



Multifinger Imaging Caliper
Gamma Ray
Casing Collar Log

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

Well Leinweber 36N-11HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-44203

SEC 11 TWP 1N RGE 67W

Permanent Datum Ground Level Elevation 4965'

Log Measured From Kelly Bushing 17 FT

Drilling Measured From Kelly Bushing

Other Services
Gauge Ring
RCBL

Elevation
K.B. 4982'
D.F. ---
G.L. 4965'

Date	17-APR-2018			
Run Number	Two			
Depth Driller	13304 FT			
Depth Logger	8078 FT			
Bottom Logged Interval	8073 FT			
Top Log Interval	Surface			
Open Hole Size	---			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	234°F			
Estimated Cement Top	See Log			
Time Well Ready	ROA			
Time Logger on Bottom	08:30			
Equipment Number	HD-0324			
Location	Fort Lupton, CO			
Recorded By	M. Steinman			
Witnessed By	John McCarthy			
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	LT&C	Surface
Intermediate #2				
Liner	4 1/2	11.6	HC P 110	5828 FT
				13299 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 5828 FT
Adjusted -17 FT to correlate with Liner Top
Gauge Ring/Junk Basket ran to 8080 FT with no debris
Log ran from as deep as possible in heel to surface
Recorded with 0 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

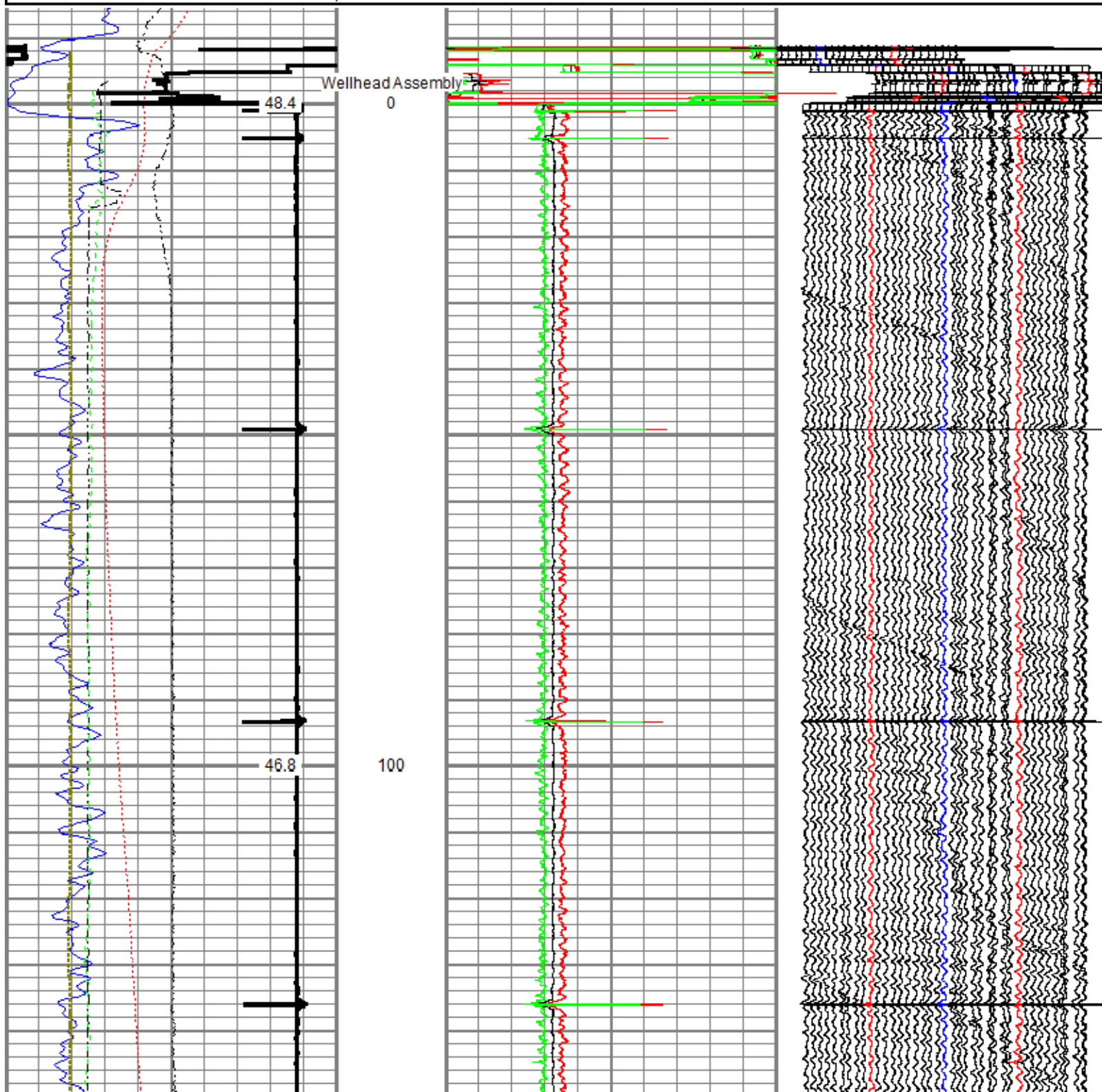


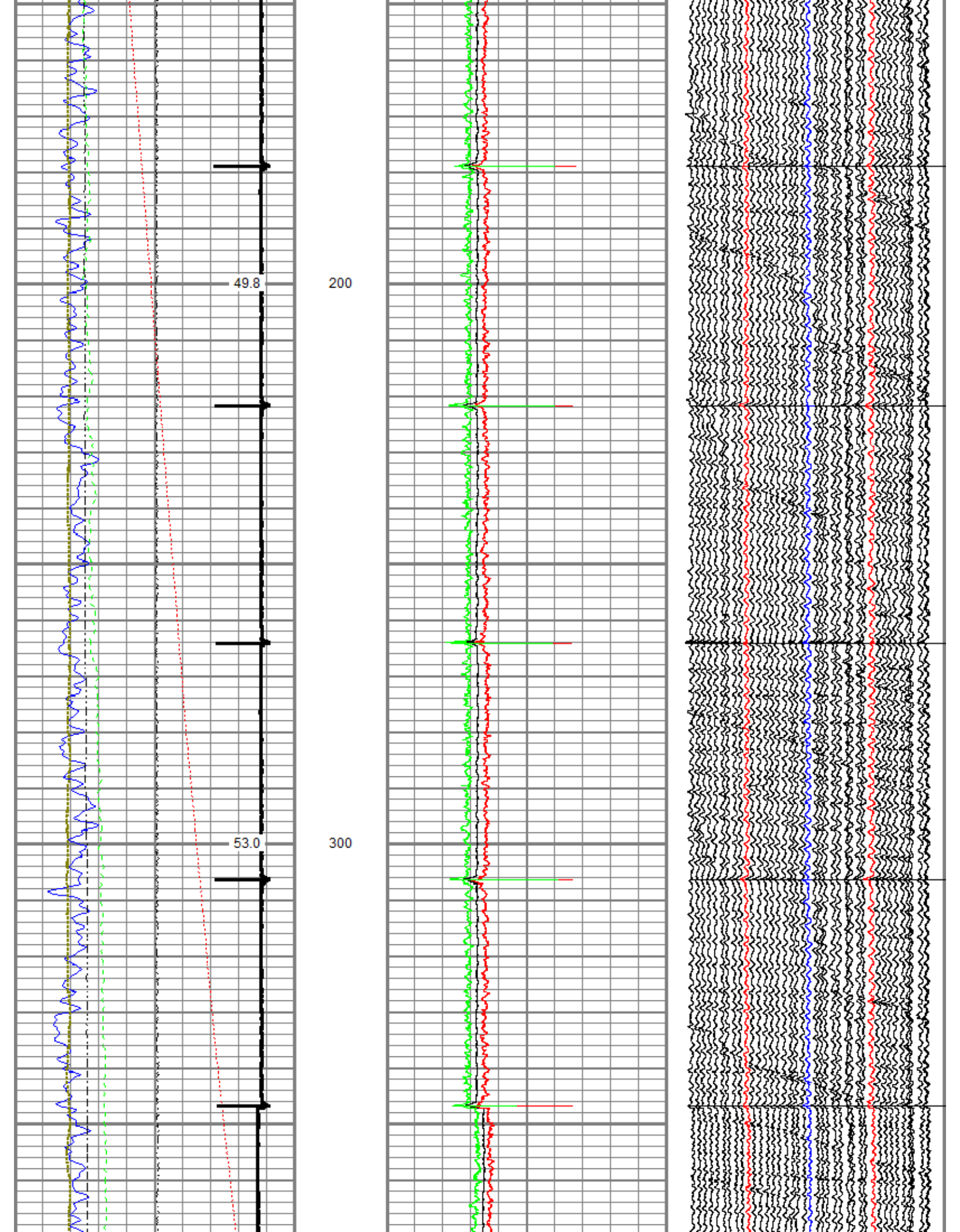
Main Pass (7-inch Casing)

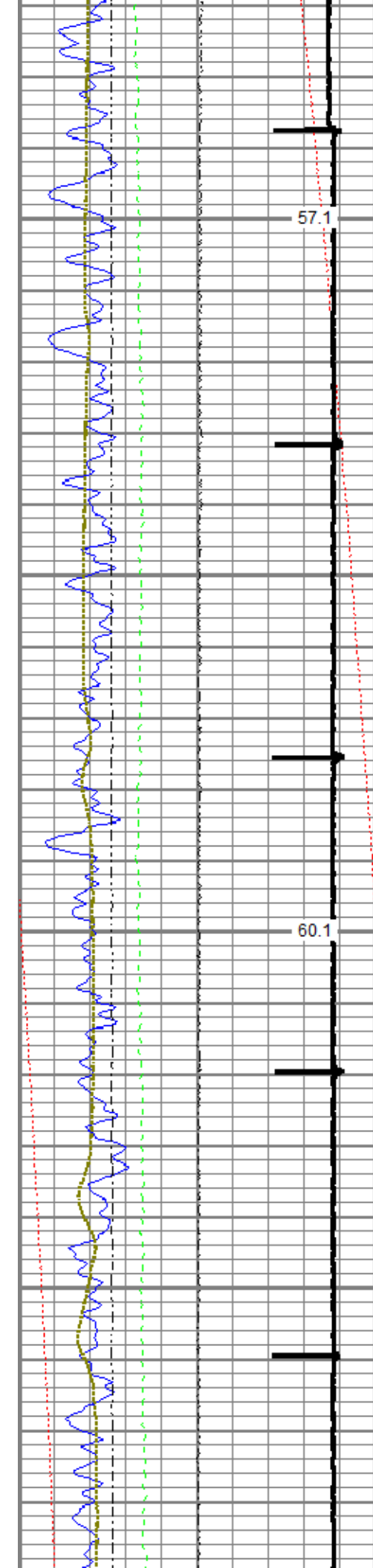
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Dataset Pathname	Main
Presentation Format	ros_70mit40sx
Dataset Creation	Tue Apr 17 08:36:07 2018
Charted by	Depth in Feet scaled 1:240

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

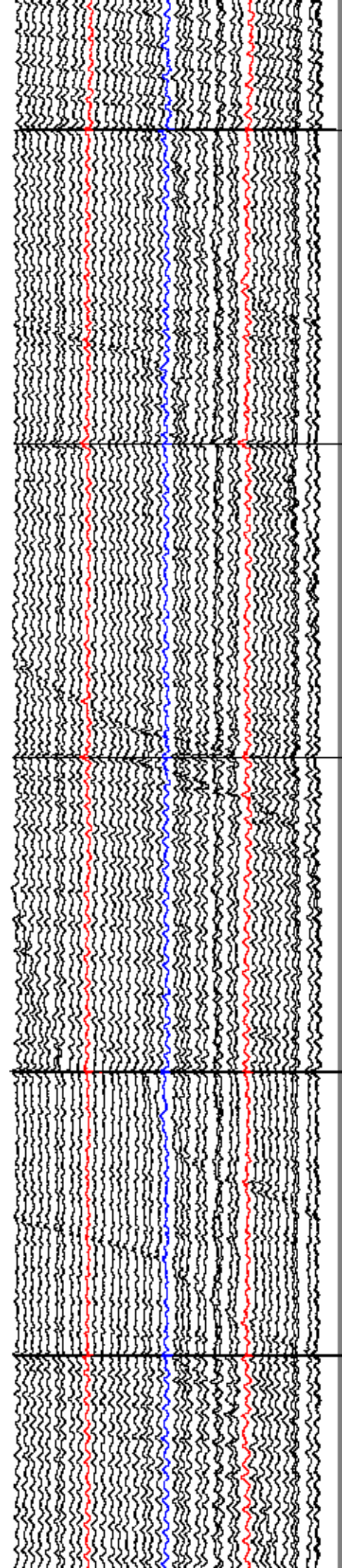
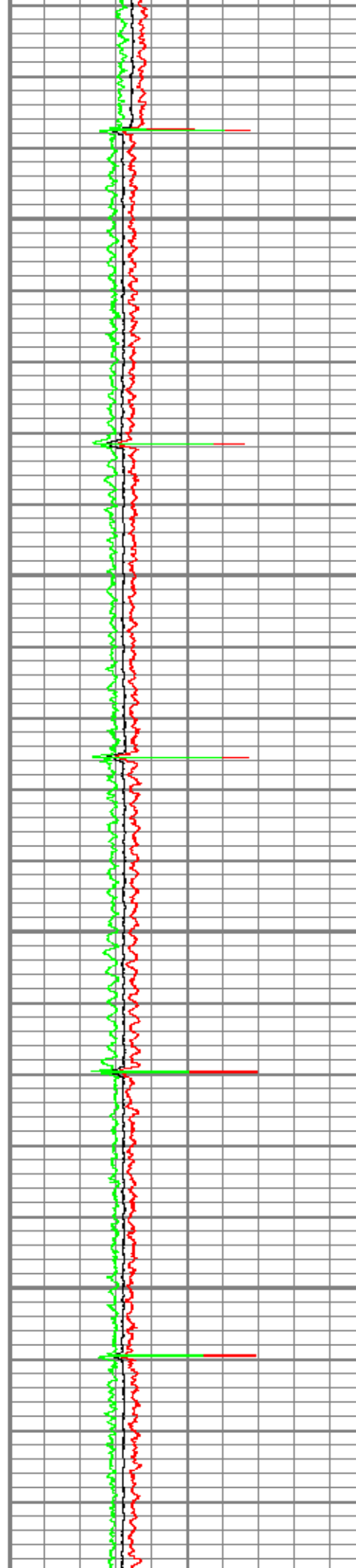


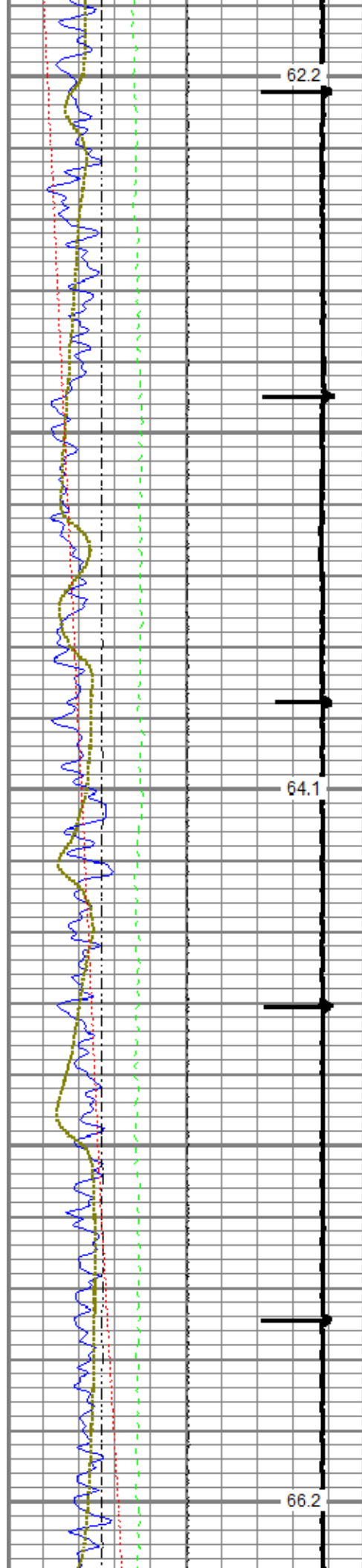




400

500

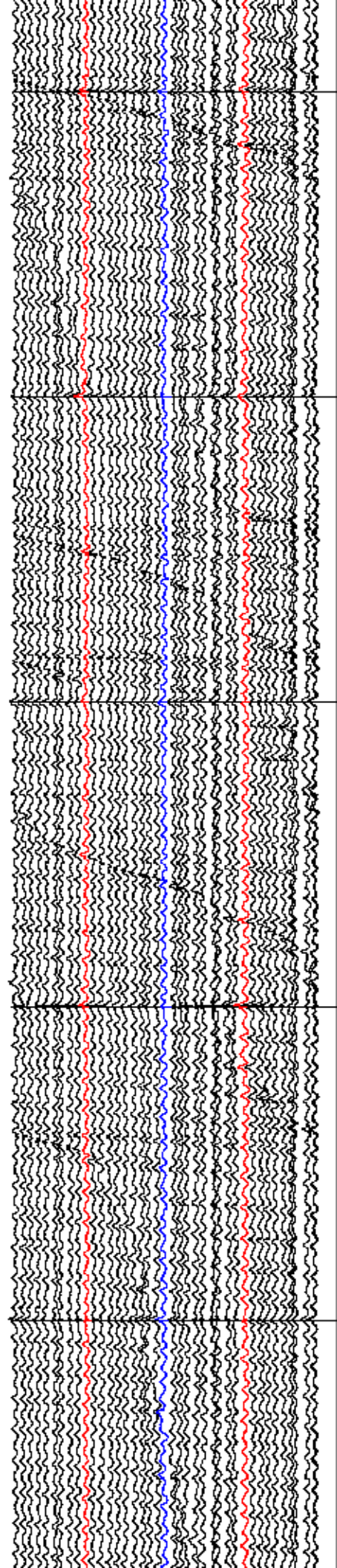
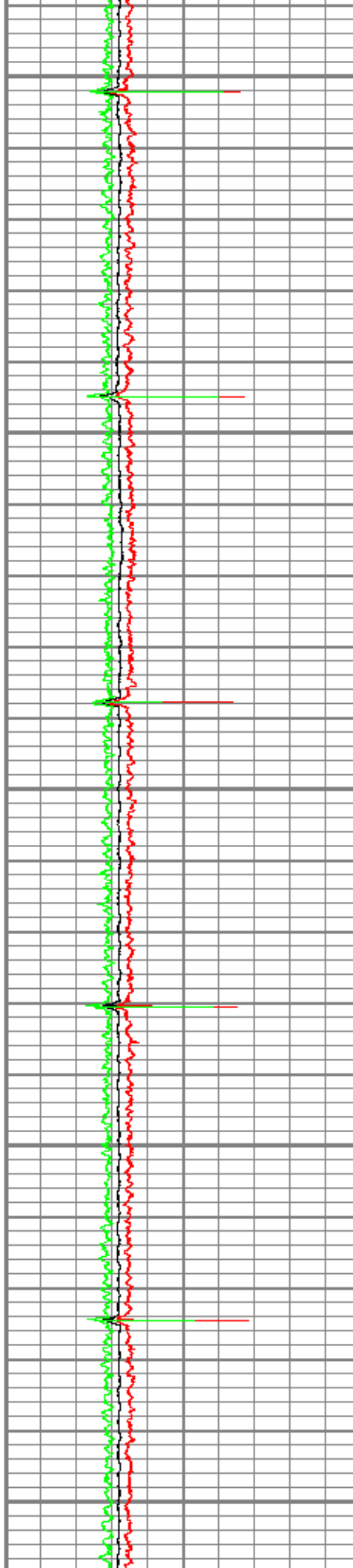


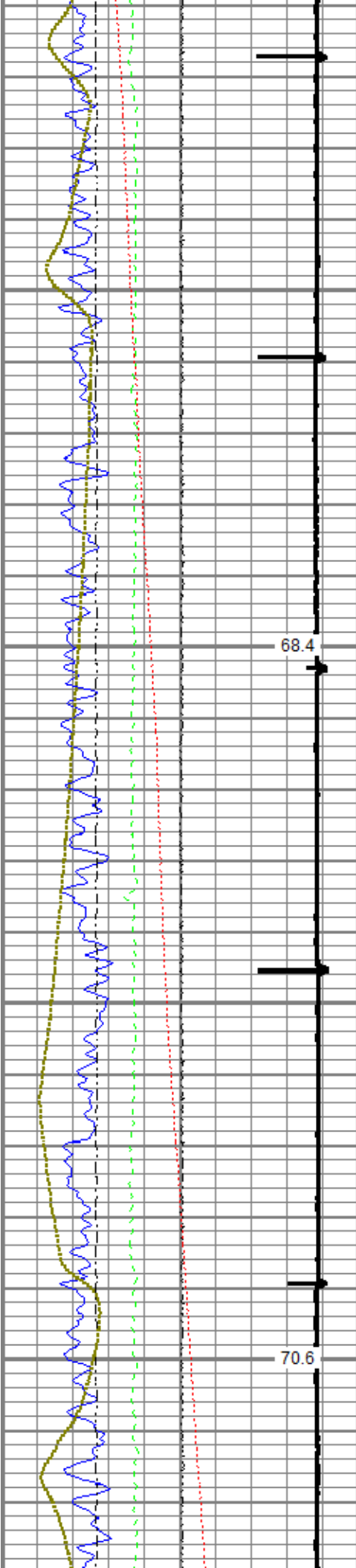


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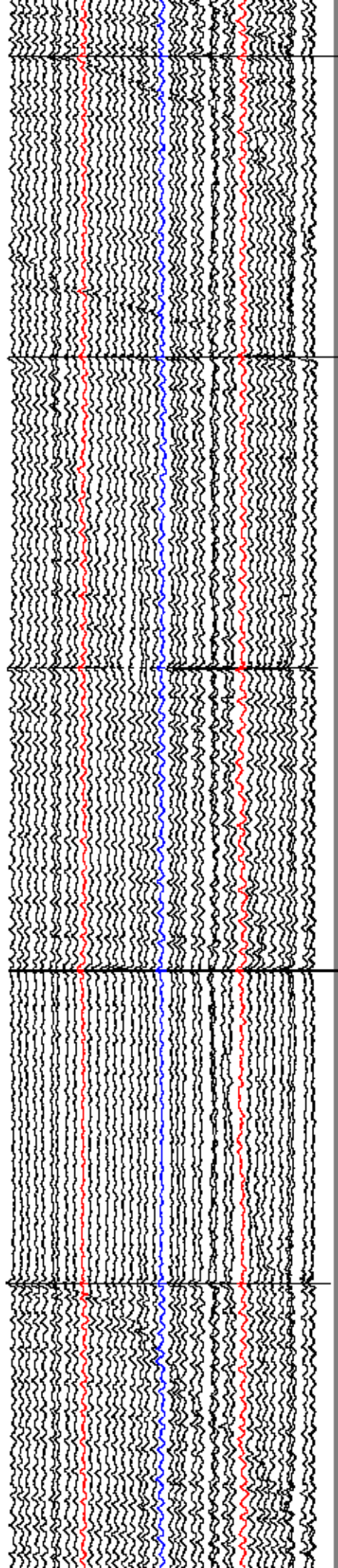
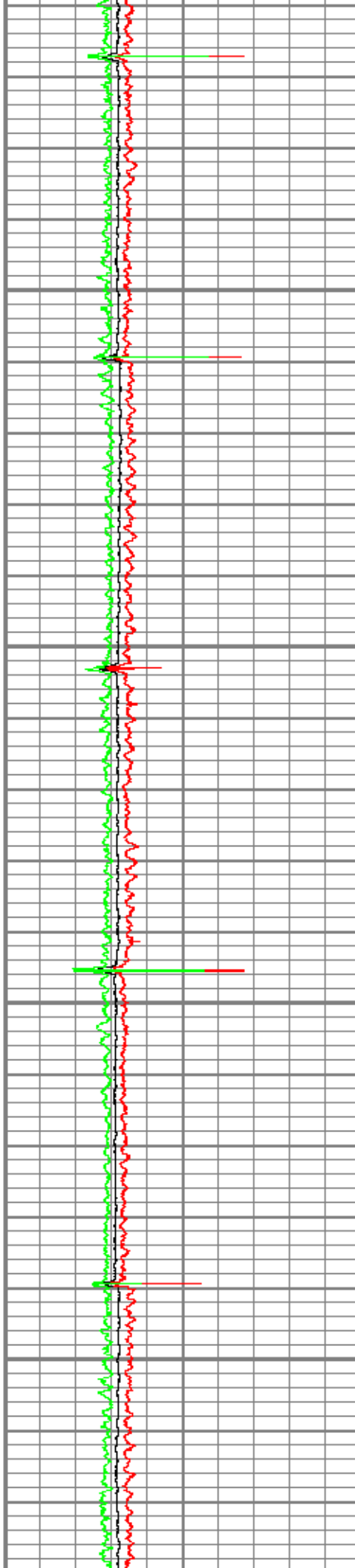
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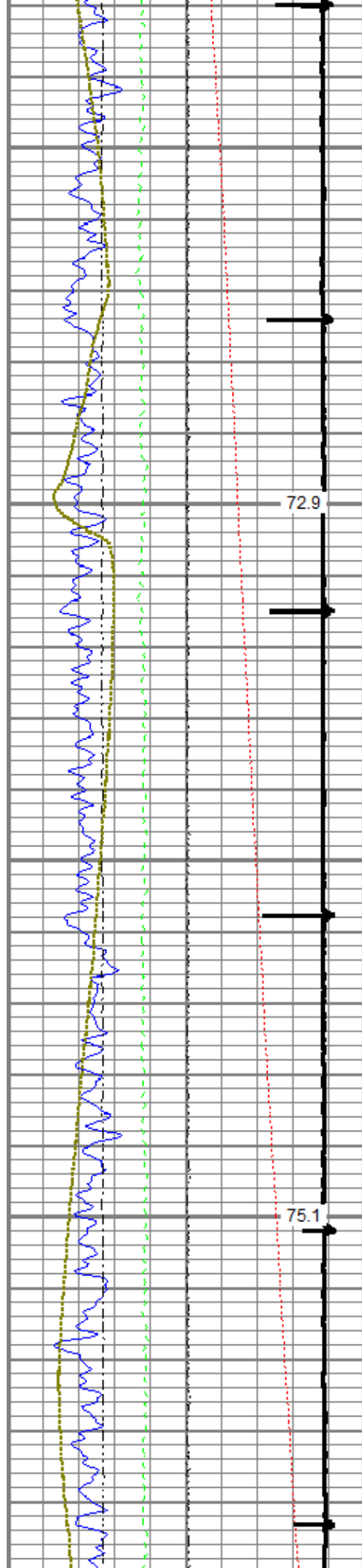




