



Multifinger Imaging Tool
Gamma Ray
Casing Collar Log

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

Well Wagner 27C-10HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-43474

SEC 22 TWP 1N RGE 67W

Permanent Datum Ground Level Elevation 4971'
Log Measured From Kelly Bushing 21 FT
Drilling Measured From Kelly Bushing

Other Services
RBL
CNL
JBGR
Elevation

K.B. 4992'
D.F. ---
G.L. 4971'

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Wagner 27C-10HZ
Field Wattenberg
County Weld
State Colorado

Date	09-DEC-2017			
Run Number	Two			
Depth Driller	15076 FT			
Depth Logger	5745 FT			
Bottom Logged Interval	5734 FT			
Top Log Interval	Surface			
Open Hole Size	---			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	187°F			
E. Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	11:45			
Equipment Number	HD-325			
Location	Fort Lupton, CO			
Recorded By	C. Sisneros		S. Hopper	
Witnessed By	Justin Cleveland			
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	---	---	5663 FT
	4 1/2	11.6	HCP-110	5687 FT
				15071 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 5663 FT
Adjusted -15 FT to correlate with Liner Top
Gauge Ring/Junk Basket ran to 5870 FT with no debris
Log ran from as deep as possible in heel to Surface
Recorded with 2800 PSI Surface Induced Pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass

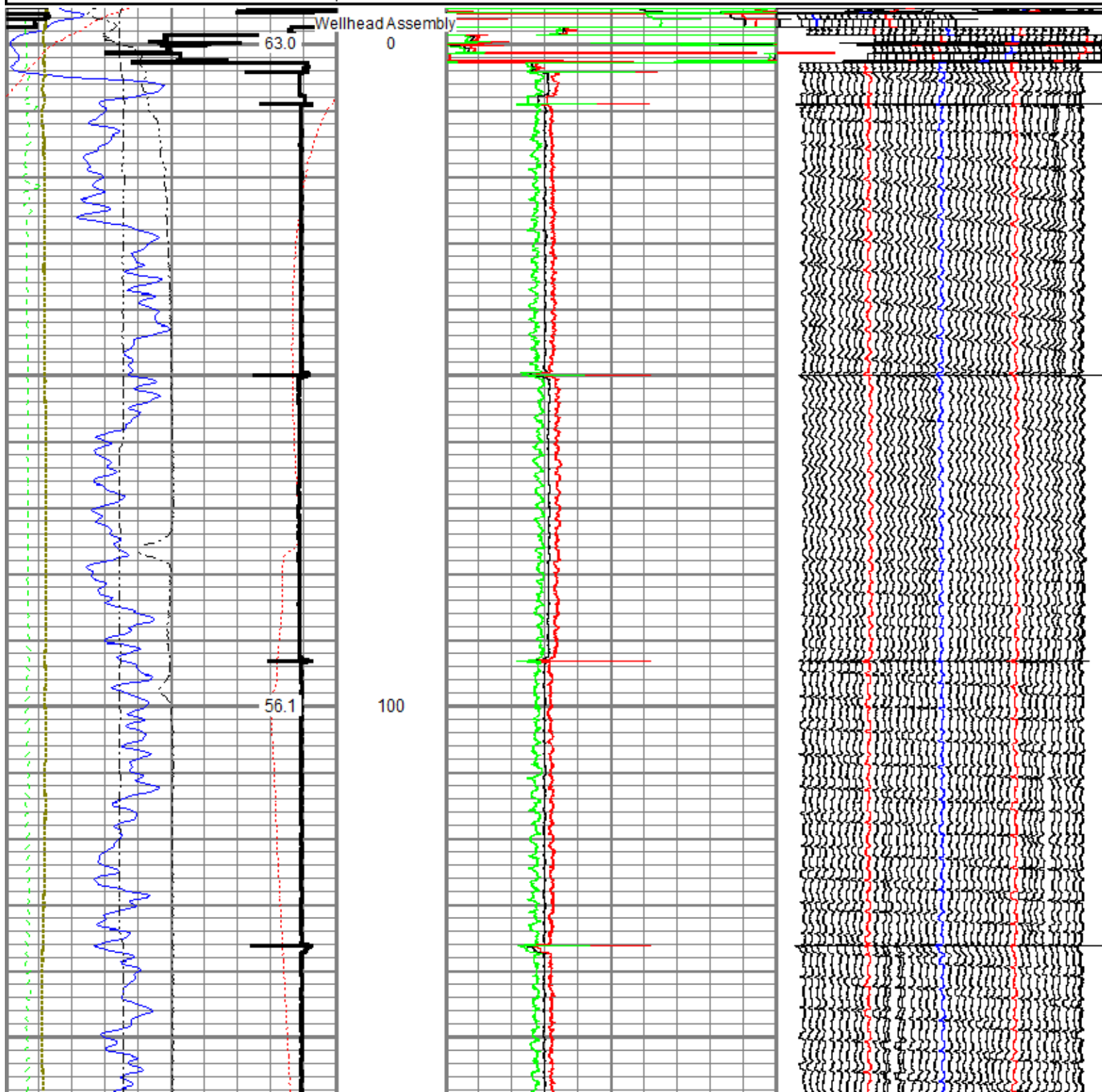


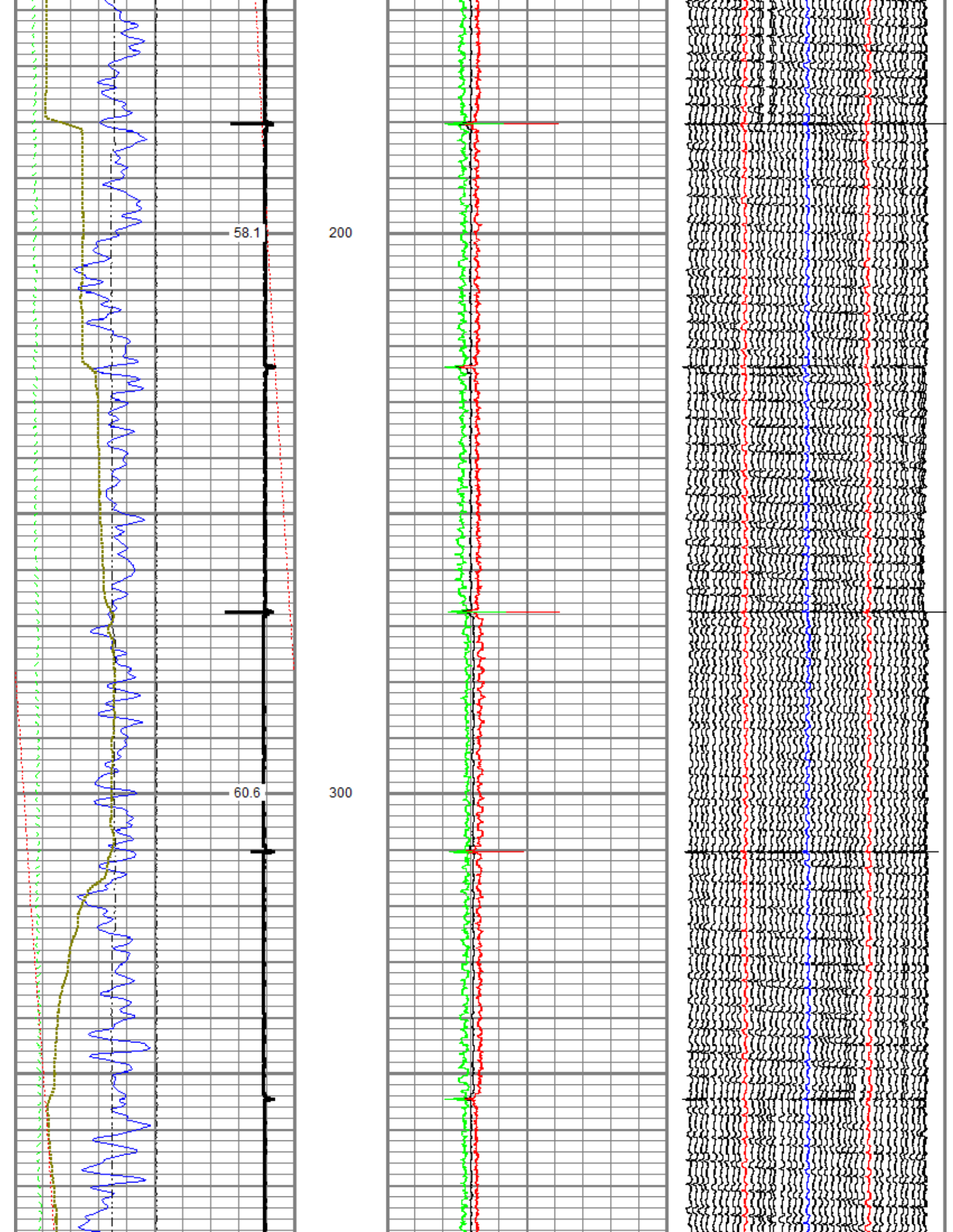
Recorded With 2800 PSI Surface Induced Pressure

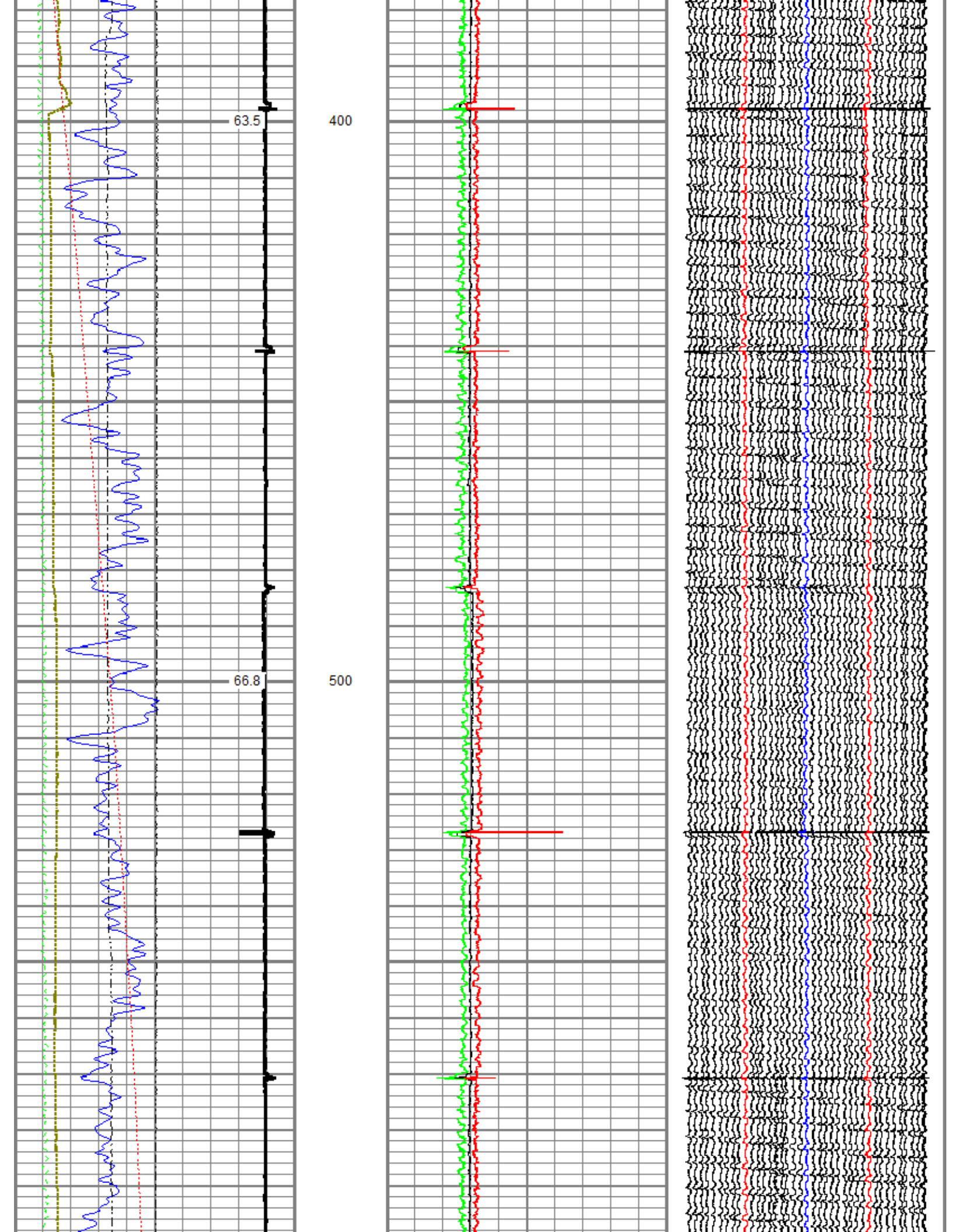
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 Dataset Pathname pass4.1
 Presentation Format ros_70mit40sx
 Dataset Creation Sat Dec 09 15:39:56 2017
 Charted by Depth in Feet scaled 1:240

