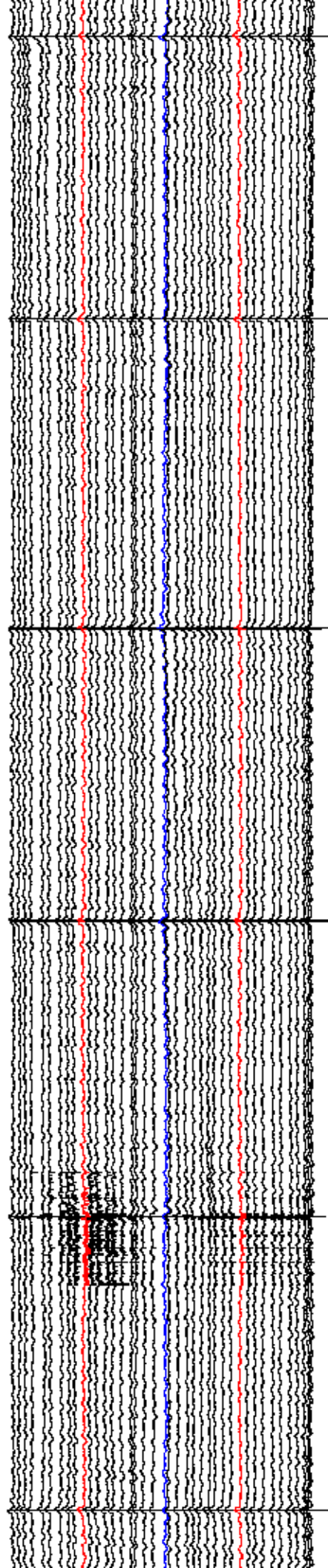
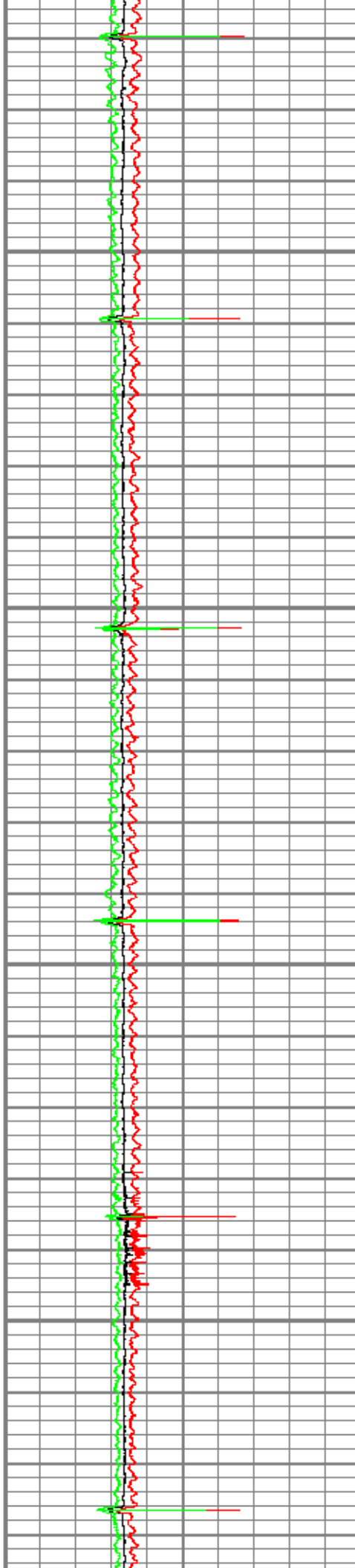
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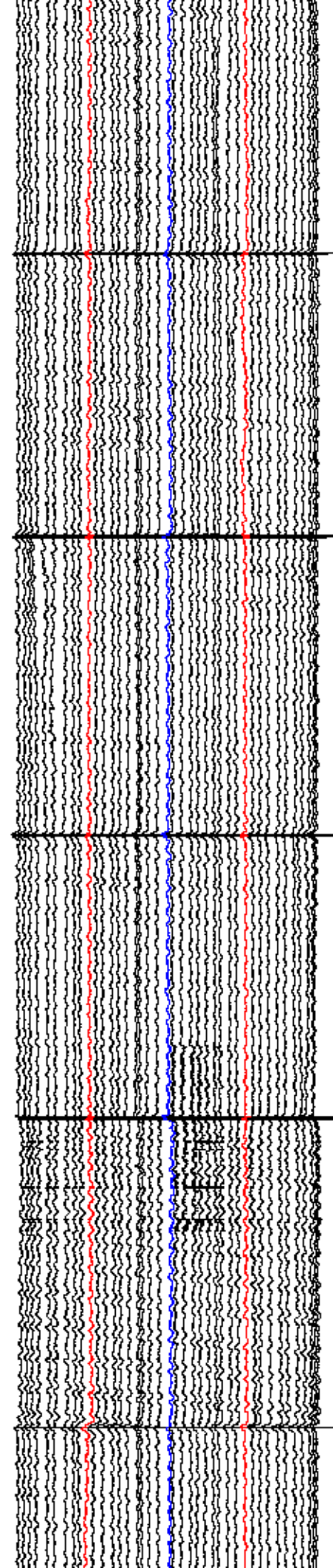
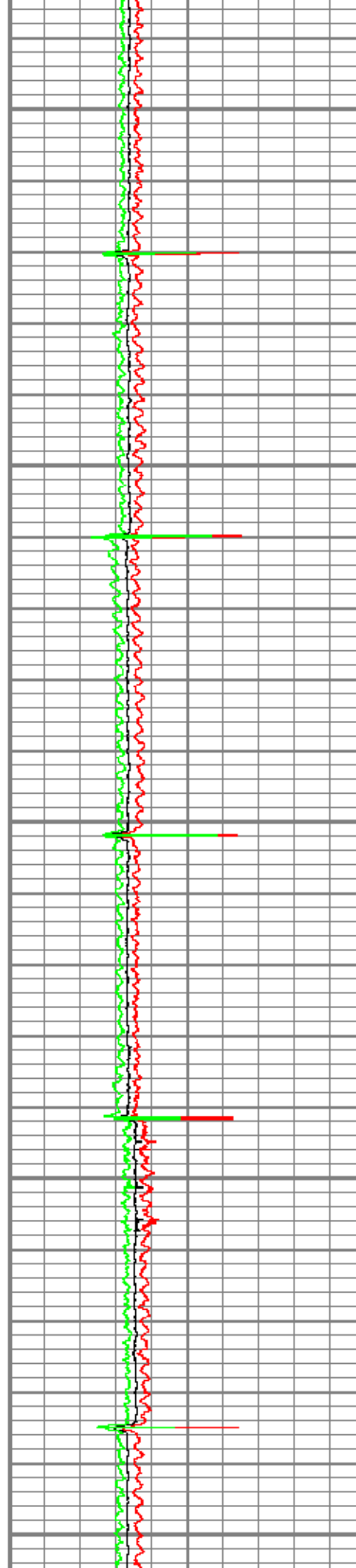
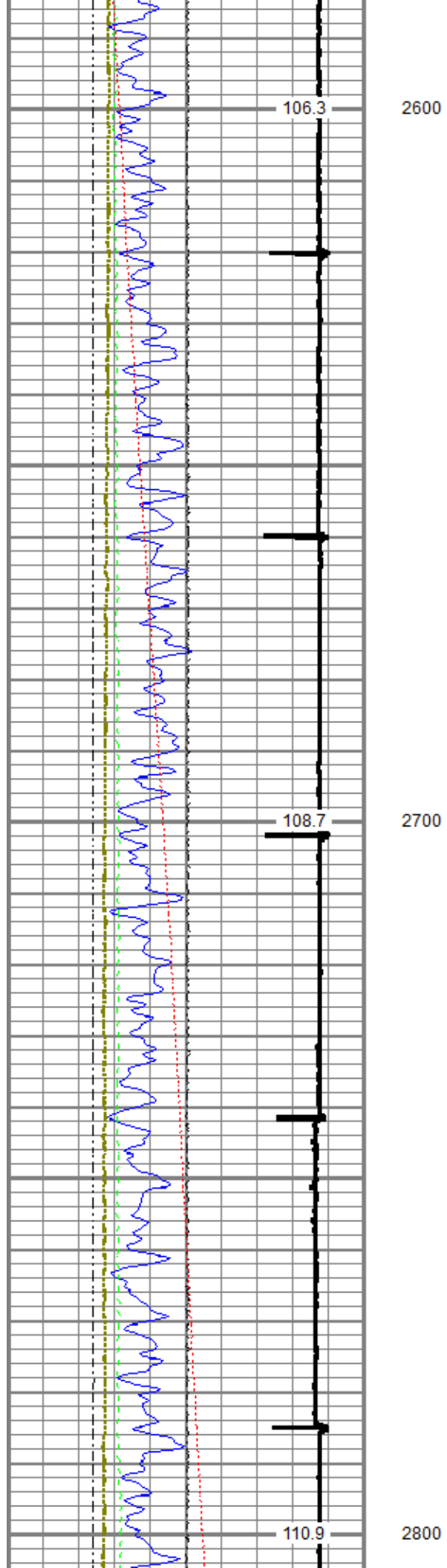


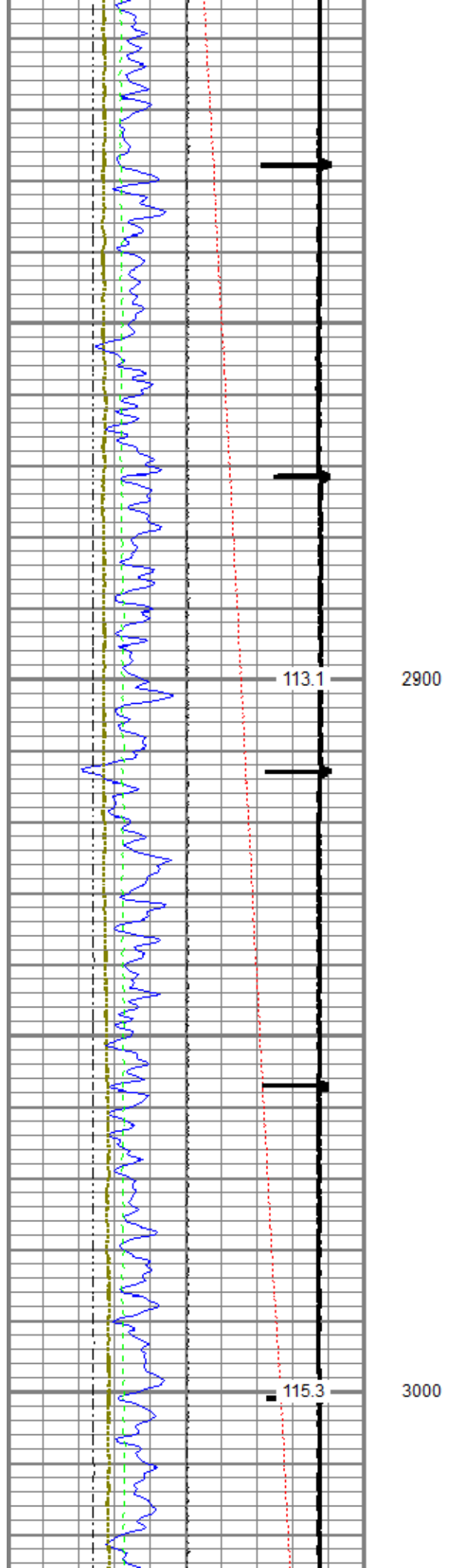
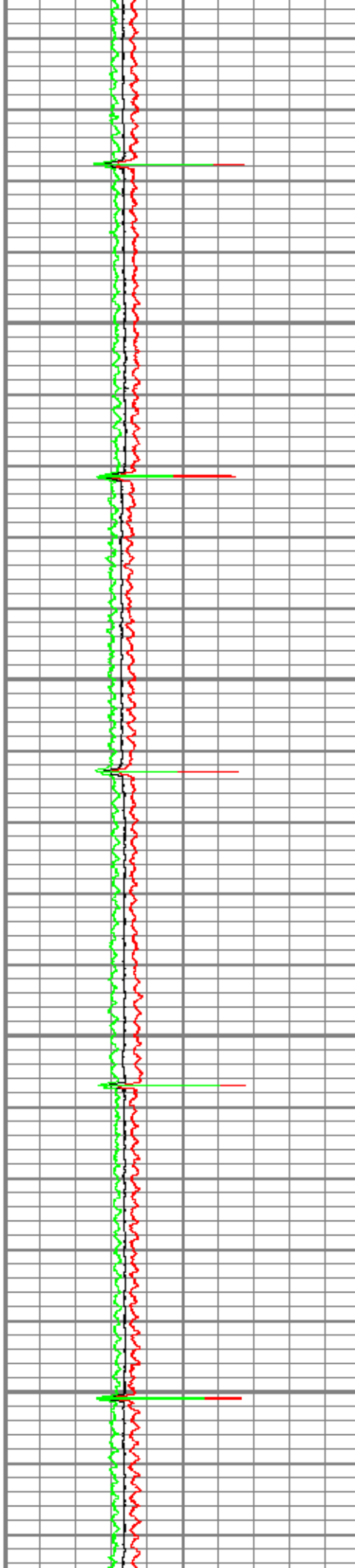
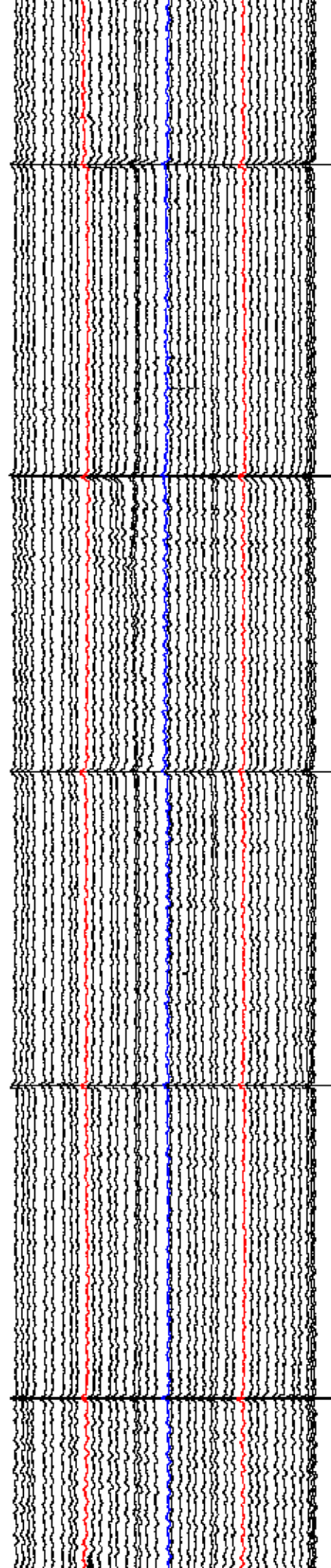


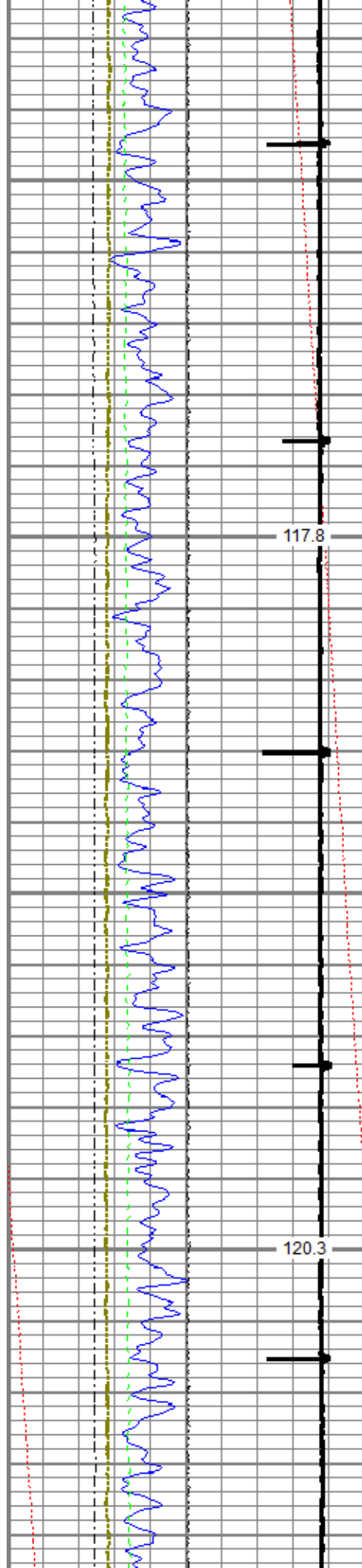
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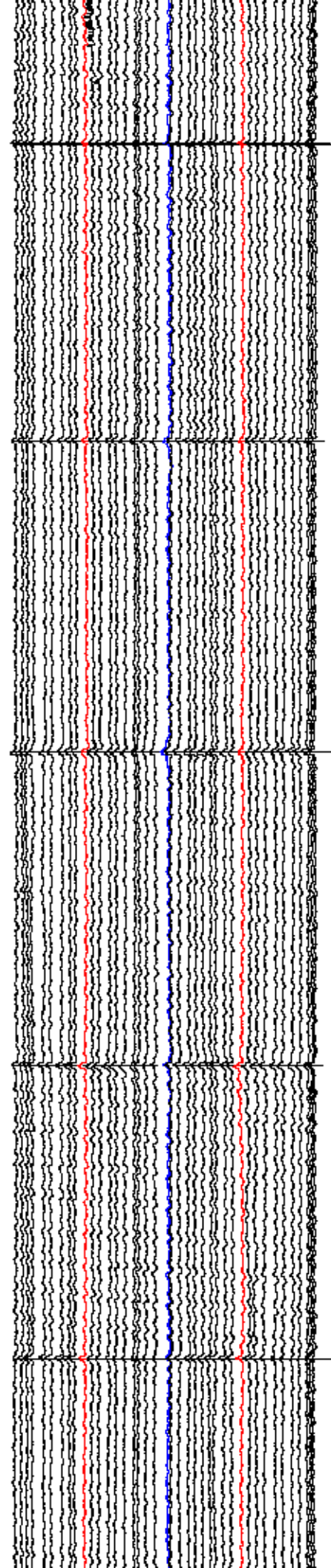
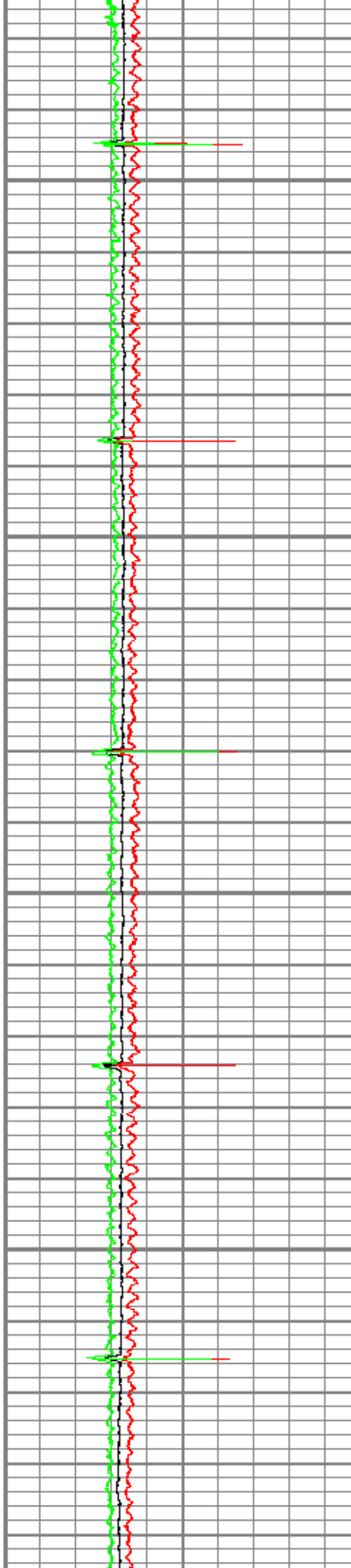