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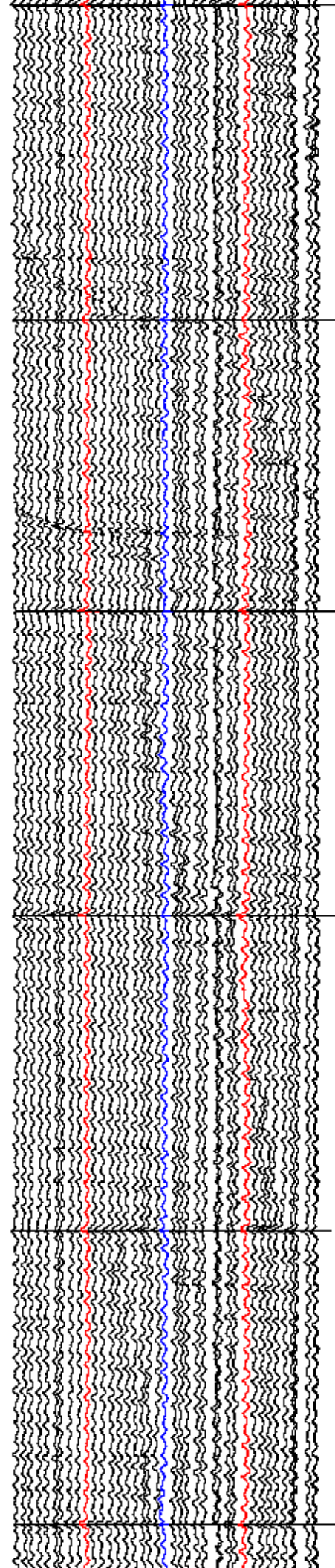
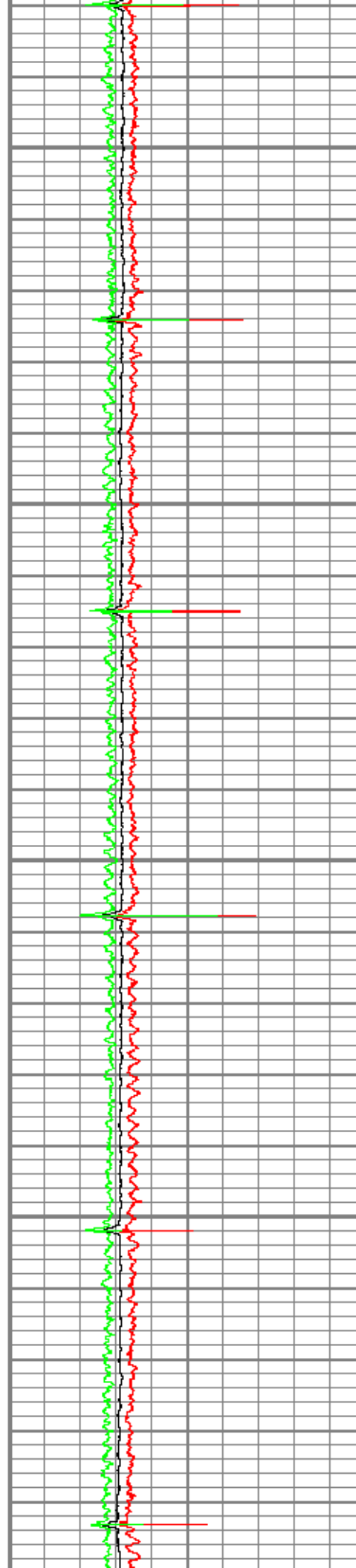
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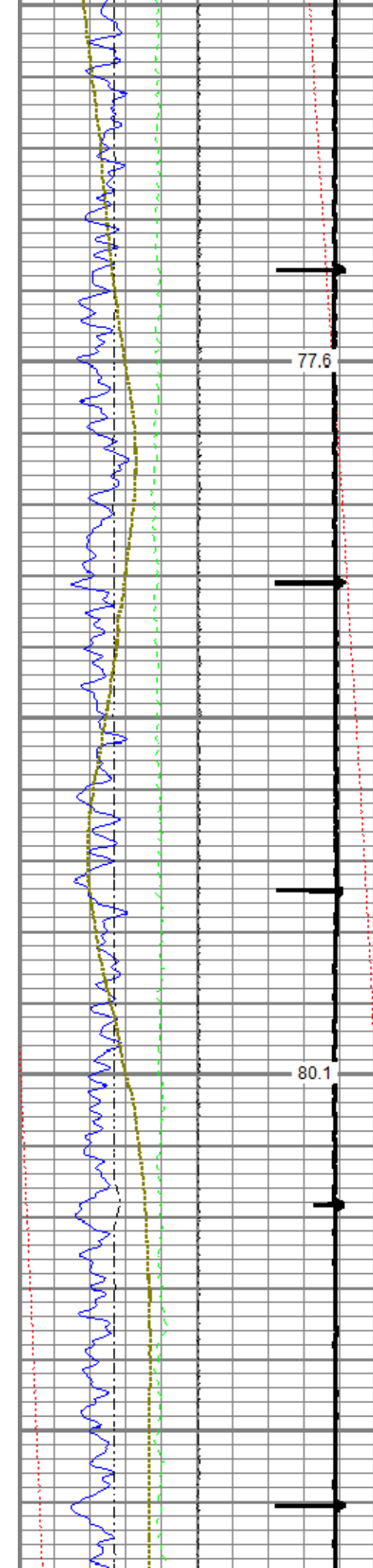




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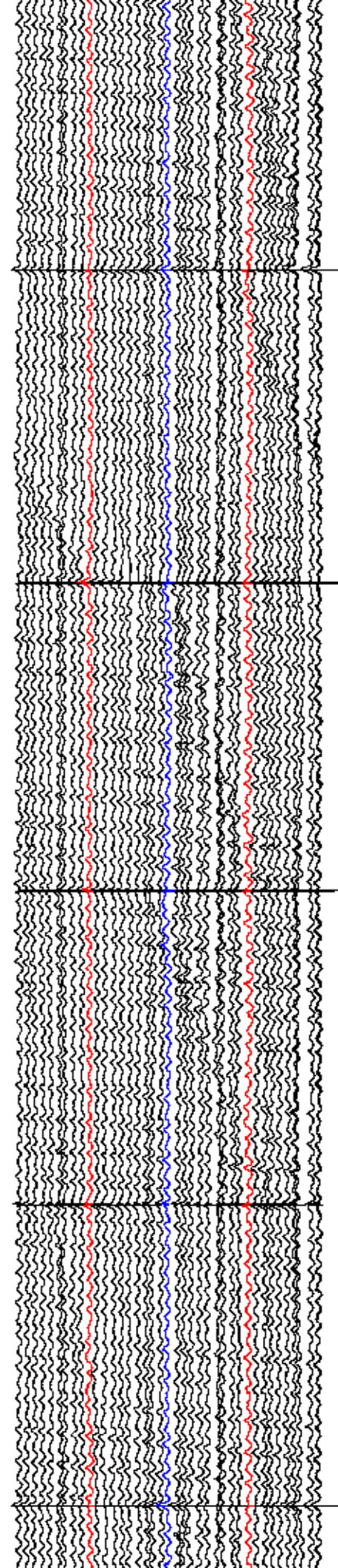
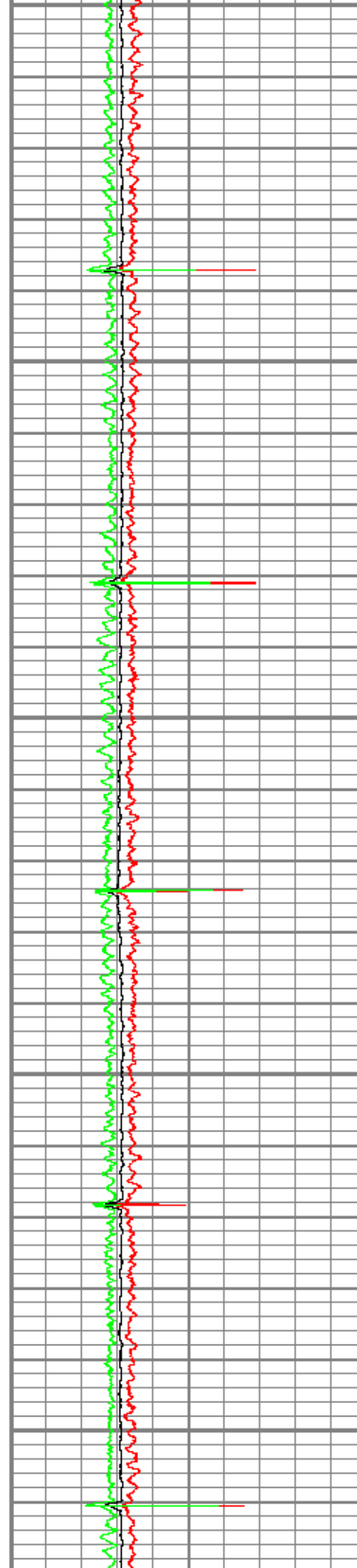
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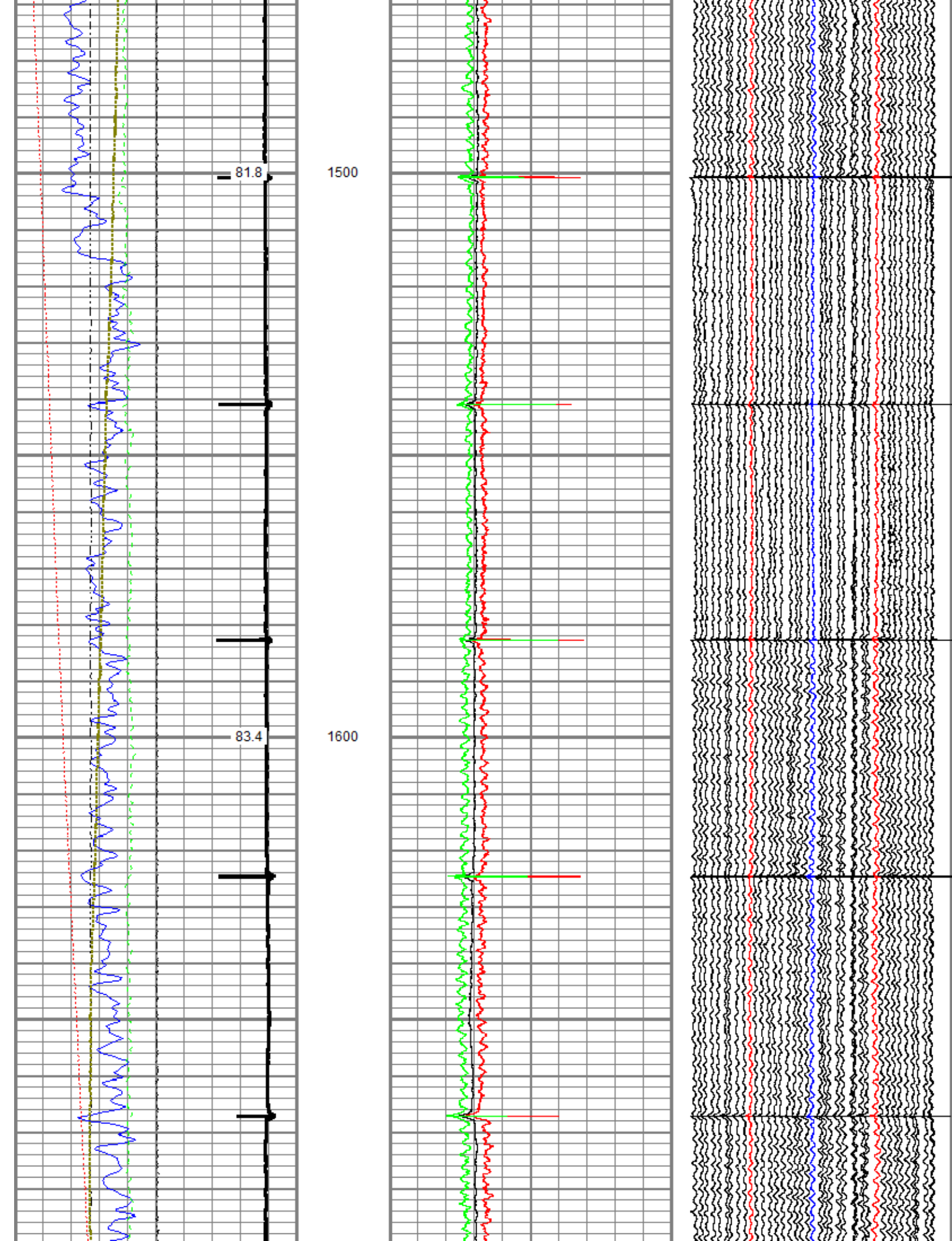


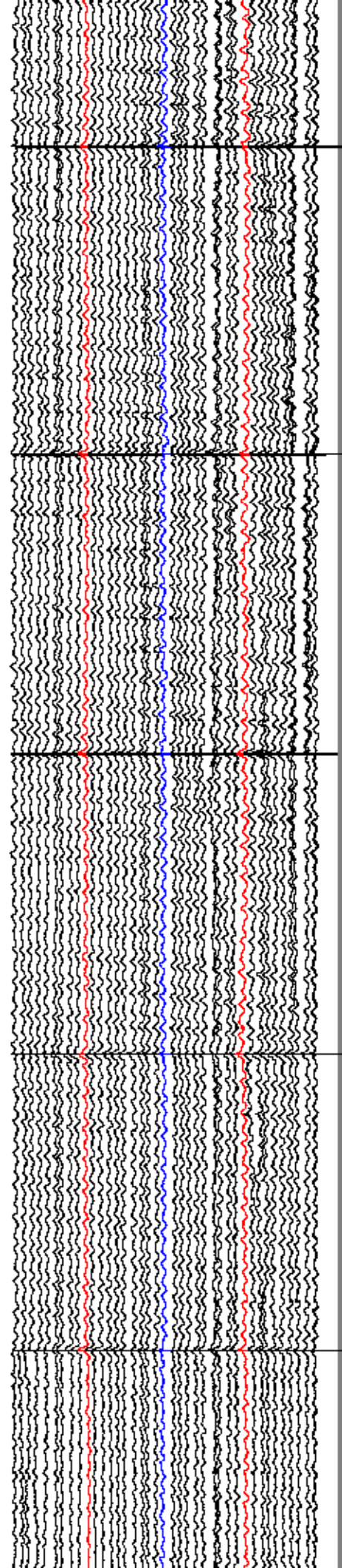
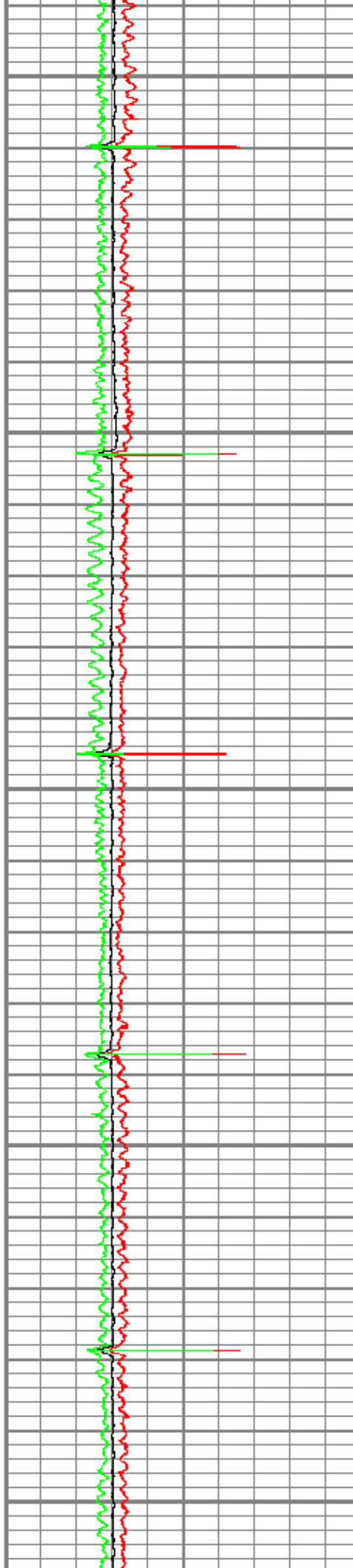
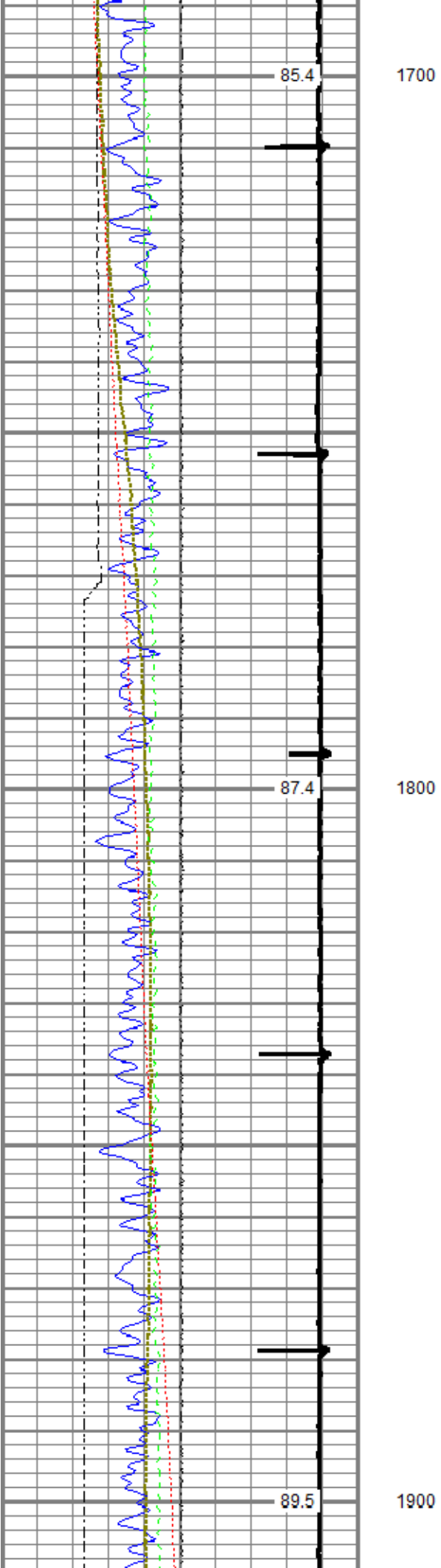


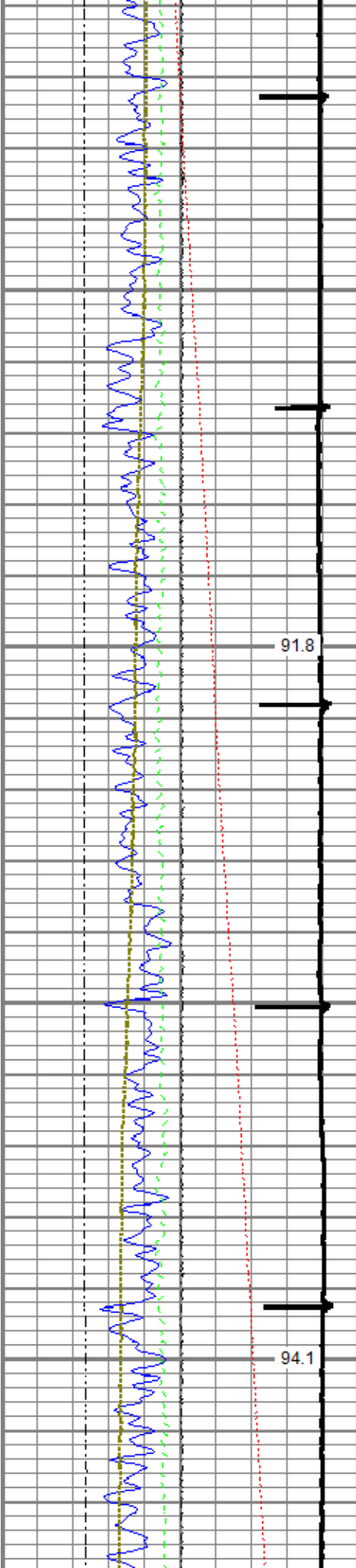
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1400



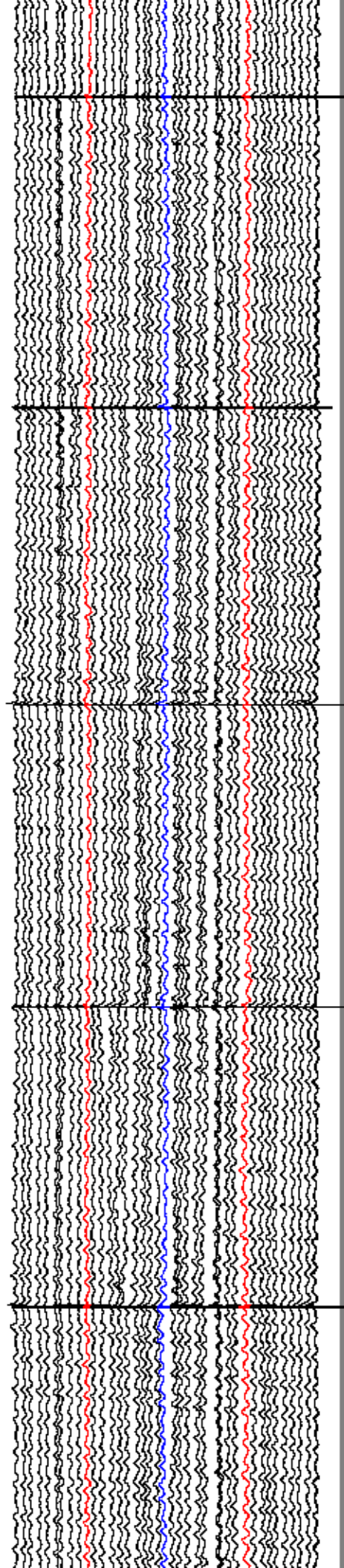
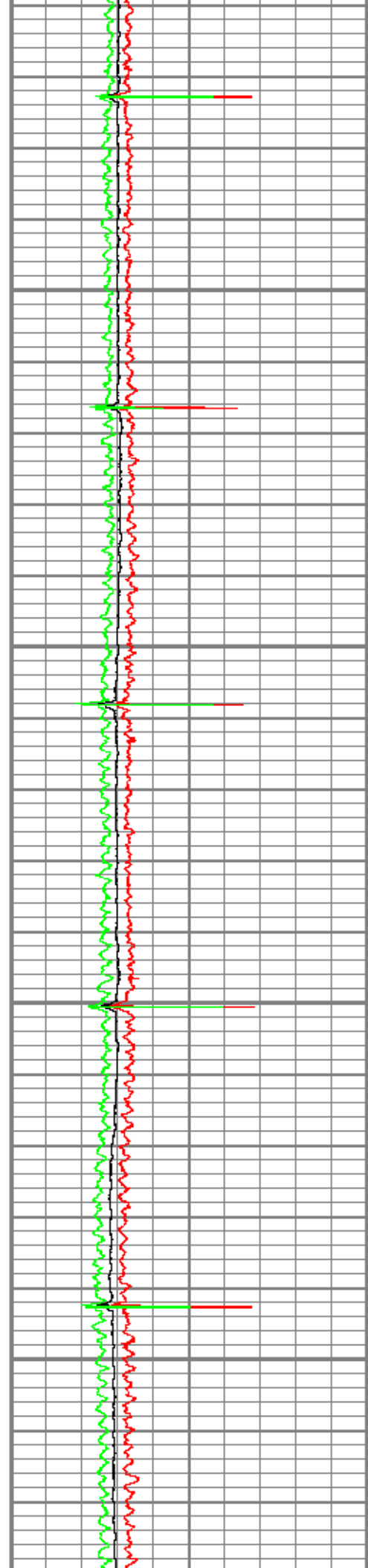