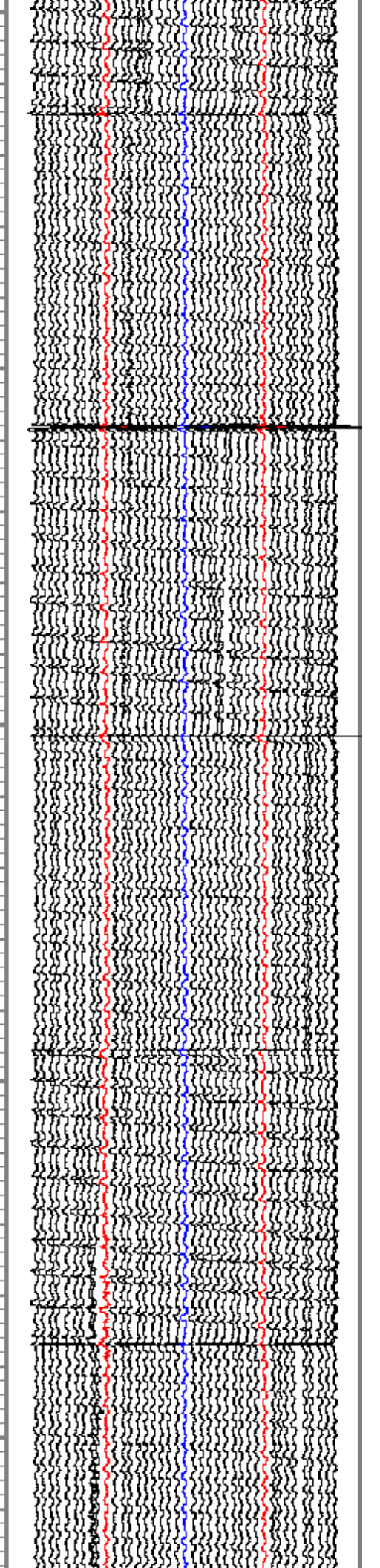
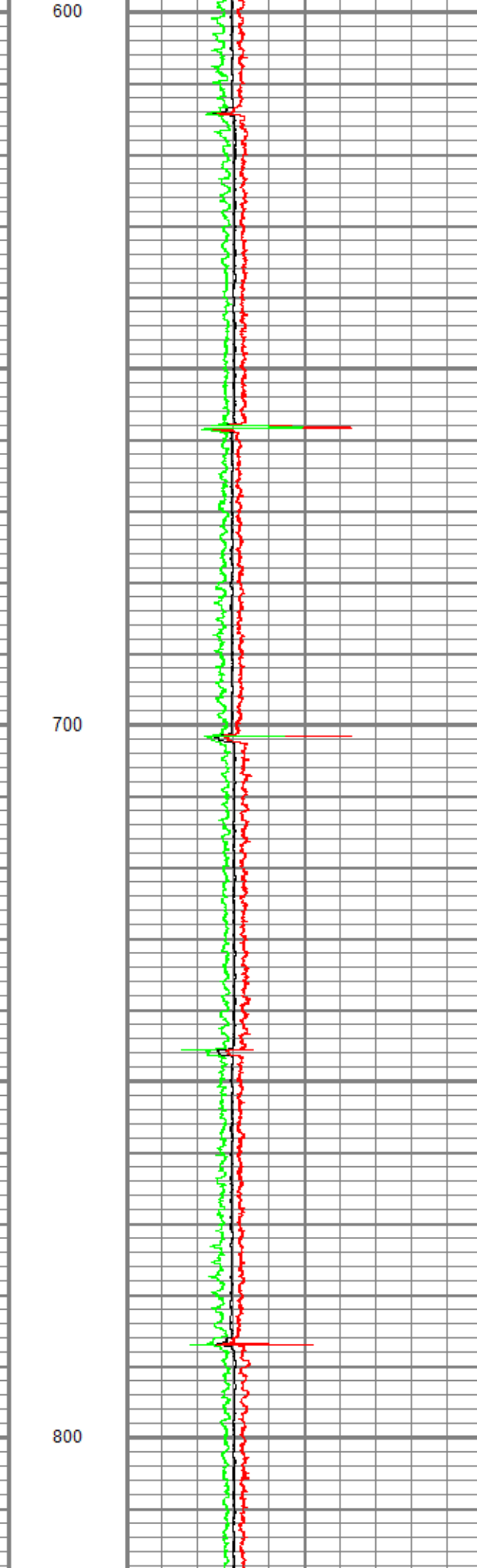
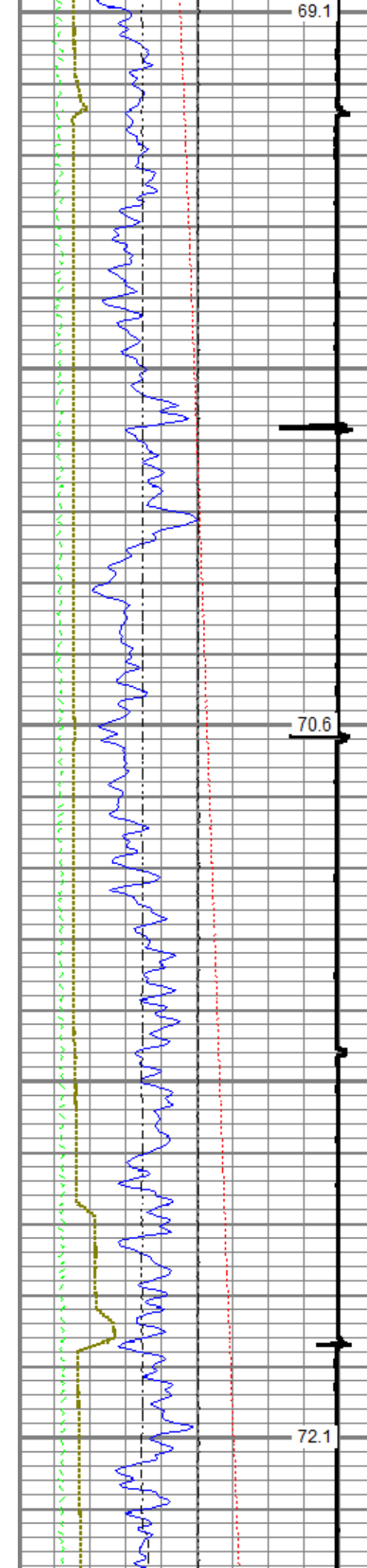
0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20
Casing Collar Locator		

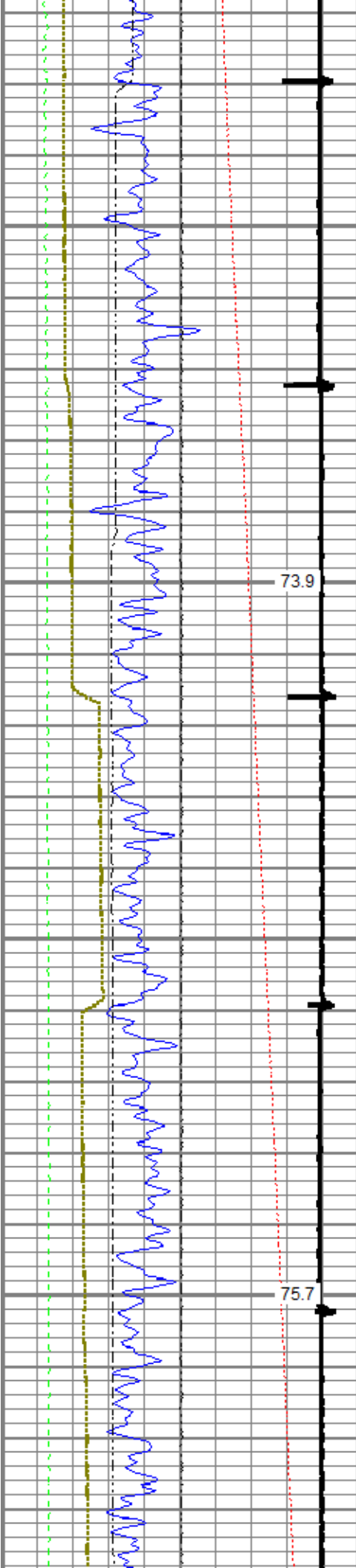
6	Average Diameter (in)	7	Caliper #10
6	Maximum Diameter (in)	7	Caliper #20
6	Minimum Diameter (in)	7	Caliper #30





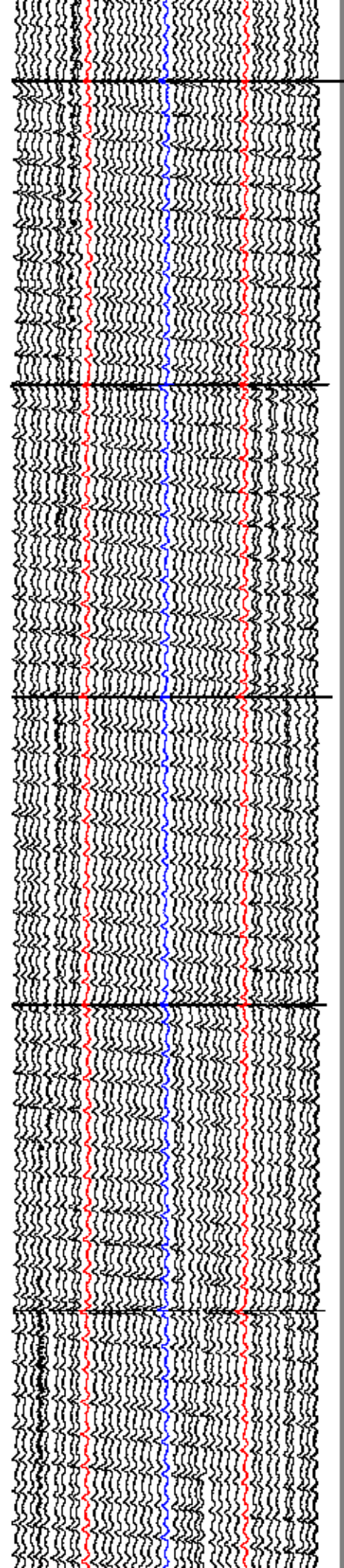
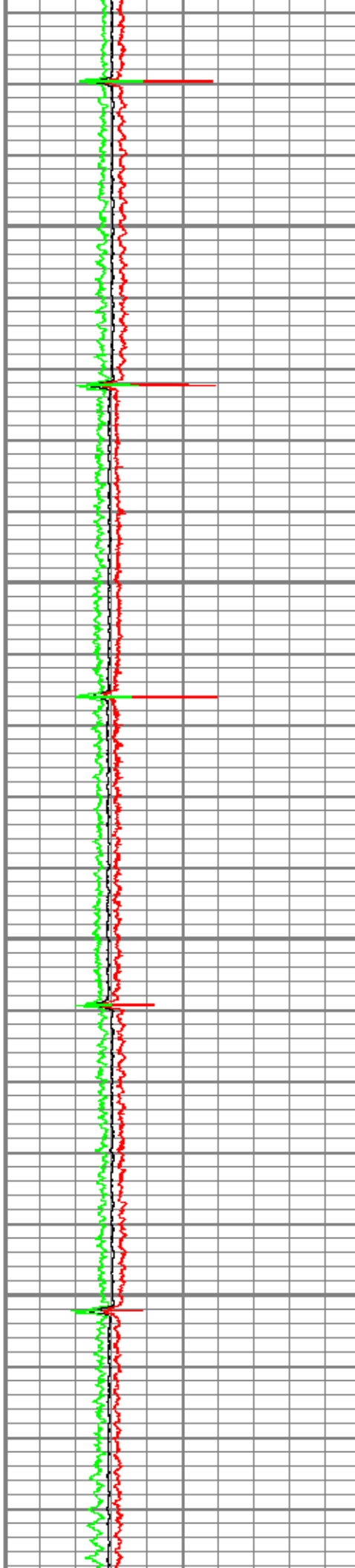