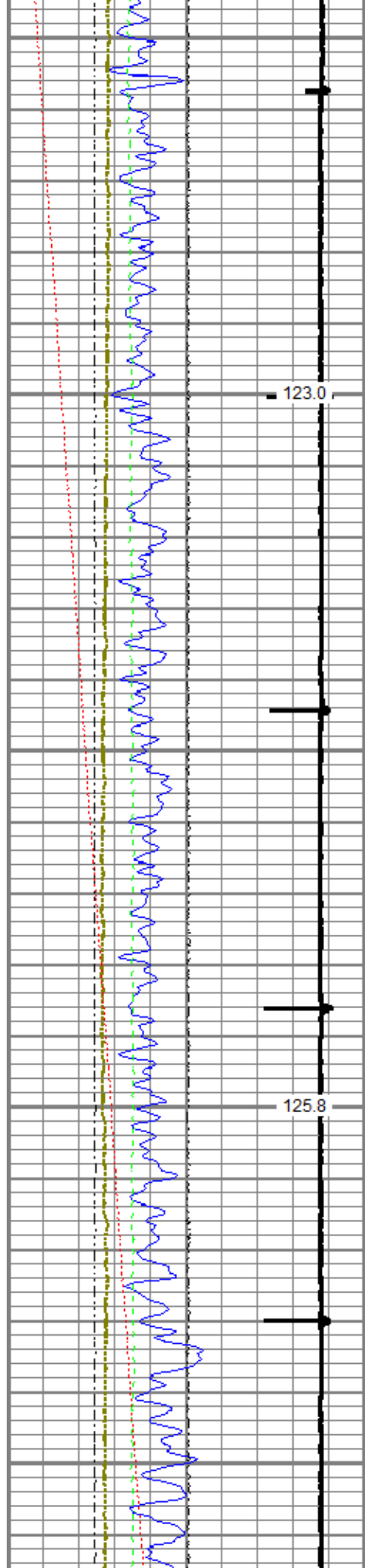




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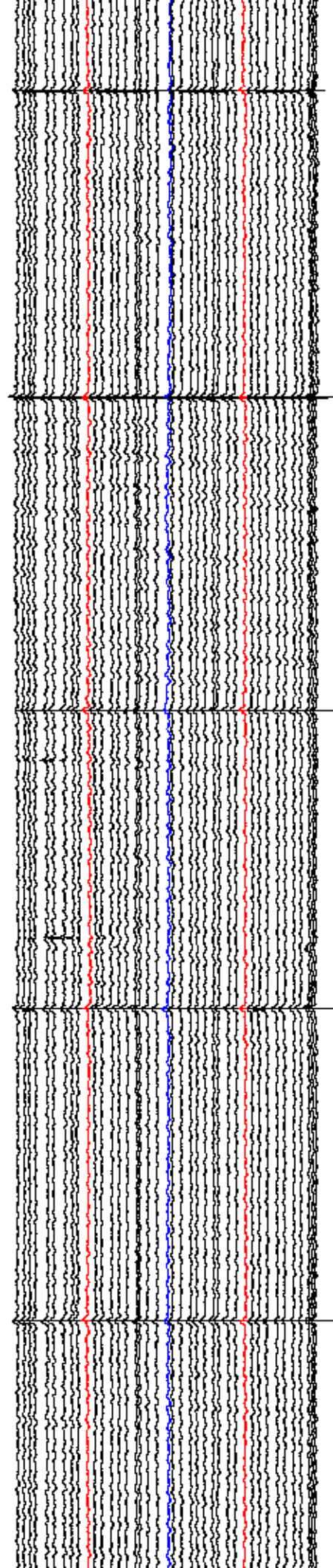
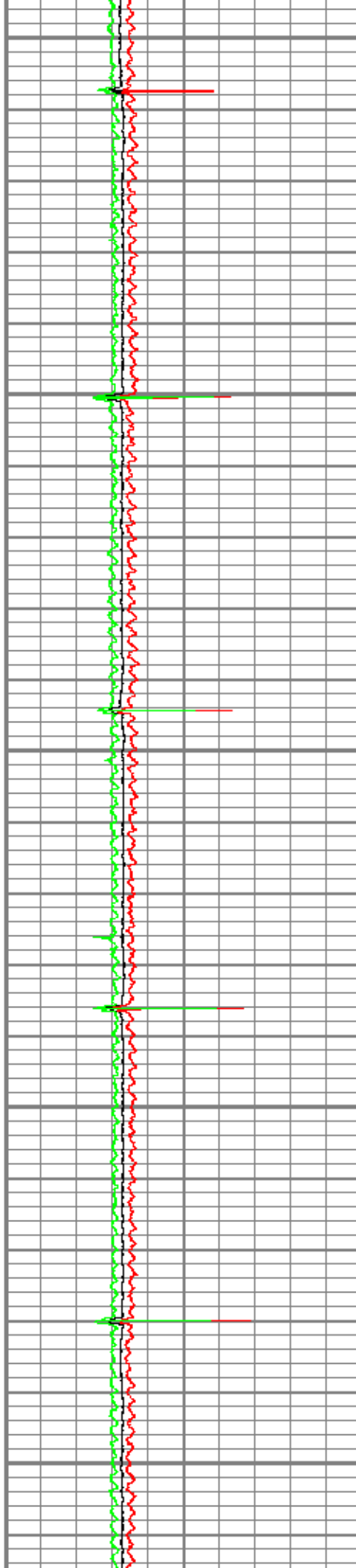
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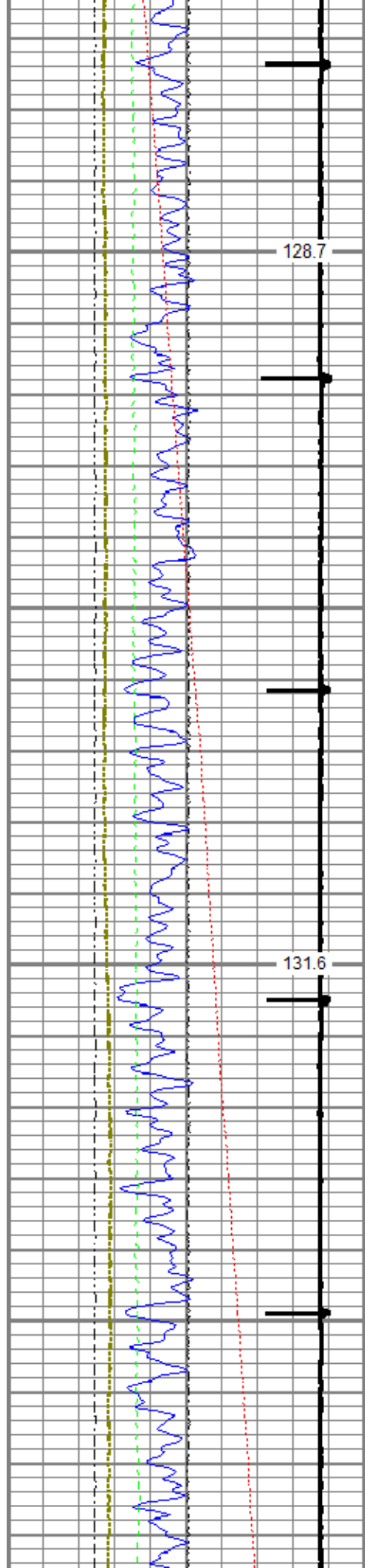




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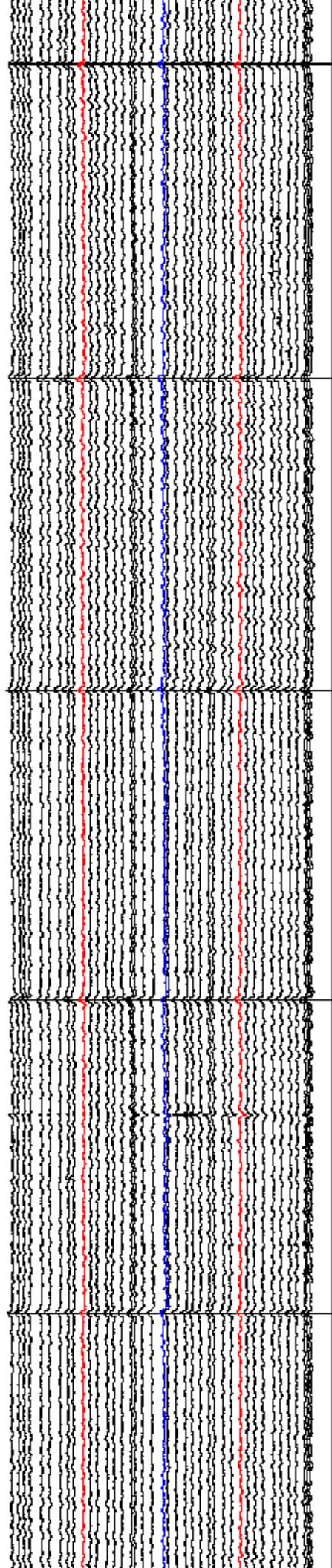
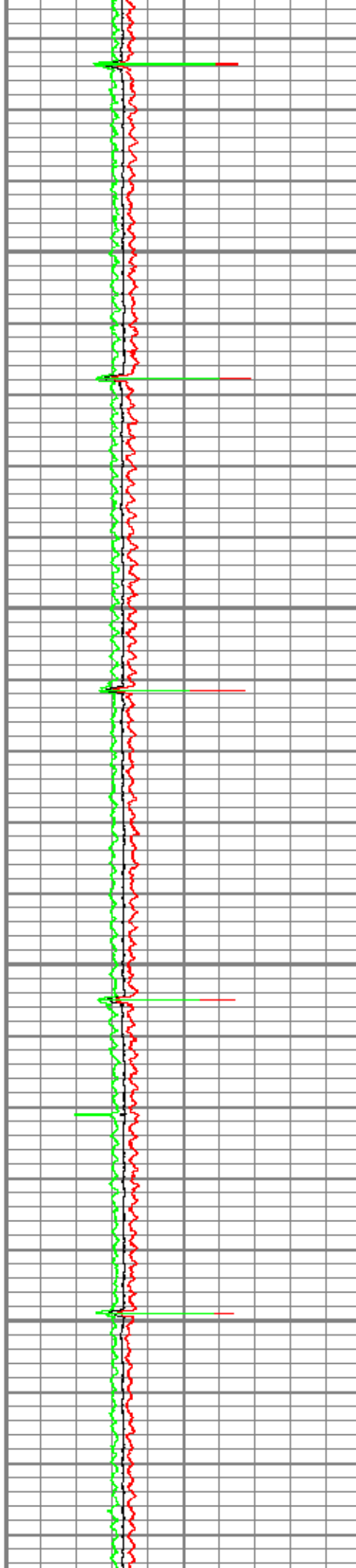
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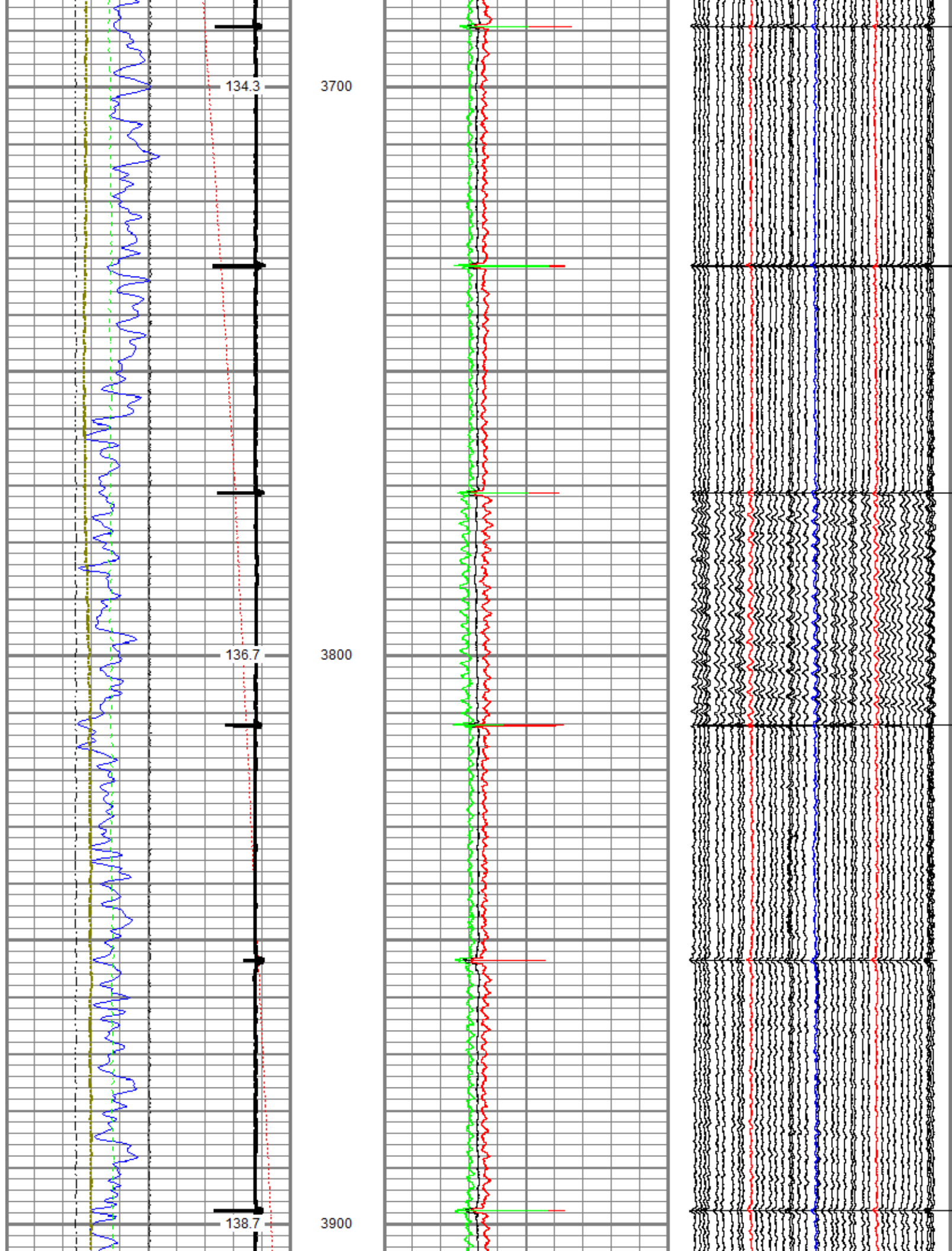