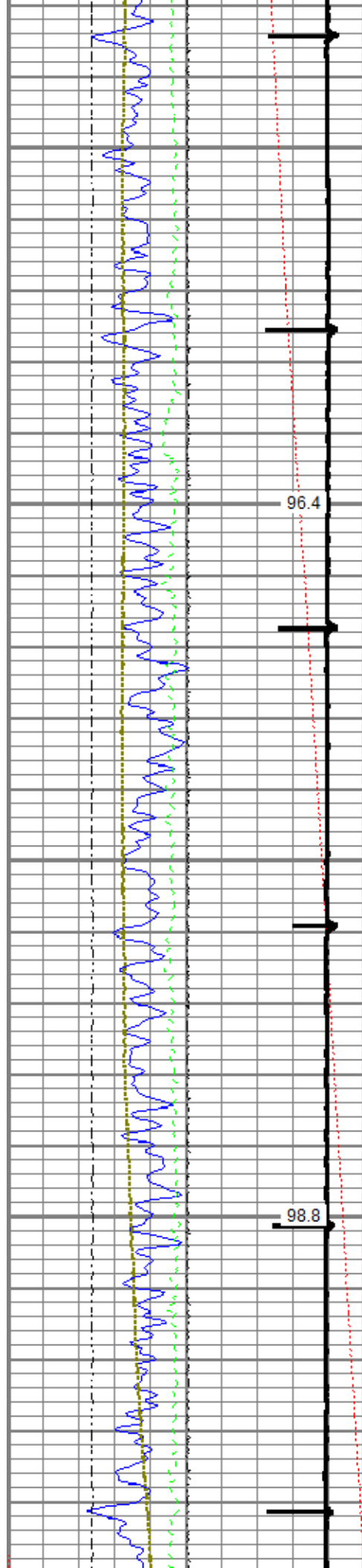




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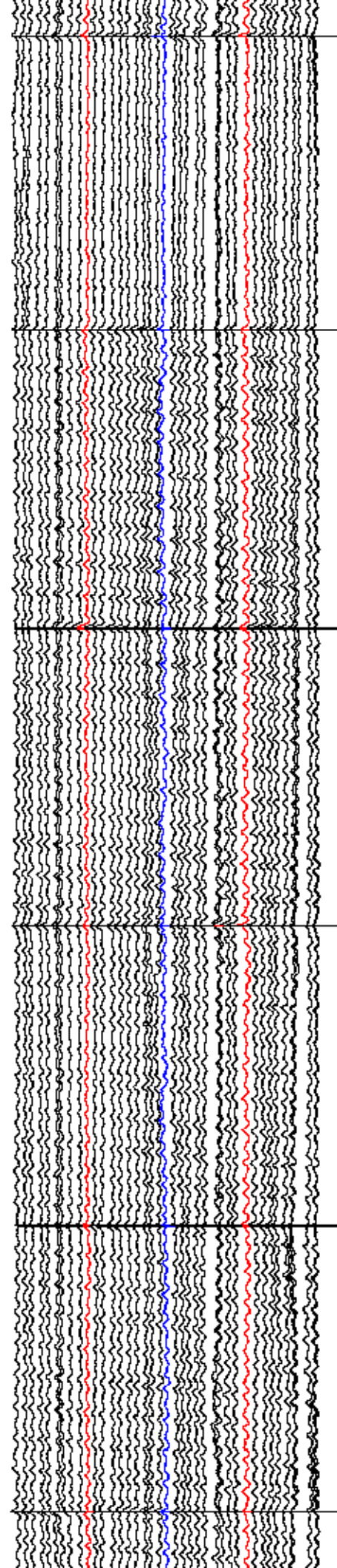
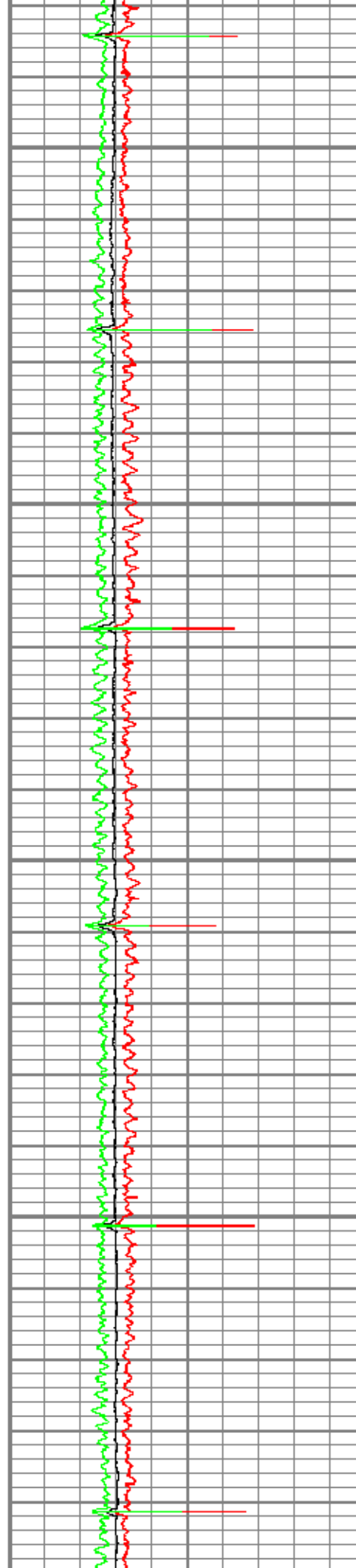
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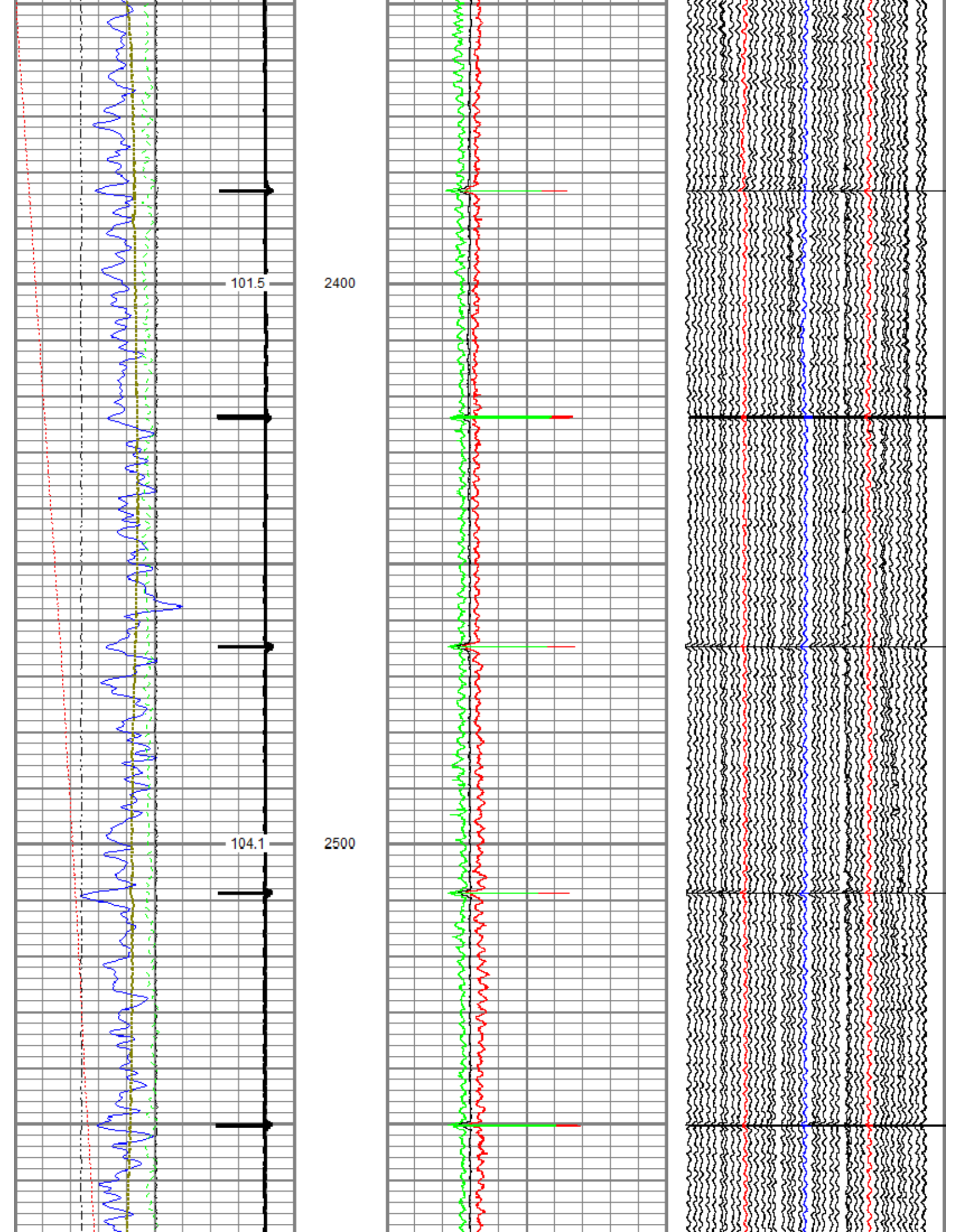


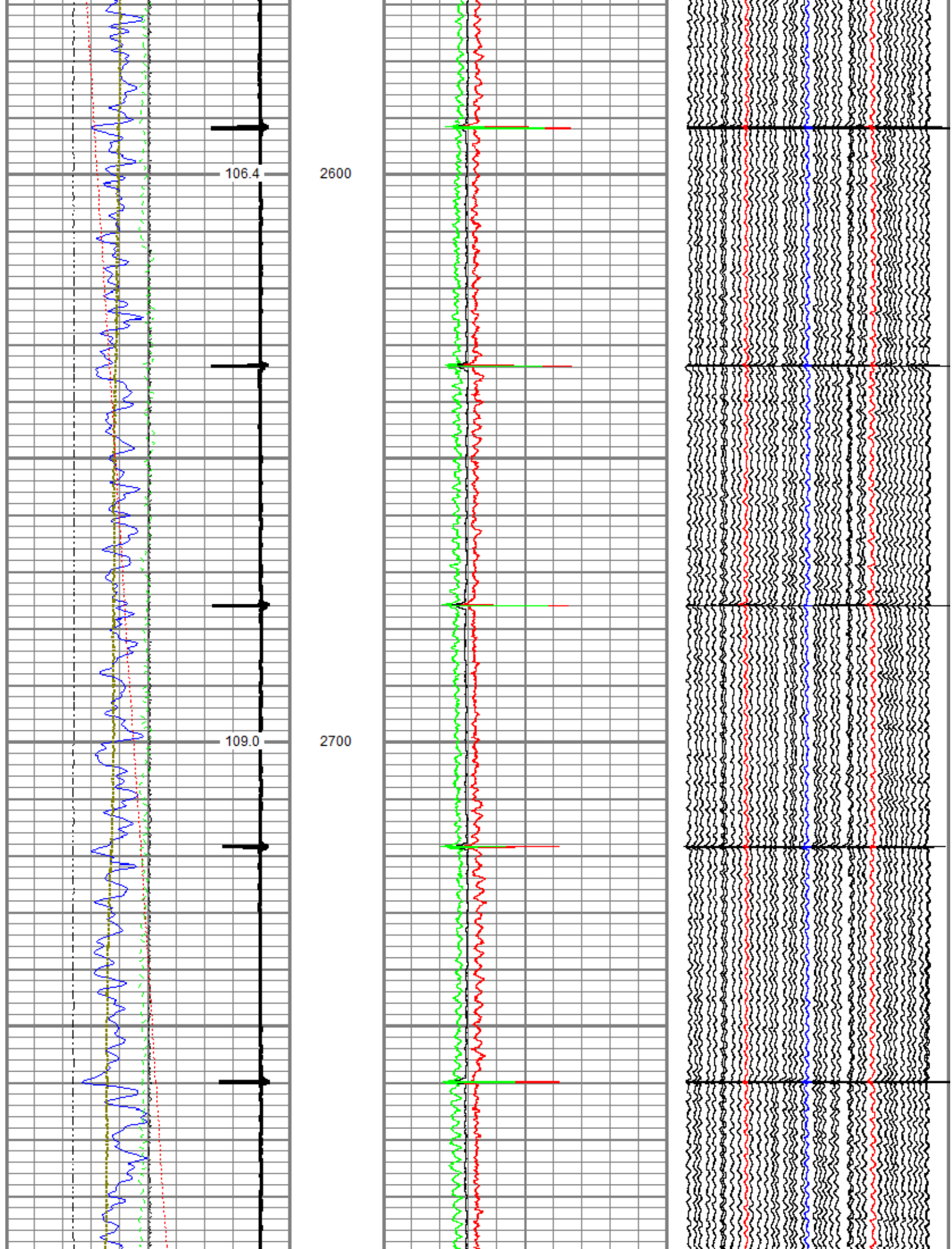


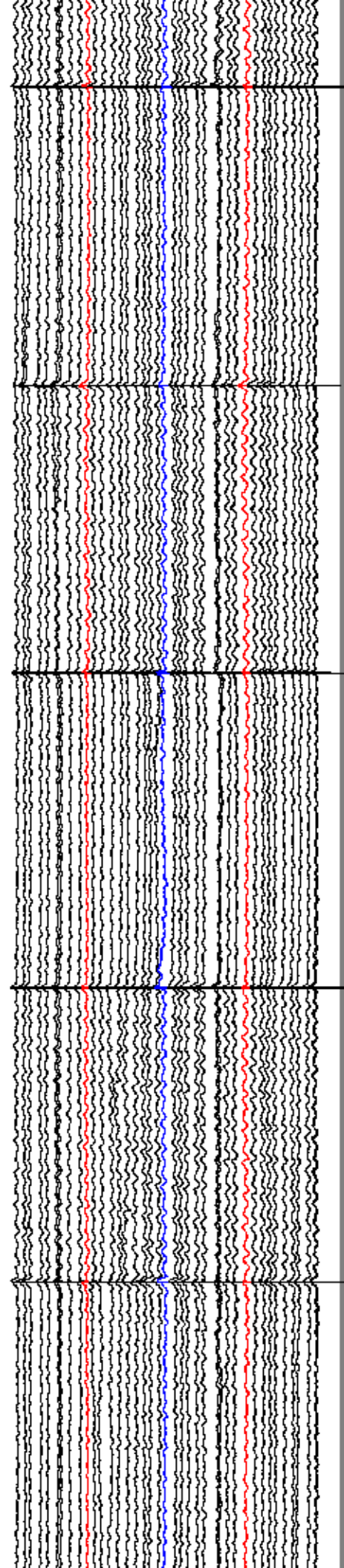
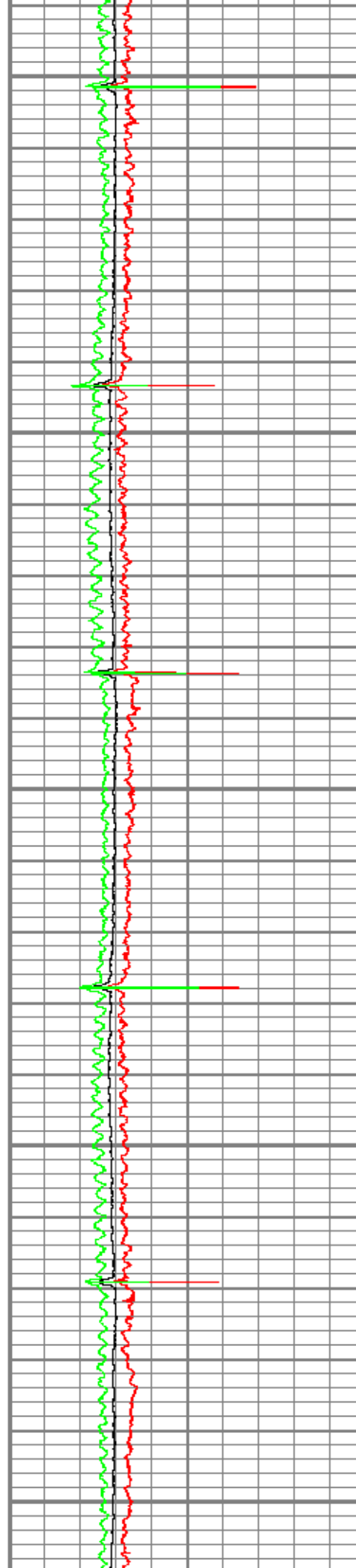
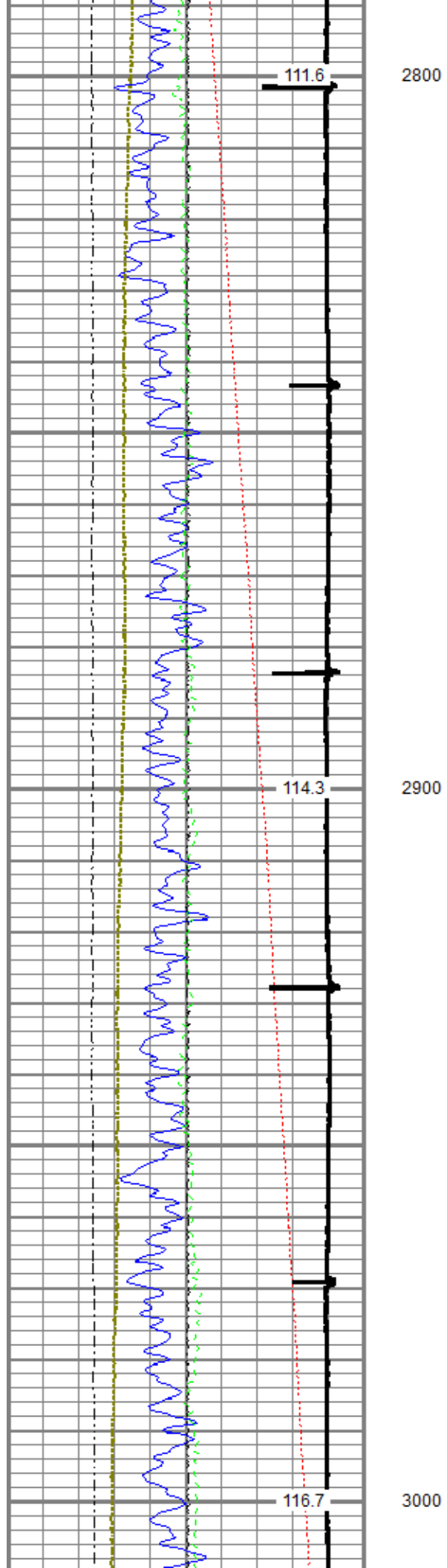
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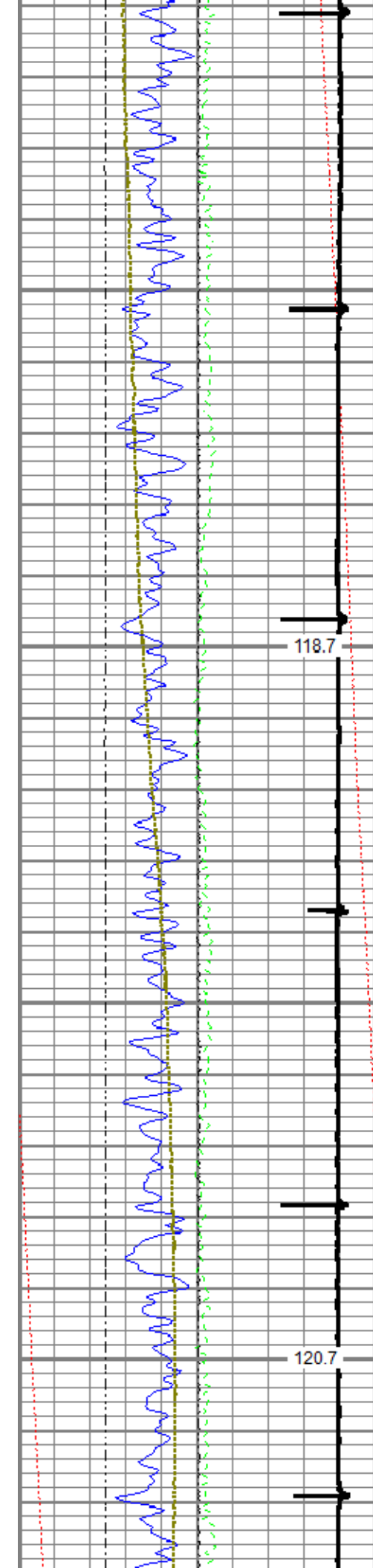
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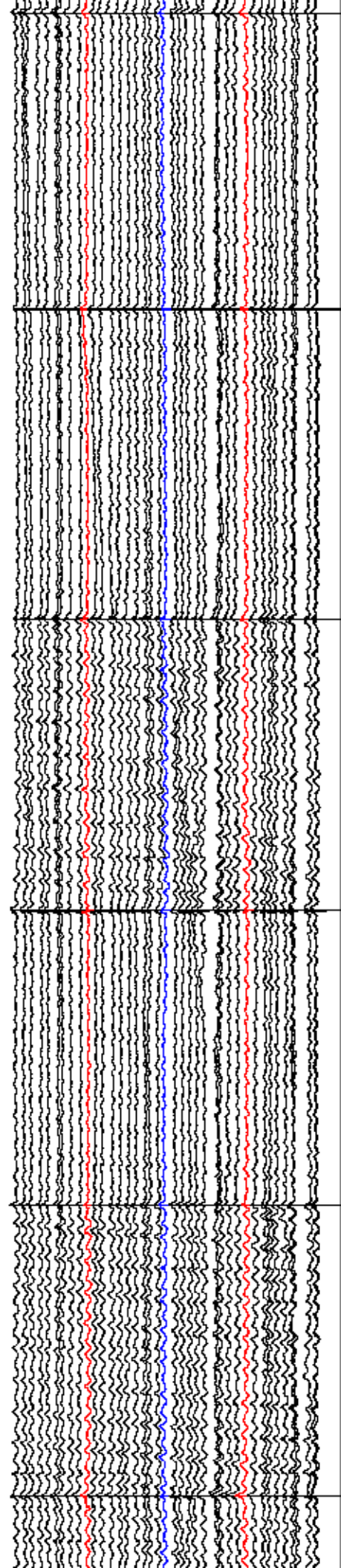
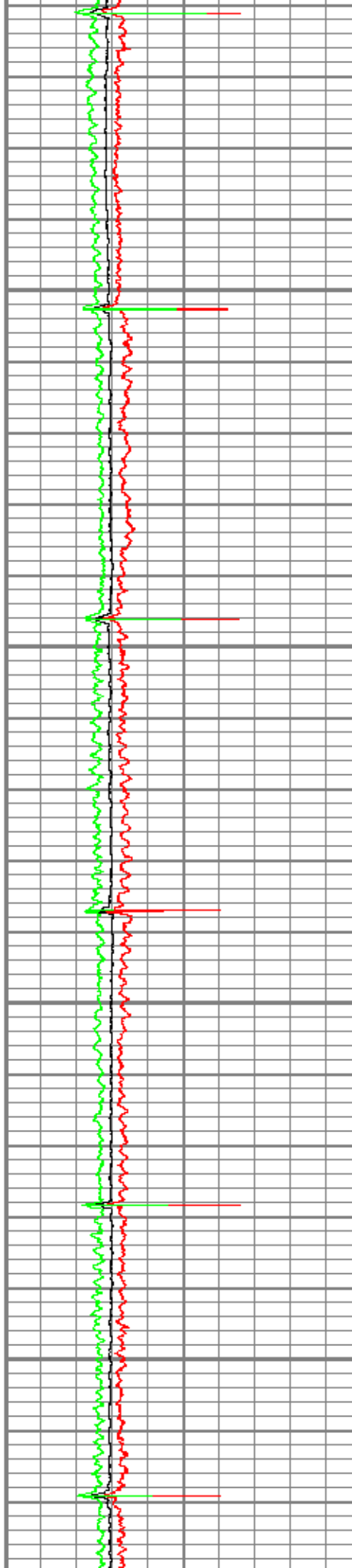