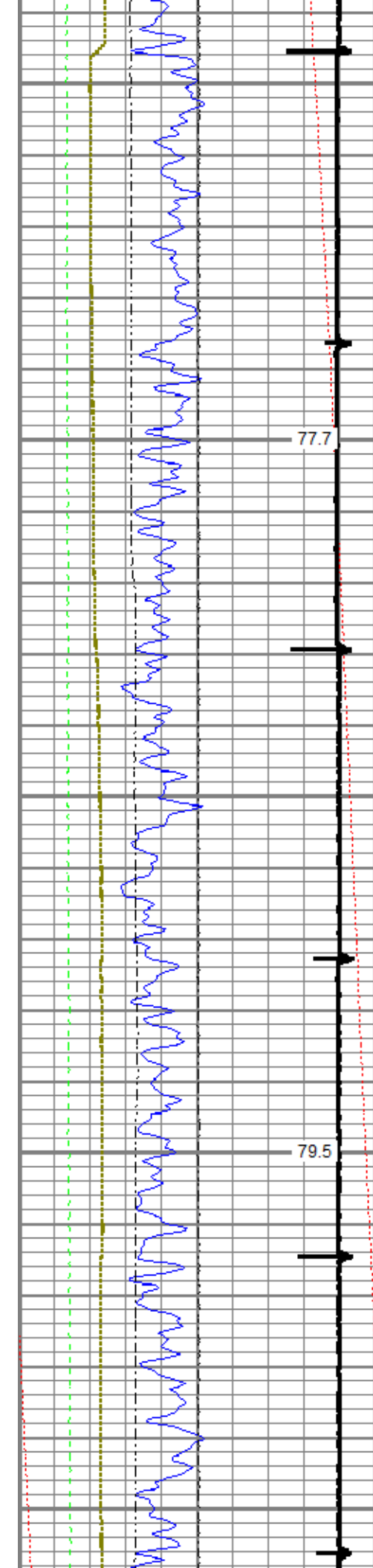




900

1000



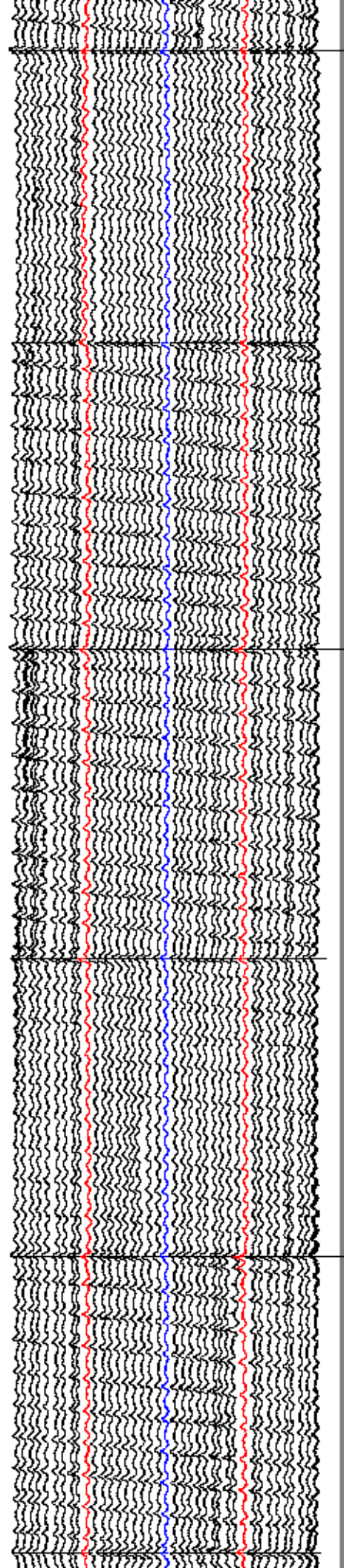
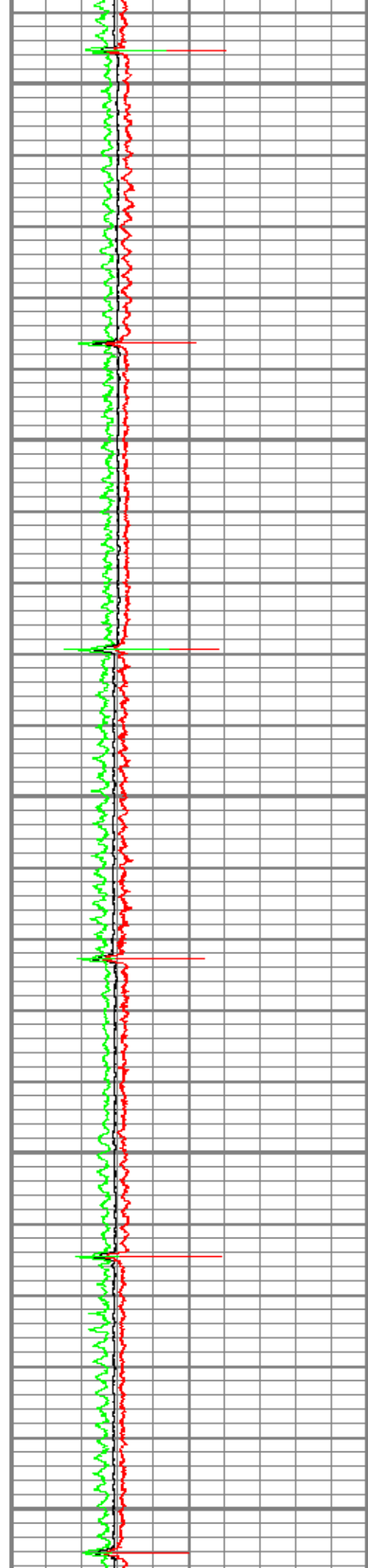


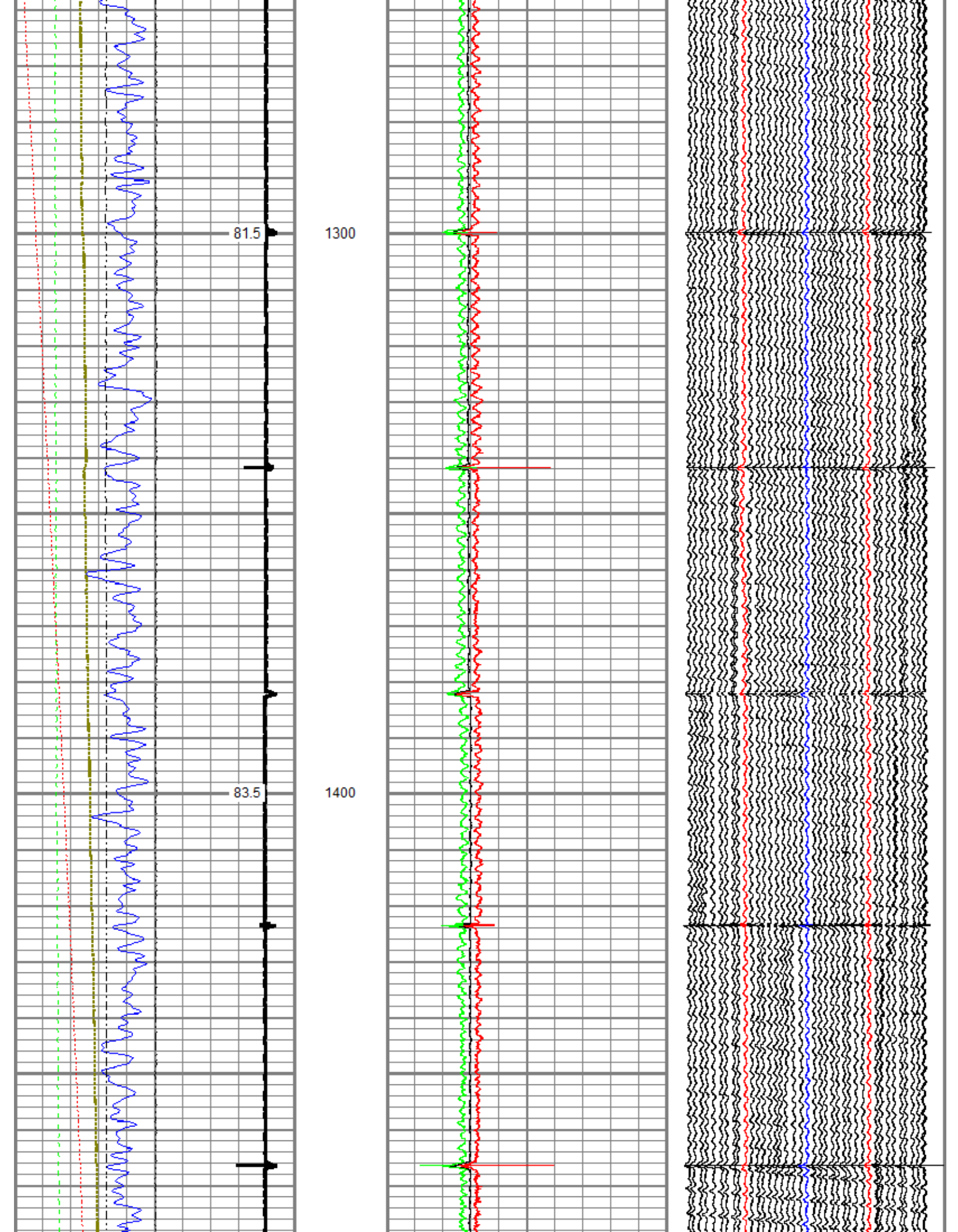
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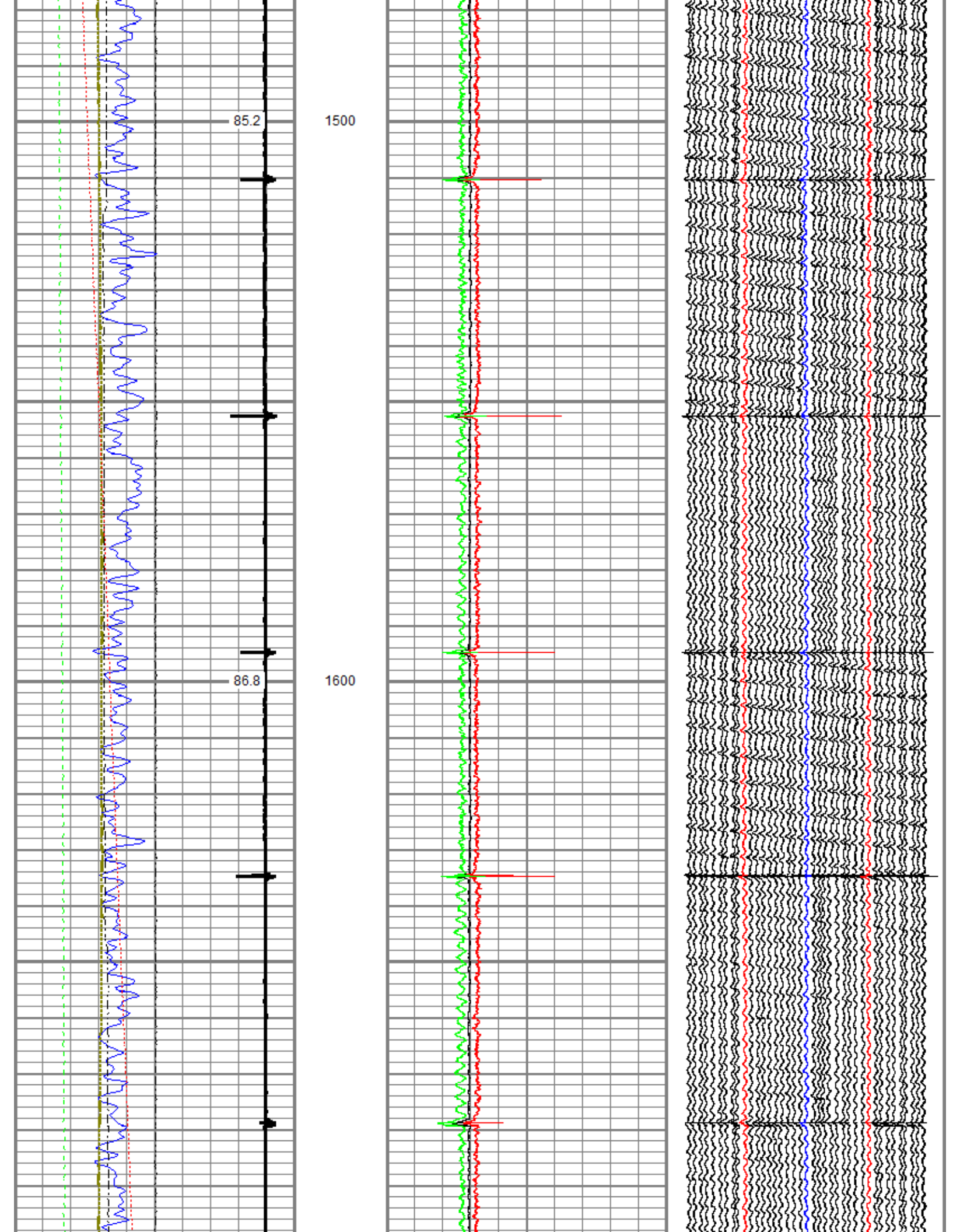
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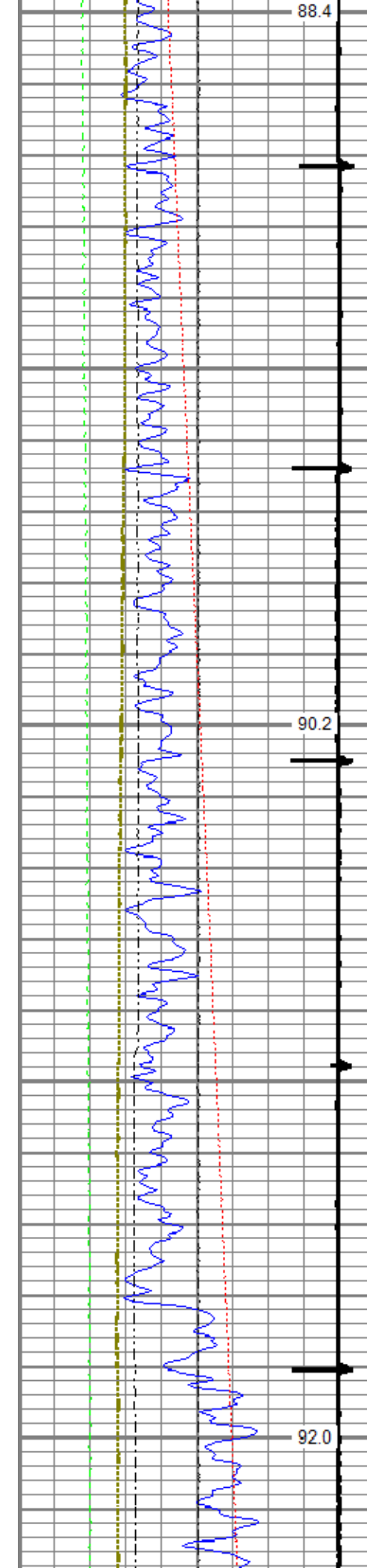
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1200





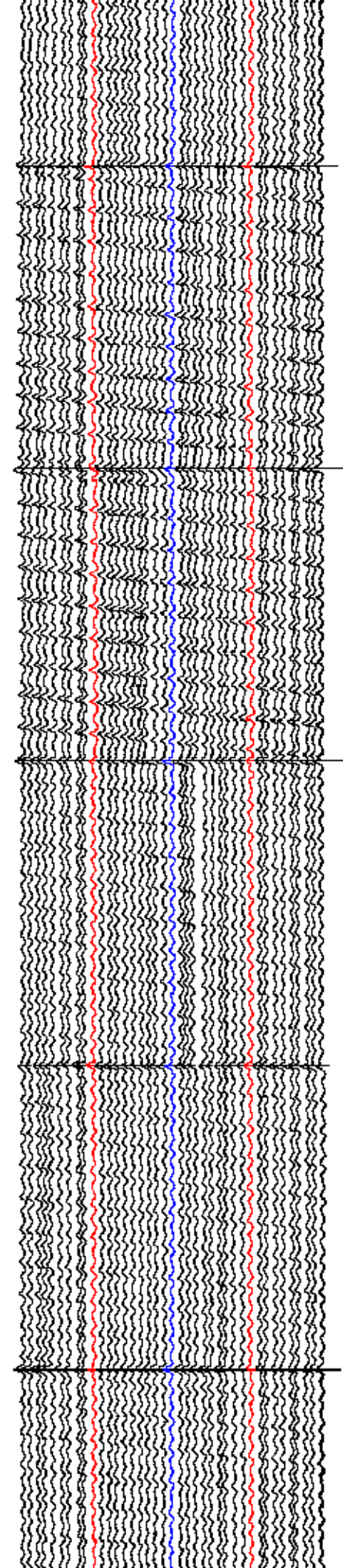
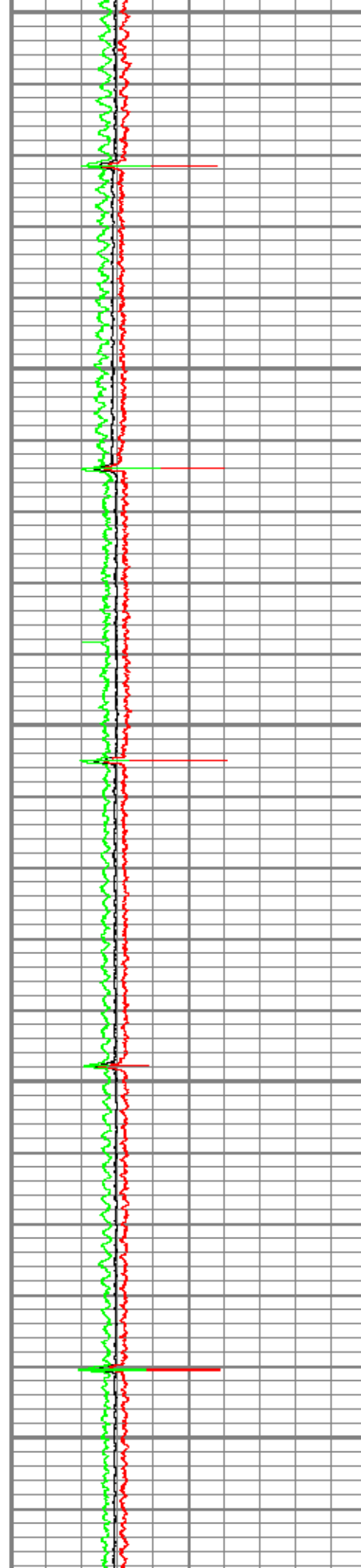