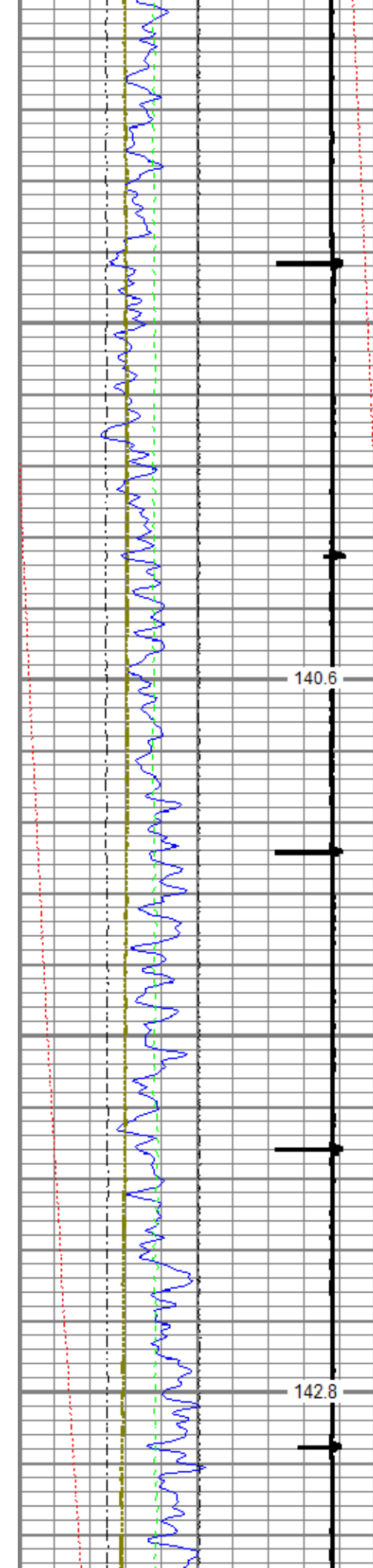


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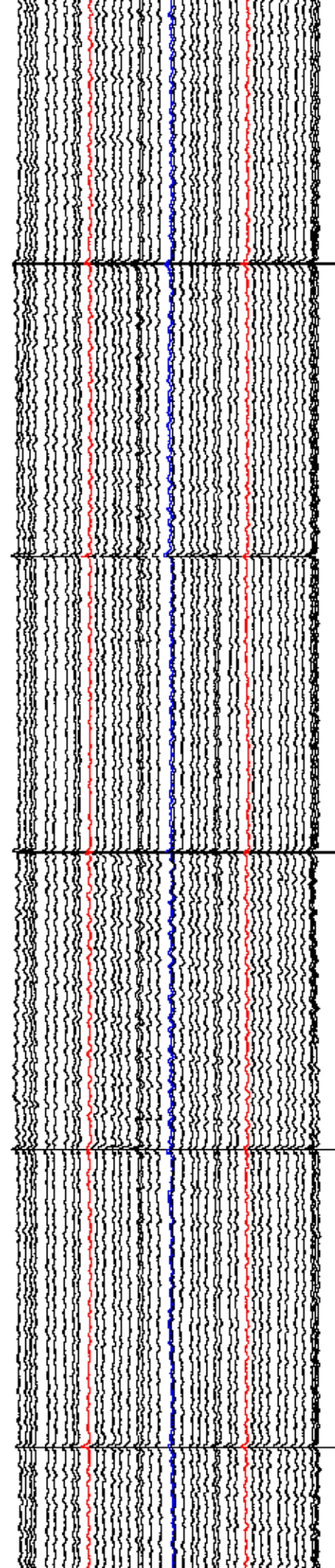
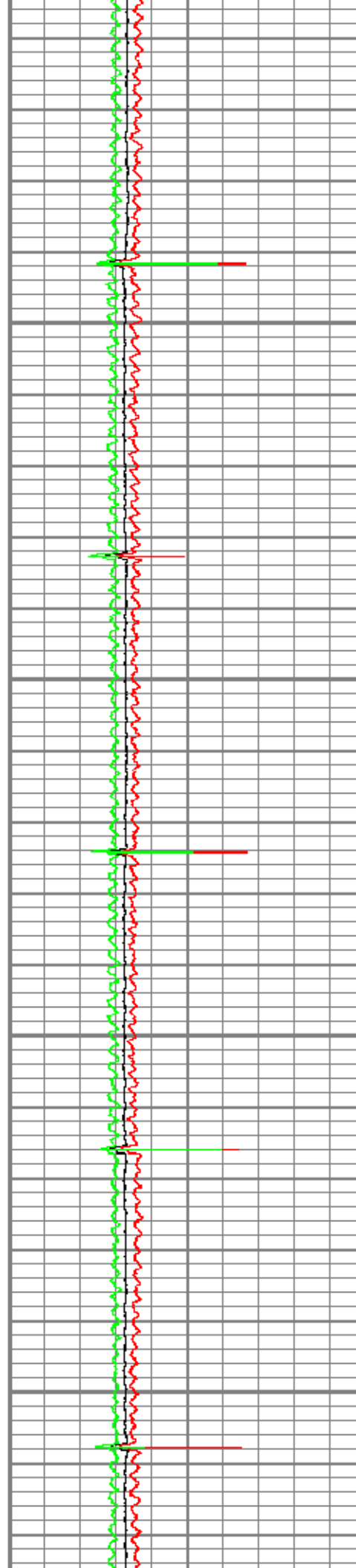


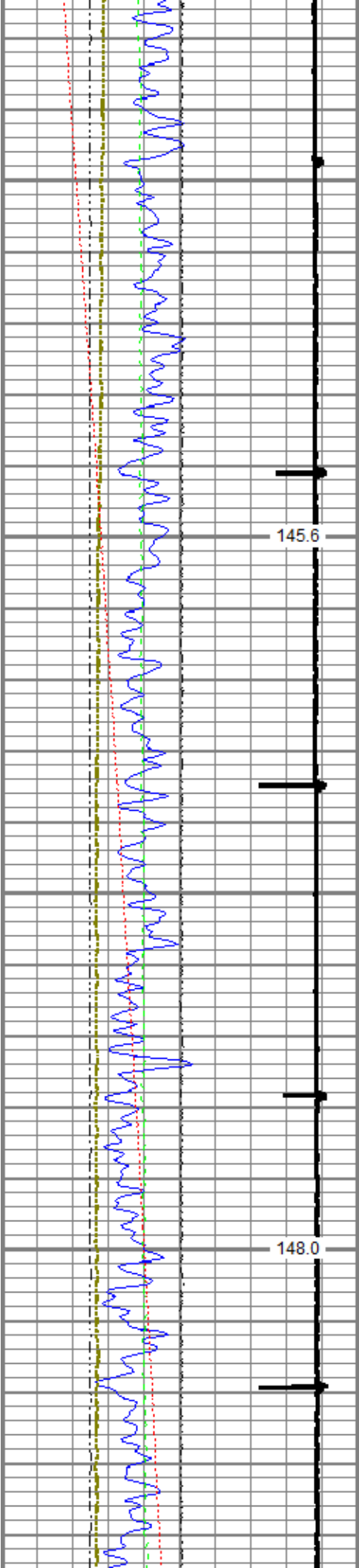




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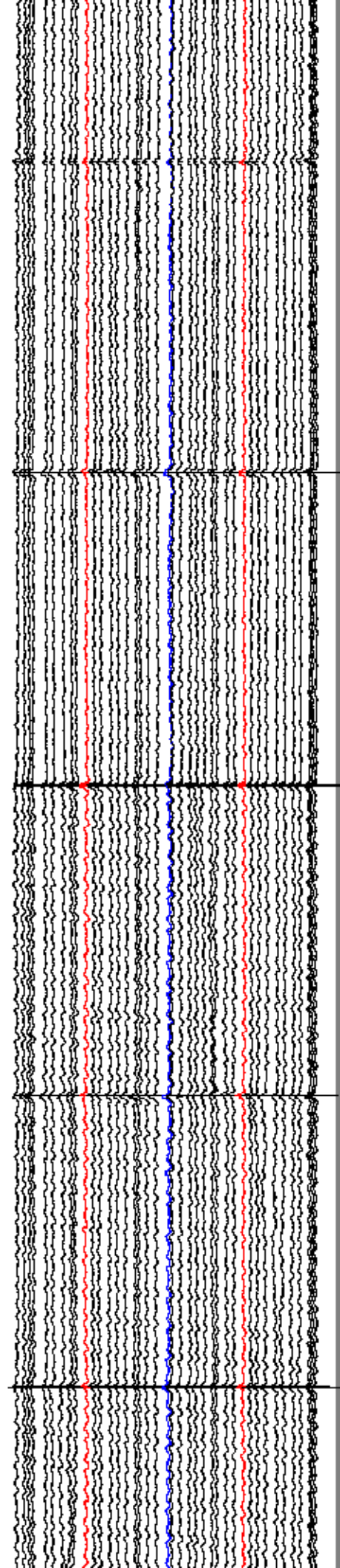
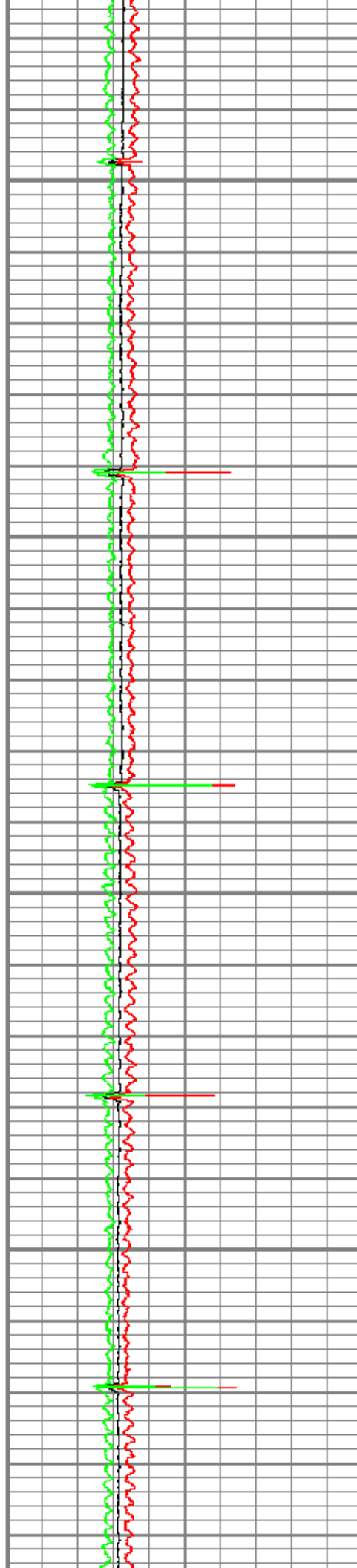
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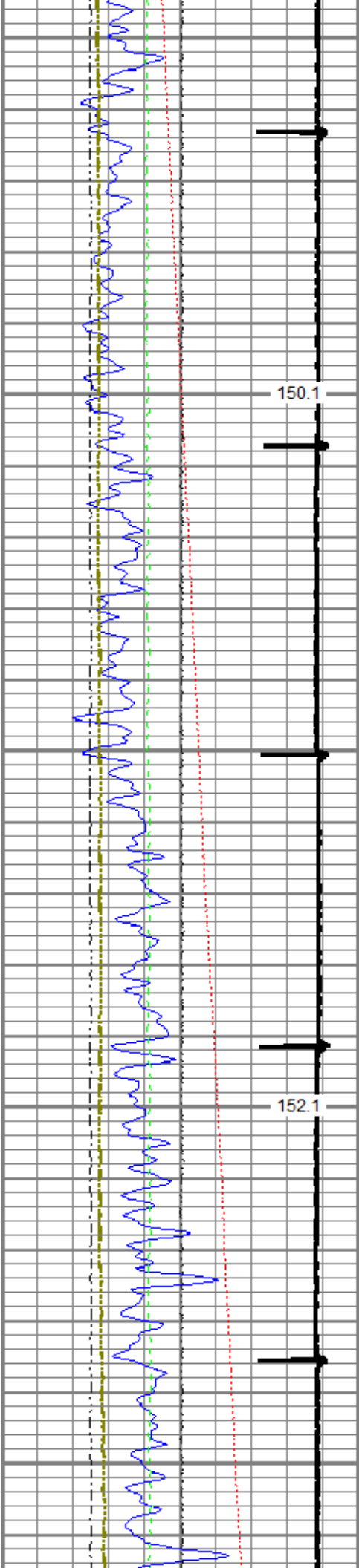




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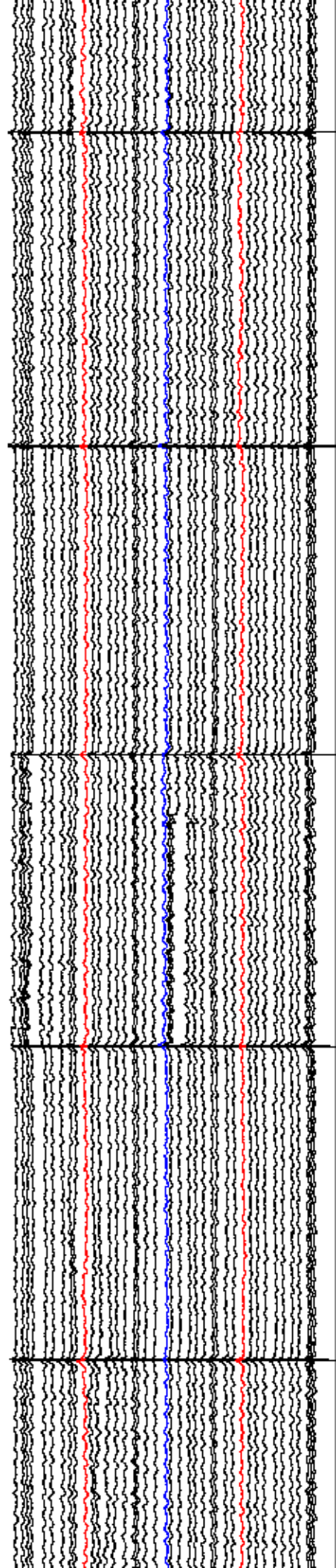
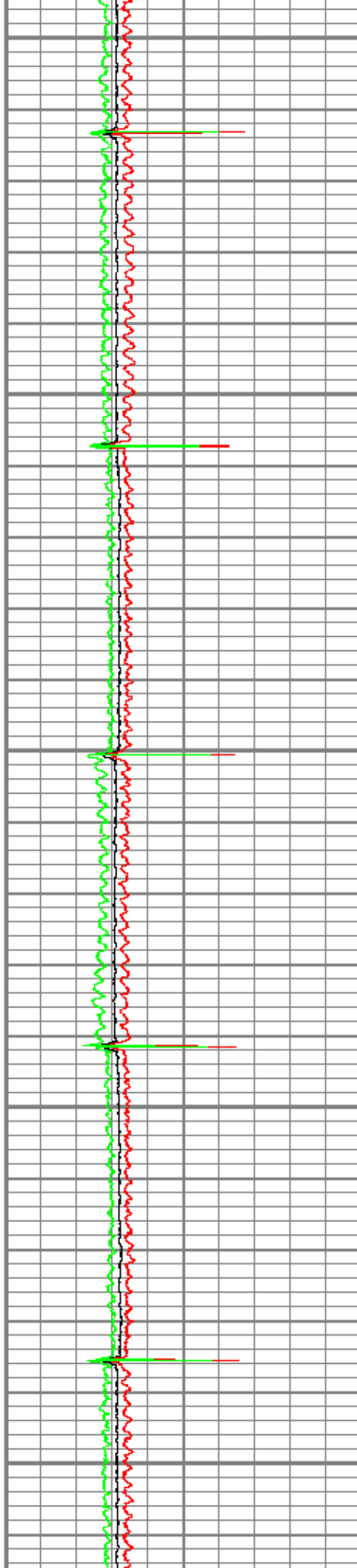