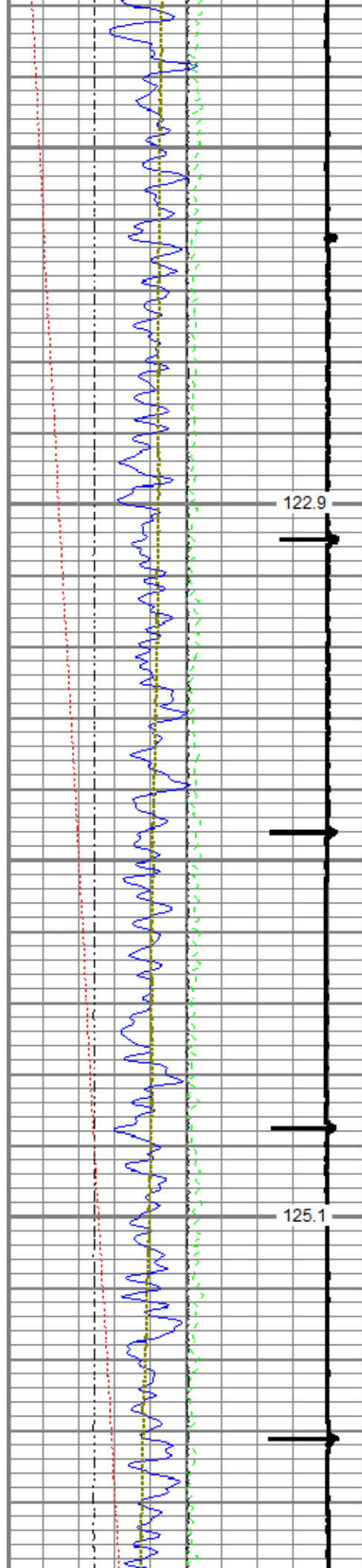




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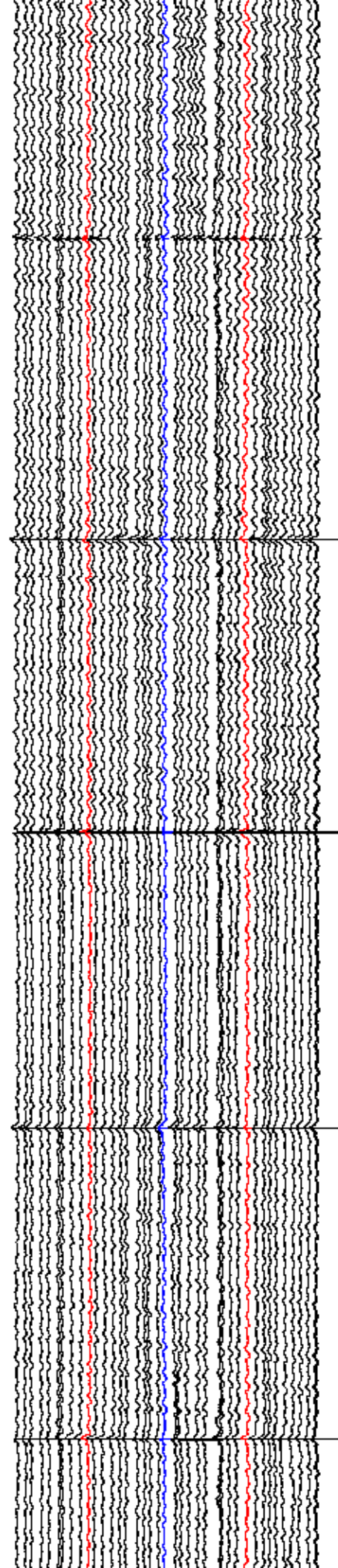
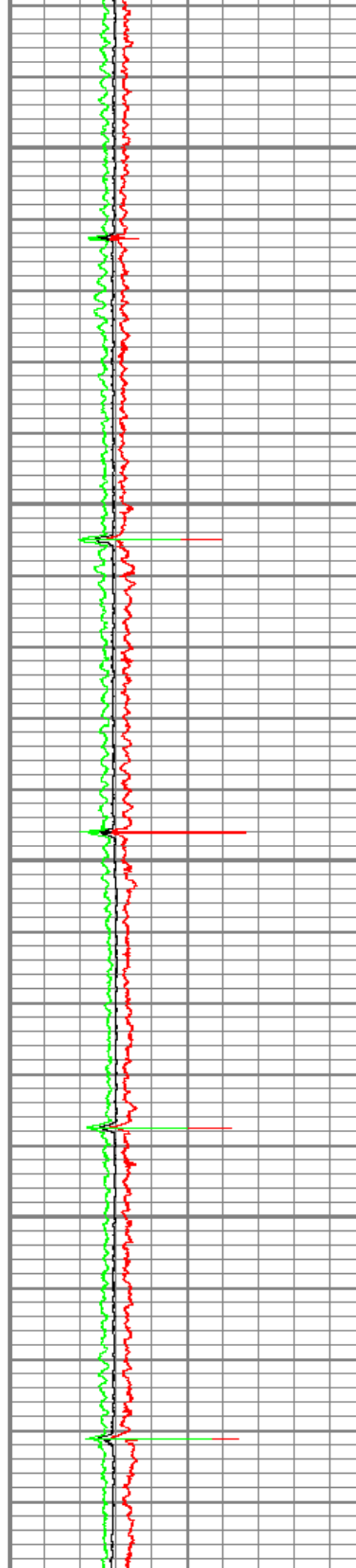
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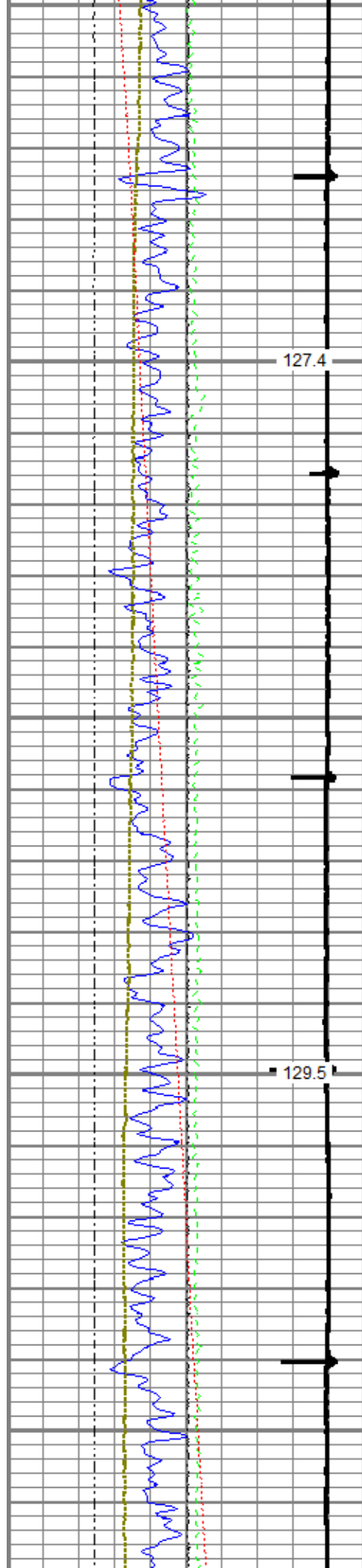




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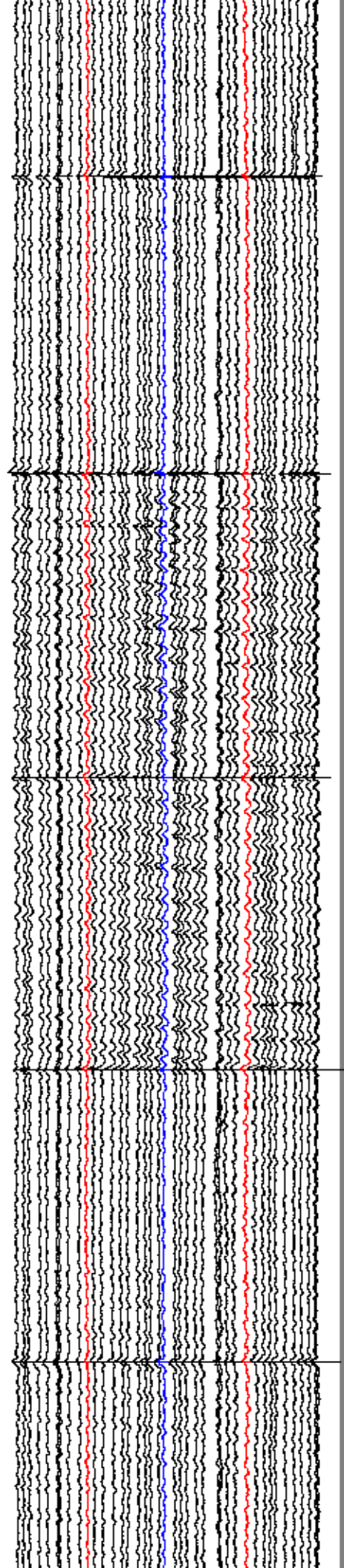
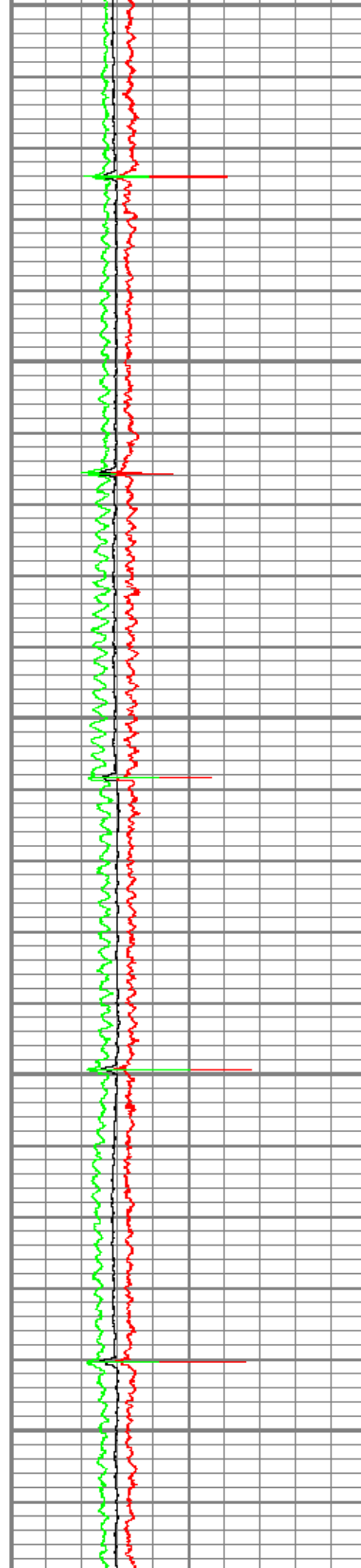
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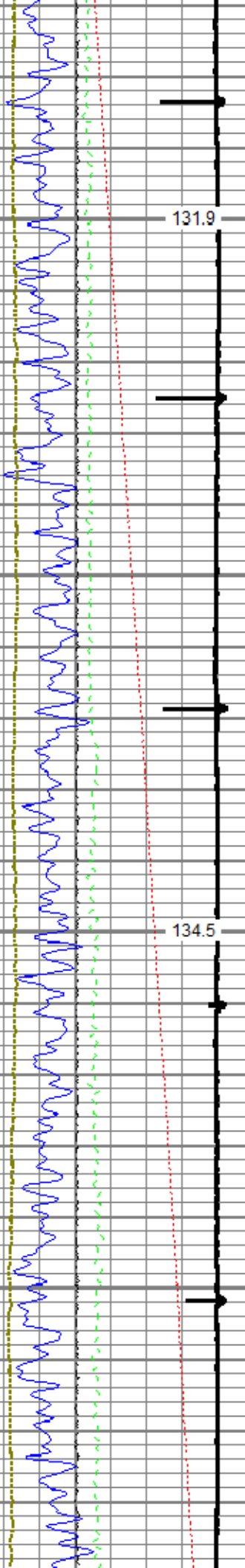




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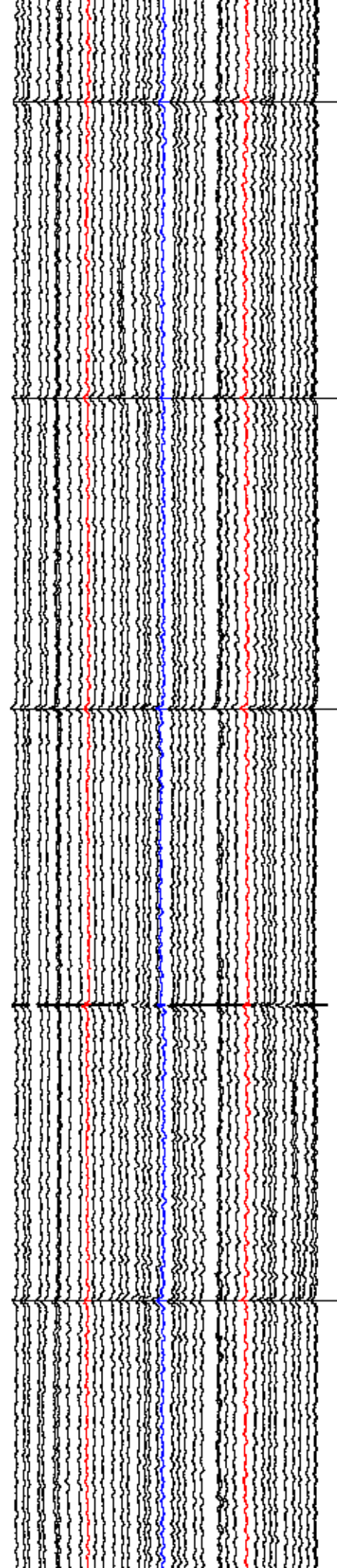
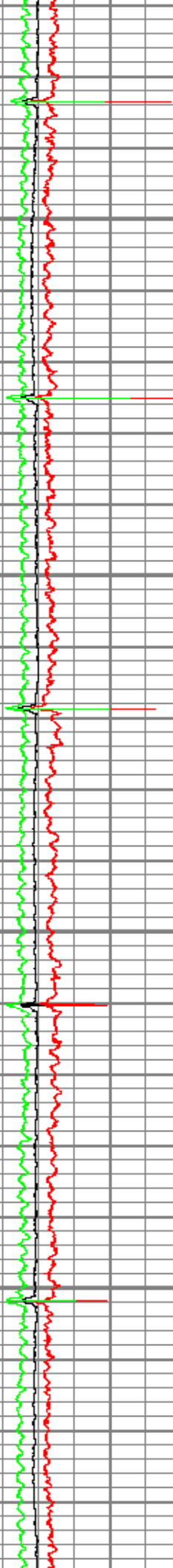
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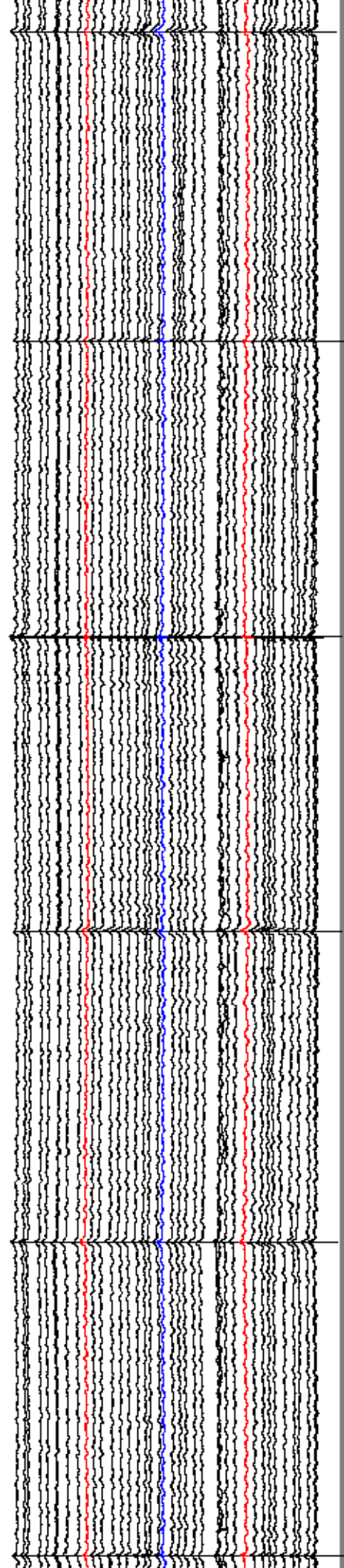
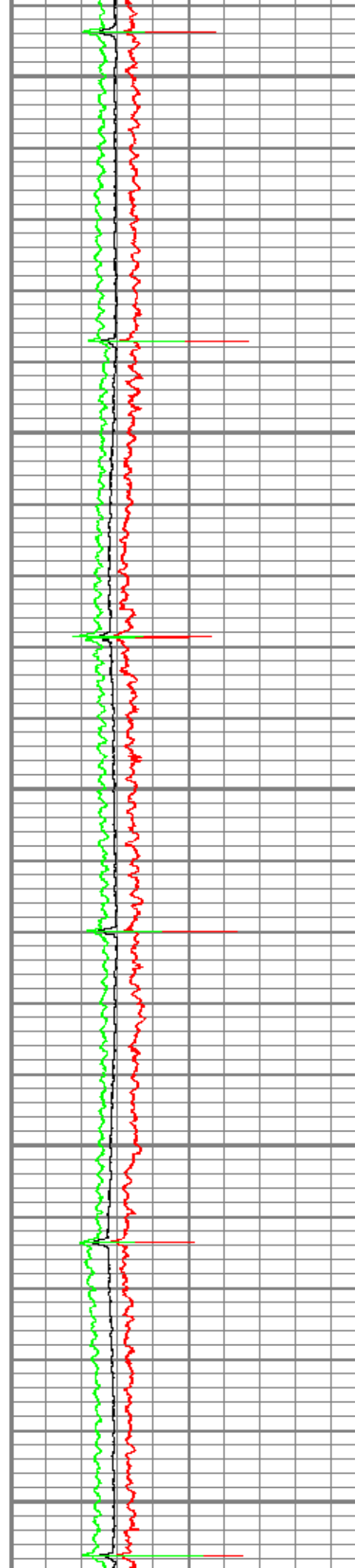
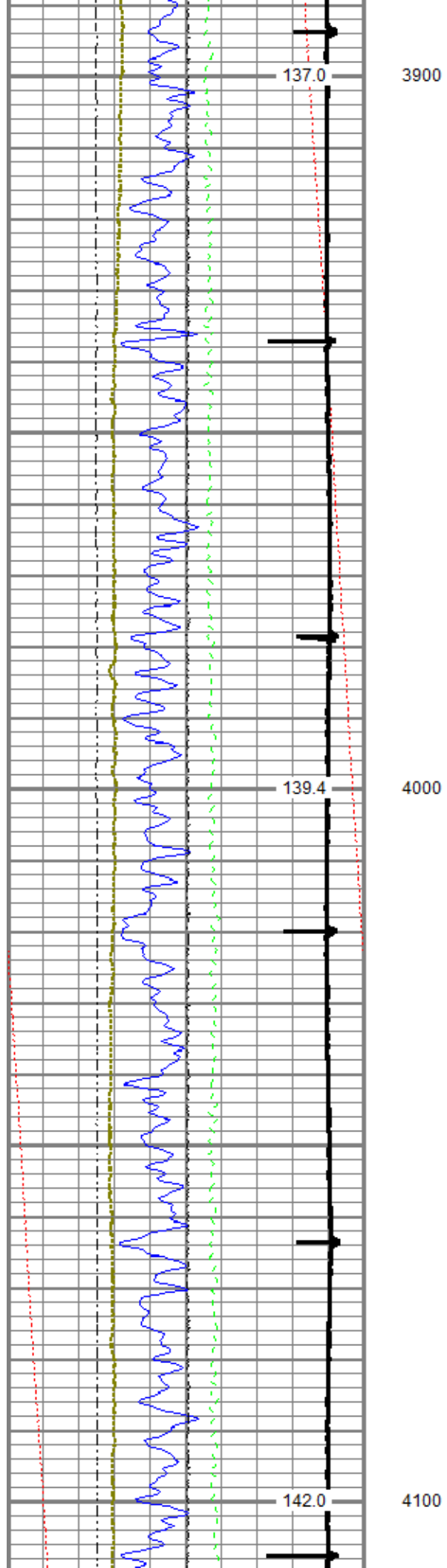


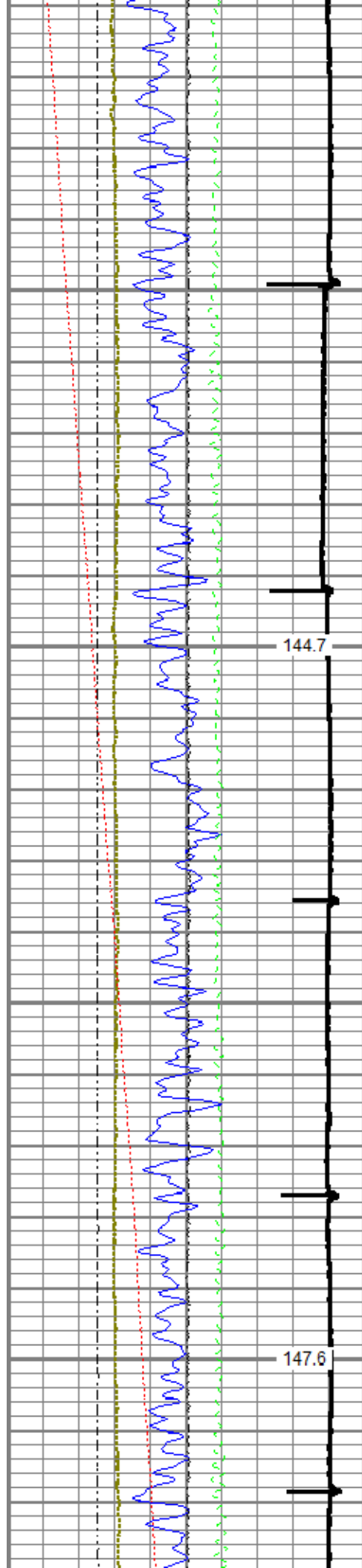


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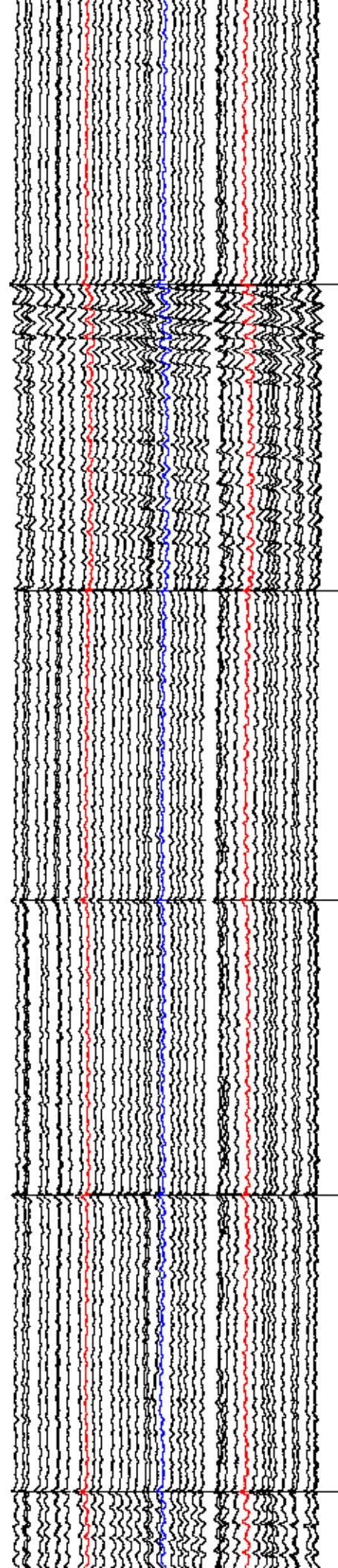
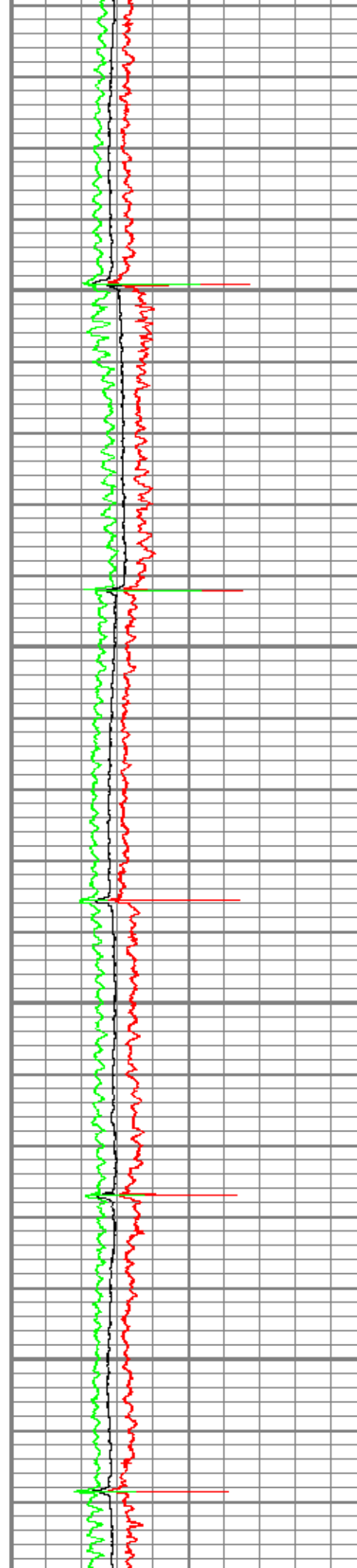


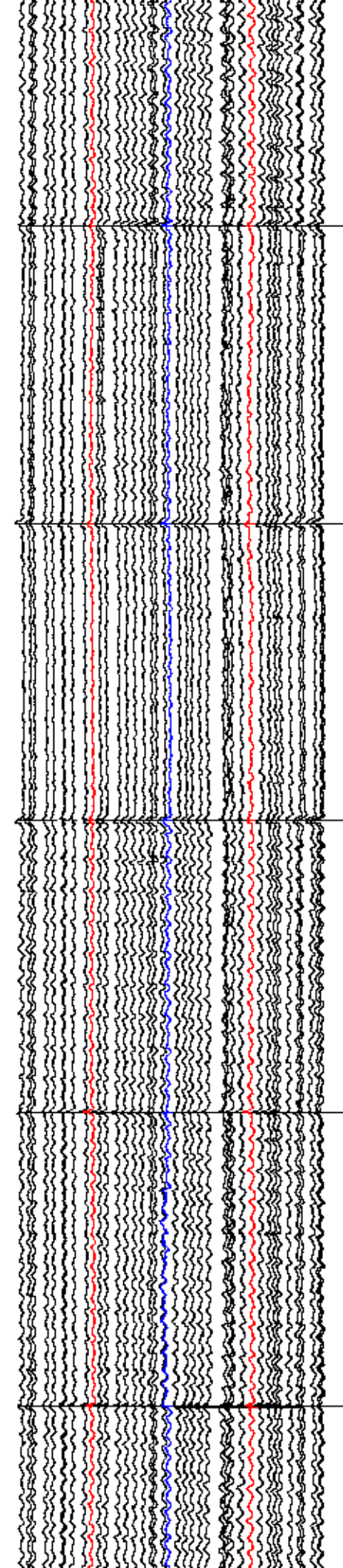
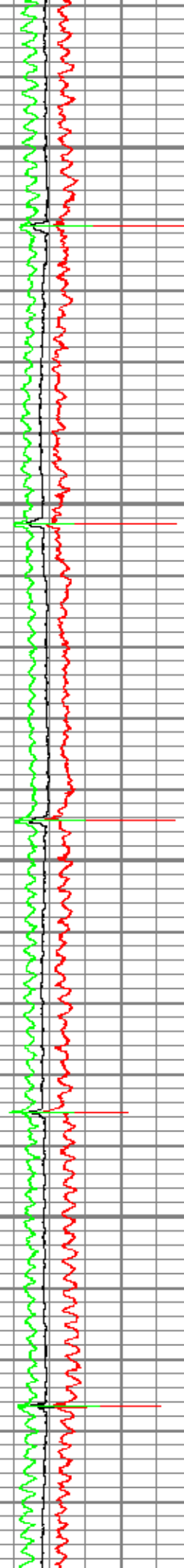
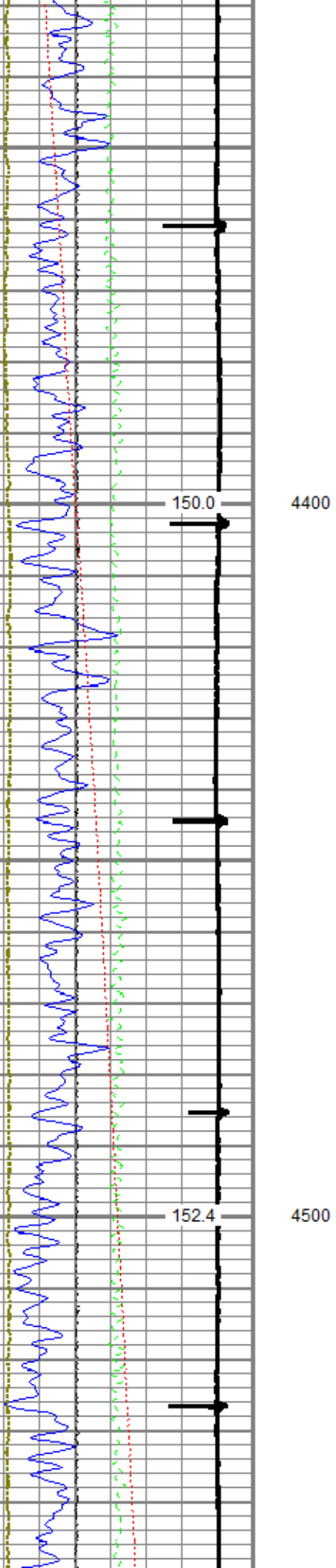