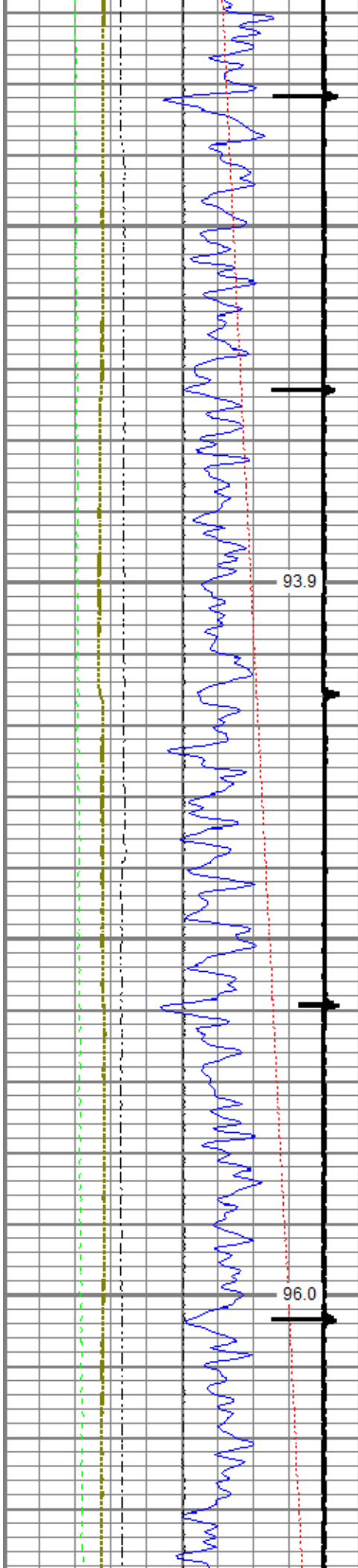


1700

1800

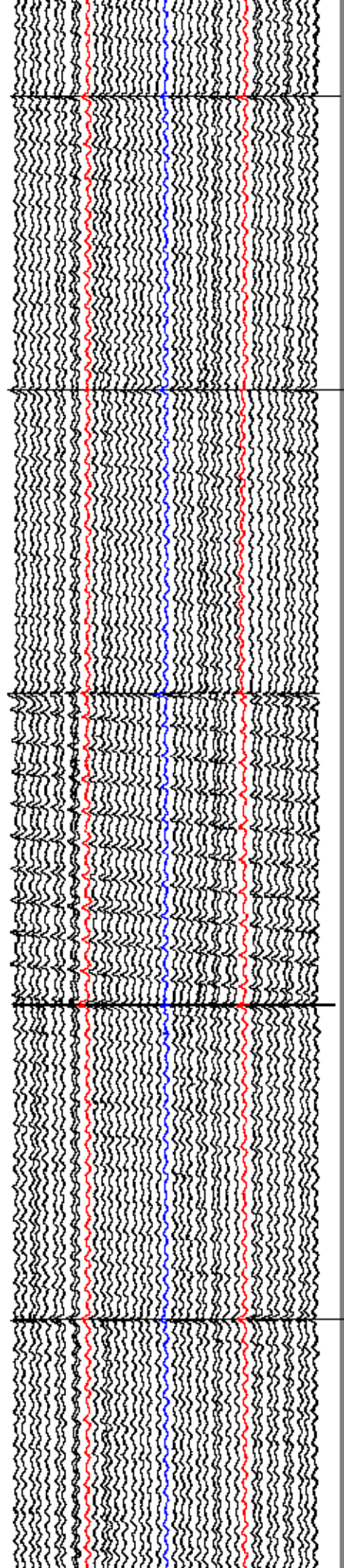
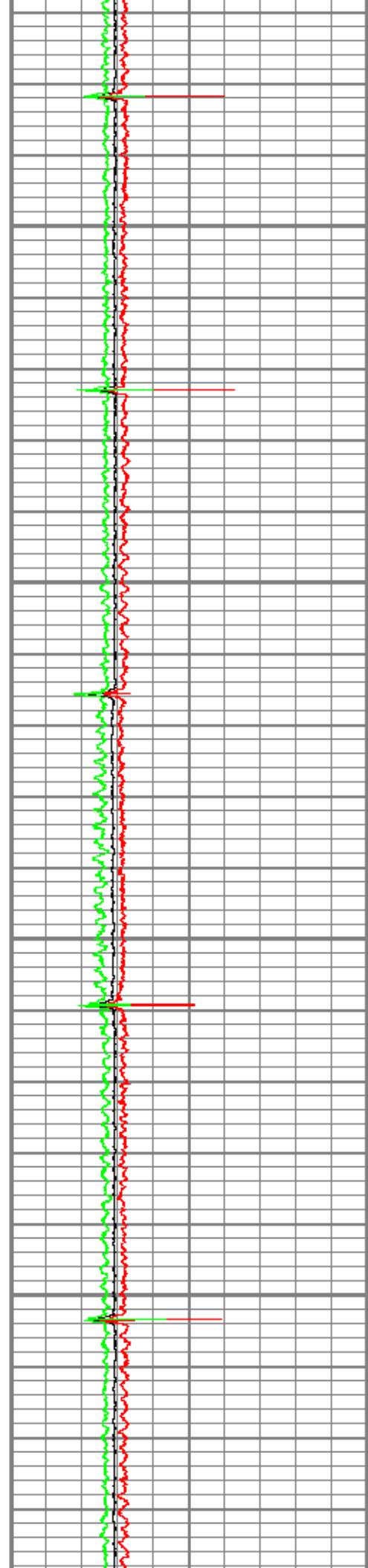
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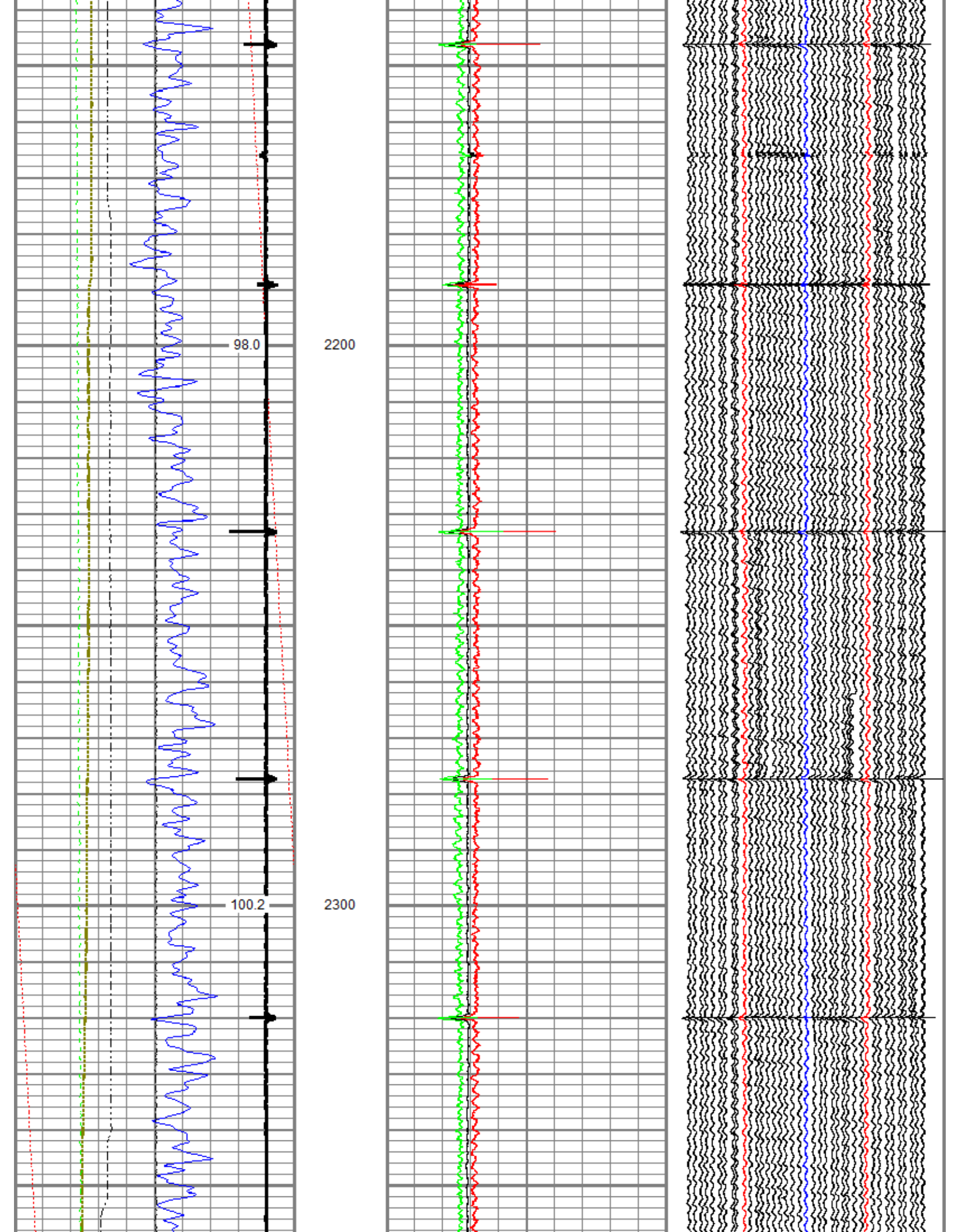