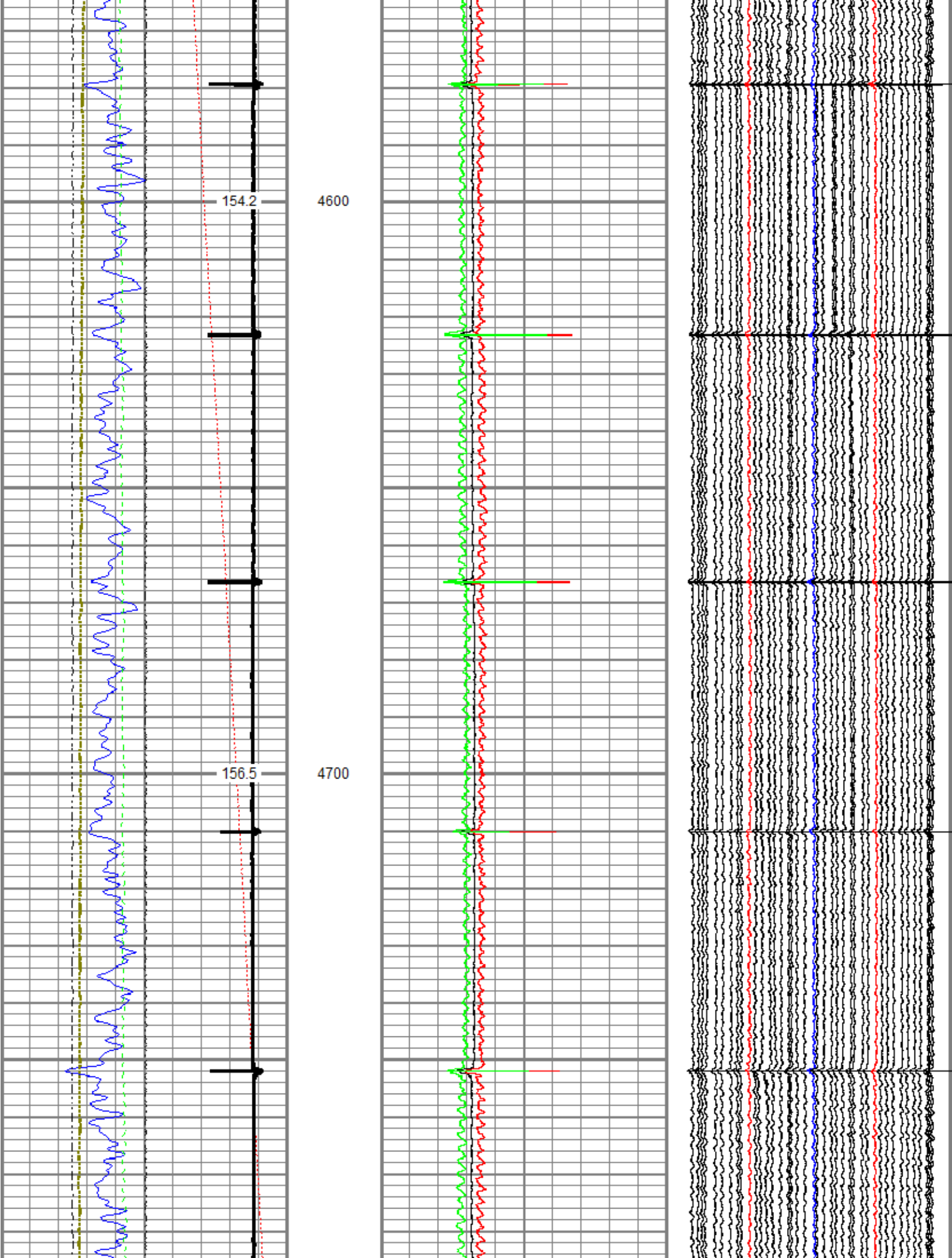
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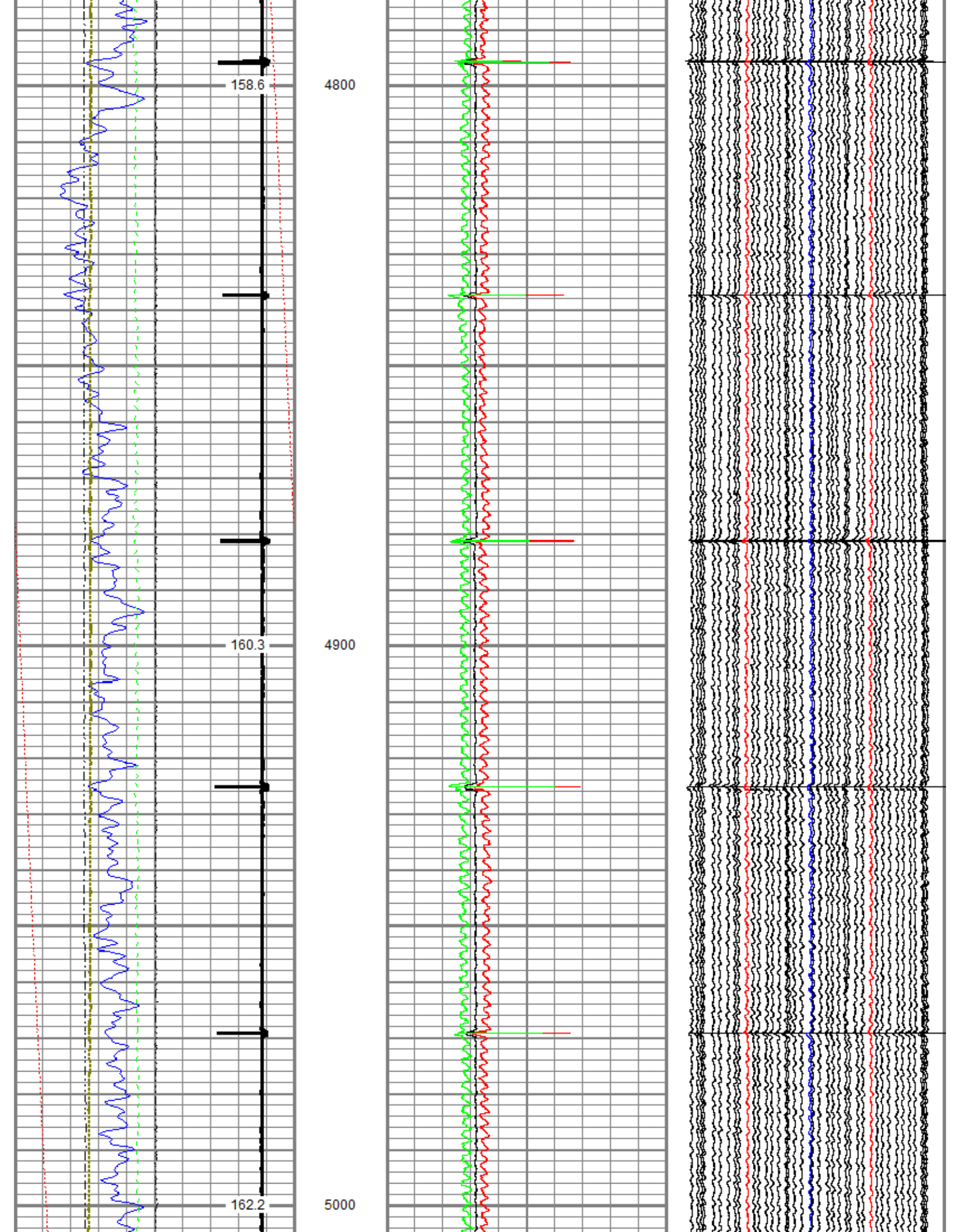
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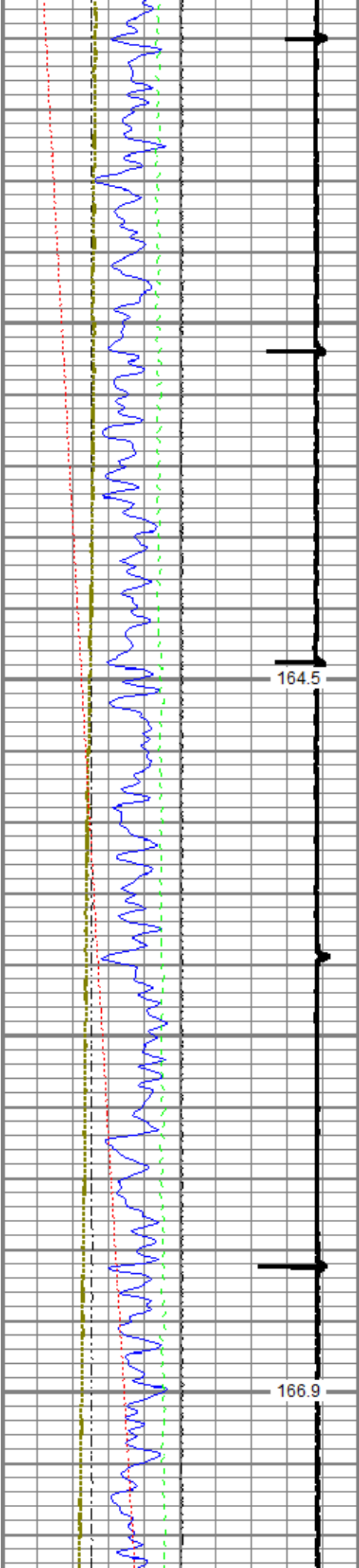
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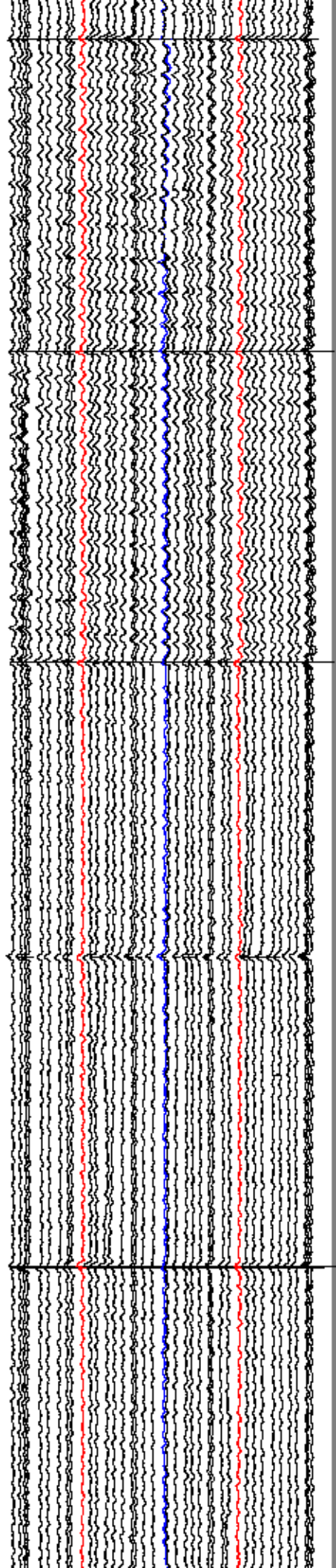
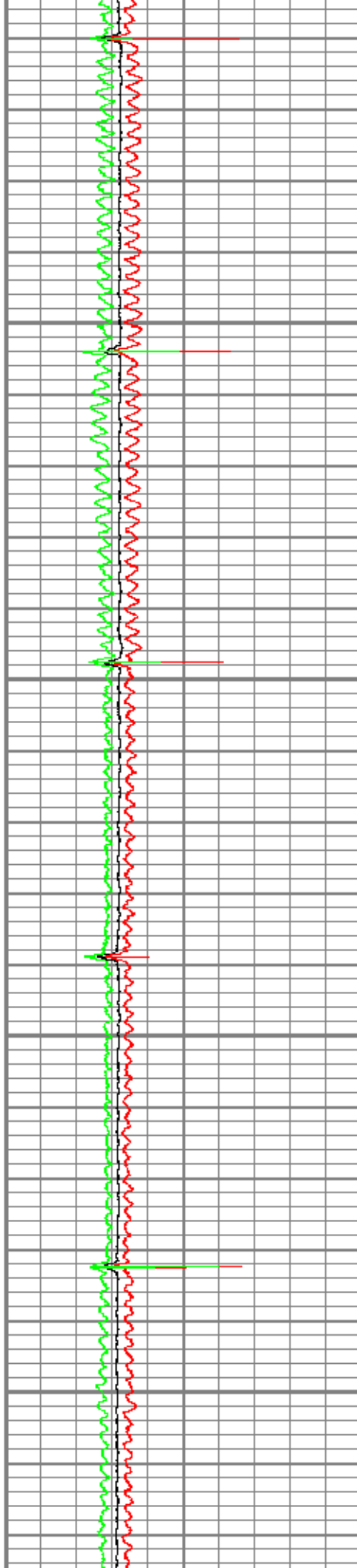


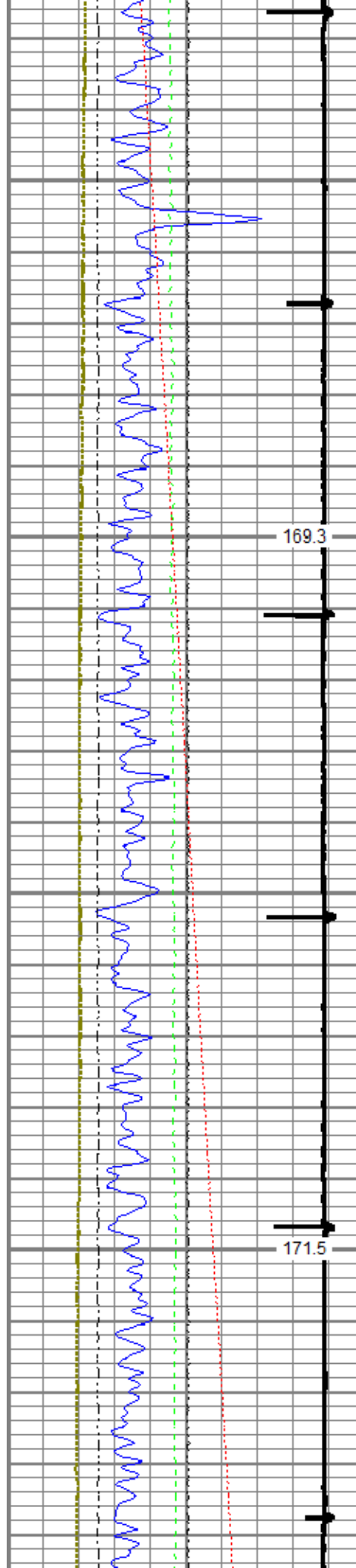




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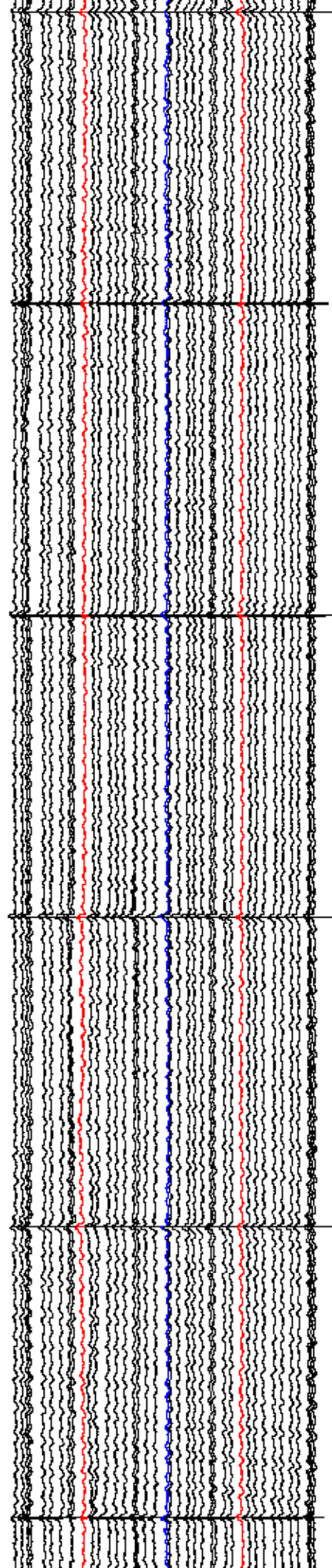
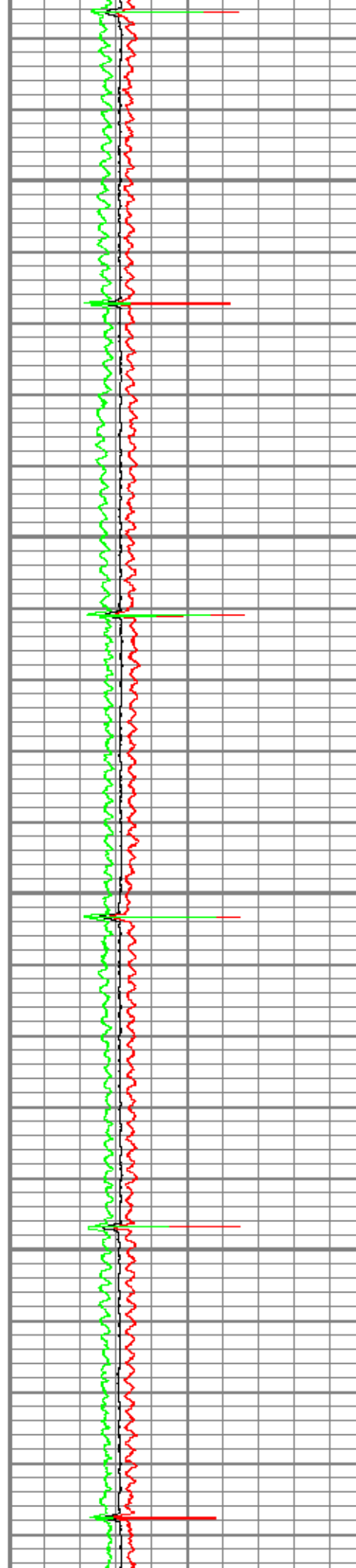
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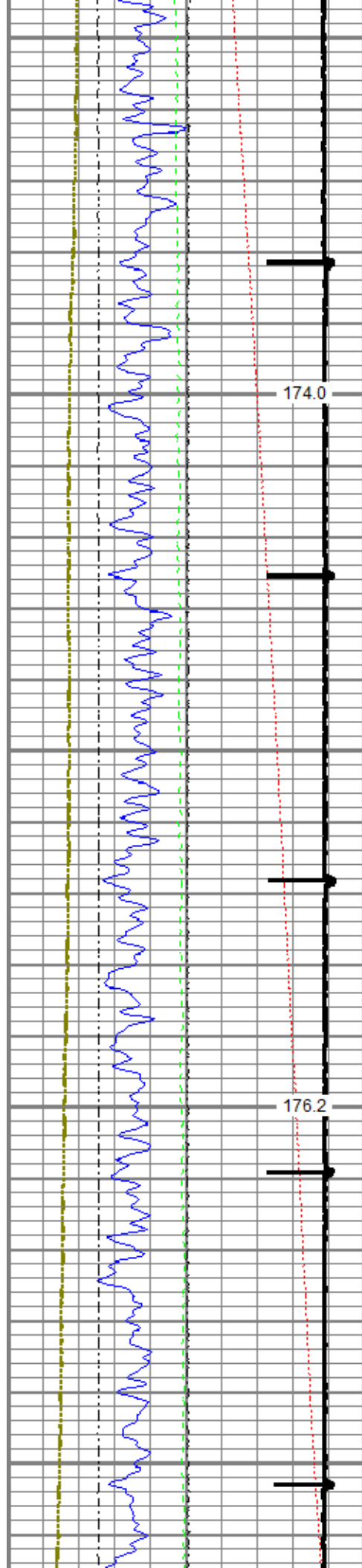