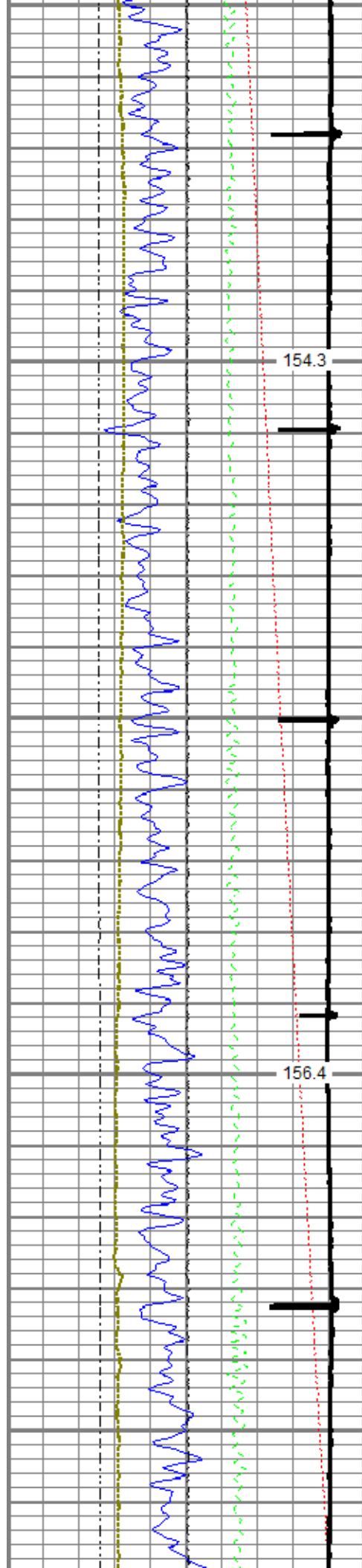


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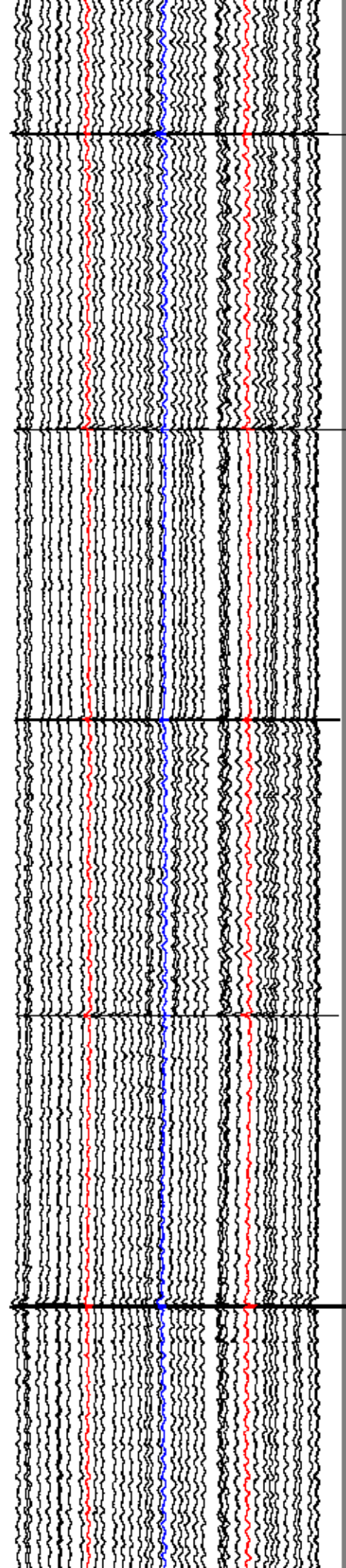
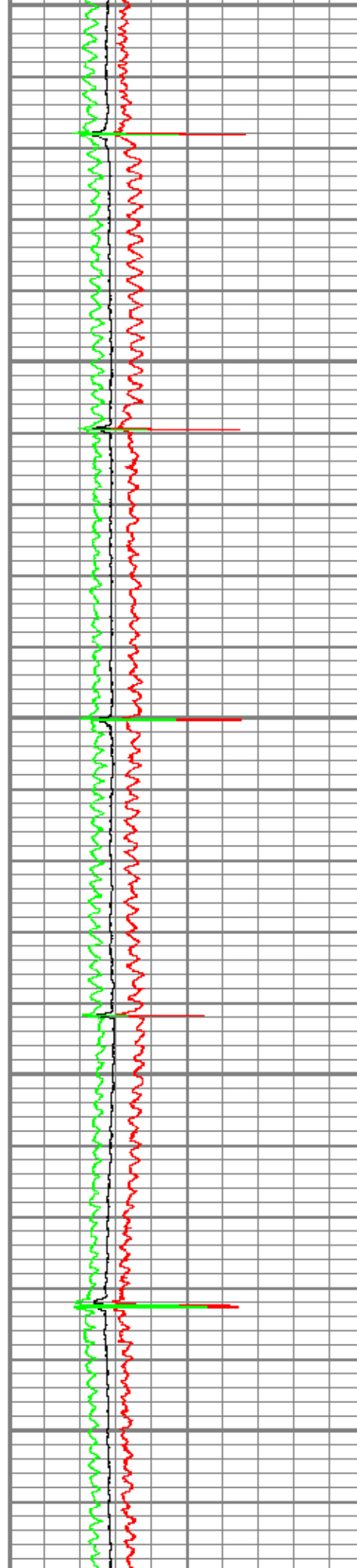


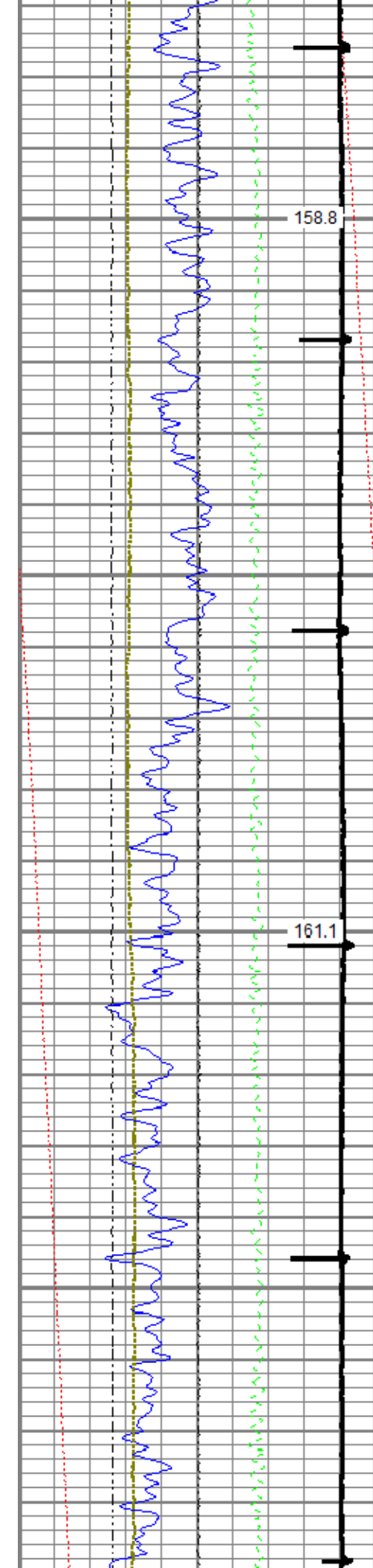




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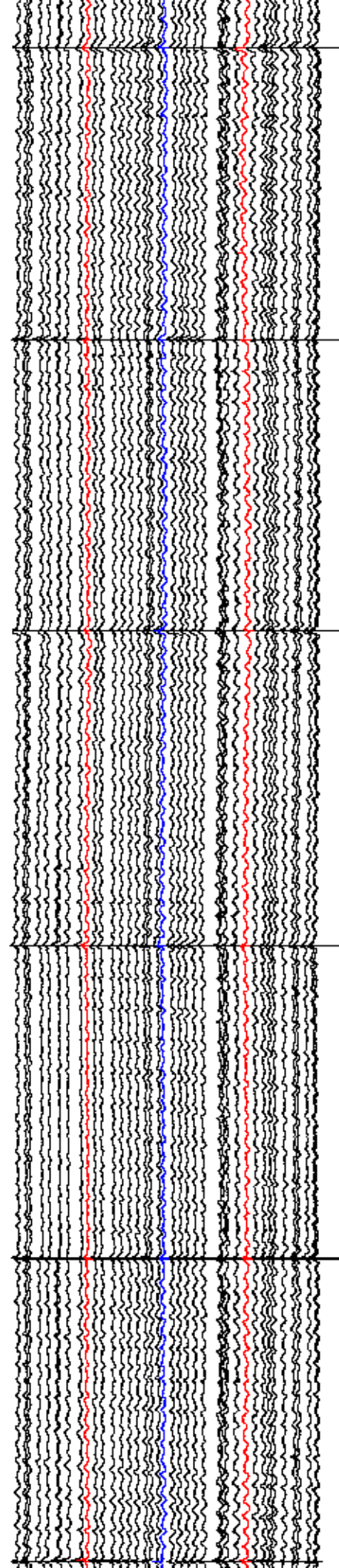
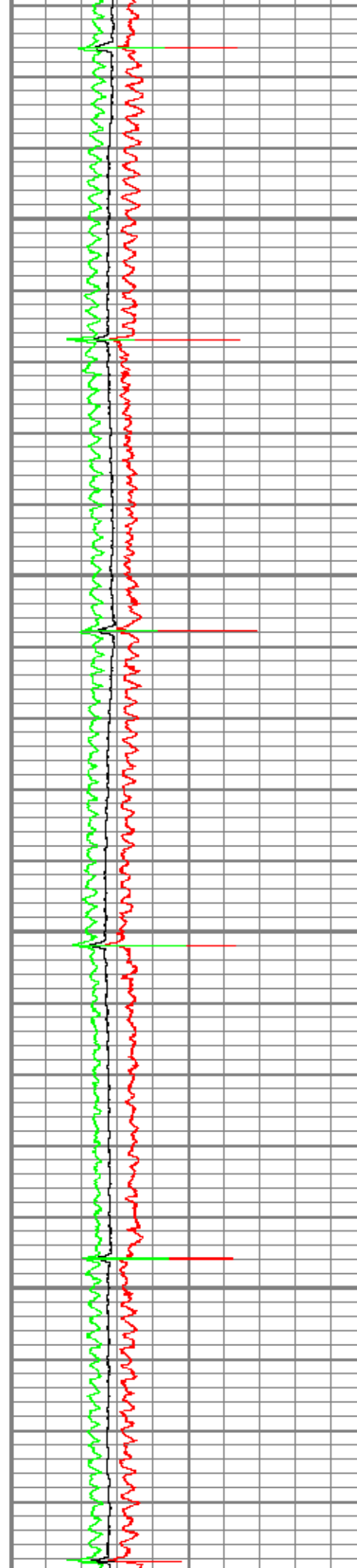
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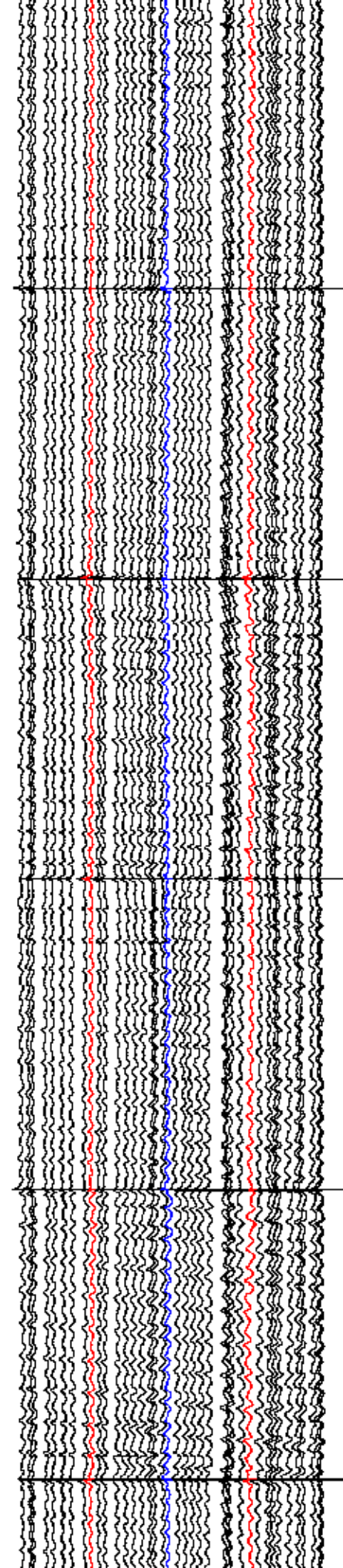
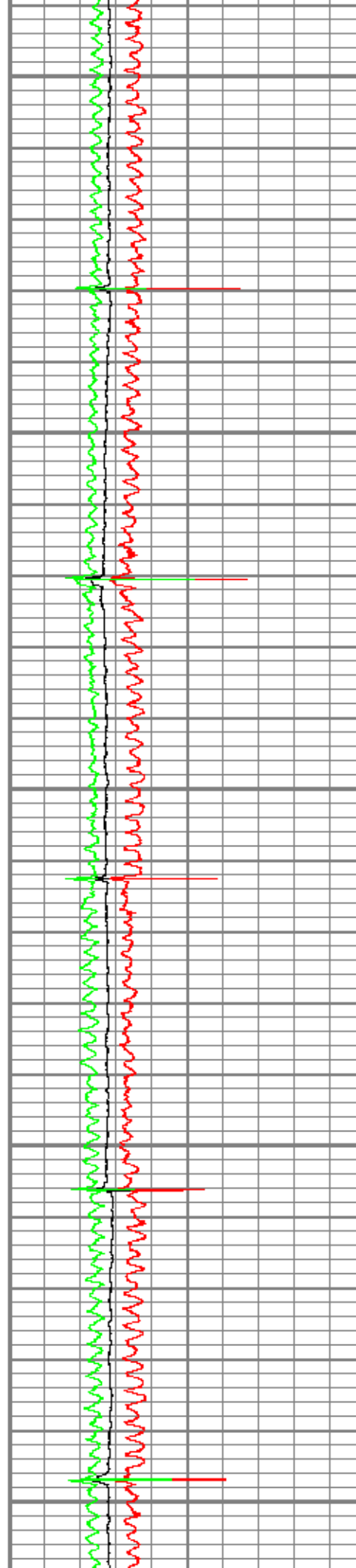
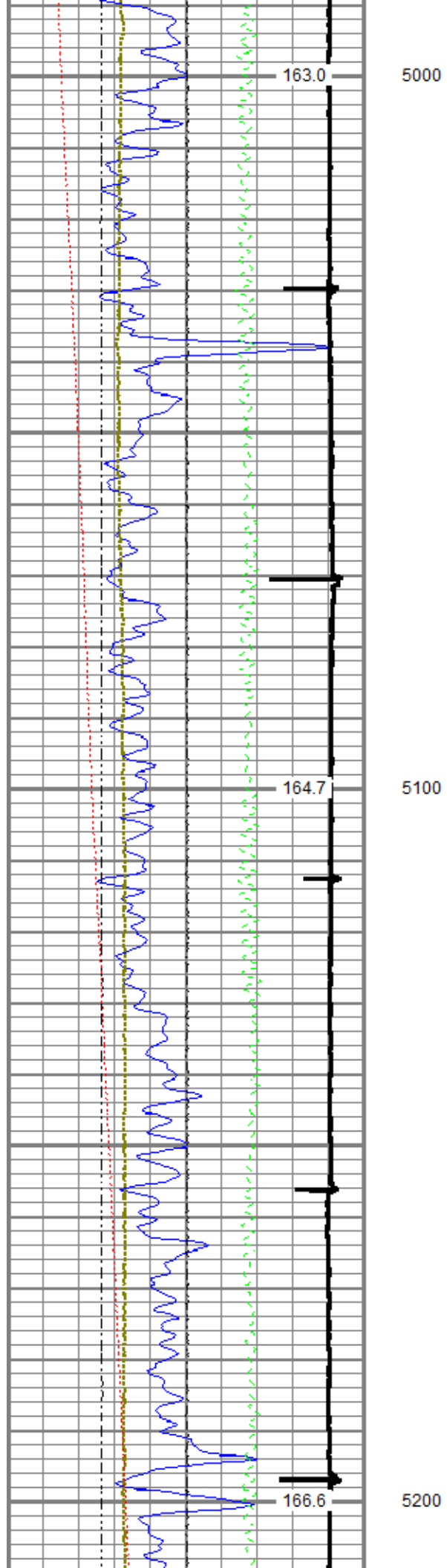


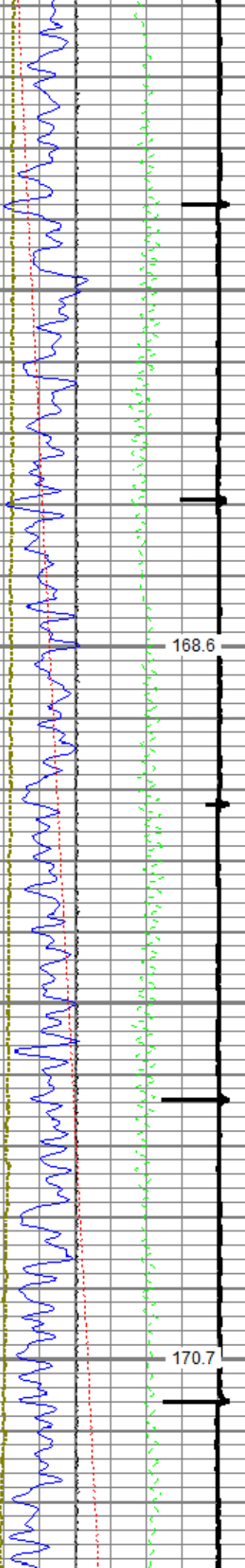


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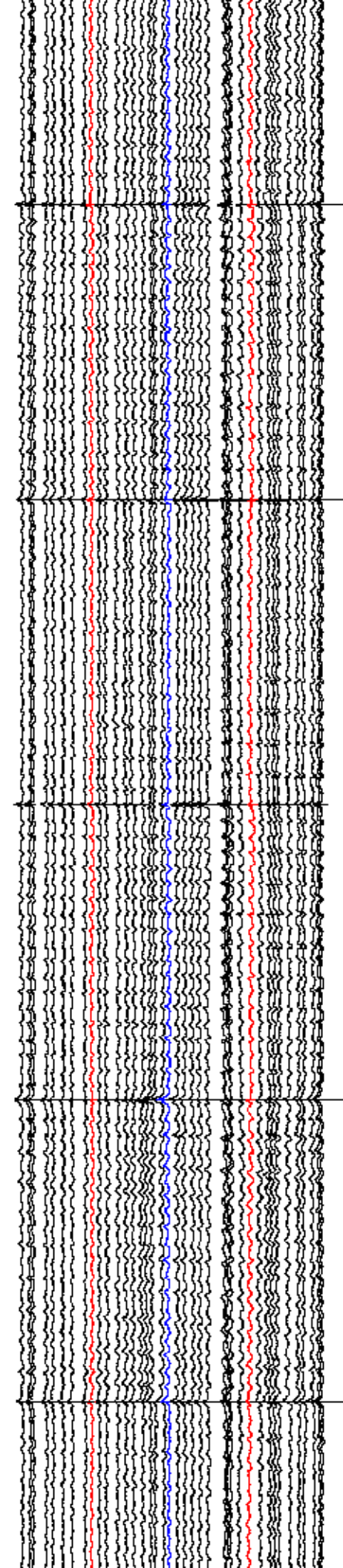
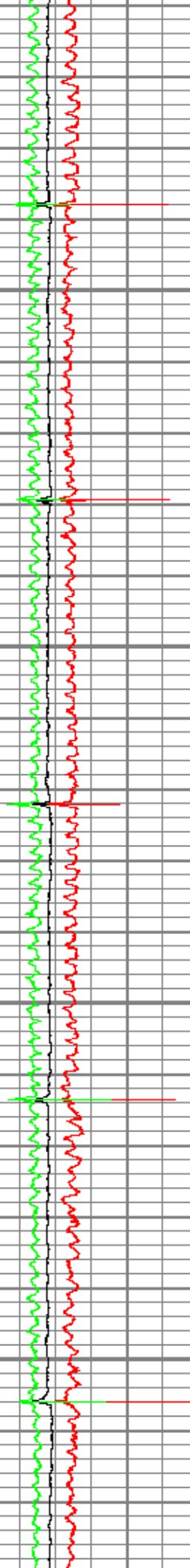