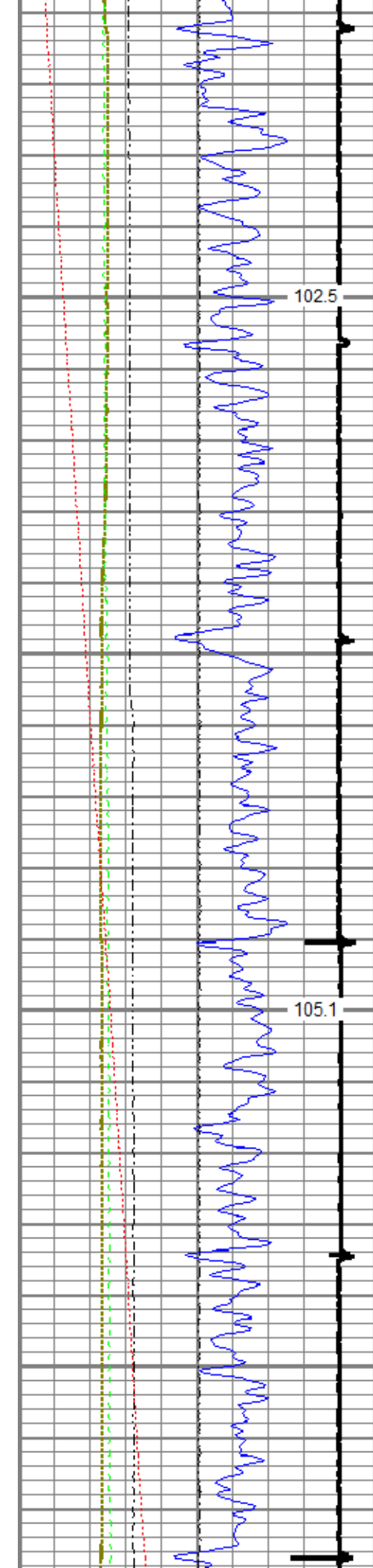


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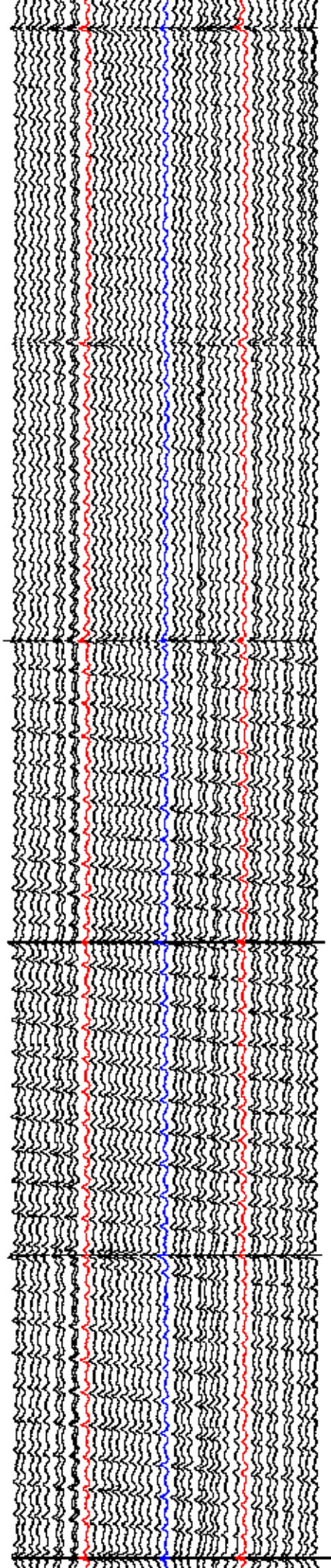
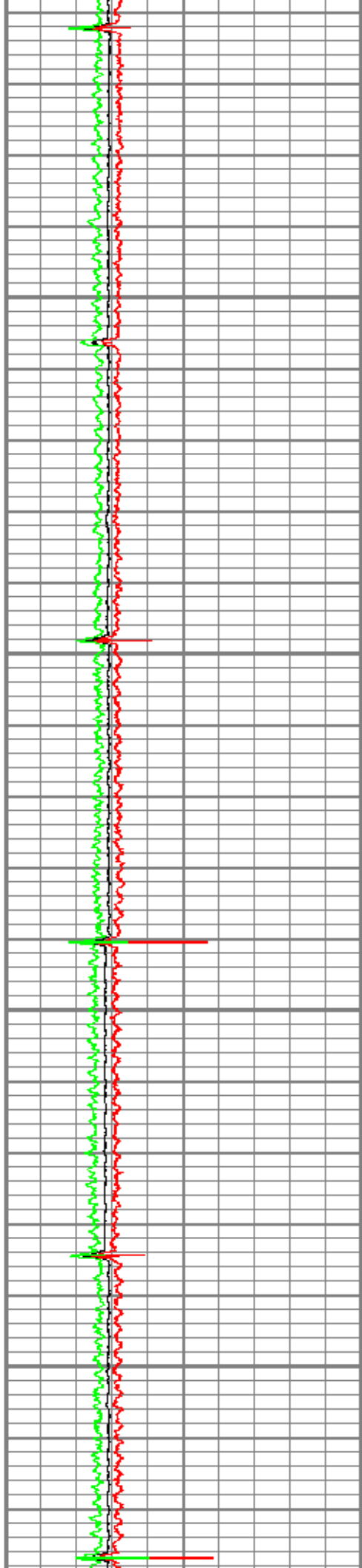


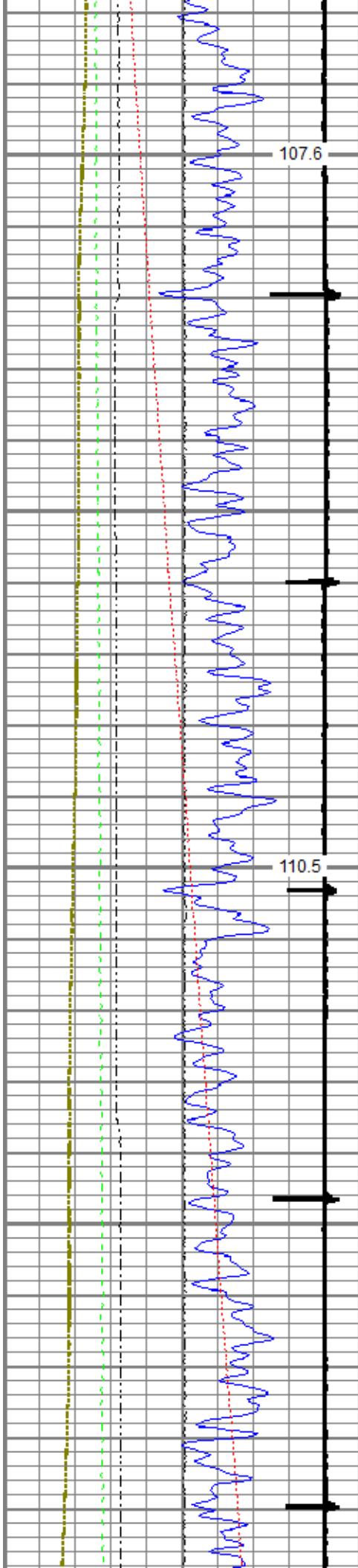




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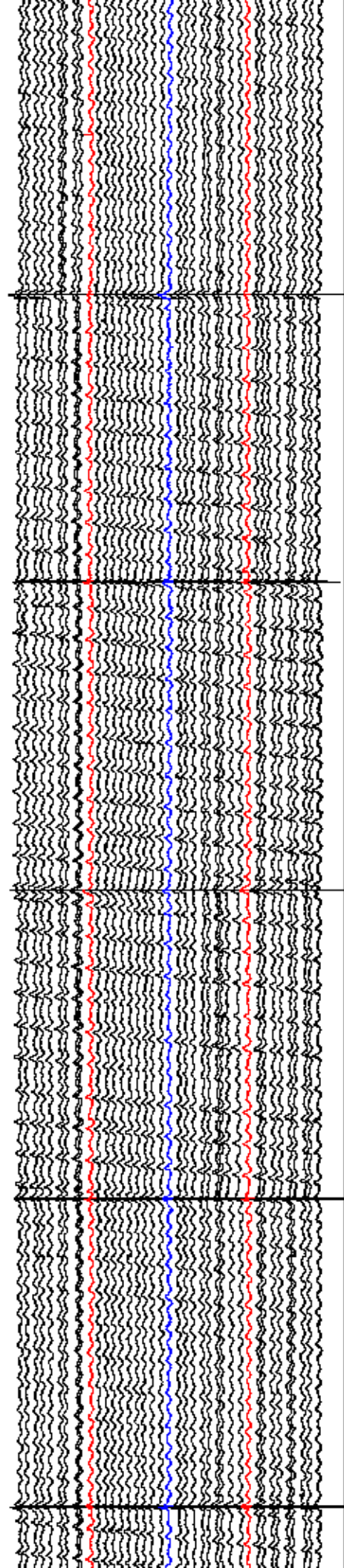
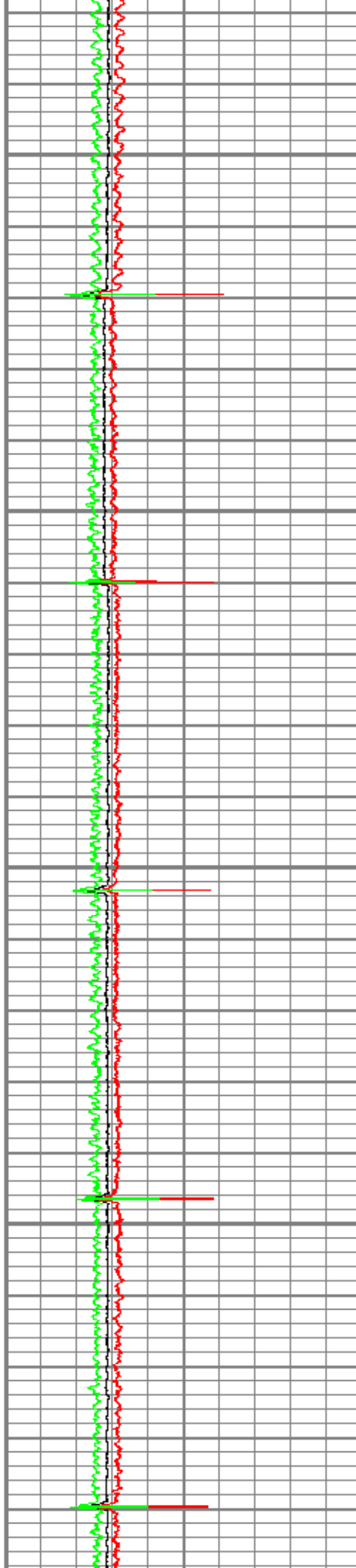
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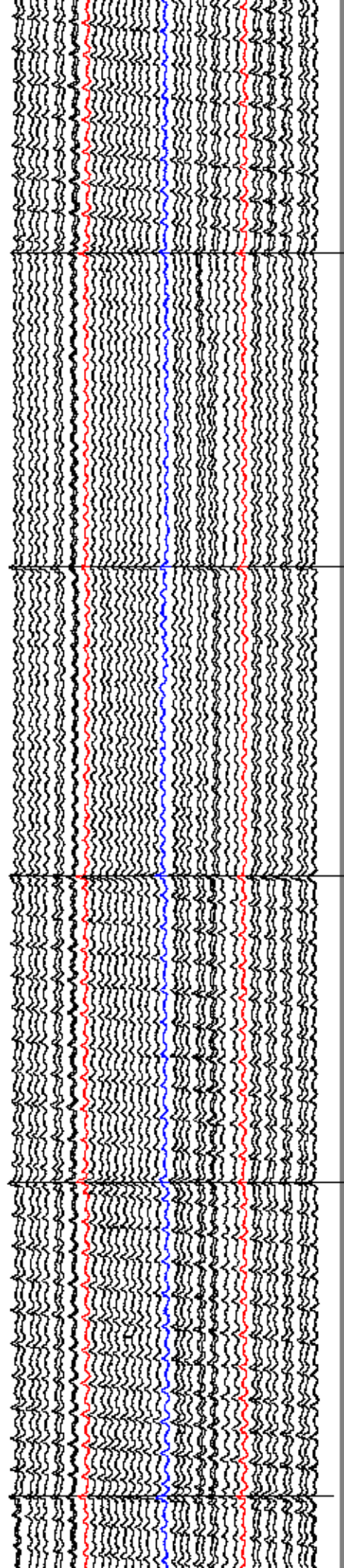
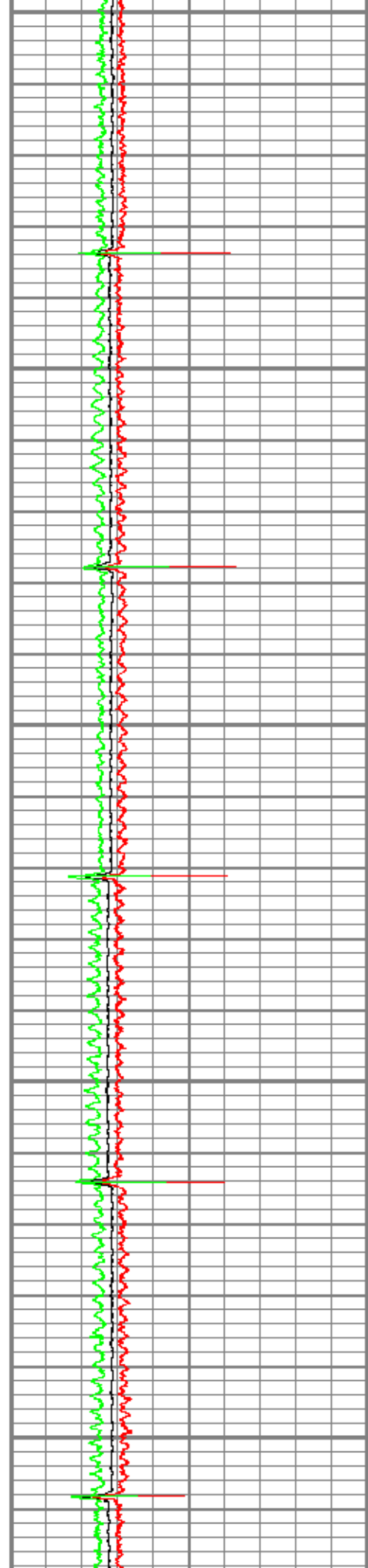
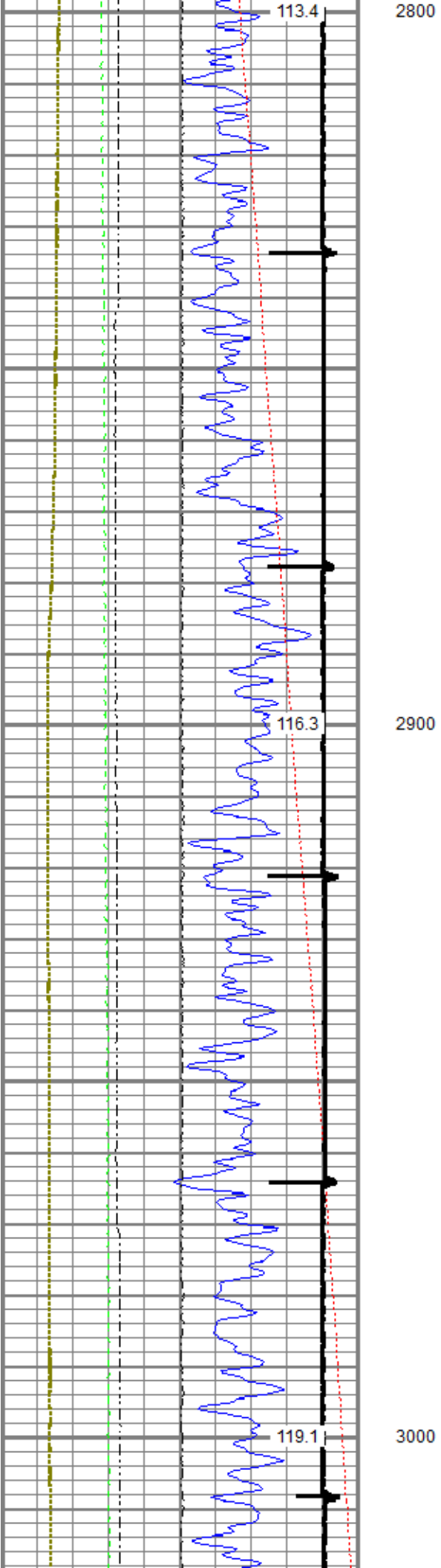