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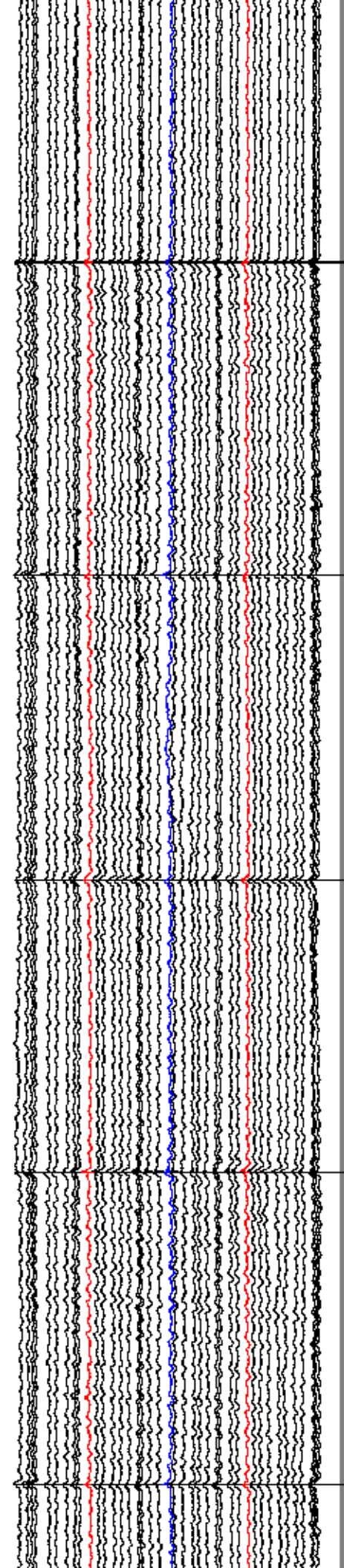
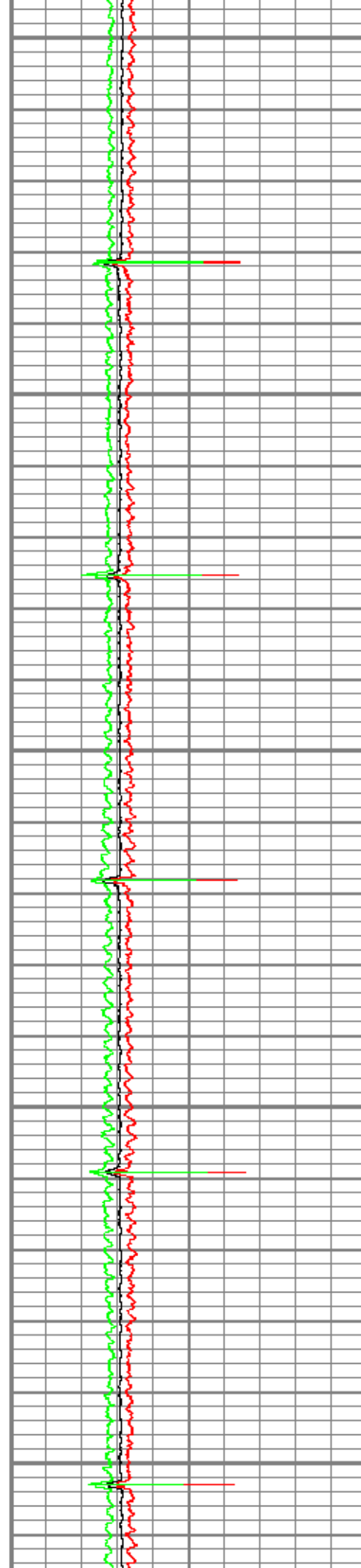
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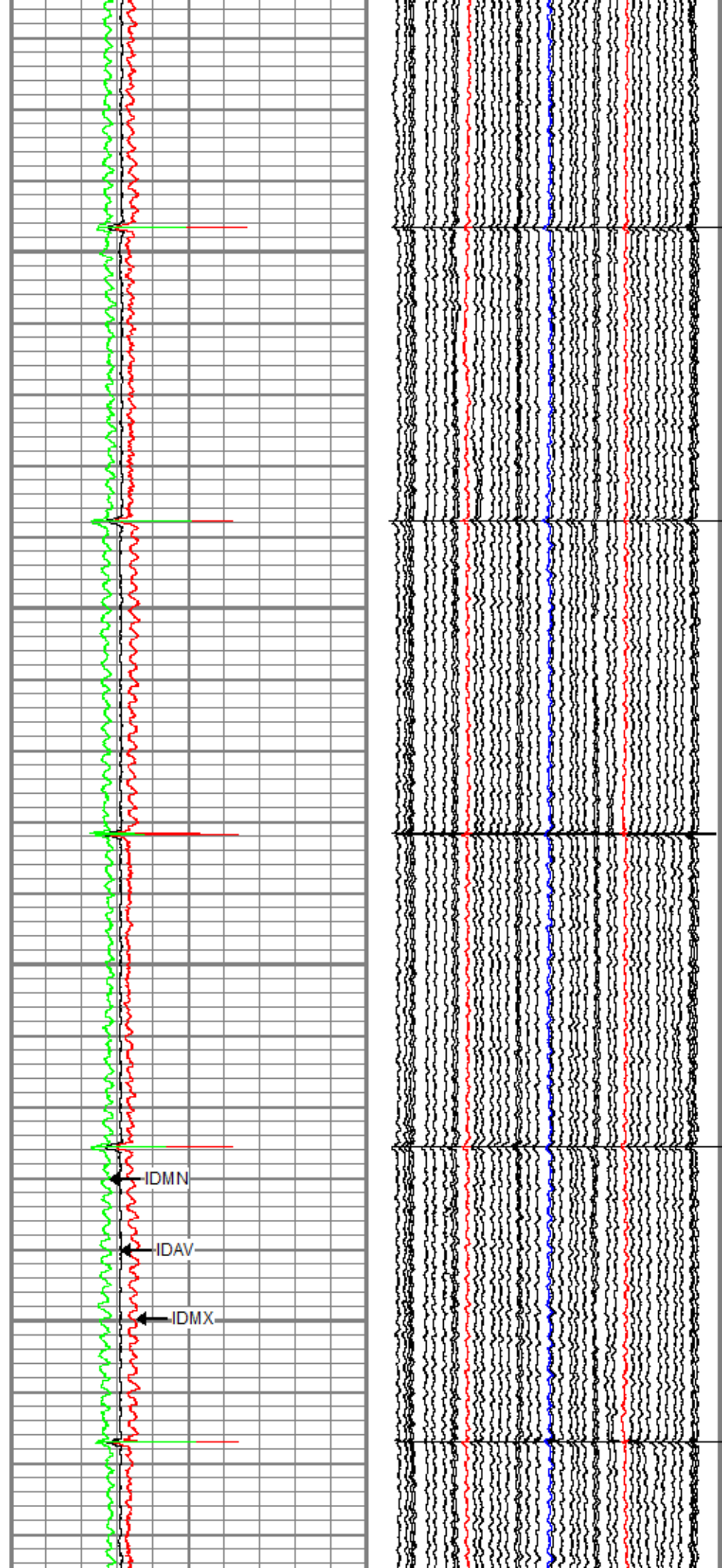
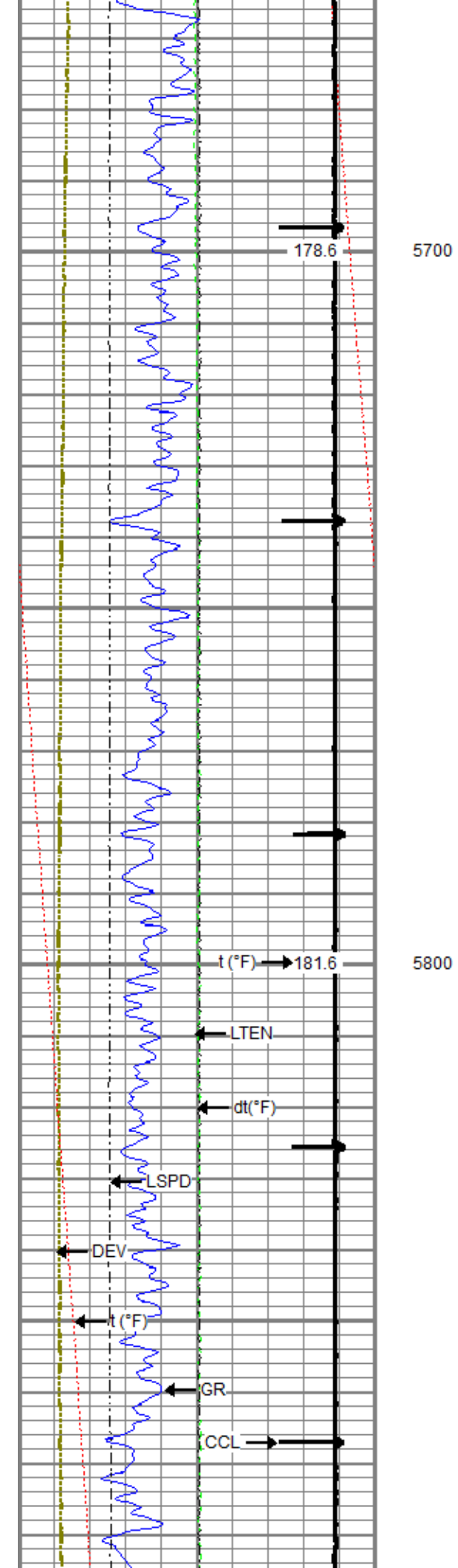


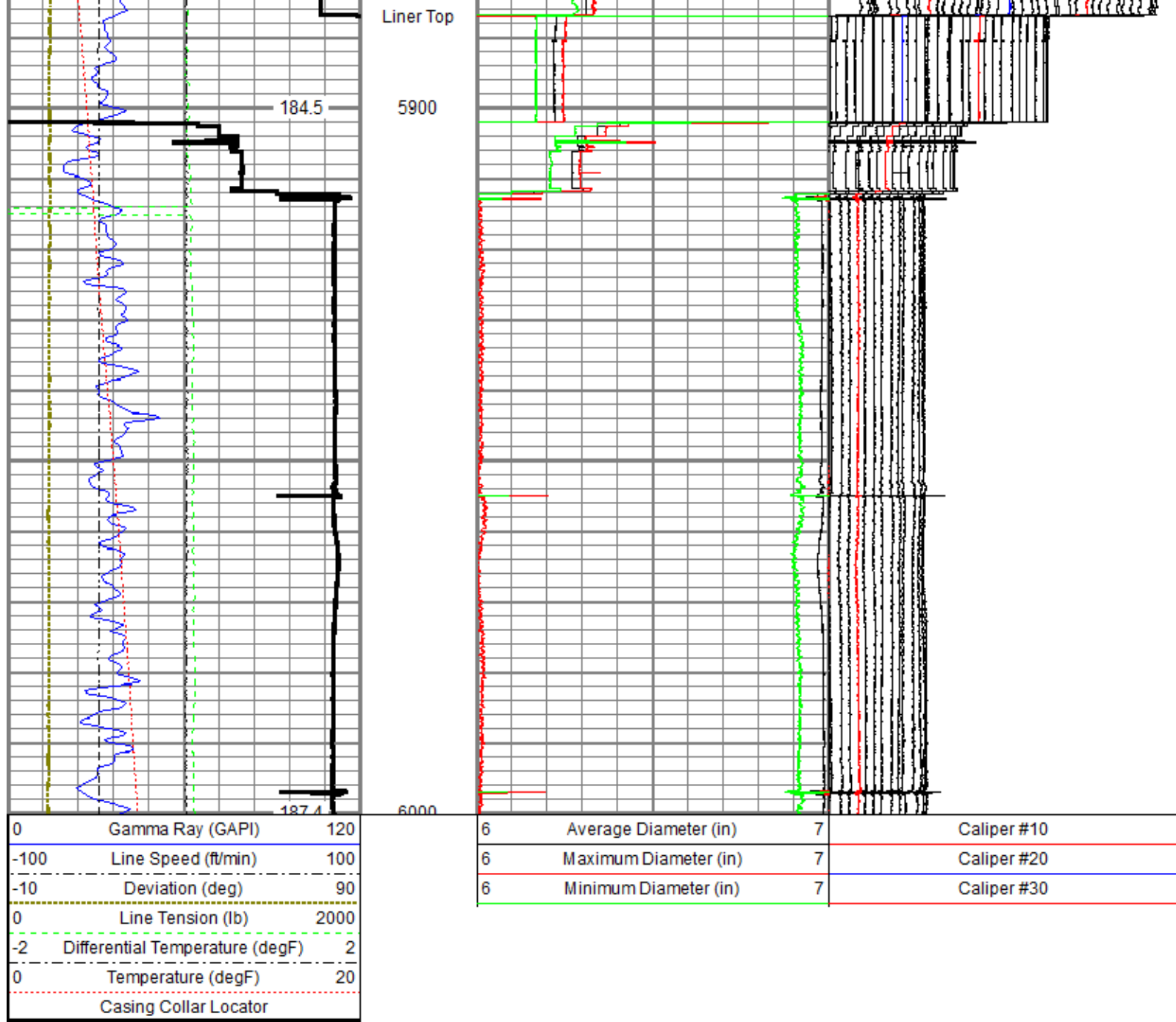


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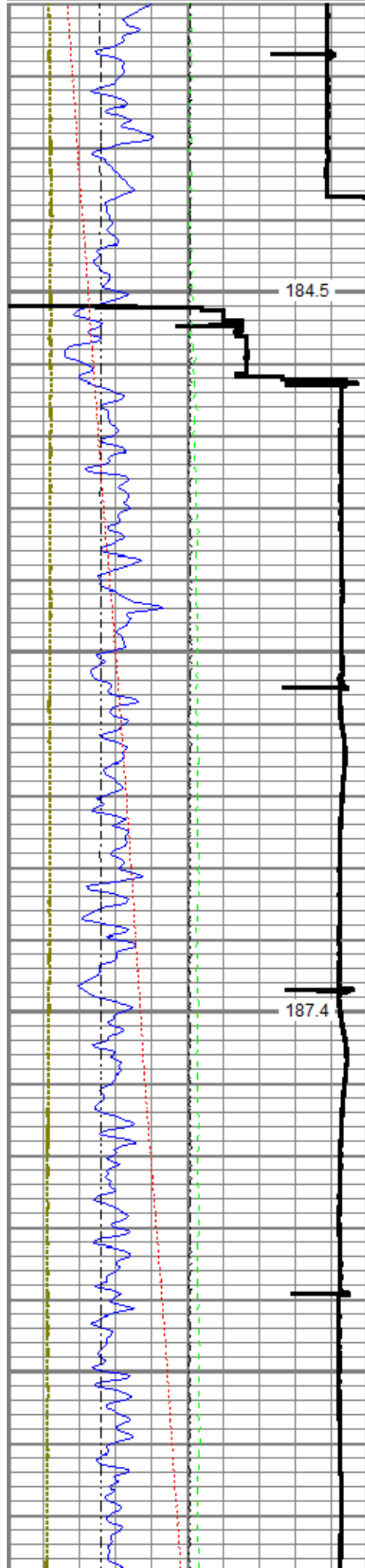


Main Pass (4.5 inch Casing)

Recorded With 2800 PSI Surface Induced Pressure

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 Presentation Format ros_45mit40sx
 Dataset Creation Wed Mar 21 09:45:30 2018
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120	3.5	Average Diameter (in)	4.5	Caliper #10
-100	Line Speed (ft/min)	100	3.5	Maximum Diameter (in)	4.5	Caliper #20
-10	Deviation (deg)	90	3.5	Minimum Diameter (in)	4.5	Caliper #30
Casing Collar Locator						
0	Line Tension (lb)	2000				
-2	Differential Temperature (degF)	2				
0	Temperature (degF)	20				



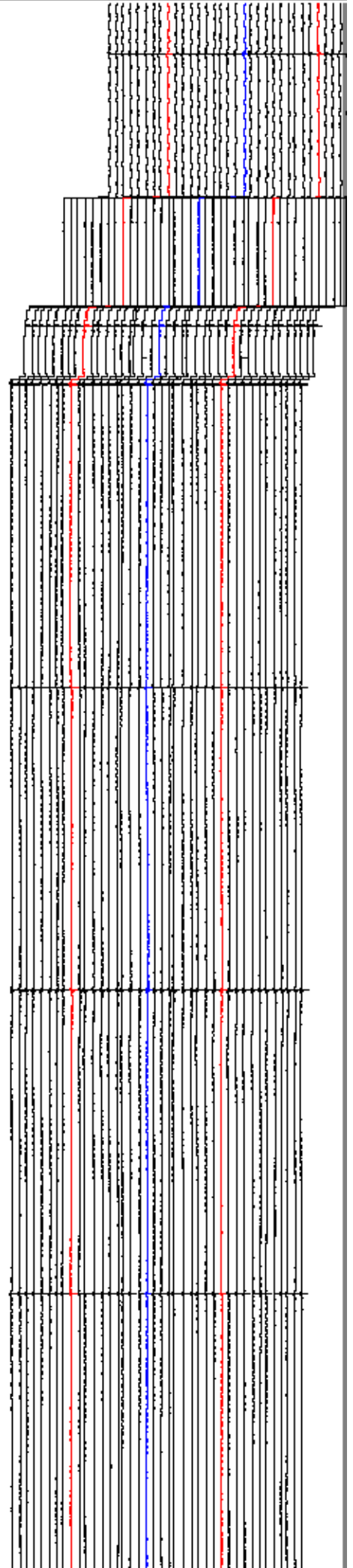
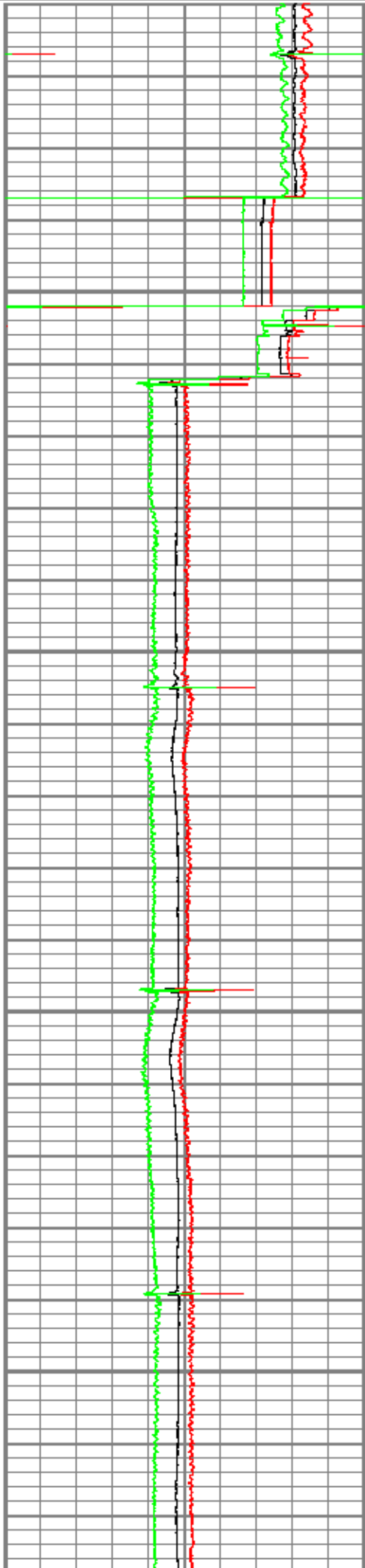
Liner Top