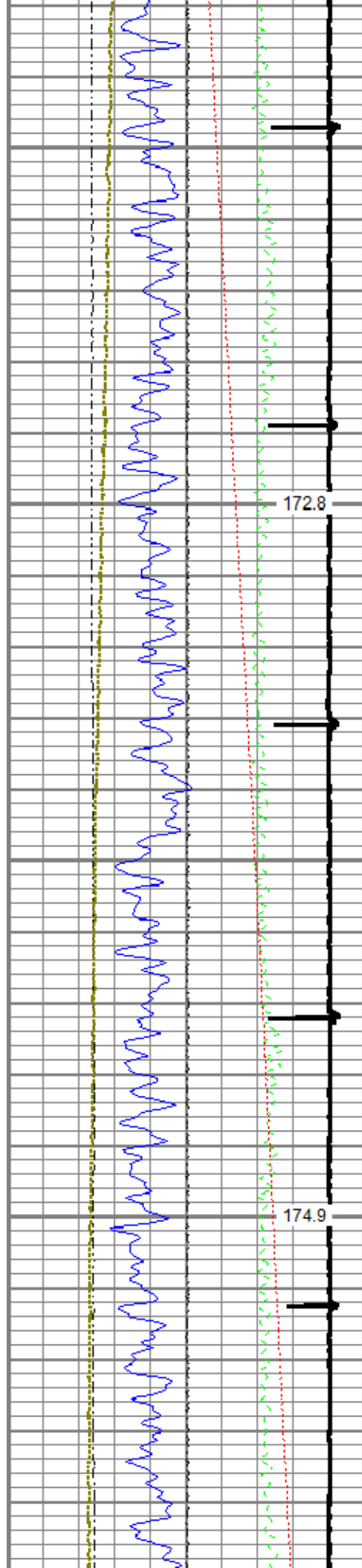




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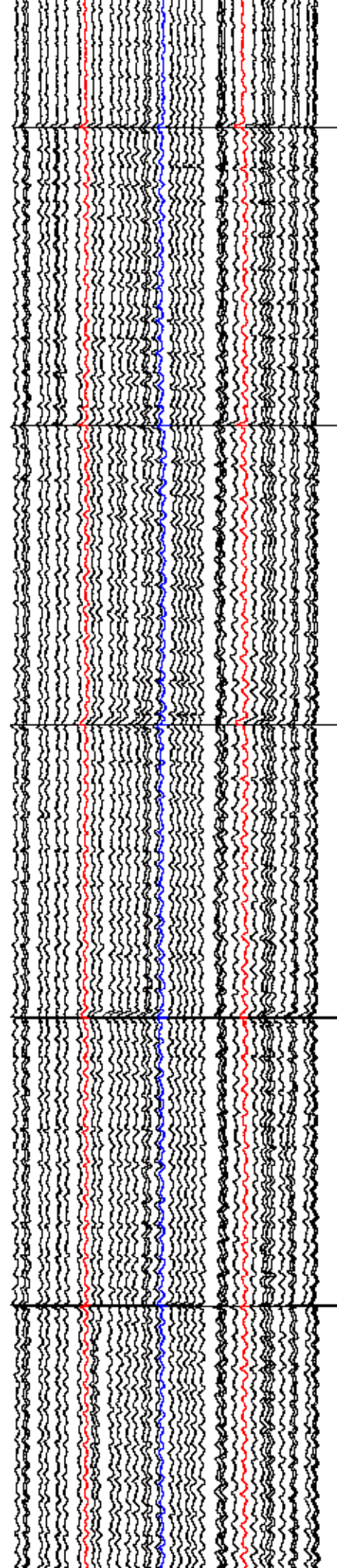
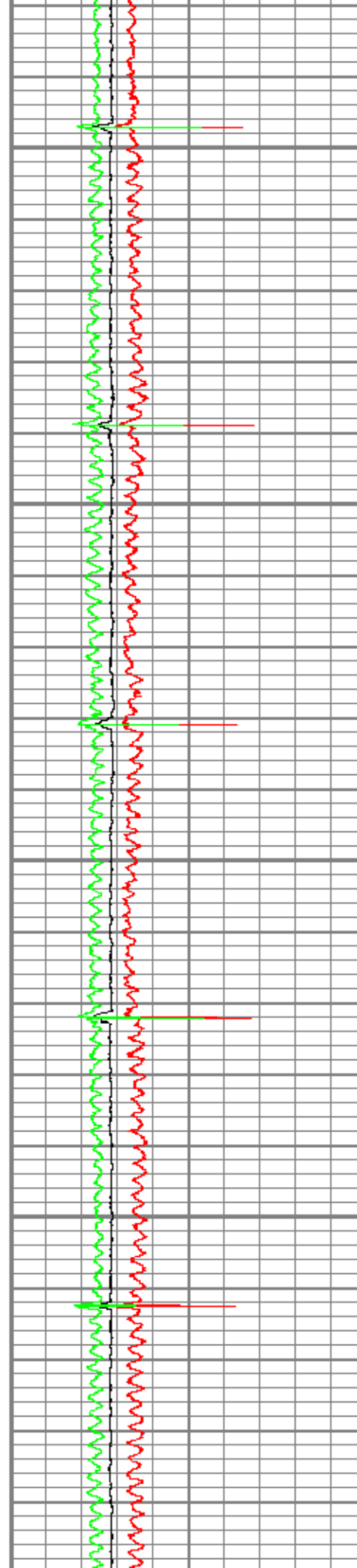
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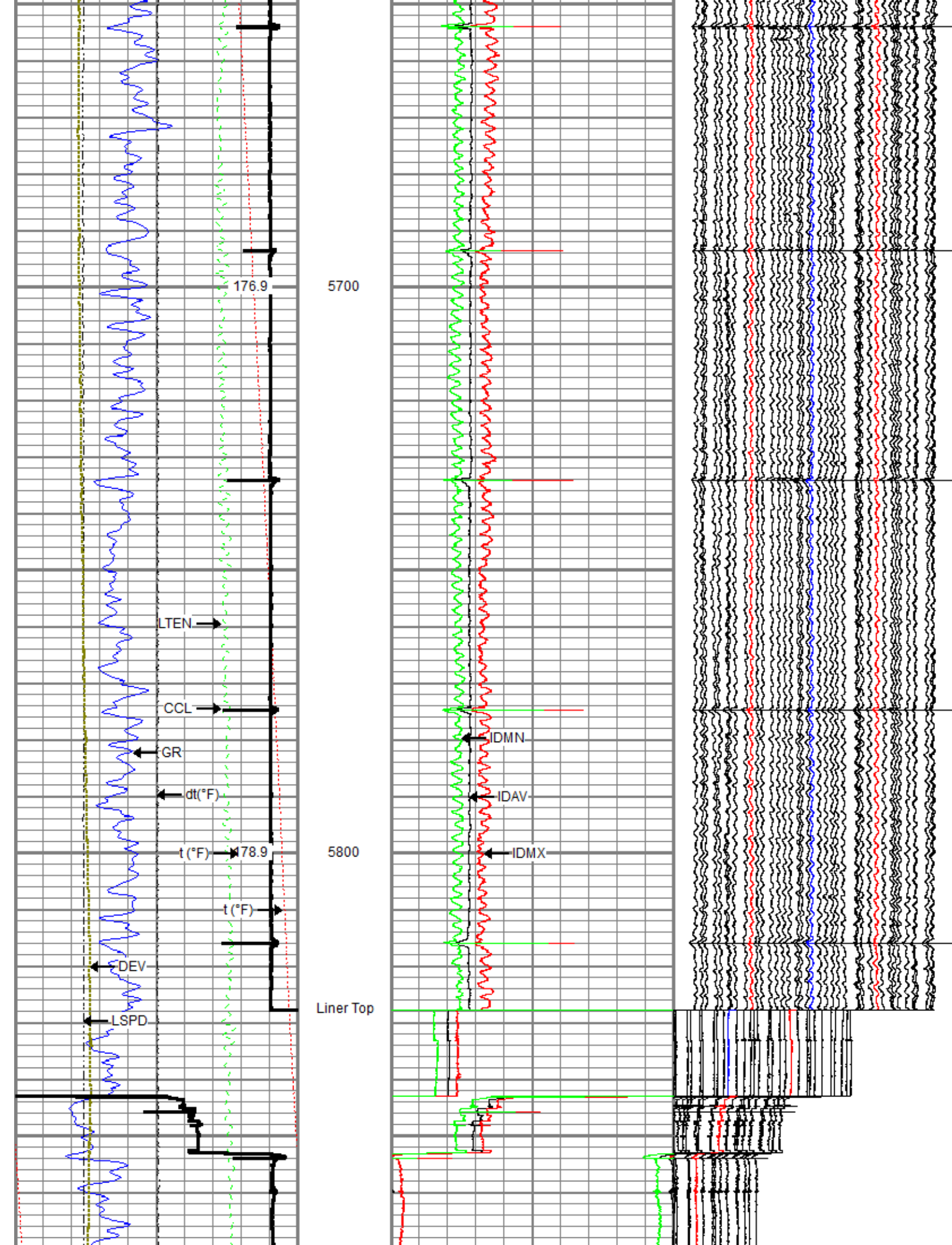




5500

5600





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



Main Pass (4.5-inch Casing)

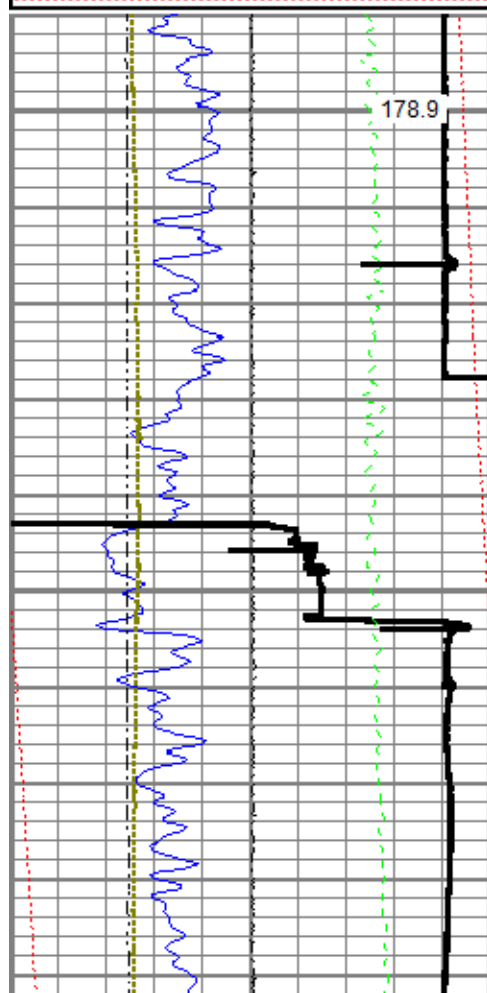
Recorded With 0 PSI Surface Induced Pressure

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Dataset Pathname Main4.5
Presentation Format ros_45mit40sx11.6_revised
Dataset Creation Thu Apr 19 10:13:50 2018
Charted by Depth in Feet scaled 1:240

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

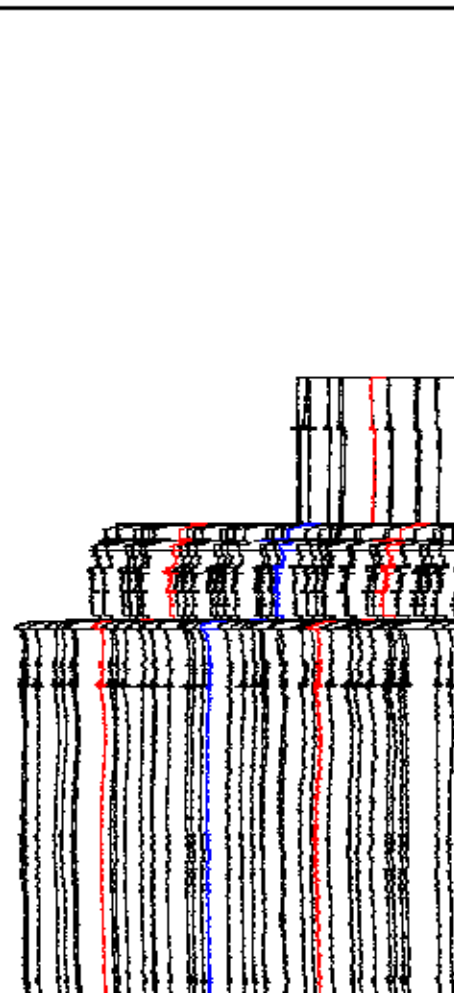
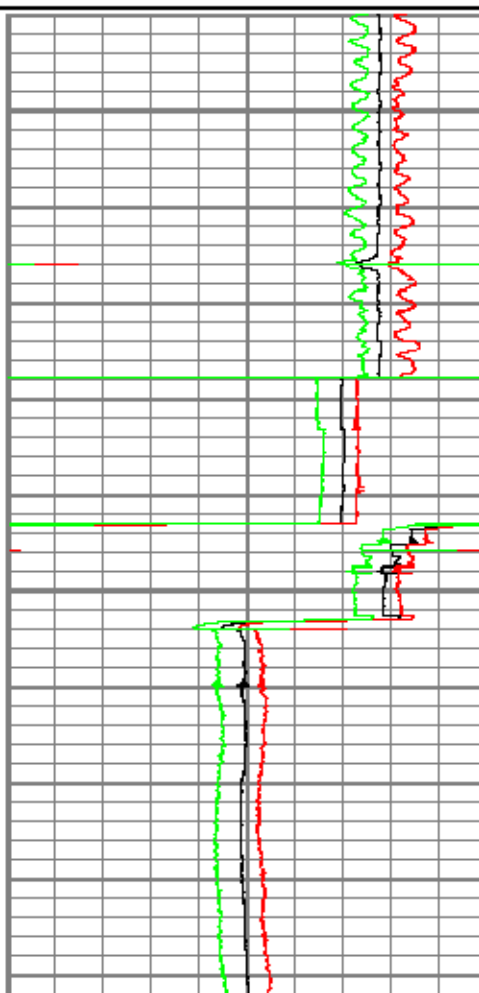
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3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5

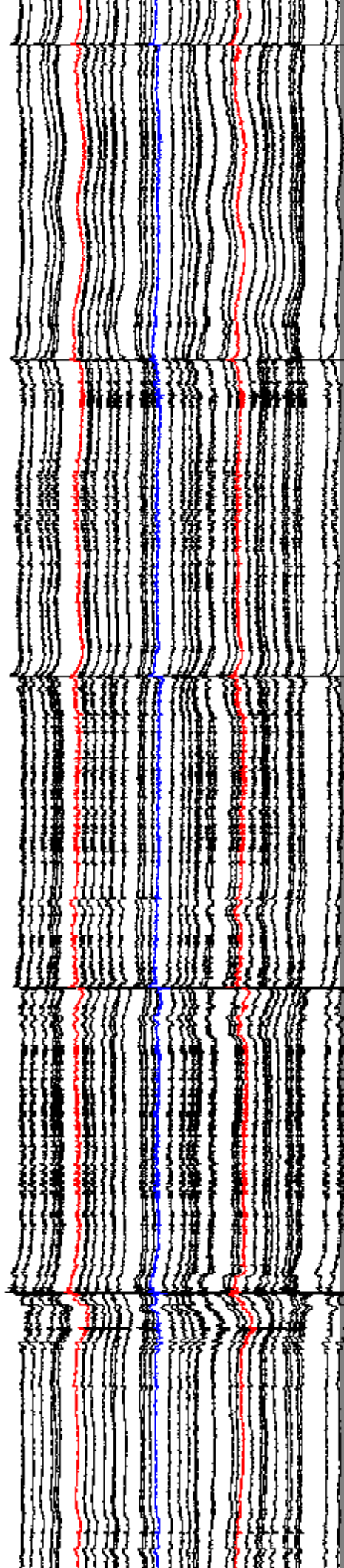
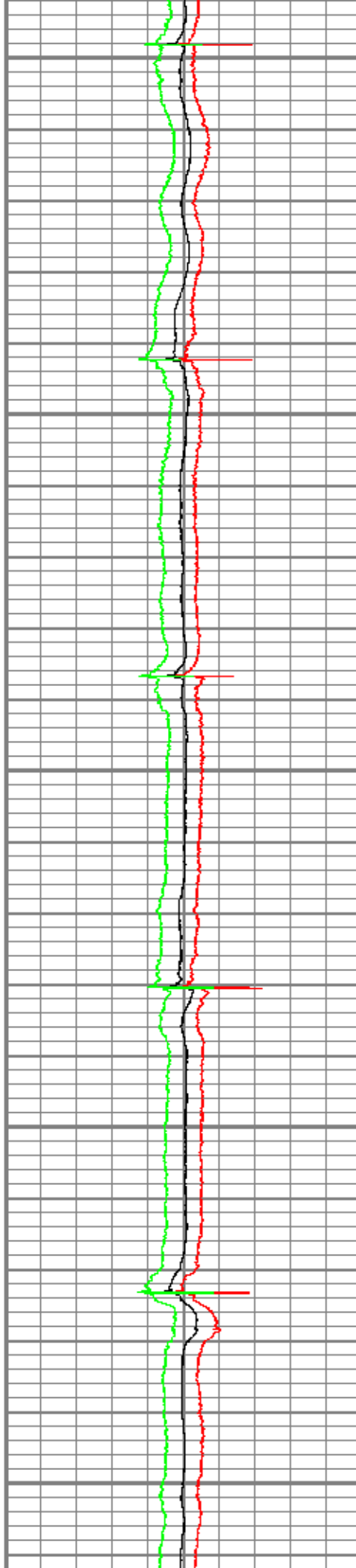
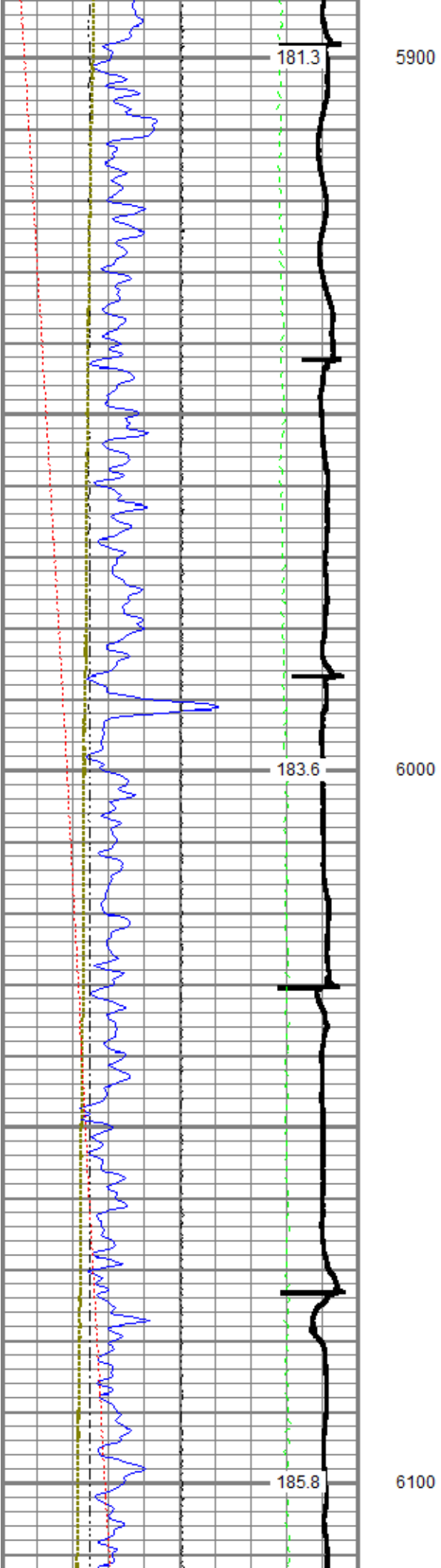
Caliper #10
Caliper #20
Caliper #30

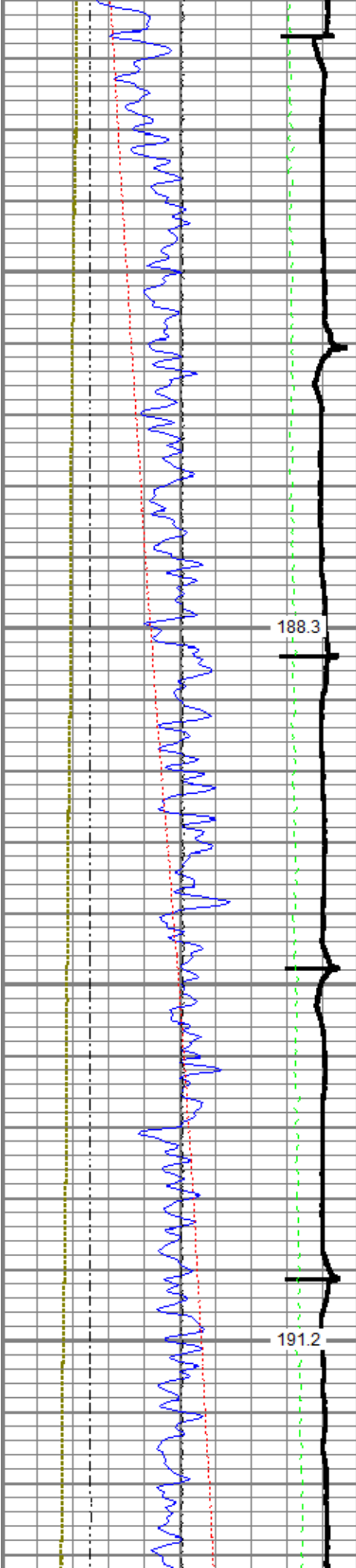


5800

Liner Top

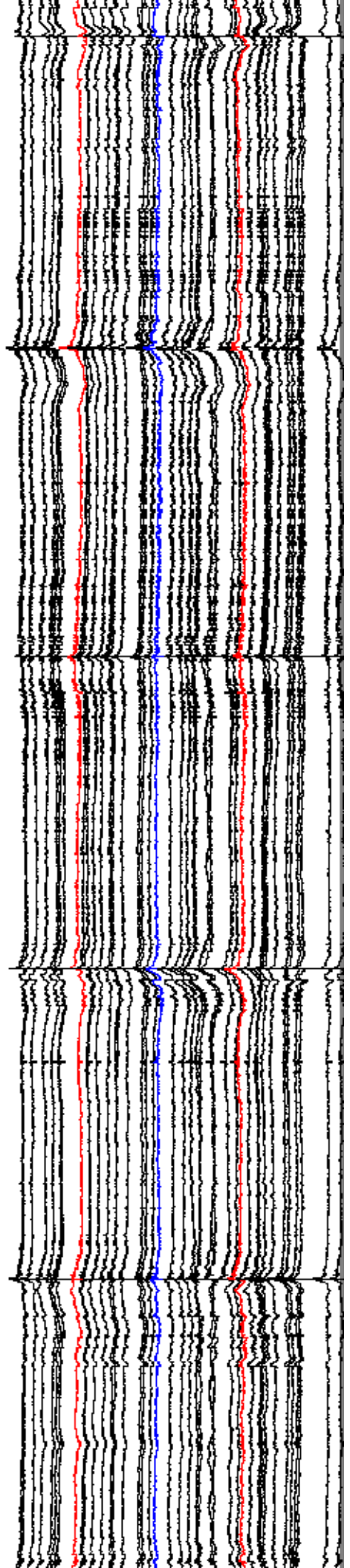
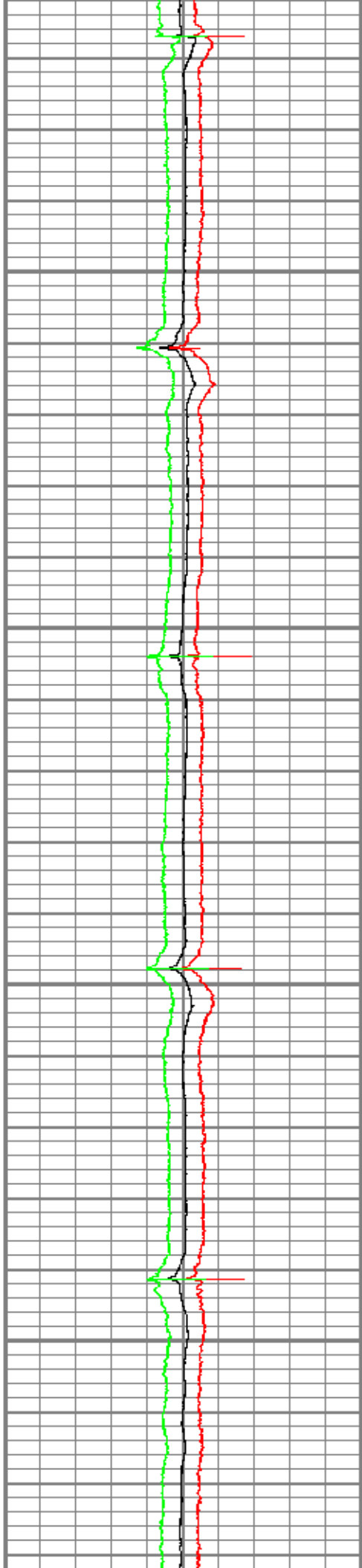


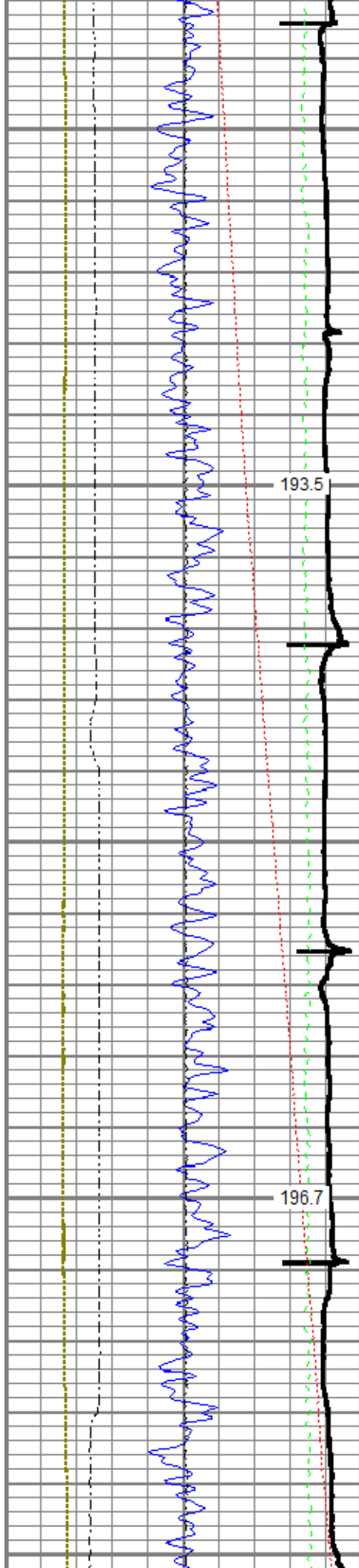




6200

6300



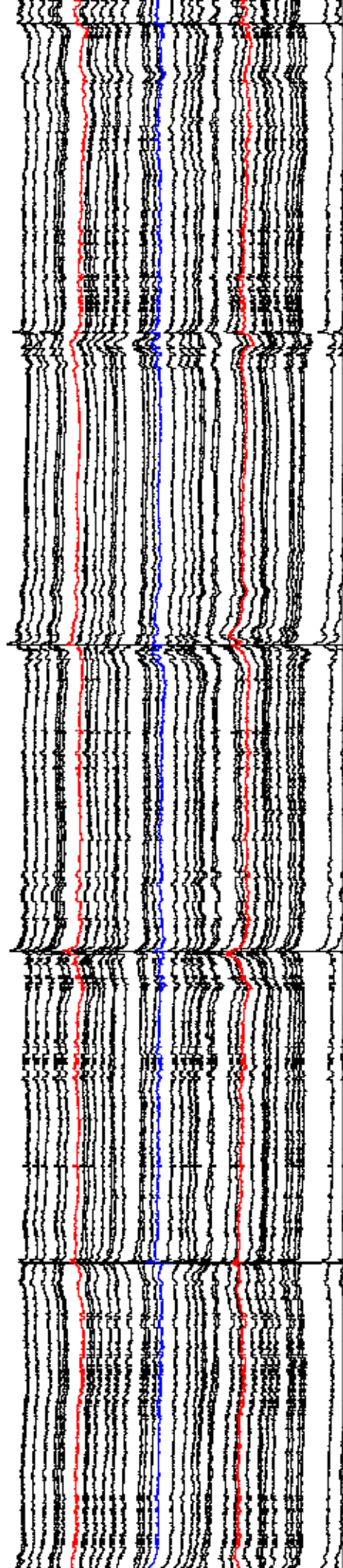
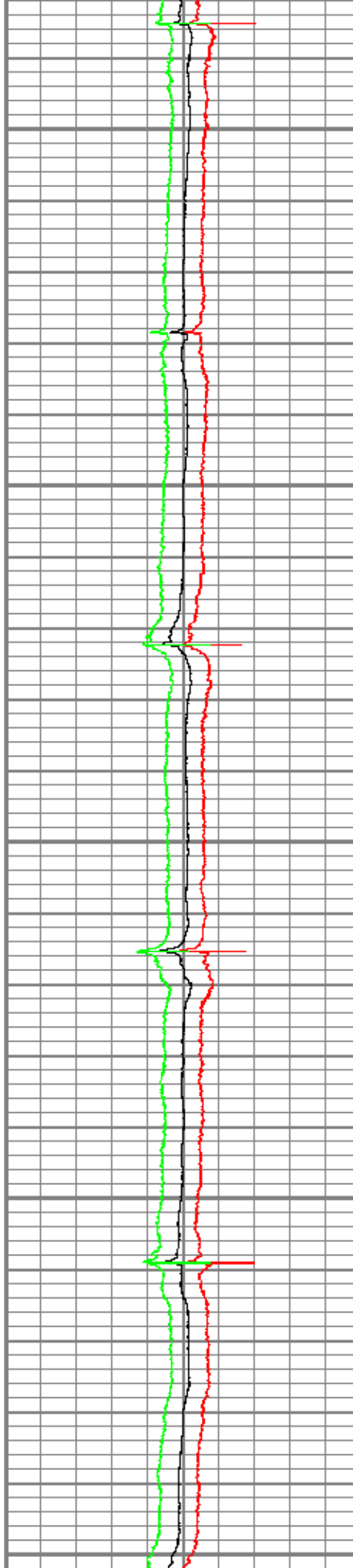