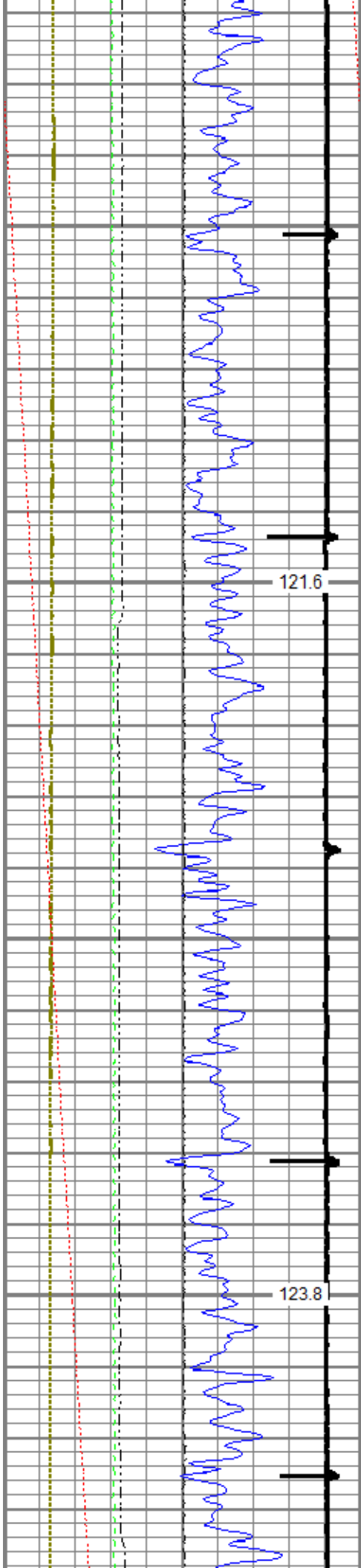


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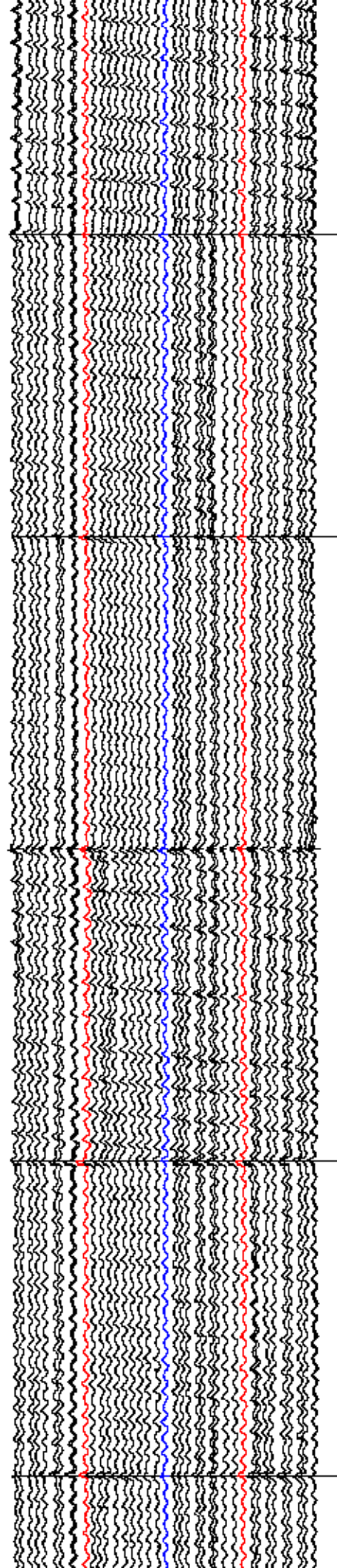
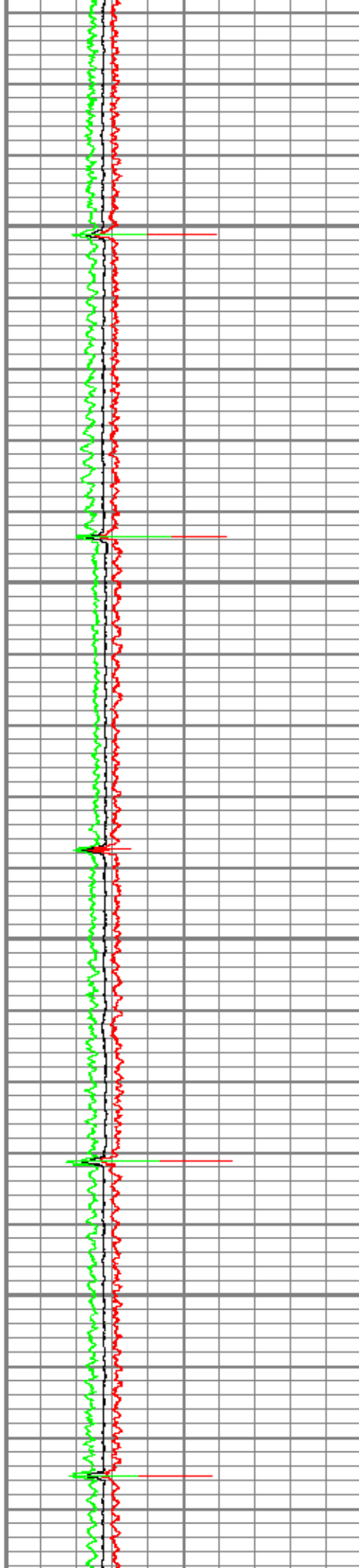


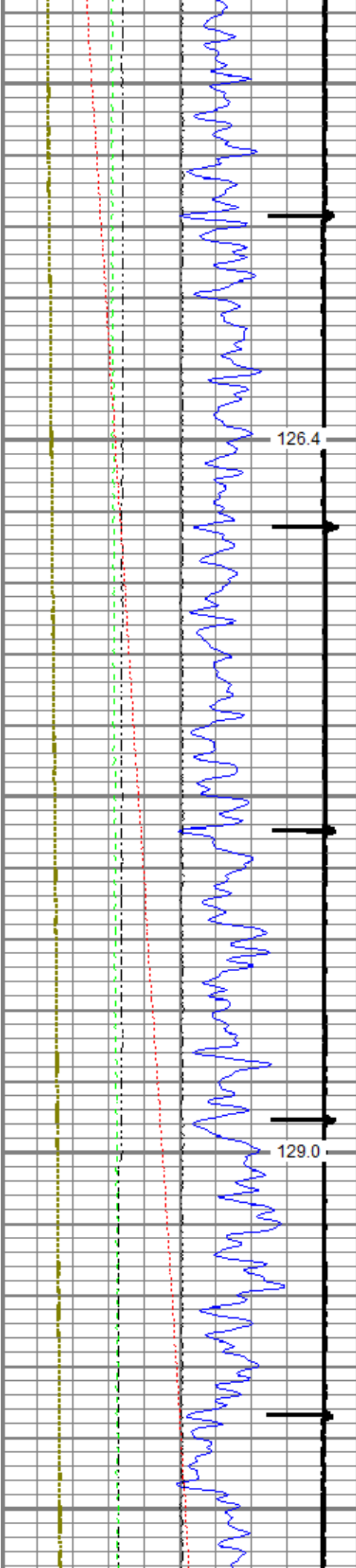




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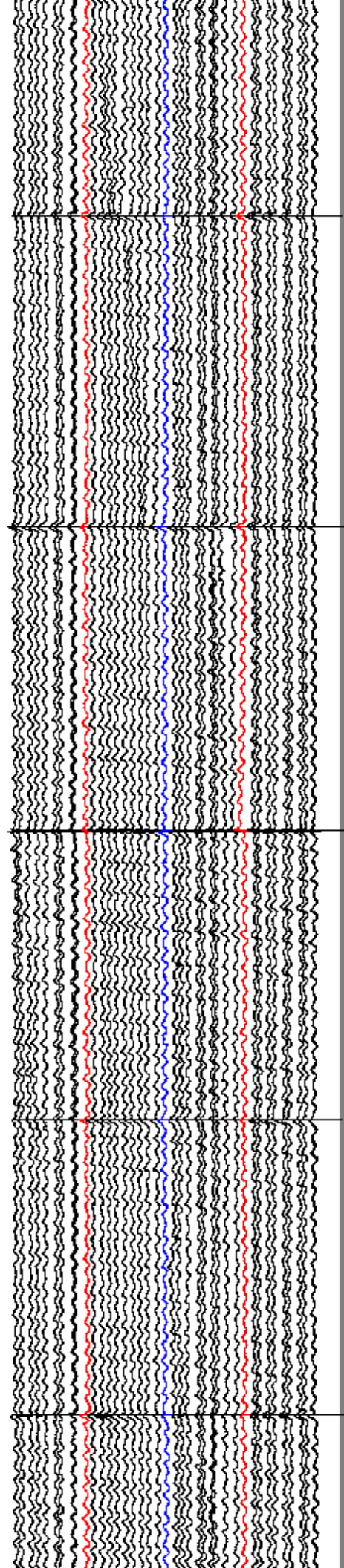
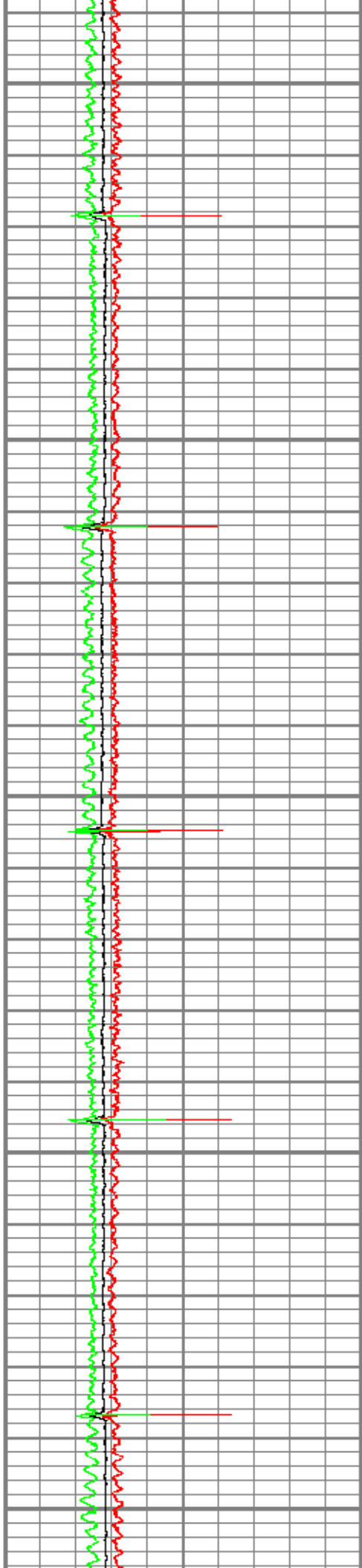
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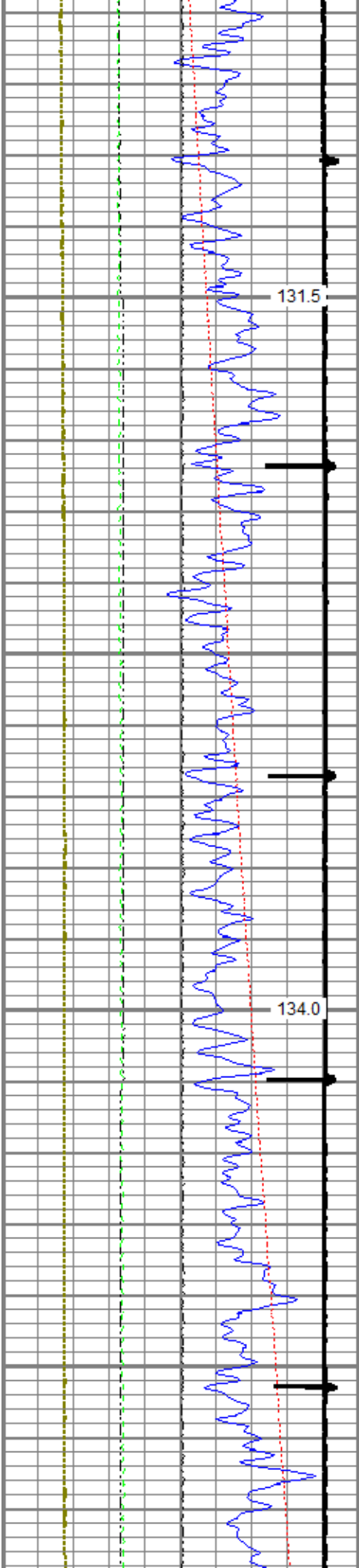