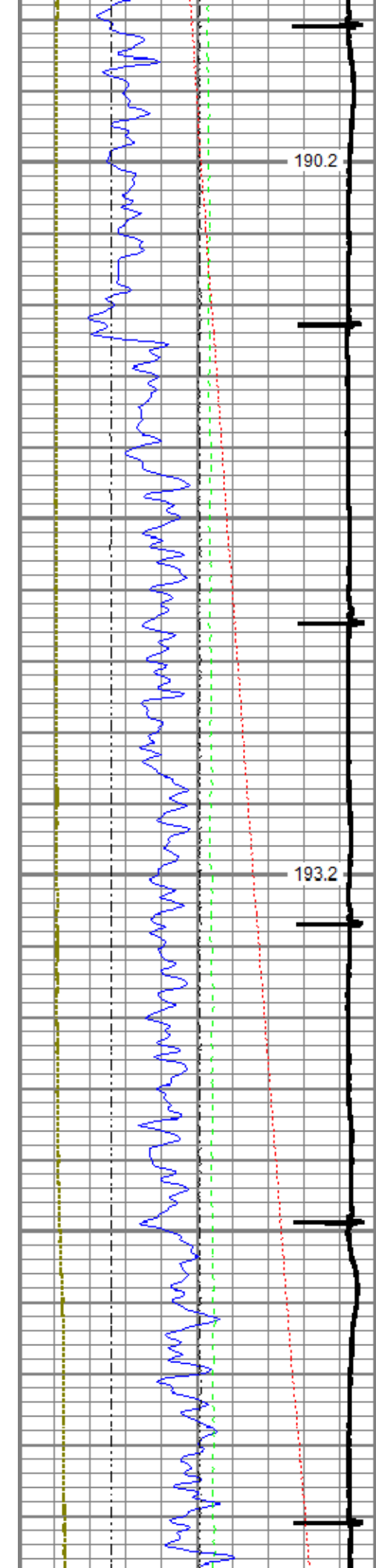
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5900

187.4

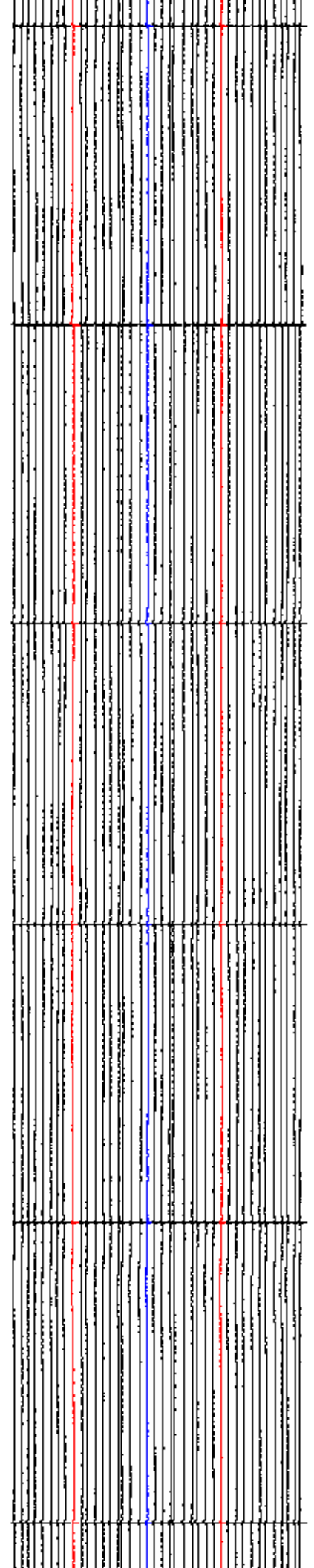
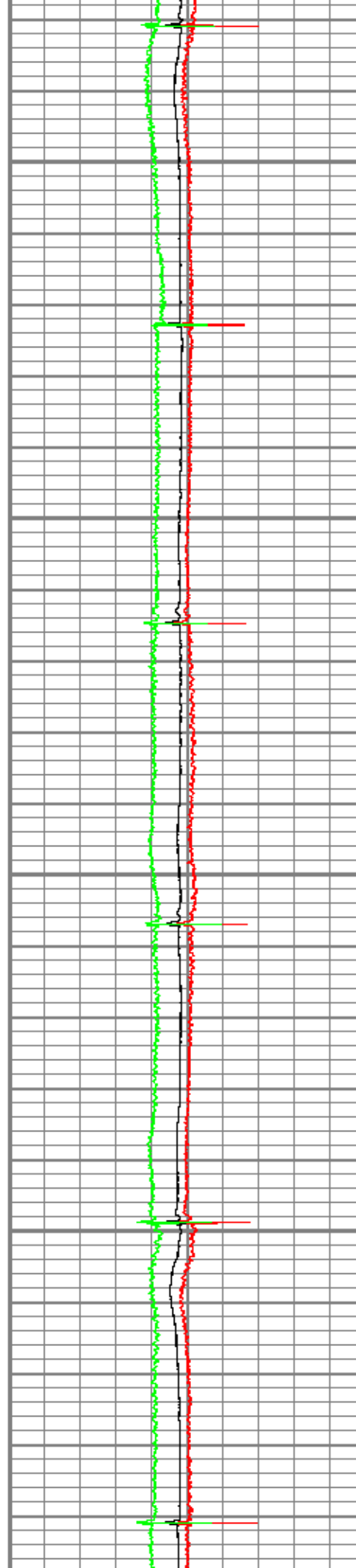
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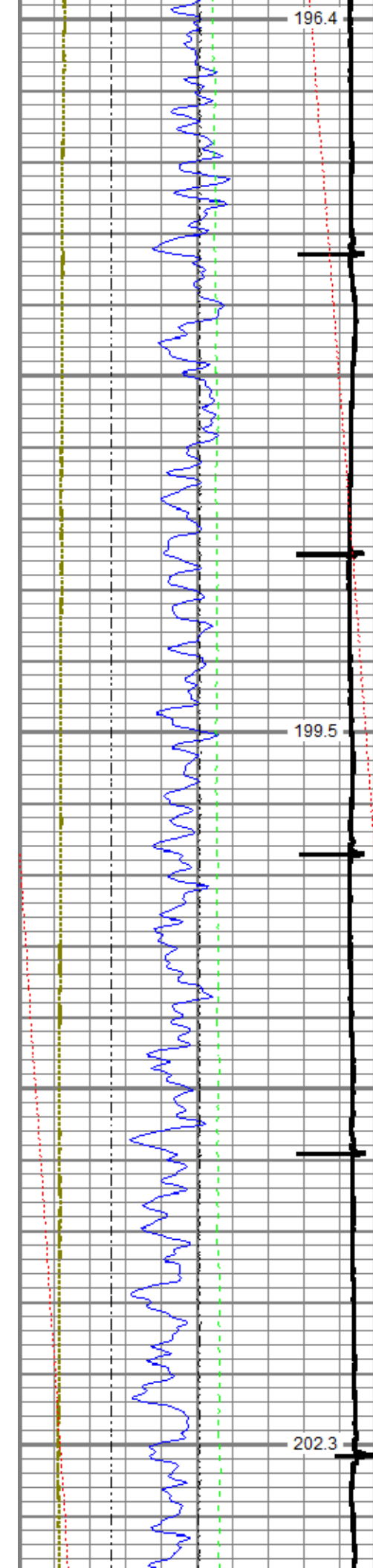




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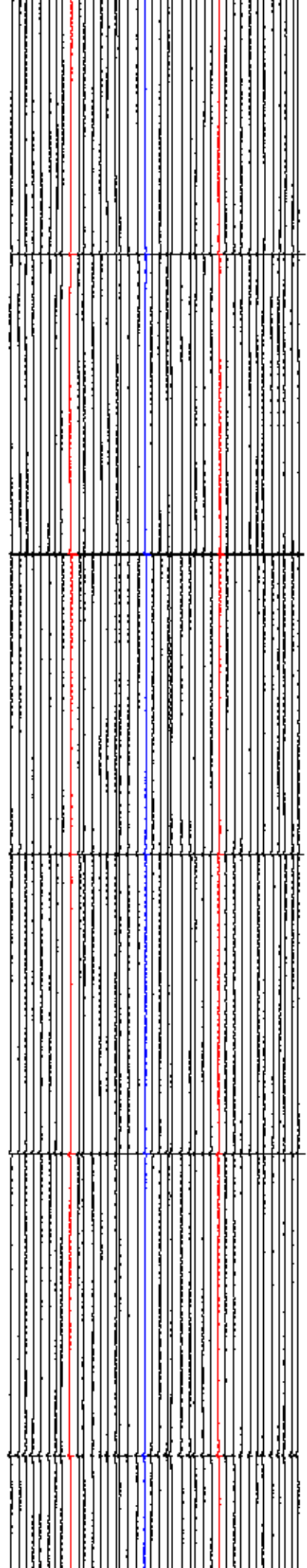
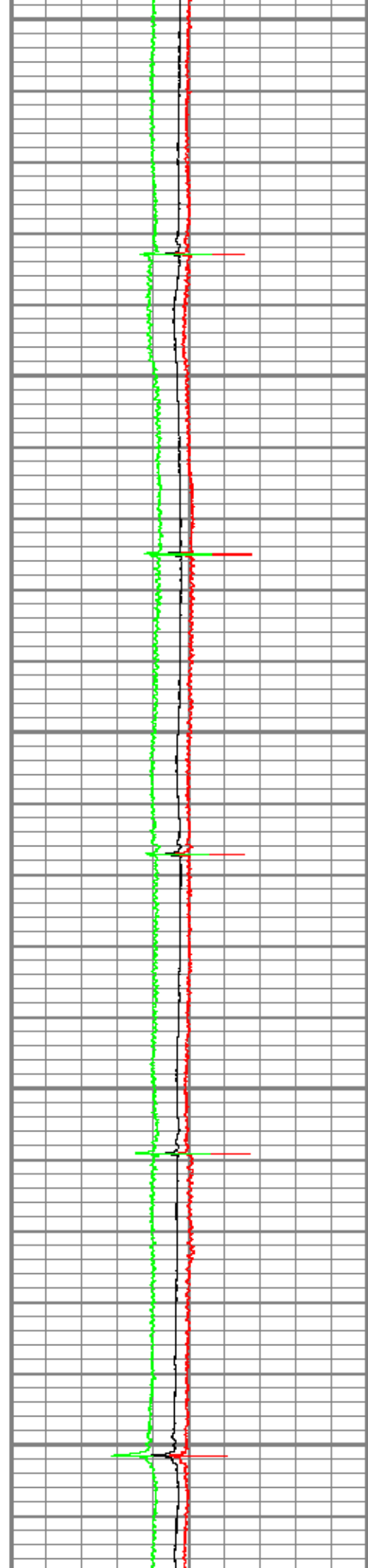


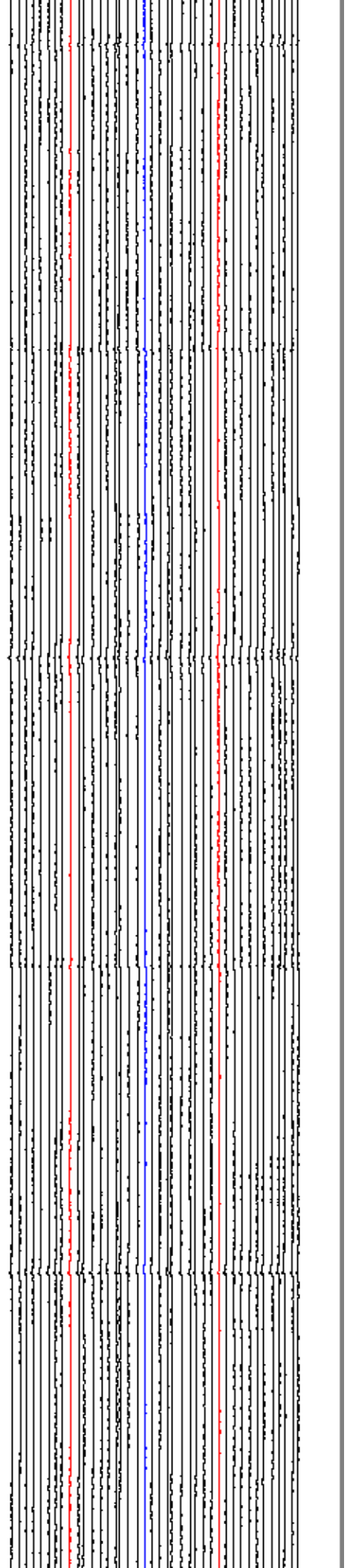
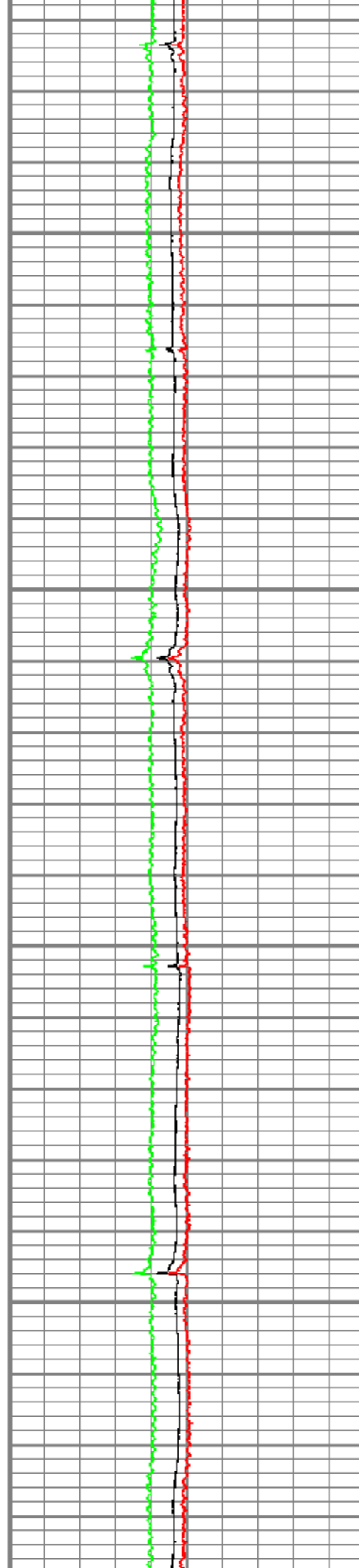
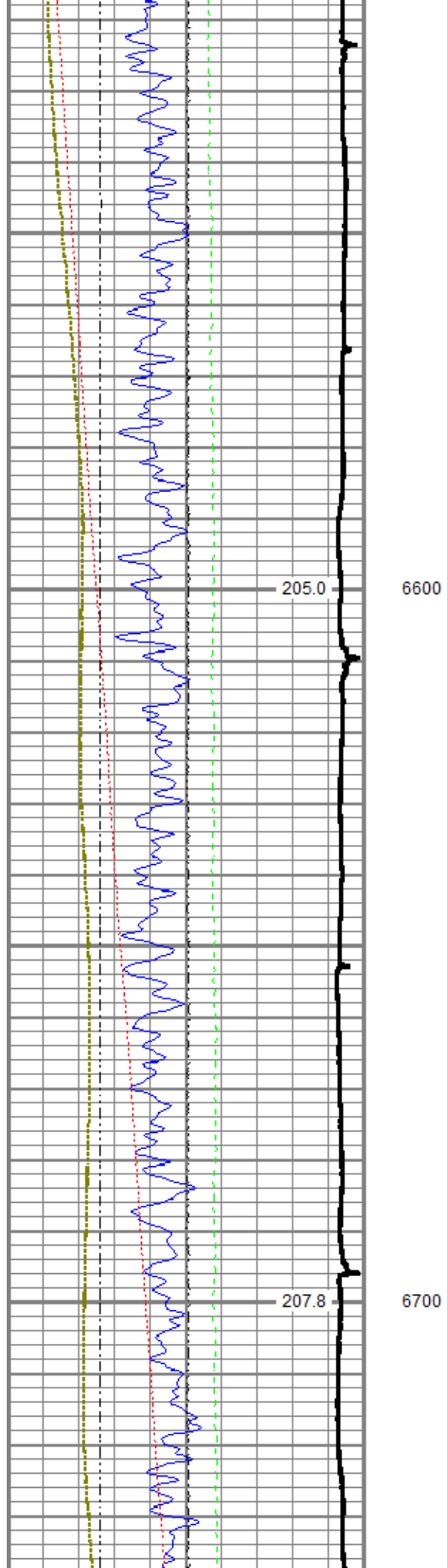