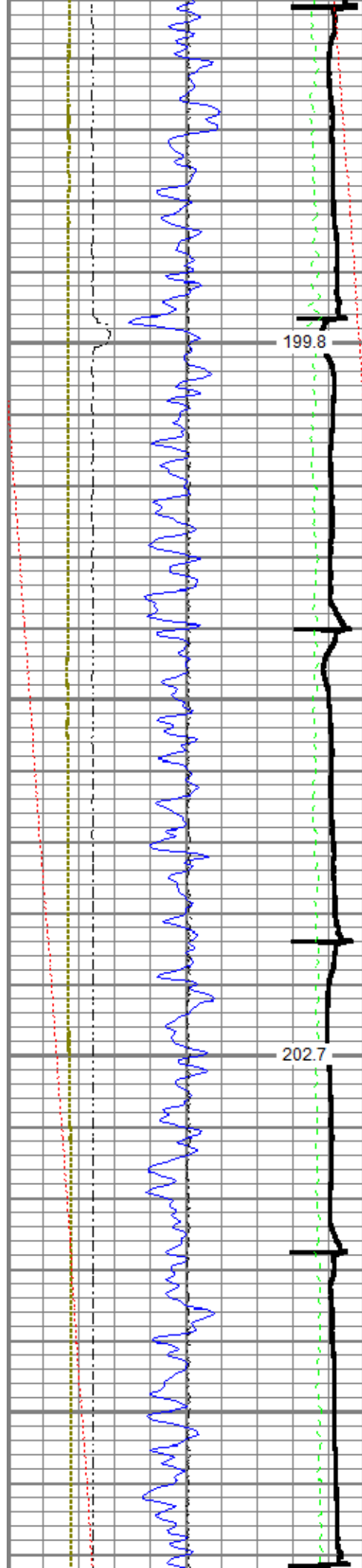
193.5

196.7

6400

6500



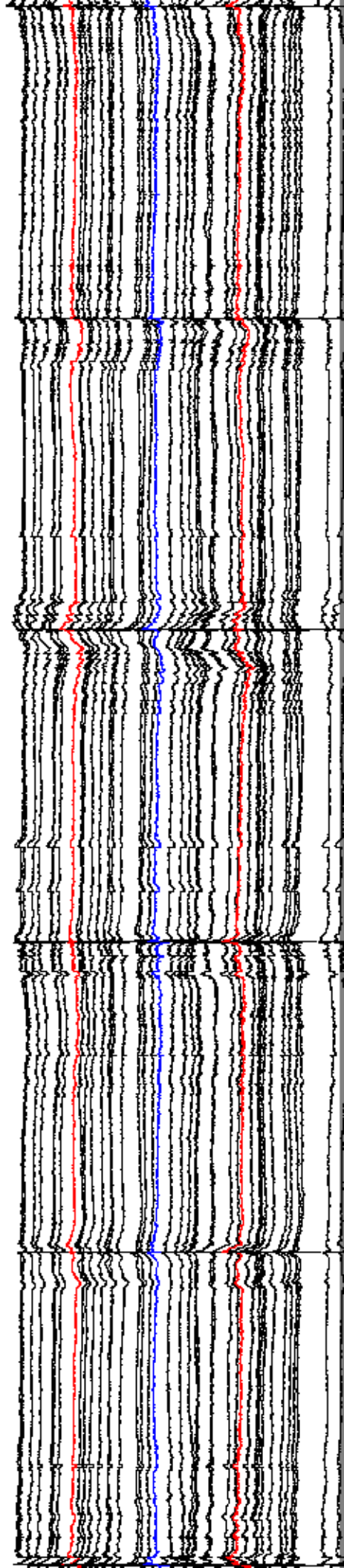
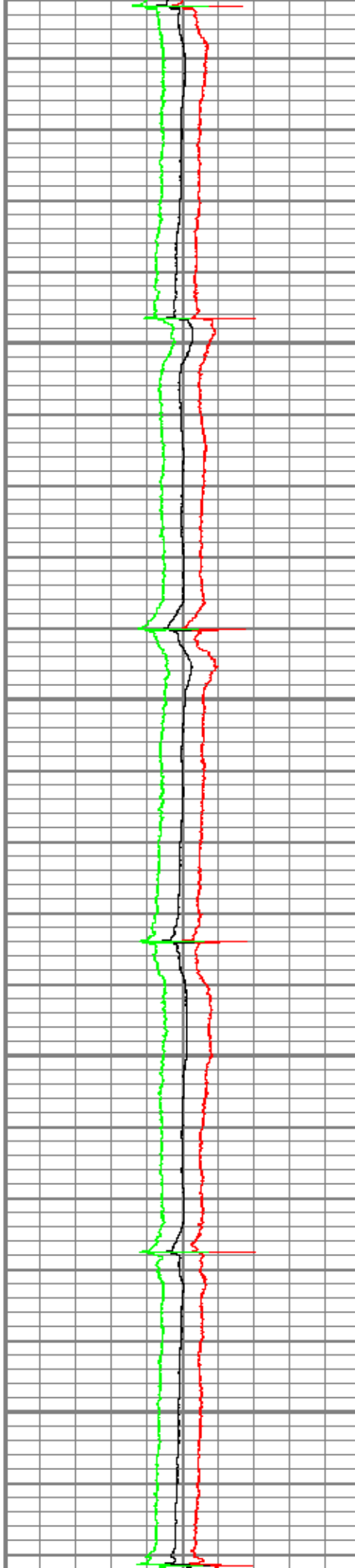


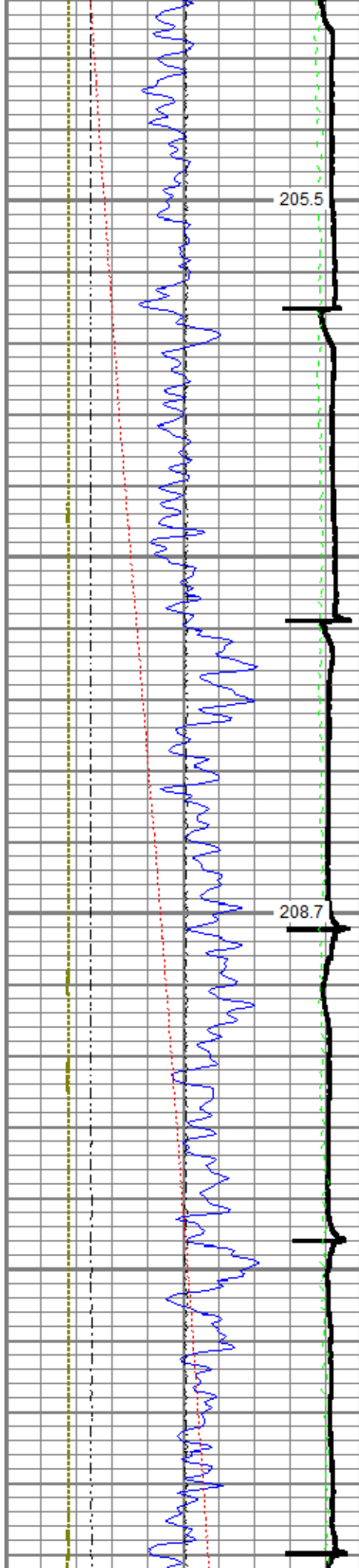
199.8

202.7

6600

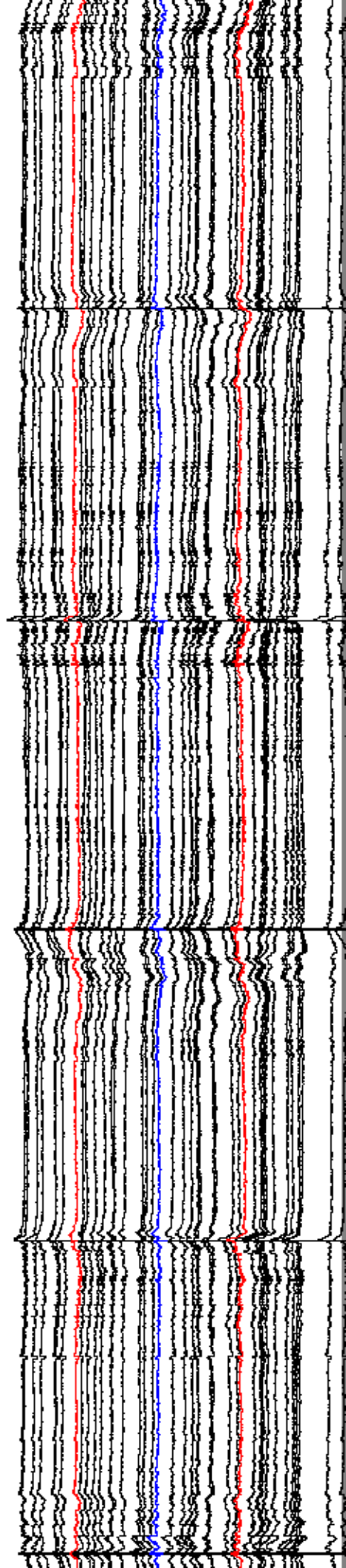
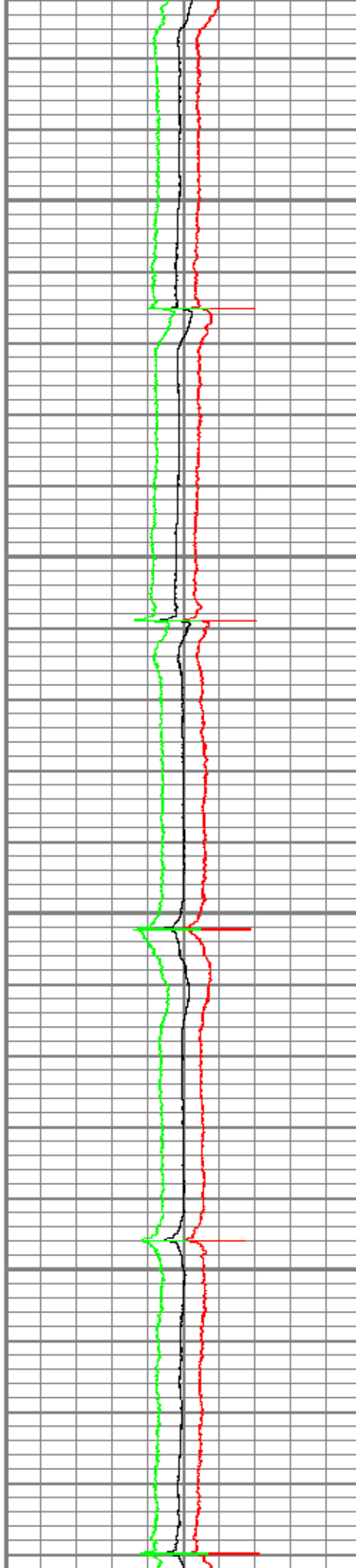
6700

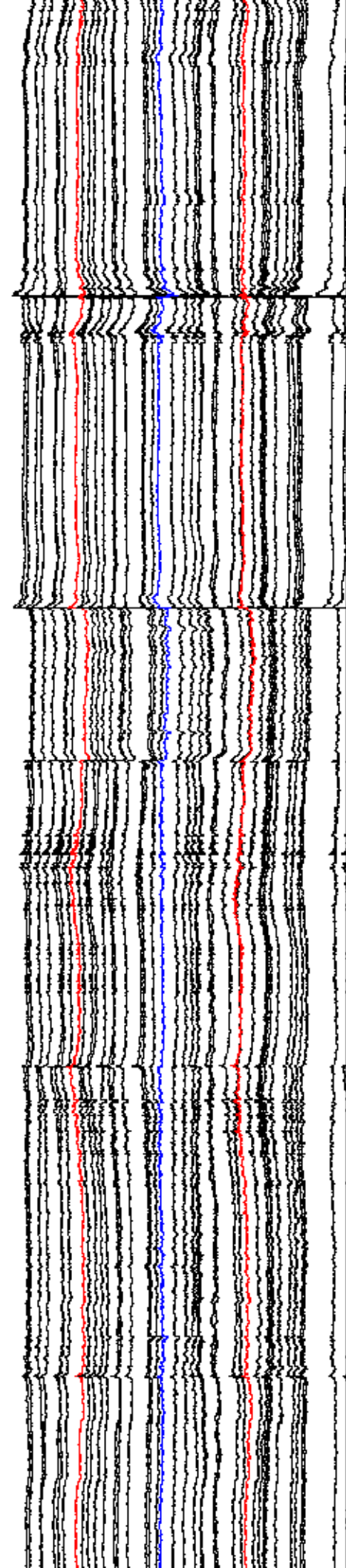
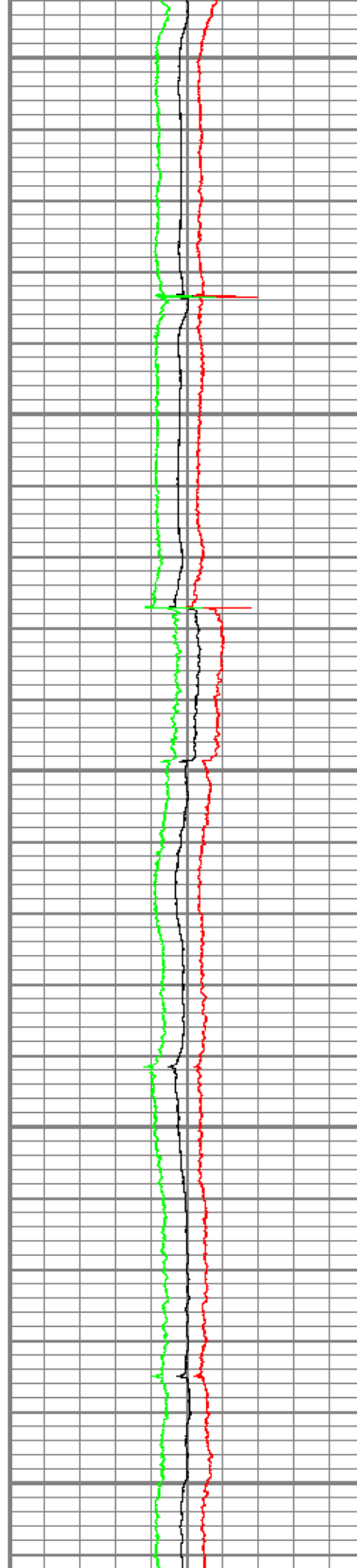
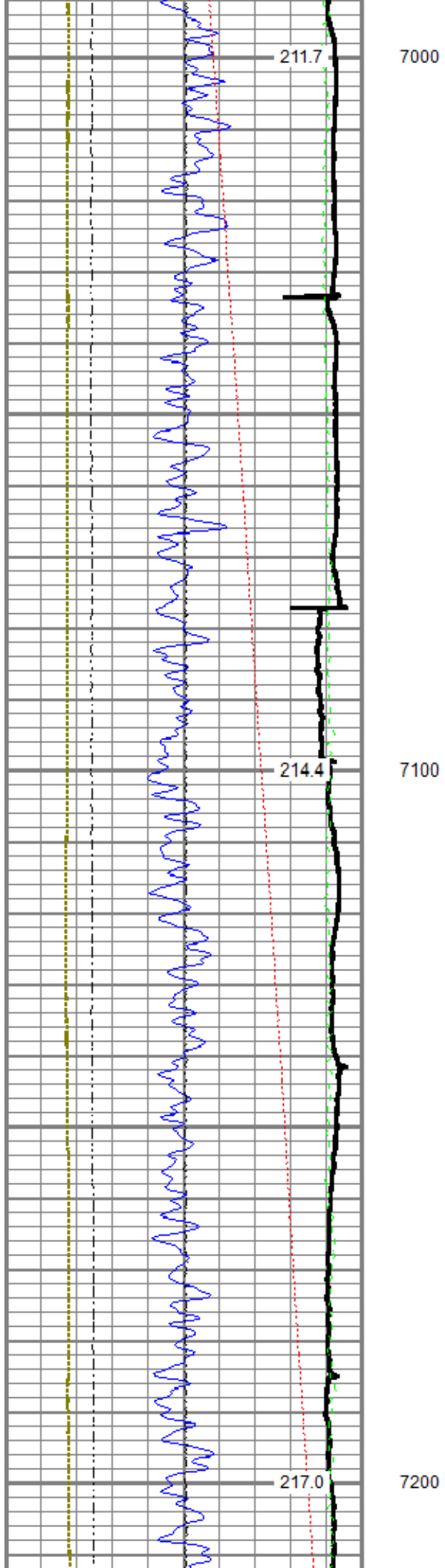


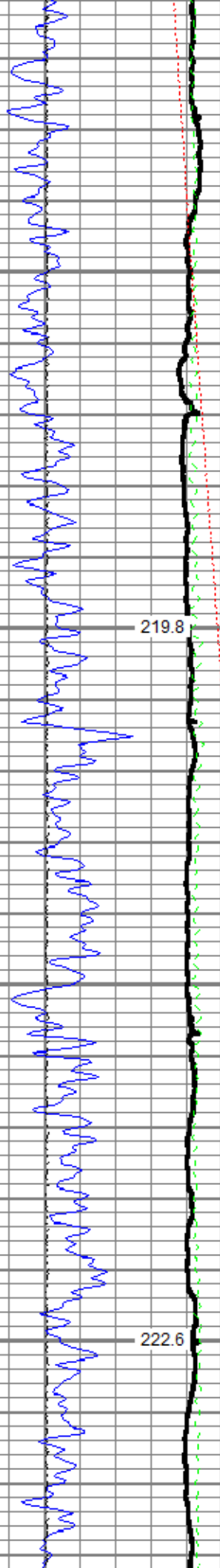


6800

6900





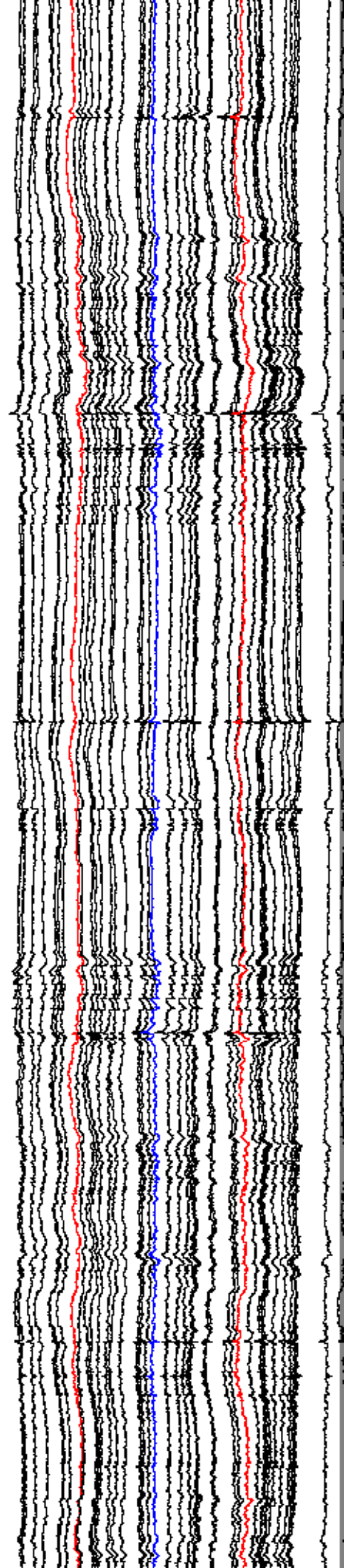
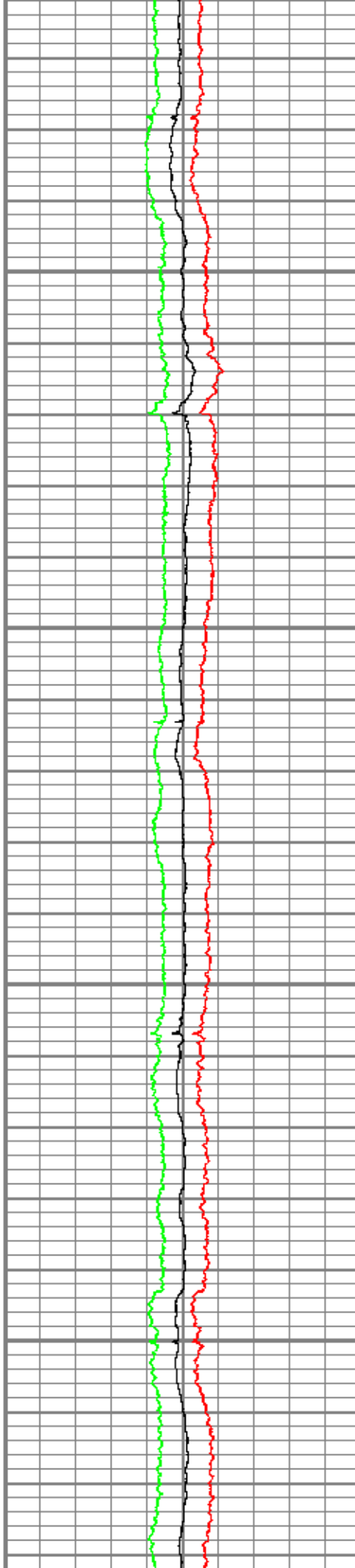


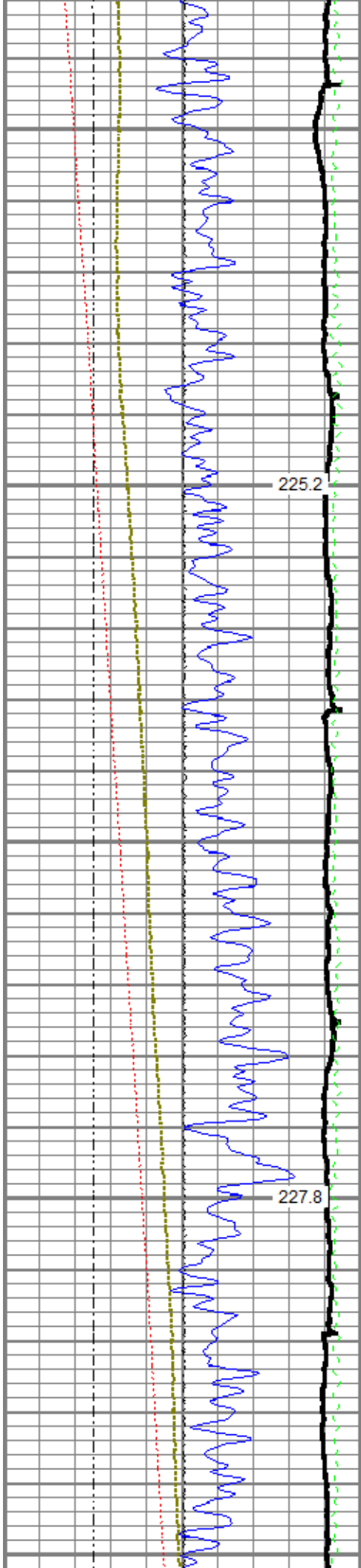
219.8

222.6

7300

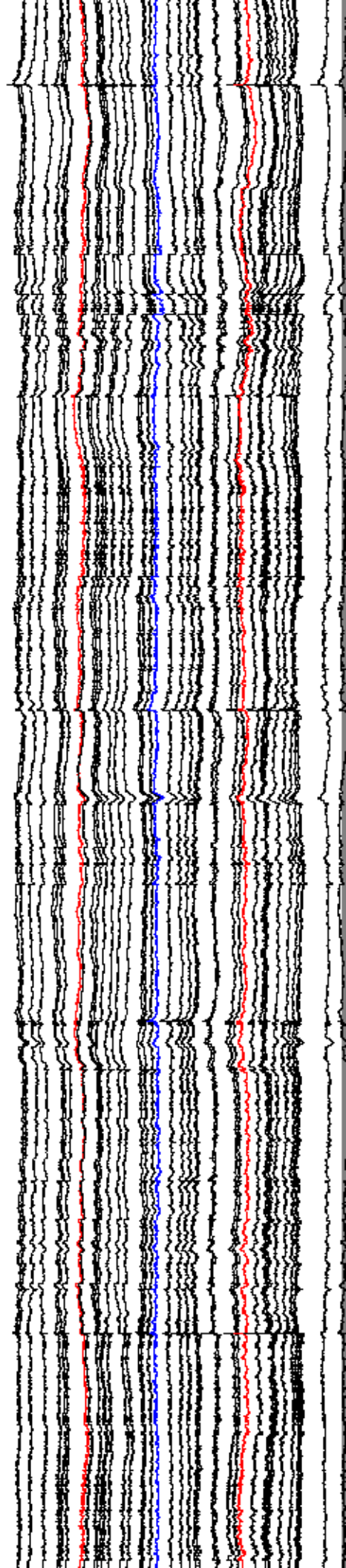
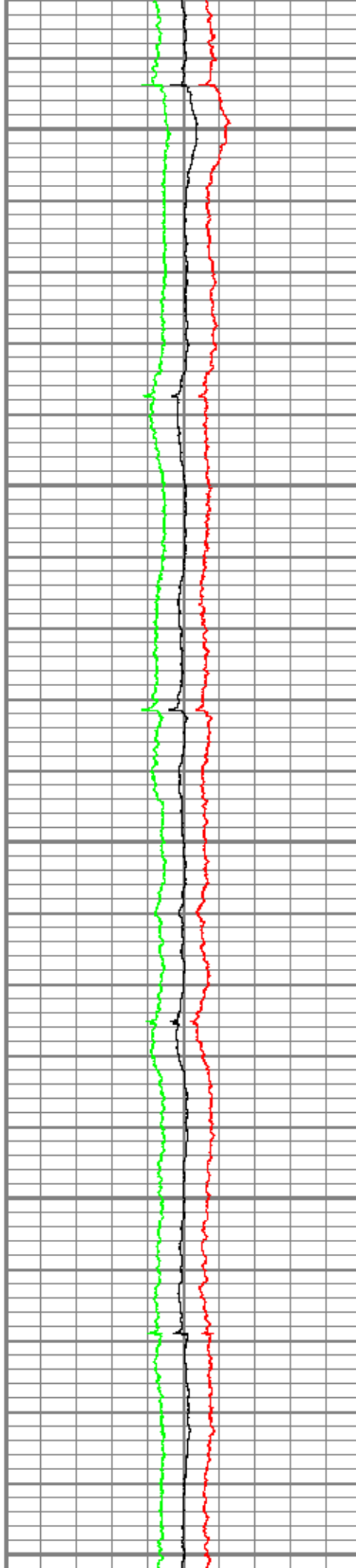
7400