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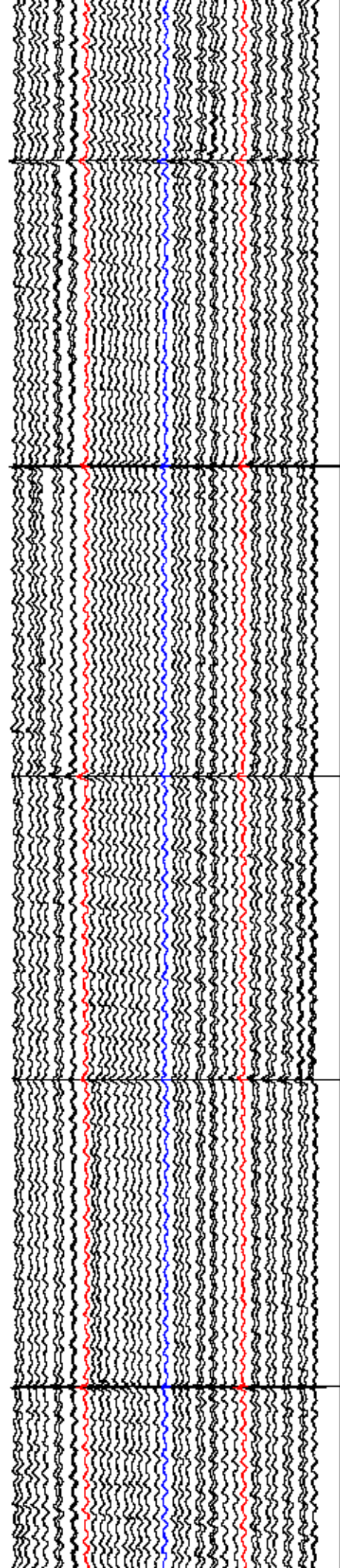
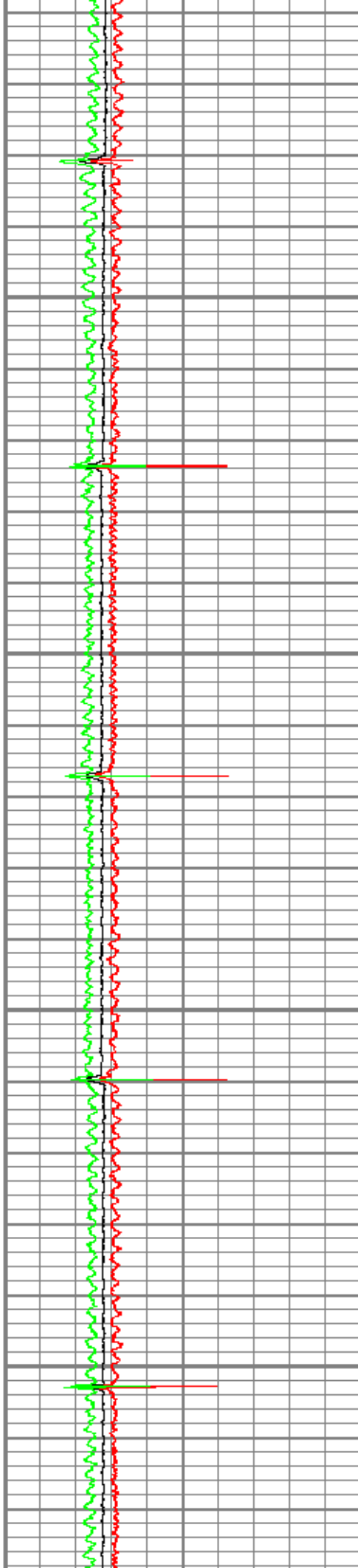
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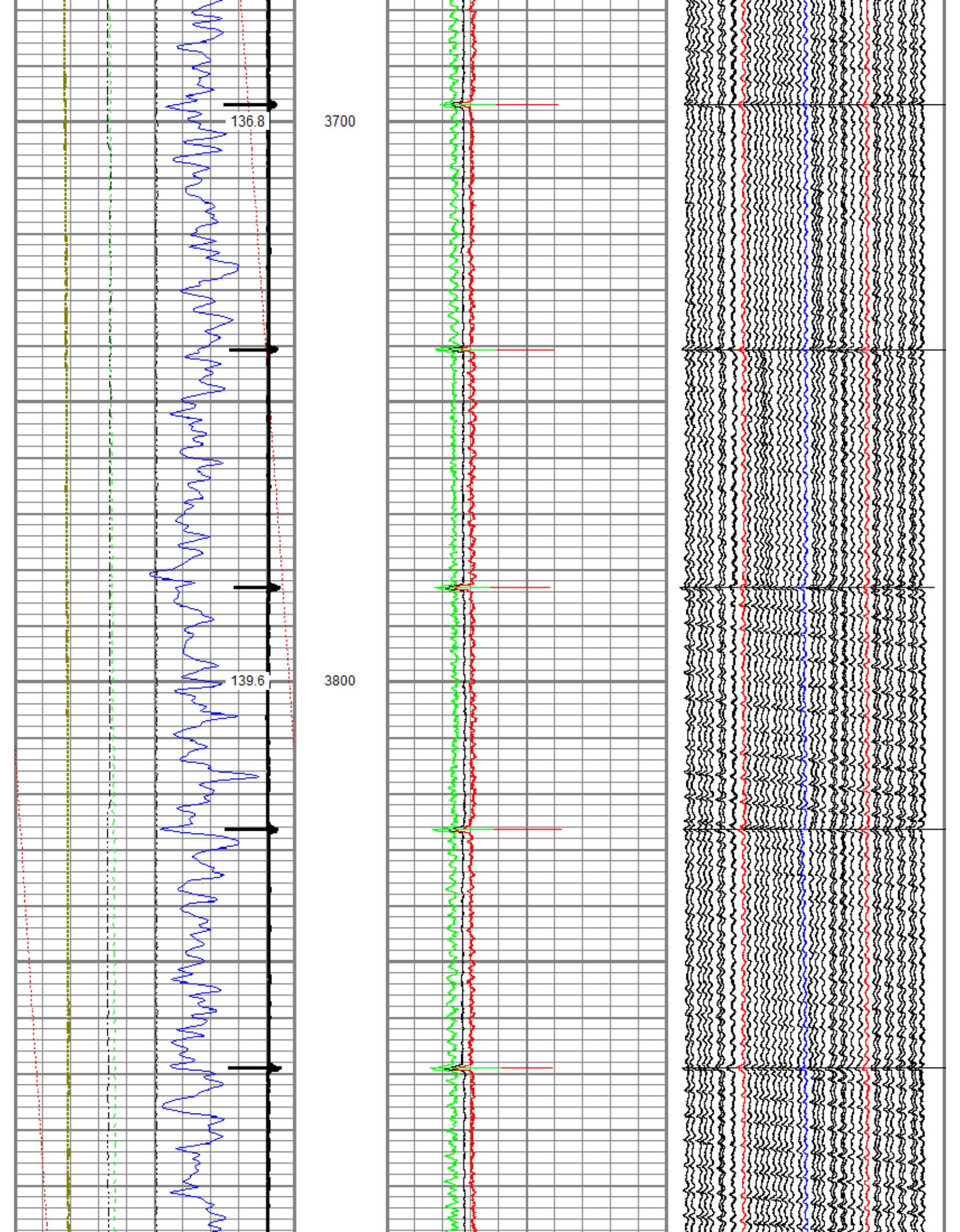


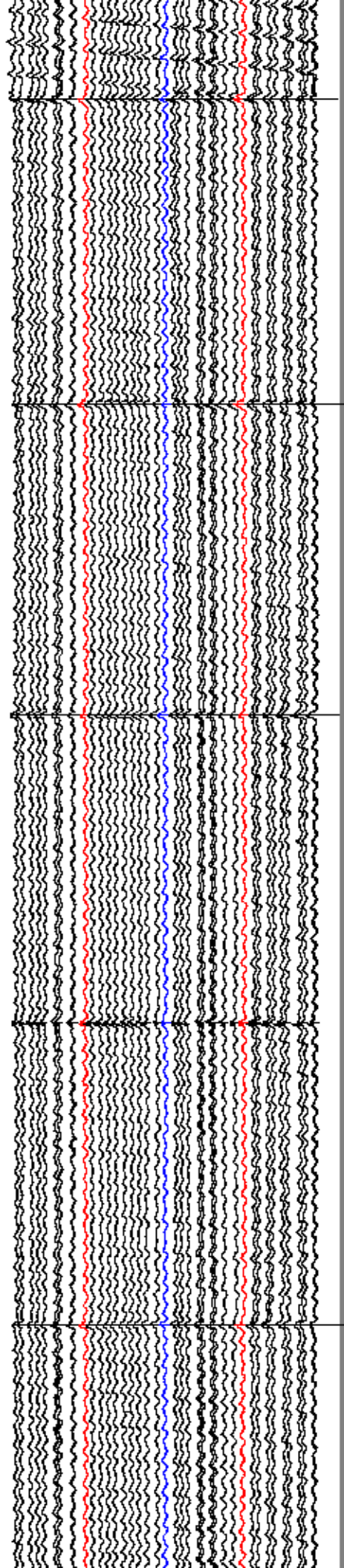
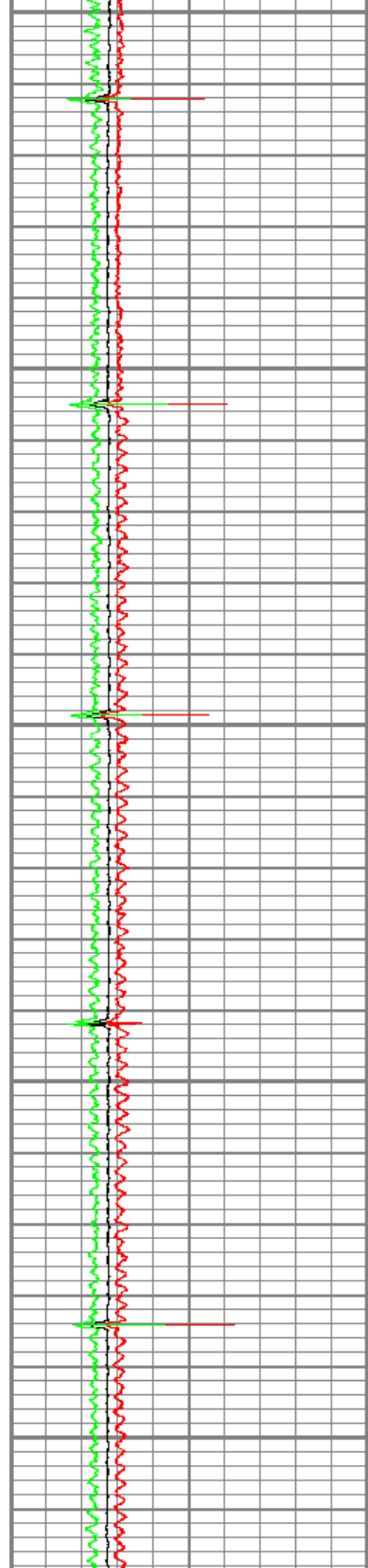
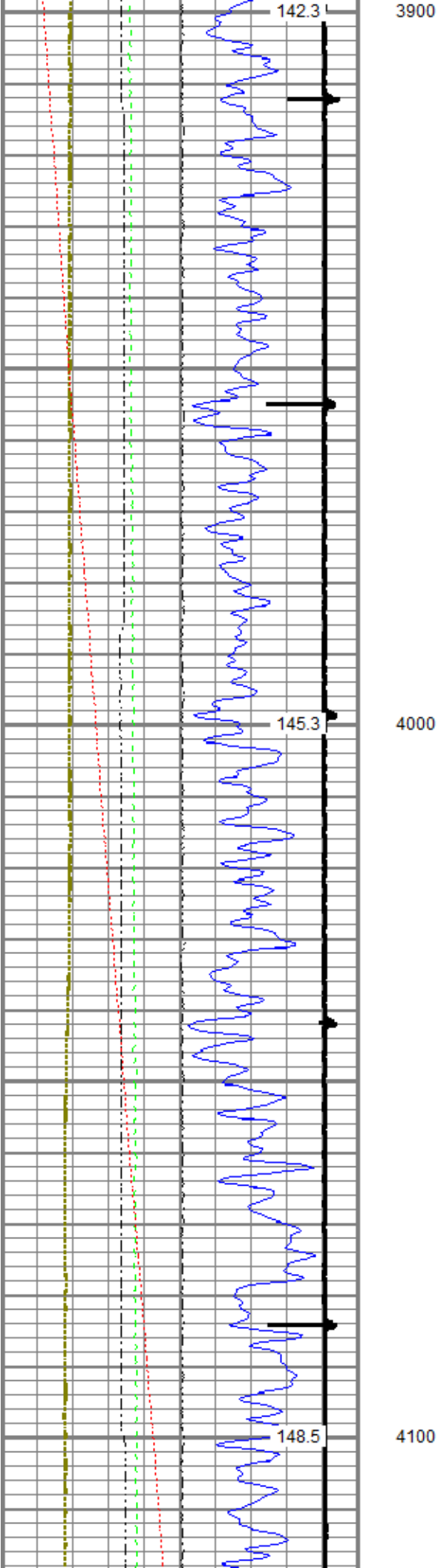


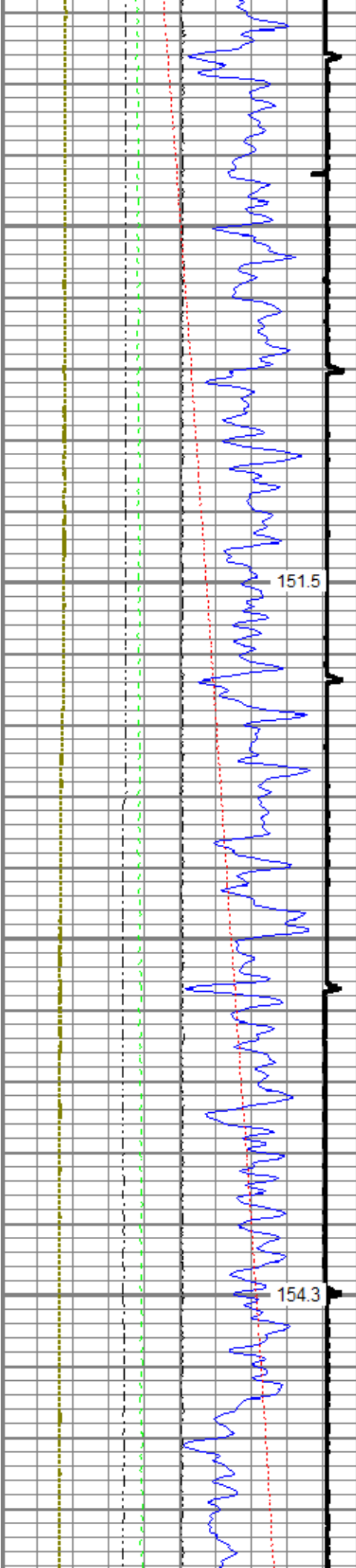
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3600