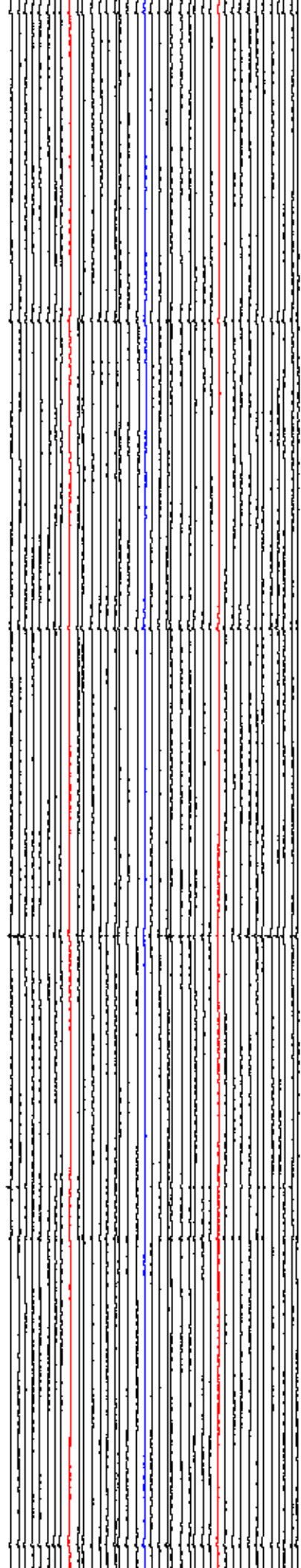
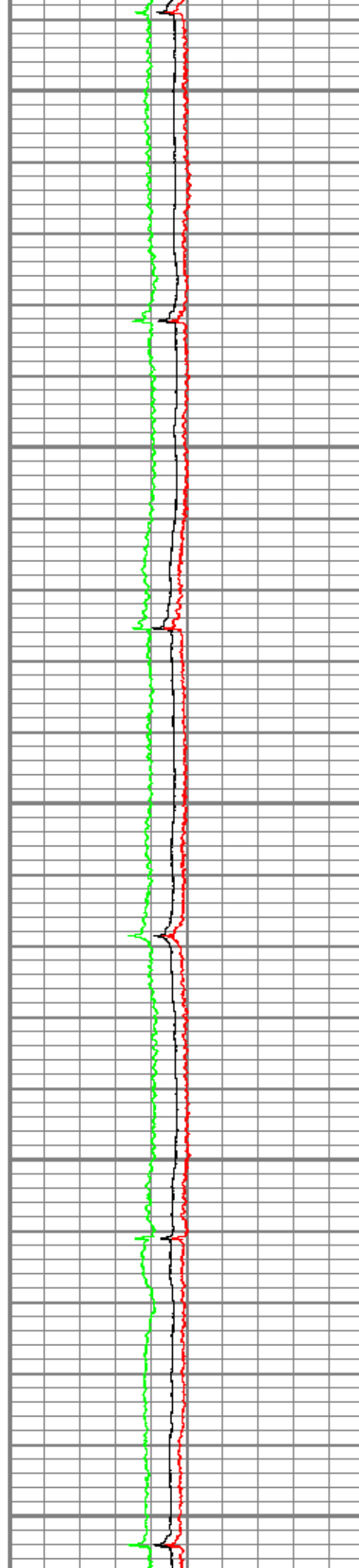
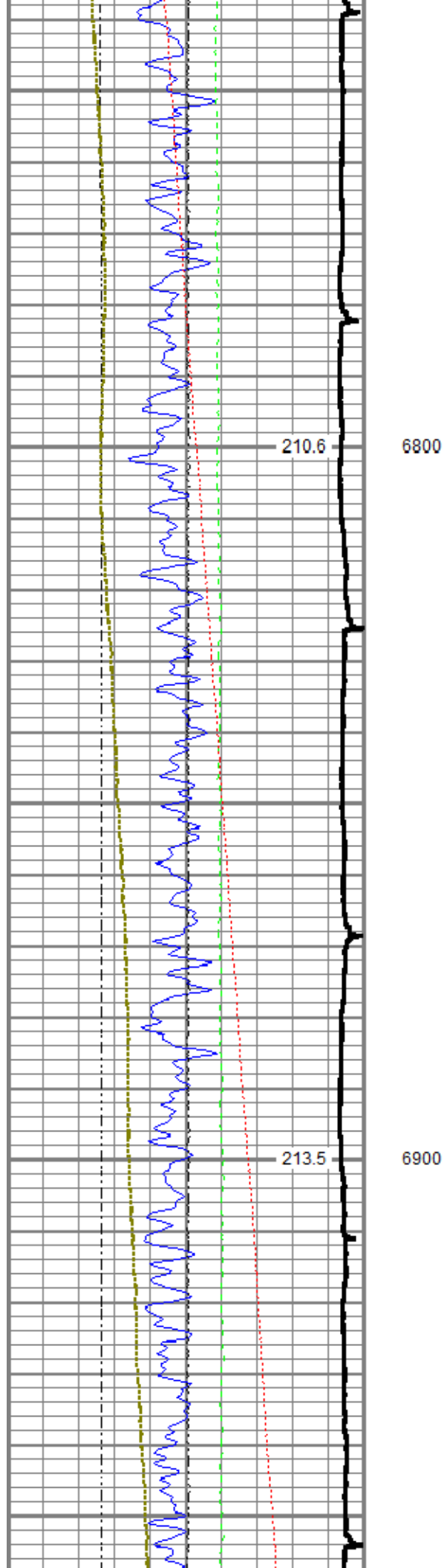
6300

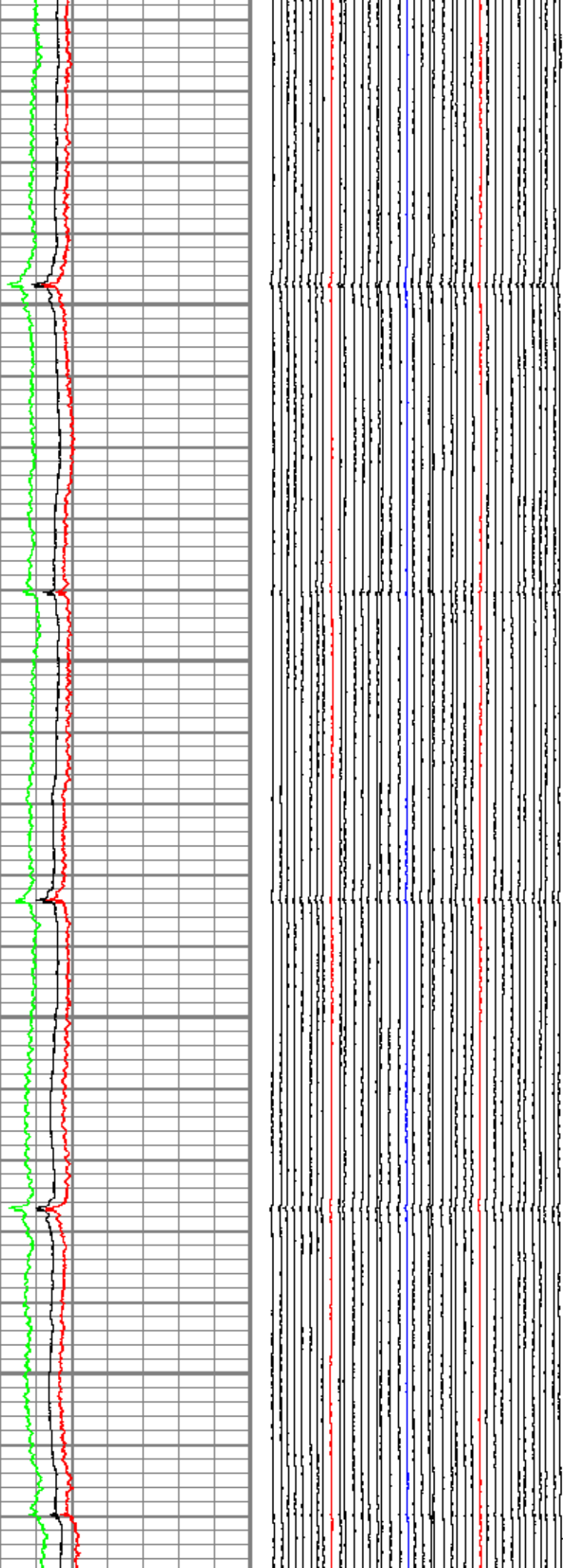
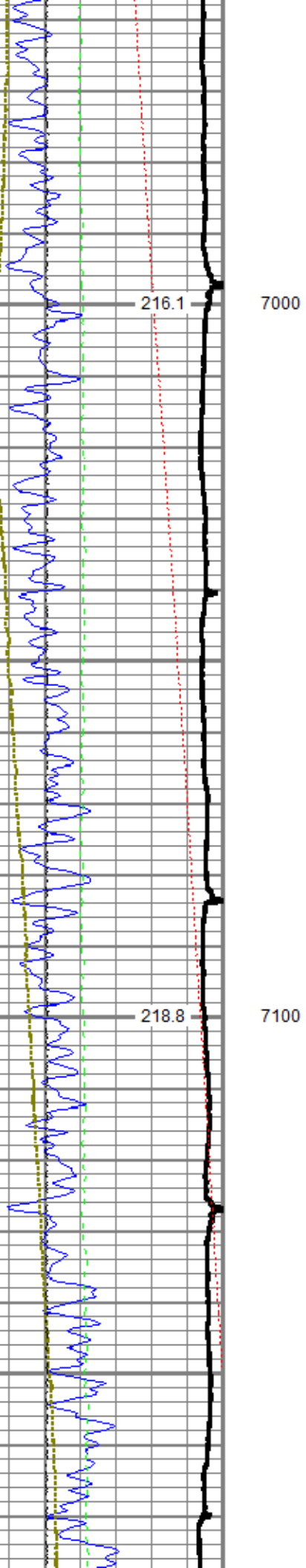
6400