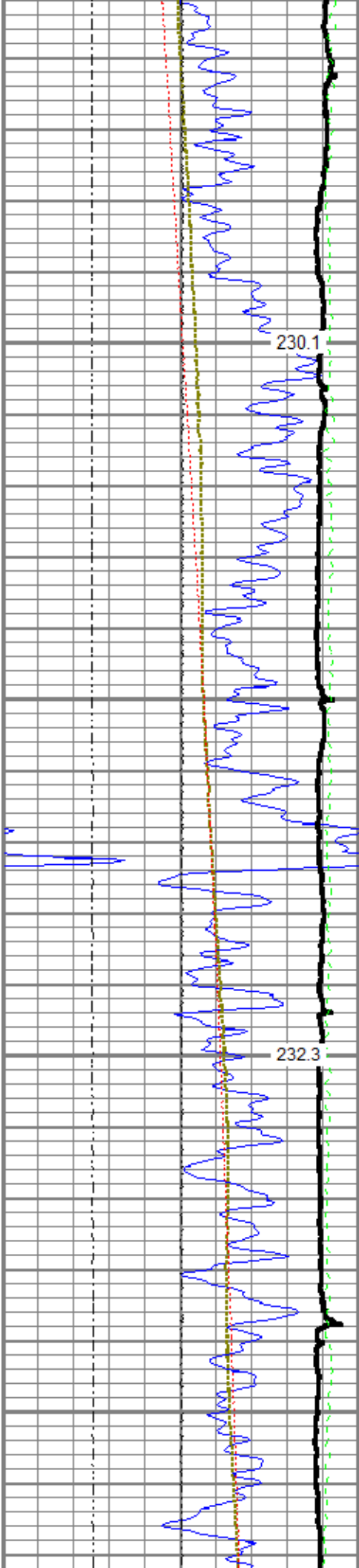




7500

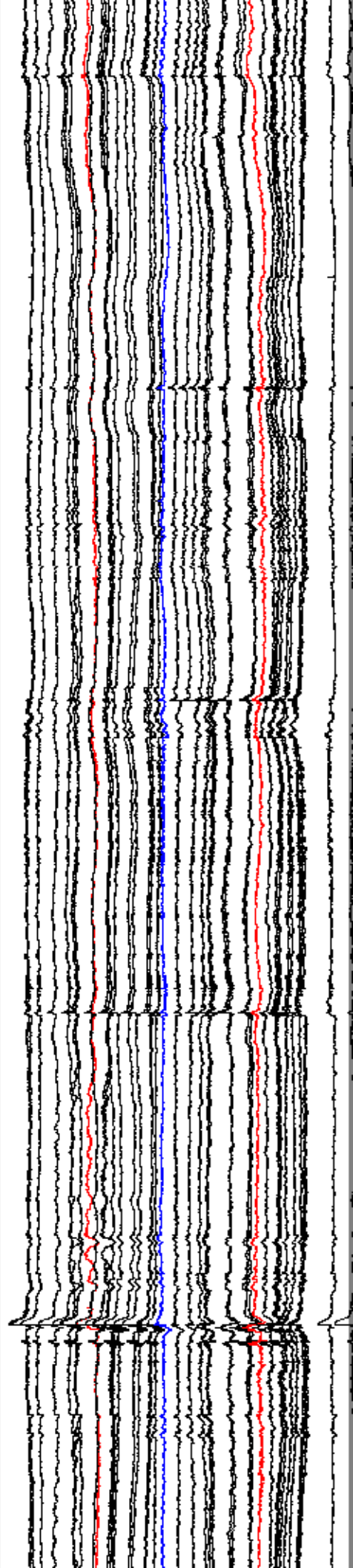
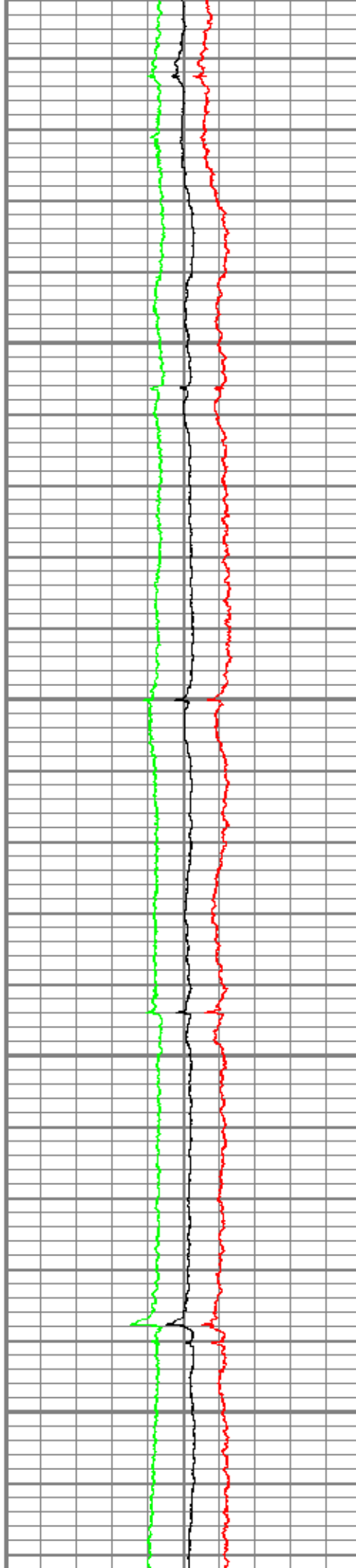
7600

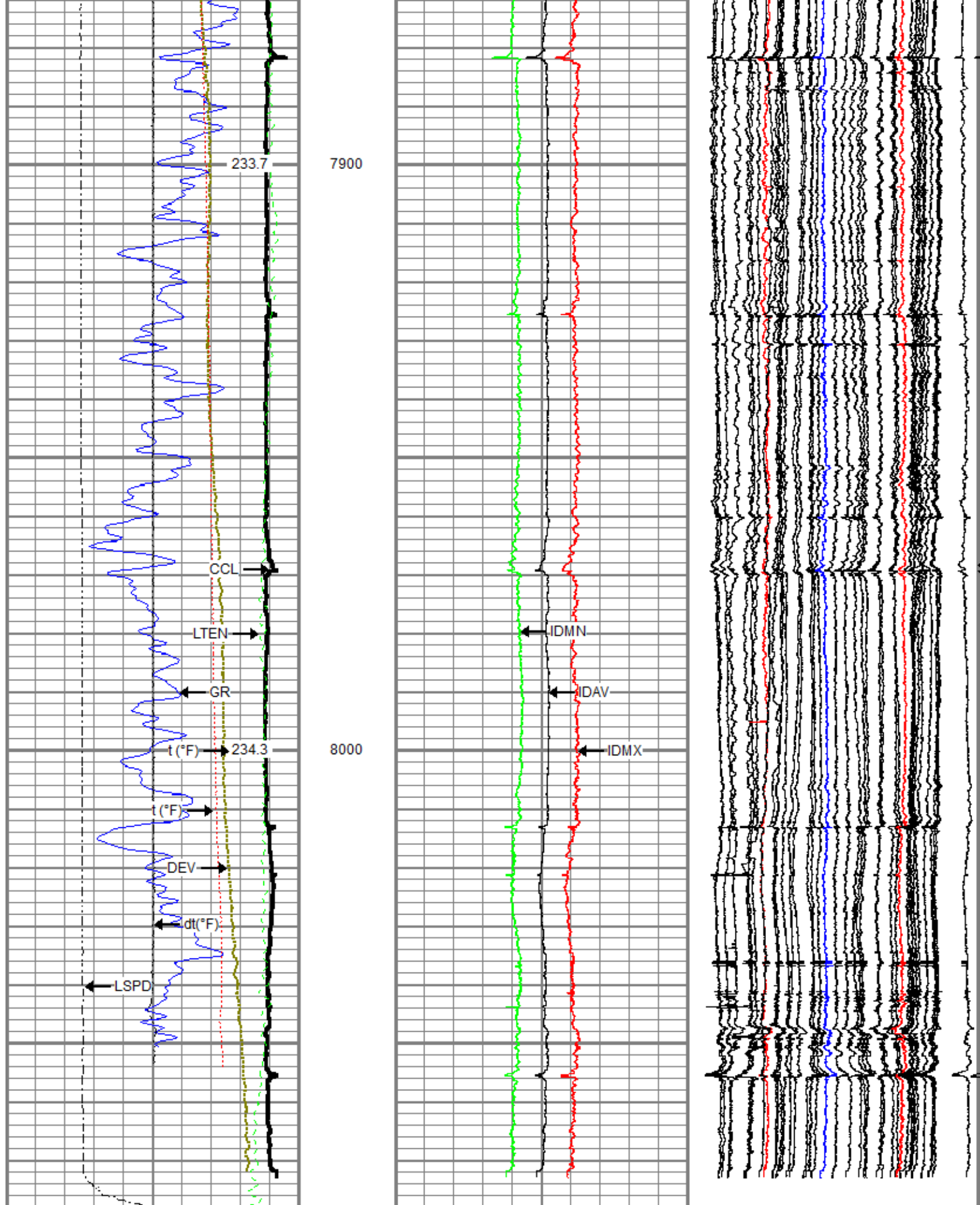




7700

7800





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



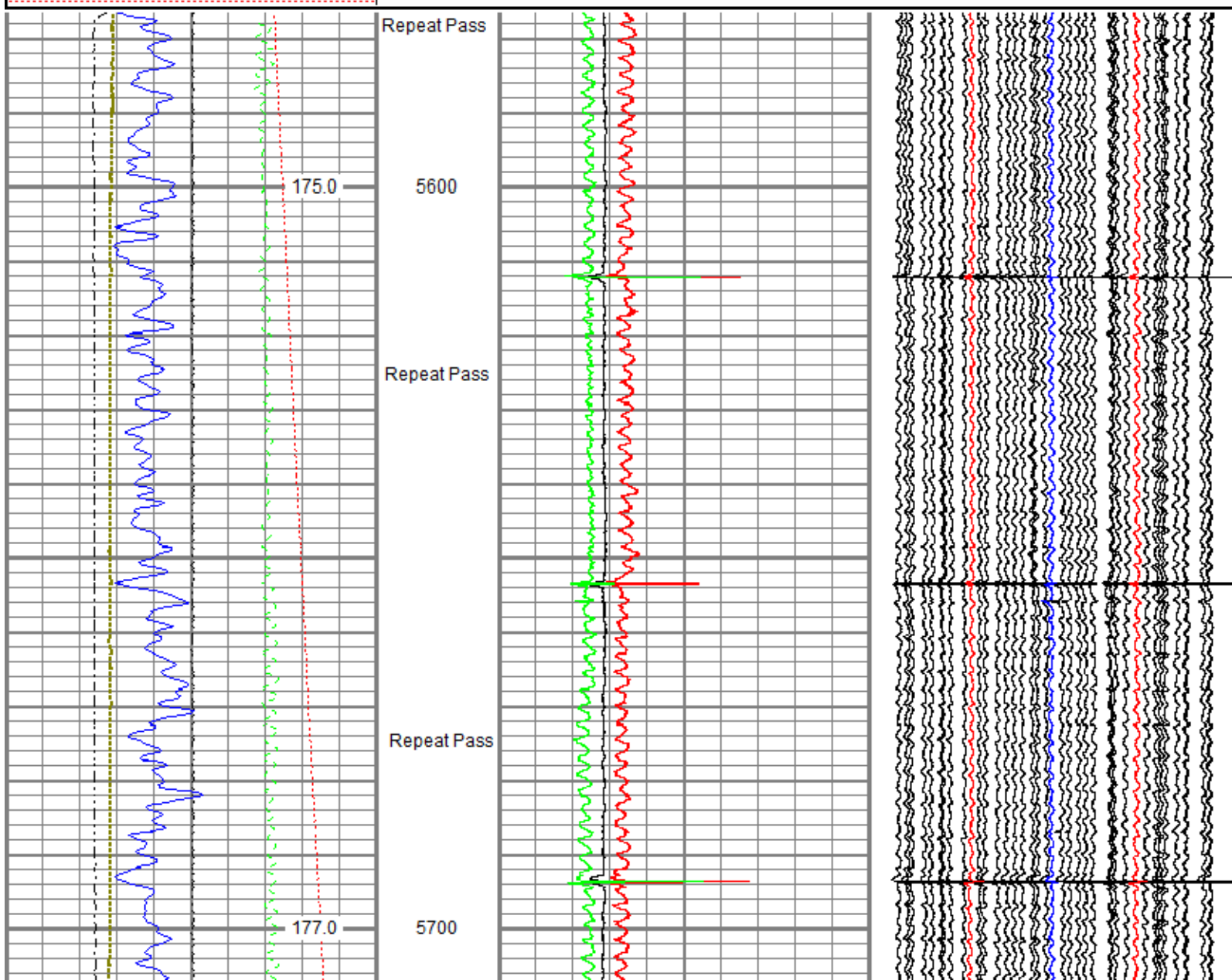
Repeat Pass

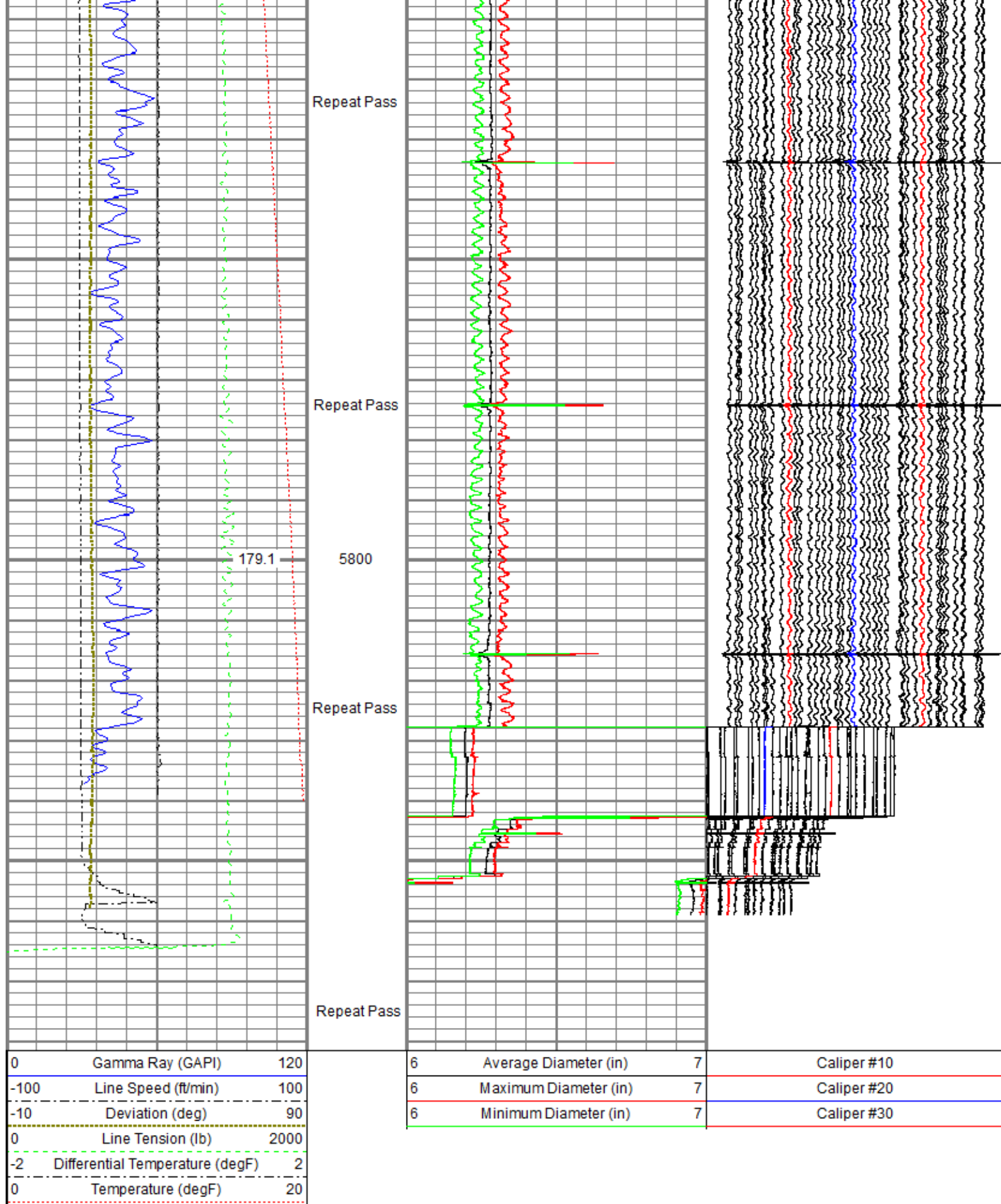
Recorded With 0 PSI Surface Induced Pressure


Database File 0512344203_anadarko_leinweber 36n_11hz_mit_04-17-18\processed_0512344203_anadarko_leinweber 36n_11hz_mit_04-
 Dataset Pathname repeat
 Presentation Format ros_70mit40sx
 Dataset Creation Tue Apr 17 08:07:30 2018
 Charted by Depth in Feet scaled 1:240

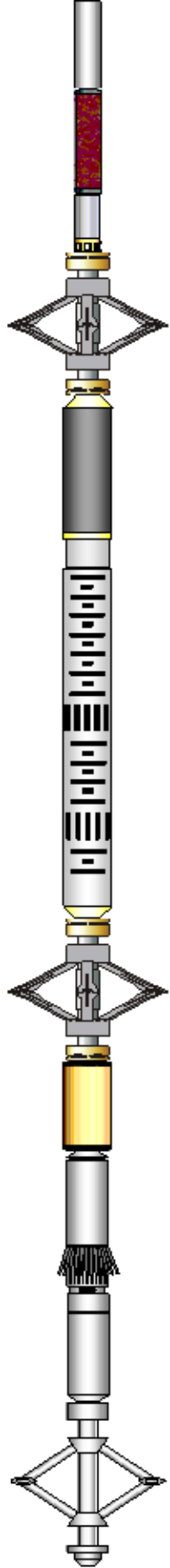
0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

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





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1"	1.03	1.44	3.60

GR	25.19		Fishing Neck					
			UW AGS-001 (211461) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00		
			UW XTU-002 (10024281) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50		
TEMP	23.79		UW PGR-020 (10024555) Production Gamma Ray	1.92	1.69	9.50		
			UW PRT-016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20		
			UW CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00		
CBLROT CBLTEMP WVFS8 WVFS7 WVFS6 WVFS5 WVFS4 WVFS3 WVFS2 WVFS1 WVF3FT WVF5FT CBLTEMP	16.76 16.76 16.76 16.76 16.76 16.76 16.76 16.76 16.76 16.76 15.76 11.63		UW RBT-004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00		
			UW CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00		
			UW CCL-028 (10018437) 3-1/8" Ultrawire Casing Collar Locator	1.61	3.13	36.00		
			UW MIT-40 027 (211111) 40 Multifinger Imaging Tool	4.54	2.75	65.00		
			UW CENT-PRC 057 4 Arm 2-3/4" Production Roller Centralizer	2.71	2.75	32.00		
			UW BUL-006 (031422) Sondex Ultrawire Bullnose Terminator Sub	0.22	1.69	1.20		
			CCL	7.98				
		MIT	5.27					
TSTAMP	0.00							
Dataset: PROCESSED_0512344203_Anadarko_Leinweber 36N_11HZ_MIT_04-17-18.db: field/well/run1/Main								
Total length: 29.44 ft								
Total weight: 364.00 lb								
O.D.: 3.13 in								

Calibration Report

Database File c:\programdata\warrior\data\0512344203_anadarko_leinweber 36n_11hz_mit_04-17-18\processed_0512344203_anadarko_lei

Multifinger Imaging Tool Calibration Report

Serial Number: 211111
Number of Fingers: 40
Tool Model: 40 027

Inclinometer Calibration Report

Performed: Mon Nov 18 15:31:59 2013
Calibration Angle: 46

	Inc X	Inc Y
Vertical:	1931	1952
Finger 1 up:	1959	2266
Finger 31 up:	1608	1962
Finger 21 up:	1927	1623
Finger 11 up:	2253	1930
Sensitivity ratio:	1.0031	
X-axis angle:	272.845	
Deviation const.:	311.818	

Finger Calibration Report

Performed: Tue Apr 17 07:22:23 2018

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	985	384.0	1369	418.0	1787	443.0	2230
Finger 02:	1000	384.0	1384	413.0	1797	446.0	2243
Finger 03:	1019	369.0	1388	400.0	1788	432.0	2220
Finger 04:	977	383.0	1360	411.0	1771	463.0	2234
Finger 05:	971	388.0	1359	408.0	1767	449.0	2216
Finger 06:	947	394.0	1341	415.0	1756	475.0	2231
Finger 07:	1082	353.0	1435	371.0	1806	421.0	2227
Finger 08:	1014	380.0	1394	404.0	1798	430.0	2228
Finger 09:	962	395.0	1357	412.0	1769	439.0	2208
Finger 10:	1007	341.0	1348	354.0	1702	366.0	2068
Finger 11:	1046	398.0	1444	404.0	1848	413.0	2261
Finger 12:	1178	382.0	1560	387.0	1947	395.0	2342
Finger 13:	943	400.0	1343	415.0	1758	432.0	2190
Finger 14:	1130	358.0	1488	358.0	1846	377.0	2223
Finger 15:	955	404.0	1359	419.0	1778	456.0	2234
Finger 16:	1123	381.0	1504	396.0	1900	391.0	2291
Finger 17:	959	396.0	1355	417.0	1772	428.0	2200
Finger 18:	951	411.0	1362	420.0	1782	428.0	2210
Finger 19:	947	405.0	1352	424.0	1776	434.0	2210
Finger 20:	1117	393.0	1510	401.0	1911	403.0	2314
Finger 21:	1012	408.0	1420	426.0	1846	428.0	2274
Finger 22:	948	394.0	1342	419.0	1761	436.0	2197
Finger 23:	739	346.0	1085	394.0	1479	431.0	1910
Finger 24:	1139	390.0	1529	404.0	1933	399.0	2332
Finger 25:	1270	407.0	1677	429.0	2106	430.0	2536
Finger 26:	1170	349.0	1519	364.0	1883	360.0	2243
Finger 27:	1164	375.0	1539	397.0	1936	404.0	2340
Finger 28:	1034	373.0	1407	404.0	1811	406.0	2217
Finger 29:	1278	354.0	1632	362.0	1994	374.0	2368
Finger 30:	1244	355.0	1599	375.0	1974	375.0	2349
Finger 31:	1259	356.0	1615	370.0	1985	372.0	2357
Finger 32:	1255	355.0	1610	373.0	1983	370.0	2353
Finger 33:	1038	328.0	1366	362.0	1728	377.0	2105
Finger 34:	1057	345.0	1402	379.0	1781	390.0	2171
Finger 35:	1350	350.0	1700	365.0	2065	370.0	2435
Finger 36:	1450	410.0	1860	432.0	2292	429.0	2721
Finger 37:	1110	345.0	1455	375.0	1830	446.0	2276
Finger 38:	1352	386.0	1738	404.0	2142	410.0	2552
Finger 39:	1184	352.0	1536	376.0	1912	388.0	2300
Finger 40:	1003	380.0	1383	414.0	1797	436.0	2233

Segmented Cement Bond Log Calibration Report

Serial Number: 1066
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 17.863 ft

Master Calibration, performed Tue Apr 17 07:11:50 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.000	0.773	0.800	62.165	79.359	0.821
5FT	-0.005	0.768	0.800	62.165	79.361	1.197
S1	-0.000	0.769	0.000	100.000	129.969	0.033
S2	-0.002	0.788	0.000	100.000	126.653	0.223
S3	-0.001	0.788	0.000	100.000	126.791	0.150
S4	-0.002	0.788	0.000	100.000	126.579	0.213
S5	-0.000	0.776	0.000	100.000	128.759	0.052
S6	-0.001	0.765	0.000	100.000	130.462	0.147
S7	-0.000	0.750	0.000	100.000	133.204	0.054
S8	-0.000	0.755	0.000	100.000	132.415	0.032

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: 10024555
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 Leinweber 36N-11HZ
Field Wattenberg
County Weld
State Colorado