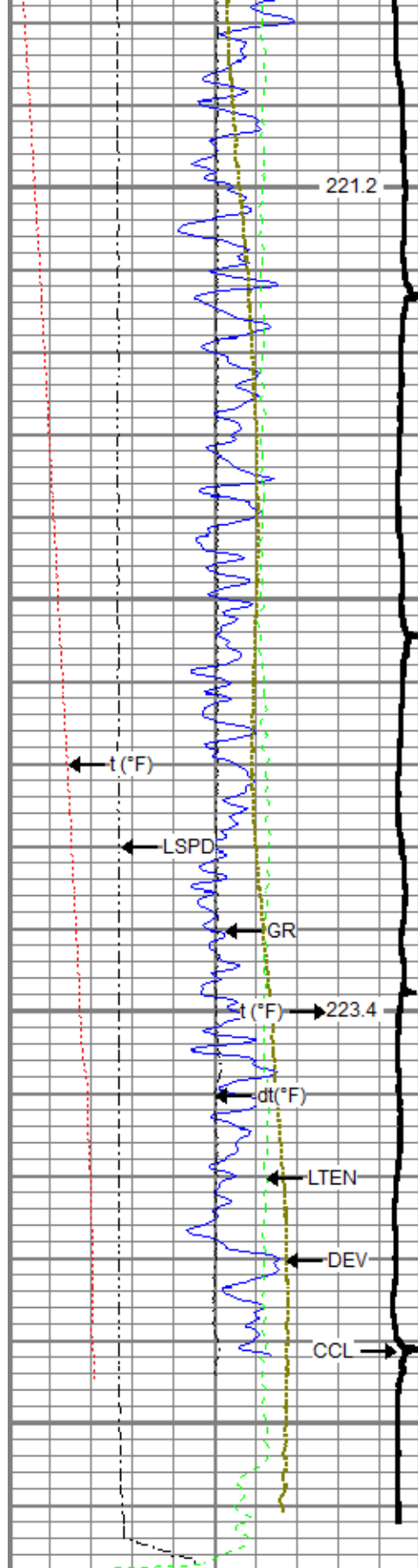
6500









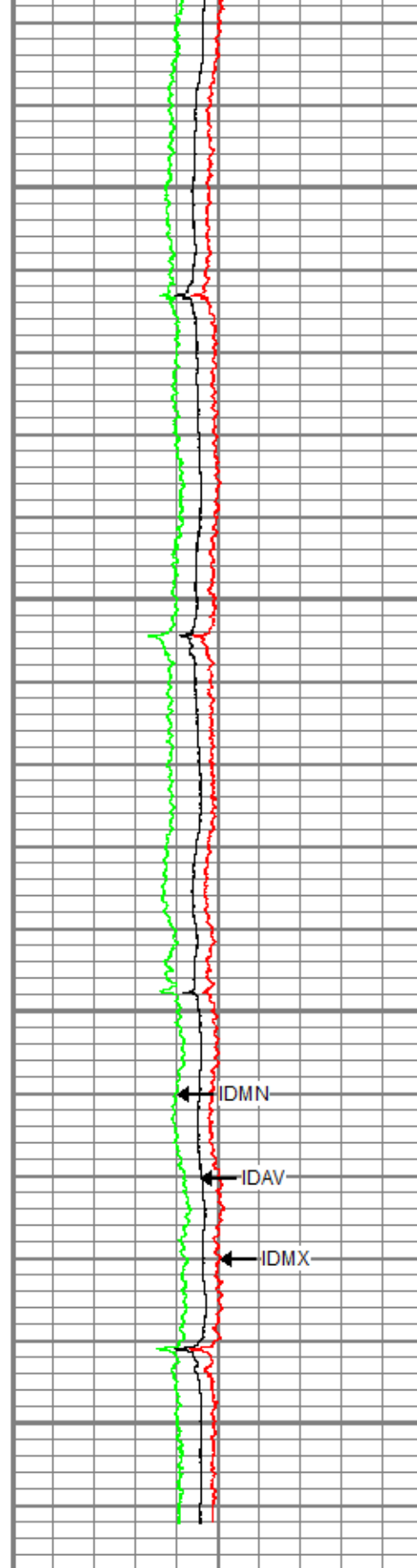


7200

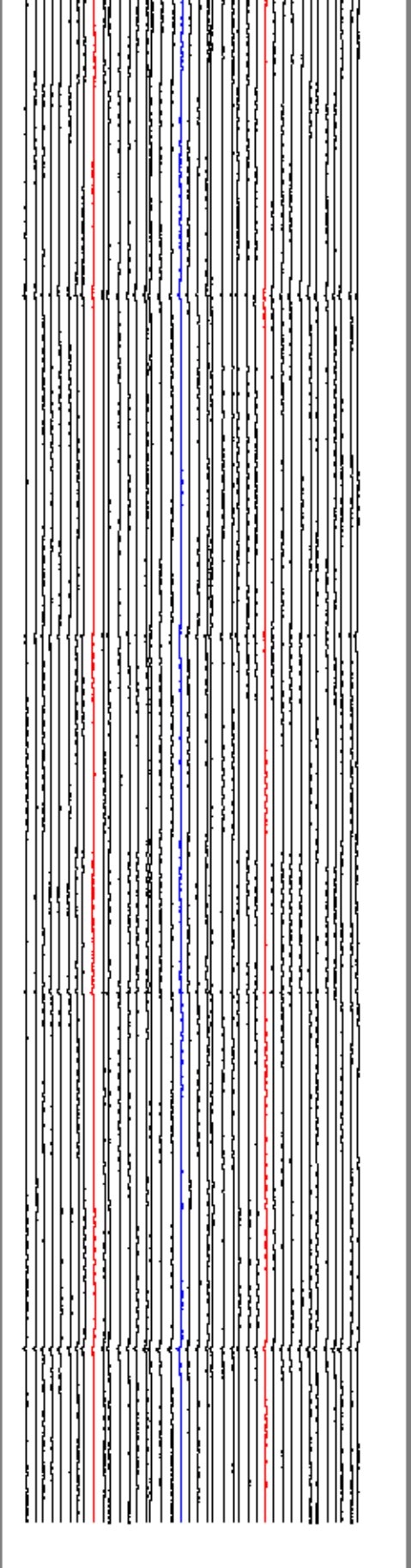
7300

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

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



3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5



Caliper #10
Caliper #20
Caliper #30

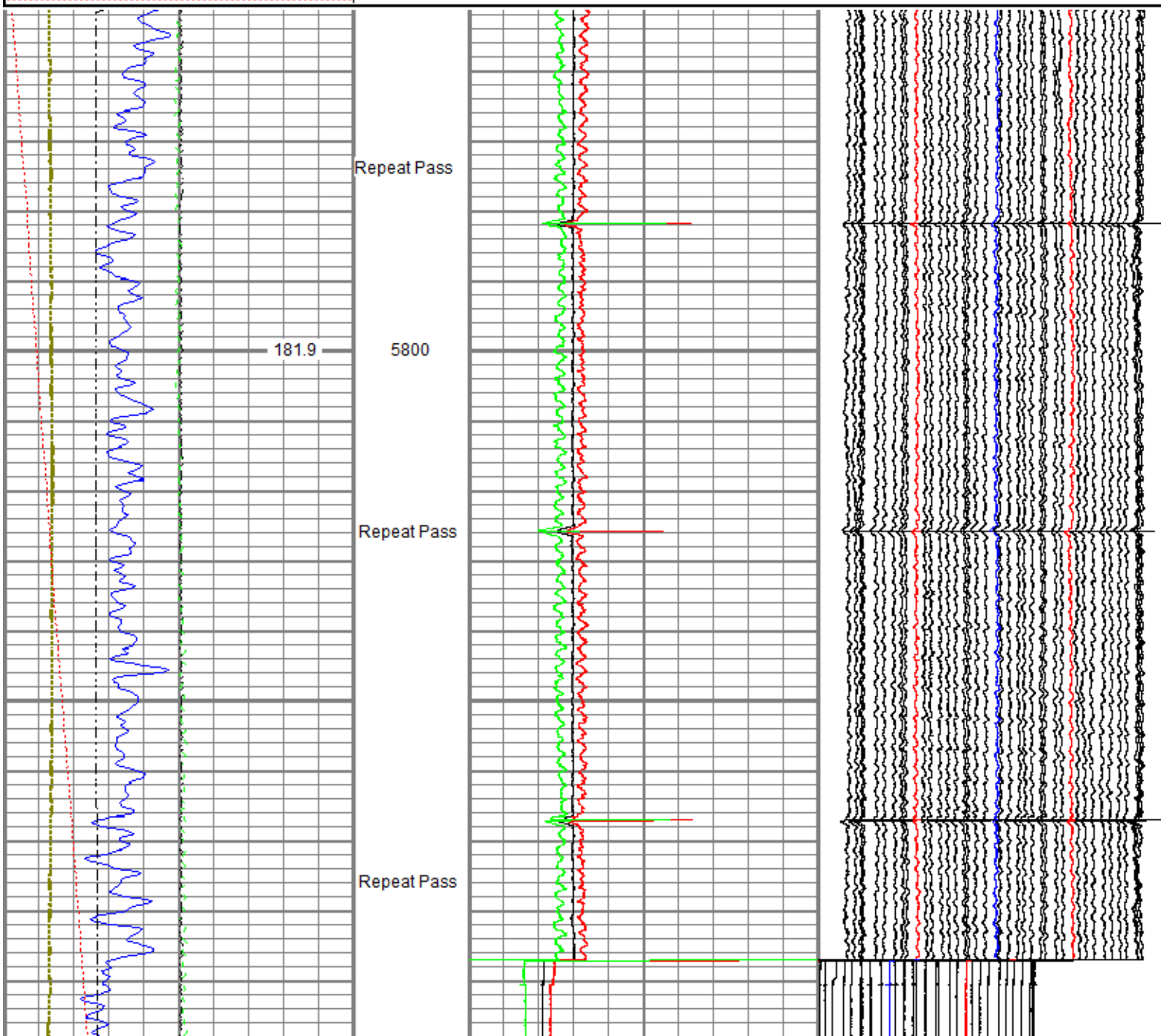


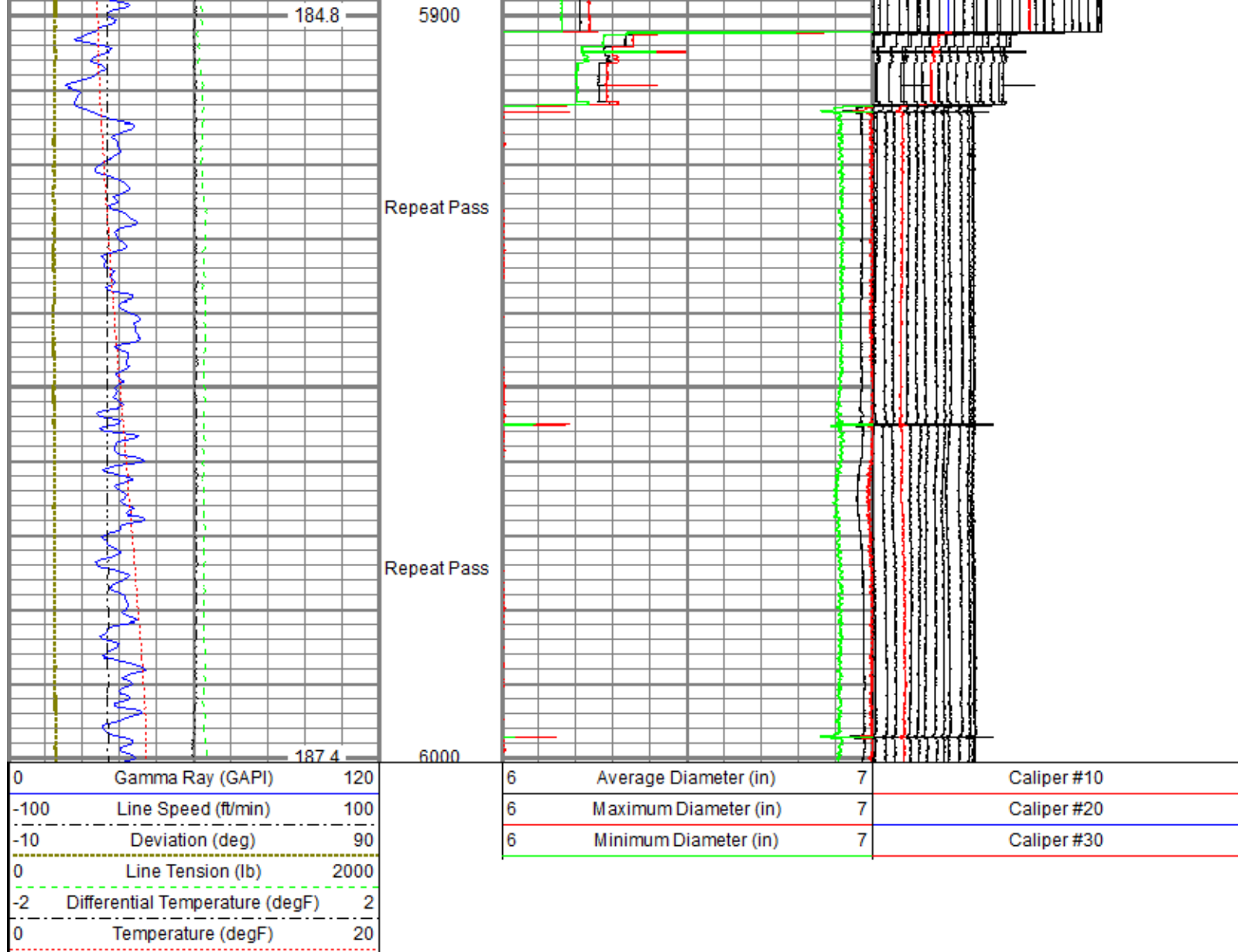
Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure

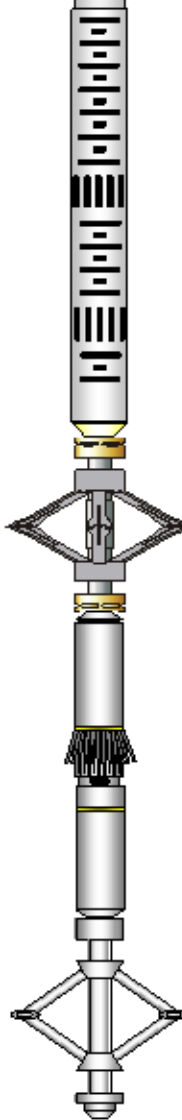
Database File 0512344568_anadarko_newby 2n-33hz_mit_rbl_03-20-18\processed_0512344568_anadarko_newby 2n-33hz_mit_rbl_03-20-18
 Dataset Pathname pass6
 Presentation Format ros_70mit40sx
 Dataset Creation Tue Mar 20 08:36:30 2018
 Charted by Depth in Feet scaled 1:240

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)
GR	23.58		Titan CHD-14375 GO	1.03	1.44	3.60
			Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck			
			UW AGS-001 (211461)	0.21	1.69	1.00
			Sondex Adapter - GO Box to Sondex Pin			
			UW XTU-002 (10017430)	1.58	1.69	6.50
TEMP	22.18		Crossover Ultrawire Toolbus to Ultralink			
			UW PGR-020 (211727)	1.92	1.69	9.50
			Production Gamma Ray			
			UW PRT-016 (10025100)	1.04	1.69	5.20
			UW CENT-DSS RAC	2.55	2.75	32.00
			5 Arm 2-3/4" Roller Centralizer			

CBLROT	15.15		UW RBT-004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00
CBLTEMP	15.15					
WVFS8	15.15					
WVFS7	15.15					
WVFS6	15.15					
WVFS5	15.15					
WVFS4	15.15					
WVFS3	15.15					
WVFS2	15.15					
WVFS1	15.15					
WVF3FT	15.15					
WVF5FT	14.15					
CBLTEMP	10.02					
MIT	5.27		UW CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
			UW MIT-40 042 E (10014703) 40 Multifinger Imaging Tool Ext.	4.54	2.75	65.00
			UW CENT-PRC 057 4 Arm 2-3/4" Production Roller Centralizer	2.71	2.75	32.00
TSTAMP	0.00		UW BUL-006 (031422) Sondex Ultrawire Bullnose Terminator Sub	0.22	1.69	1.20
Dataset: PROCESSED_0512344568_Anadarko_Newby 2N-33HZ_MIT_RBL_03-20-18.db: field/well/run1/merge1 Total length: 27.83 ft Total weight: 328.00 lb O.D.: 3.13 in						

Calibration Report			
Database File	C:\ProgramData\Warrior\Data\0512344568_Anadarko_Newby 2N-33HZ_MIT_RBL_03-20-18\PROCESSED_0512344568_Anadarko_Newby 2N-33HZ_MIT_RBL_03-20-18		
Dataset Pathname	cal		
Dataset Creation	Tue Mar 20 12:28:02 2018		
Multifinger Imaging Tool Calibration Report			
Serial Number:		10014703	
Number of Fingers:		40	
Tool Model:		40 042 E	
Inclinometer Calibration Report			
Performed:		Fri Sep 20 11:47:48 2013	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1963	1960
Finger 1 up:		1748	1727
Finger 31 up:		2195	1742
Finger 21 up:		2178	2188
Finger 11 up:		1727	2173
Sensitivity ratio:	1.00706		
X-axis angle:	132.825		
Deviation const.:	317.775		
Finger Calibration Report			

Performed:

Tue Mar 20 07:35:48 2018

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1050	359.0	1409	393.0	1802	412.0	2214
Finger 02:	1046	373.0	1419	416.0	1835	435.0	2270
Finger 03:	1045	361.0	1406	403.0	1809	422.0	2231
Finger 04:	1004	368.0	1372	434.0	1806	443.0	2249
Finger 05:	1039	342.0	1381	401.0	1782	408.0	2190
Finger 06:	1041	359.0	1400	422.0	1822	420.0	2242
Finger 07:	1054	356.0	1410	415.0	1825	409.0	2234
Finger 08:	1036	354.0	1390	428.0	1818	423.0	2241
Finger 09:	1125	361.0	1486	416.0	1902	387.0	2289
Finger 10:	1084	353.0	1437	417.0	1854	394.0	2248
Finger 11:	1050	355.0	1405	418.0	1823	400.0	2223
Finger 12:	1156	342.0	1498	392.0	1890	359.0	2249
Finger 13:	1099	343.0	1442	412.0	1854	390.0	2244
Finger 14:	1067	357.0	1424	425.0	1849	410.0	2259
Finger 15:	1034	355.0	1389	427.0	1816	417.0	2233
Finger 16:	1091	349.0	1440	412.0	1852	401.0	2253
Finger 17:	1130	342.0	1472	392.0	1864	378.0	2242
Finger 18:	1153	345.0	1498	393.0	1891	390.0	2281
Finger 19:	1114	356.0	1470	401.0	1871	403.0	2274
Finger 20:	1024	355.0	1379	405.0	1784	390.0	2174
Finger 21:	1105	352.0	1457	391.0	1848	411.0	2259
Finger 22:	1096	357.0	1453	392.0	1845	415.0	2260
Finger 23:	1126	362.0	1488	389.0	1877	417.0	2294
Finger 24:	1106	328.0	1434	353.0	1787	389.0	2176
Finger 25:	1107	371.0	1478	389.0	1867	425.0	2292
Finger 26:	1034	356.0	1390	379.0	1769	431.0	2200
Finger 27:	1207	383.0	1590	386.0	1976	427.0	2403
Finger 28:	1069	348.0	1417	364.0	1781	428.0	2209
Finger 29:	1034	365.0	1399	381.0	1780	444.0	2224
Finger 30:	1014	364.0	1378	382.0	1760	453.0	2213
Finger 31:	1230	393.0	1623	391.0	2014	448.0	2462
Finger 32:	989	366.0	1355	370.0	1725	432.0	2157
Finger 33:	1085	393.0	1478	400.0	1878	468.0	2346
Finger 34:	968	363.0	1331	382.0	1713	447.0	2160
Finger 35:	1118	393.0	1511	403.0	1914	458.0	2372
Finger 36:	1048	353.0	1401	369.0	1770	418.0	2188
Finger 37:	1113	392.0	1505	409.0	1914	457.0	2371
Finger 38:	1085	361.0	1446	382.0	1828	423.0	2251
Finger 39:	1039	343.0	1382	368.0	1750	406.0	2156
Finger 40:	963	370.0	1333	415.0	1748	453.0	2201

Post Survey Calibration Check

Performed:

Tue Mar 20 11:38:26 2018

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.015	0.008	5.036	0.018	6.030	0.015	7.033	0.017
Finger 02:	3.997	-0.001	5.010	0.005	6.011	0.006	7.006	0.003
Finger 03:	3.989	-0.006	5.003	0.001	6.014	0.007	6.998	-0.001
Finger 04:	3.993	-0.003	5.012	0.006	6.009	0.005	7.013	0.006
Finger 05:	4.005	0.002	5.024	0.012	6.030	0.015	7.012	0.006
Finger 06:	3.996	-0.002	5.012	0.006	6.013	0.007	6.999	-0.000
Finger 07:	4.022	0.011	5.034	0.017	6.045	0.023	7.039	0.020
Finger 08:	4.015	0.008	5.035	0.018	6.049	0.024	7.039	0.020
Finger 09:	4.019	0.010	5.031	0.015	6.036	0.018	7.036	0.018
Finger 10:	4.022	0.011	5.035	0.017	6.042	0.021	7.040	0.020
Finger 11:	4.015	0.008	5.016	0.008	6.020	0.010	7.024	0.012
Finger 12:	3.998	-0.001	5.017	0.009	6.014	0.007	7.023	0.012
Finger 13:	4.019	0.010	5.035	0.018	6.029	0.015	7.046	0.023
Finger 14:	4.005	0.003	5.017	0.009	6.015	0.007	7.007	0.003
Finger 15:	4.013	0.006	5.029	0.014	6.027	0.013	7.028	0.014
Finger 16:	4.026	0.013	5.046	0.023	6.037	0.019	7.042	0.021
Finger 17:	3.986	-0.007	5.010	0.005	6.004	0.002	7.018	0.009
Finger 18:	3.990	-0.005	5.015	0.008	6.014	0.007	7.008	0.004
Finger 19:	4.002	0.001	5.027	0.014	6.021	0.010	7.012	0.006
Finger 20:	4.017	0.008	5.043	0.021	6.050	0.025	7.127	0.064
Finger 21:	4.008	0.004	5.024	0.012	6.021	0.010	7.017	0.009
Finger 22:	4.008	0.004	5.035	0.017	6.035	0.018	7.024	0.012
Finger 23:	4.018	0.009	5.035	0.017	6.036	0.018	7.034	0.017

Finger 24:	4.002	0.001	5.027	0.014	6.032	0.016	7.032	0.016
Finger 25:	4.016	0.008	5.028	0.014	6.037	0.018	7.038	0.019
Finger 26:	4.012	0.006	5.021	0.010	6.021	0.011	6.556	-0.222
Finger 27:	3.996	-0.002	5.012	0.006	6.015	0.008	6.347	-0.327
Finger 28:	4.000	0.000	5.017	0.008	6.032	0.016	7.004	0.002
Finger 29:	4.000	0.000	5.010	0.005	6.009	0.004	7.010	0.005
Finger 30:	4.004	0.002	5.013	0.006	6.019	0.009	7.017	0.009
Finger 31:	4.005	0.002	5.012	0.006	6.015	0.007	7.021	0.011
Finger 32:	4.009	0.004	5.012	0.006	6.018	0.009	7.014	0.007
Finger 33:	4.011	0.006	5.027	0.014	6.029	0.014	7.022	0.011
Finger 34:	4.023	0.011	5.040	0.020	6.036	0.018	7.042	0.021
Finger 35:	4.019	0.010	5.036	0.018	6.030	0.015	7.034	0.017
Finger 36:	4.023	0.011	5.055	0.028	6.051	0.026	7.064	0.032
Finger 37:	4.032	0.016	5.063	0.031	6.055	0.028	7.060	0.030
Finger 38:	4.005	0.002	5.025	0.012	6.022	0.011	7.031	0.016
Finger 39:	3.999	-0.000	5.027	0.013	6.024	0.012	7.031	0.016
Finger 40:	3.989	-0.005	5.009	0.004	6.007	0.003	7.000	-0.000
Average:	4.008	0.004	5.025	0.013	6.026	0.013	6.999	-0.001

Segmented Cement Bond Log Calibration Report								
Serial Number:			10013454					
Tool Model:			004					
Calibration Casing Diameter:			7.000		in			
Calibration Depth:			105.633		ft			

Master Calibration, performed Tue Mar 20 12:02:53 2018:						
Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.607	0.800	62.165	96.016	0.840
5FT	-0.015	0.758	0.800	62.165	79.415	1.966
S1	-0.001	0.636	0.000	100.000	157.017	0.126
S2	-0.001	0.629	0.000	100.000	158.780	0.092
S3	-0.001	0.563	0.000	100.000	177.224	0.152
S4	-0.001	0.615	0.000	100.000	162.407	0.139
S5	-0.001	0.607	0.000	100.000	164.641	0.102
S6	-0.001	0.618	0.000	100.000	161.559	0.102
S7	-0.000	0.623	0.000	100.000	160.311	0.080
S8	-0.001	0.618	0.000	100.000	161.756	0.097

Temperature Calibration Report					
Serial Number:			10025100		
Tool Model:			016		
Performed:			Sun Nov 12 14:30:03 2017		
Point #	Reading		Reference		
1	13249.00	cps	68.00	degF	
2	18454.00	cps	104.00	degF	
3	29735.00	cps	176.00	degF	
4	41457.00	cps	248.00	degF	
5	52851.00	cps	320.00	degF	
6	59128.00	cps	356.00	degF	
7		cps		degF	
8		cps		degF	
9		cps		degF	
10		cps		degF	

Gamma Ray Calibration Report				
Serial Number:		211727		
Tool Model:		020		
Performed:		Sun Nov 12 06:37:04 2017		
Calibrator Value:		637.0	GAPI	

Background Reading:	78.8	cps
Calibrator Reading:	1069.9	cps
Sensitivity:	0.6427	GAPI/cps



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Newby 2N-33HZ
Field	Wattenberg
County	Weld
State	Colorado