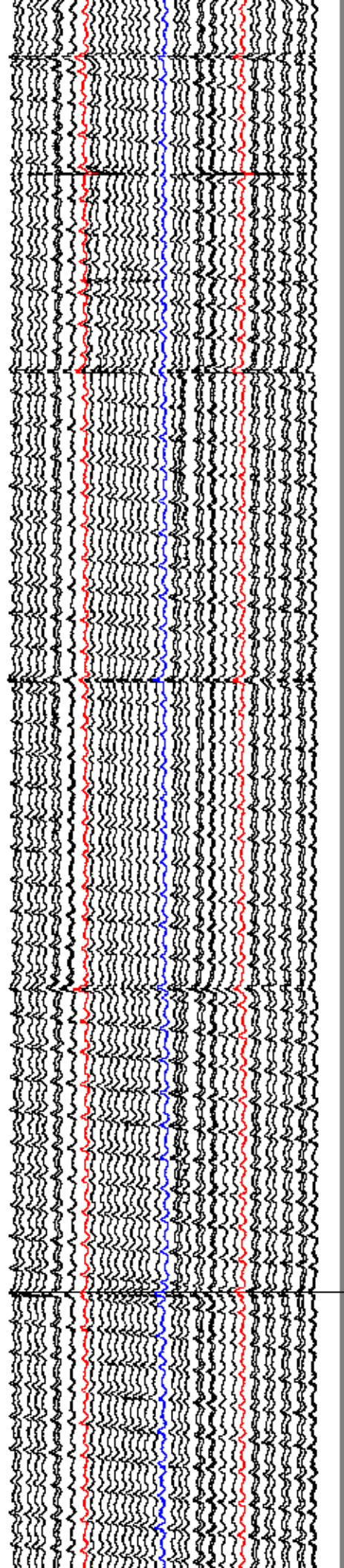
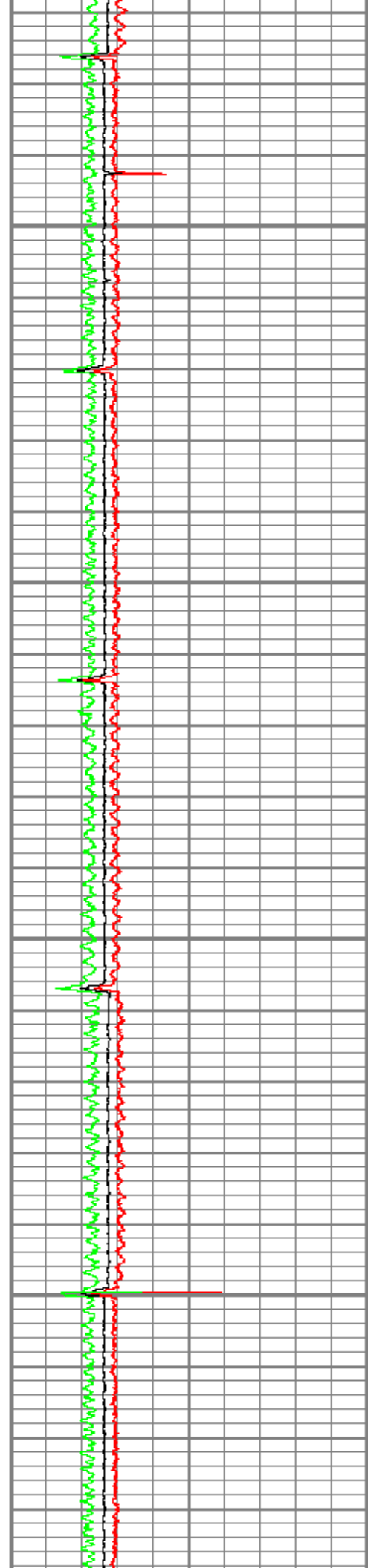


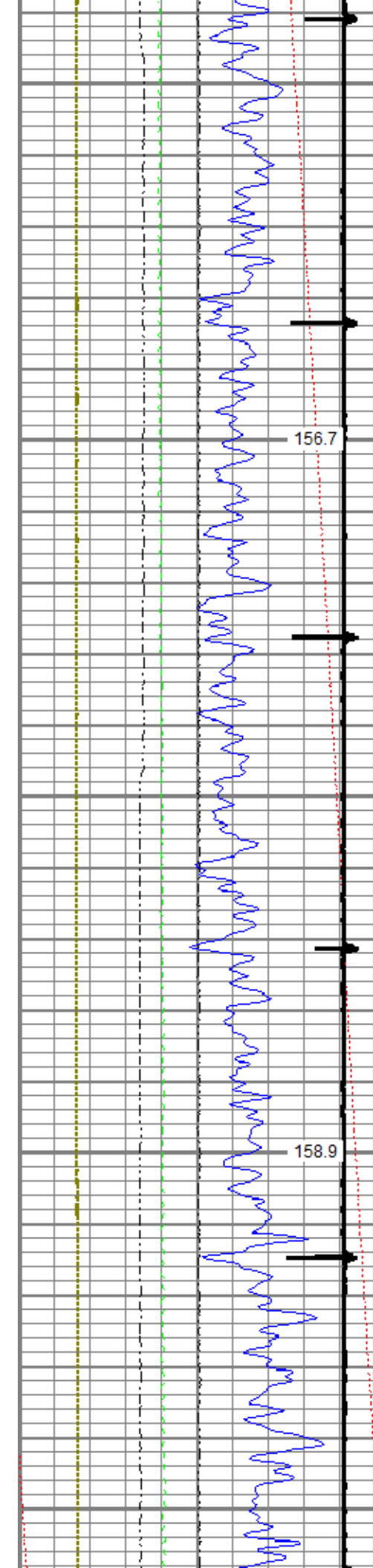
151.5

154.3

4200

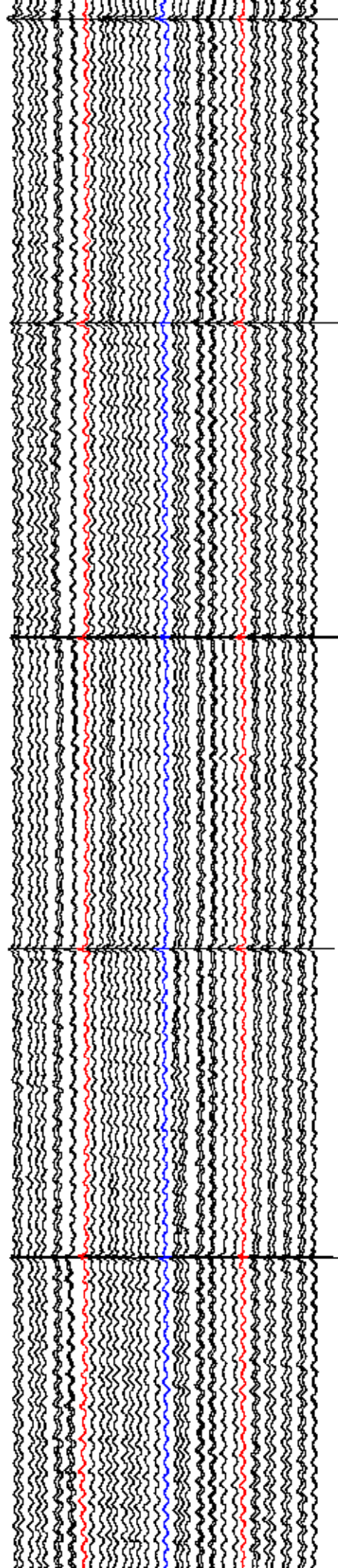
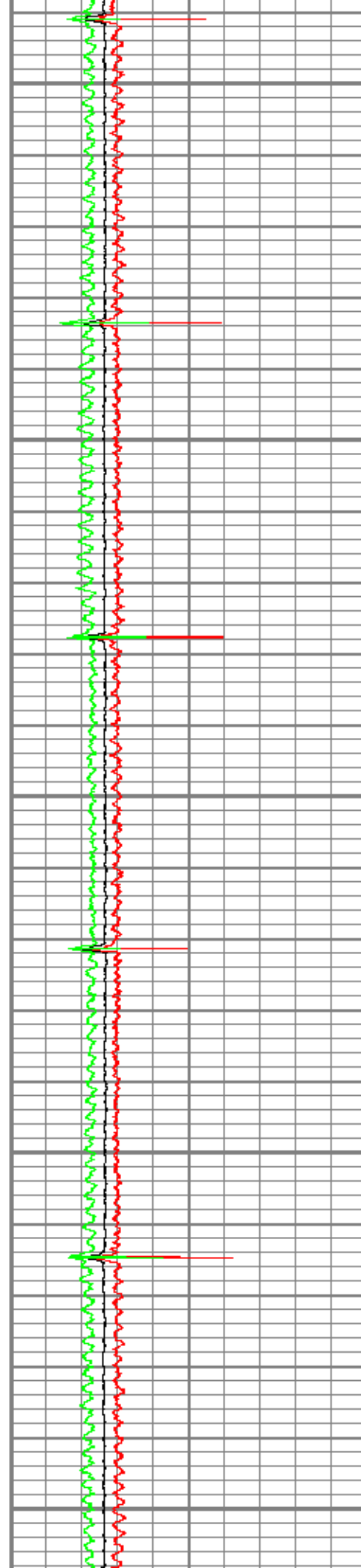
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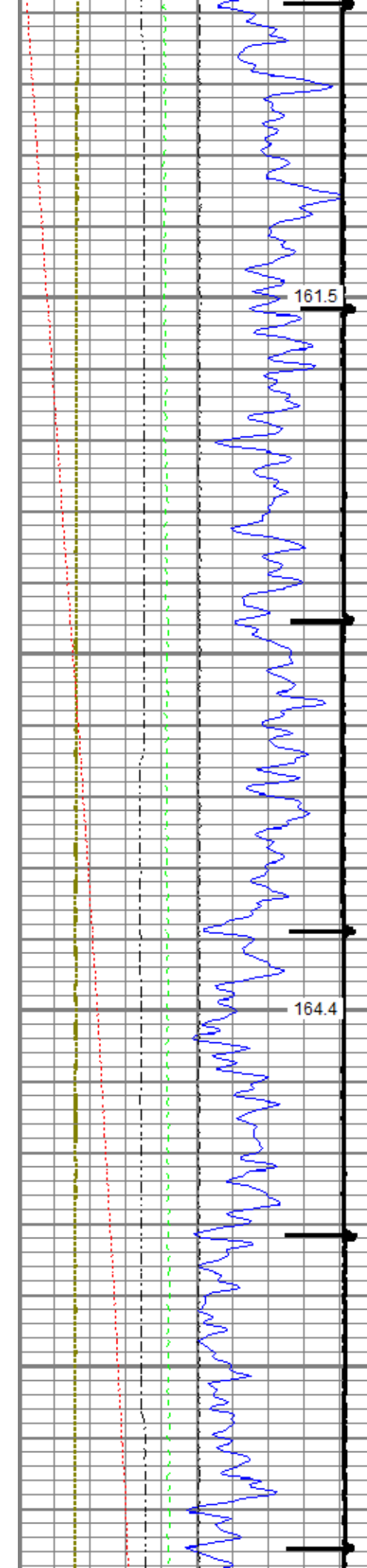




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4500



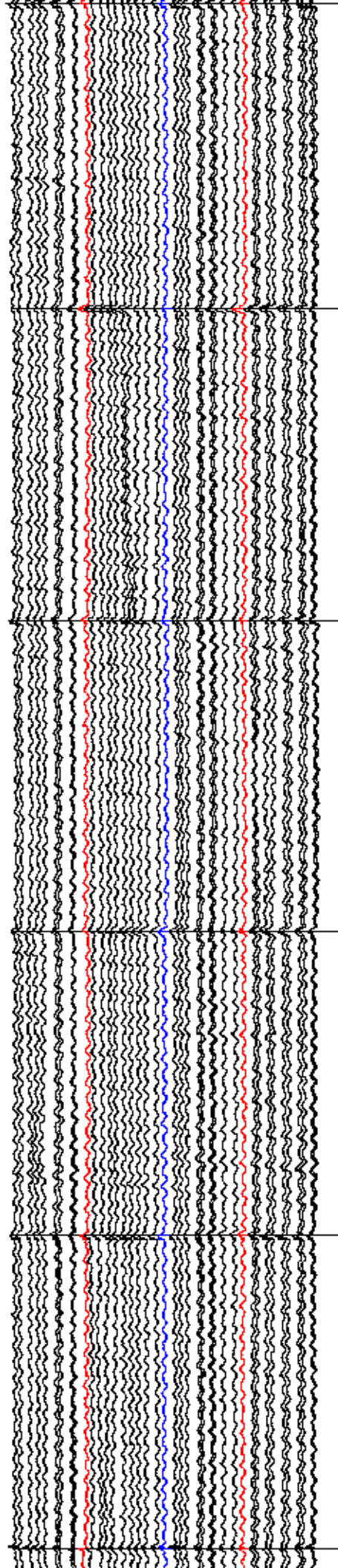
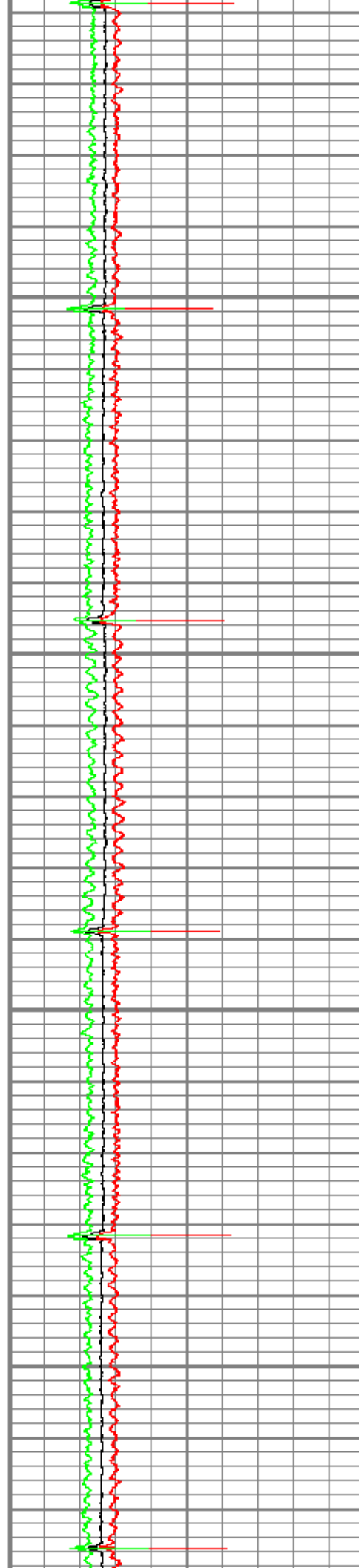


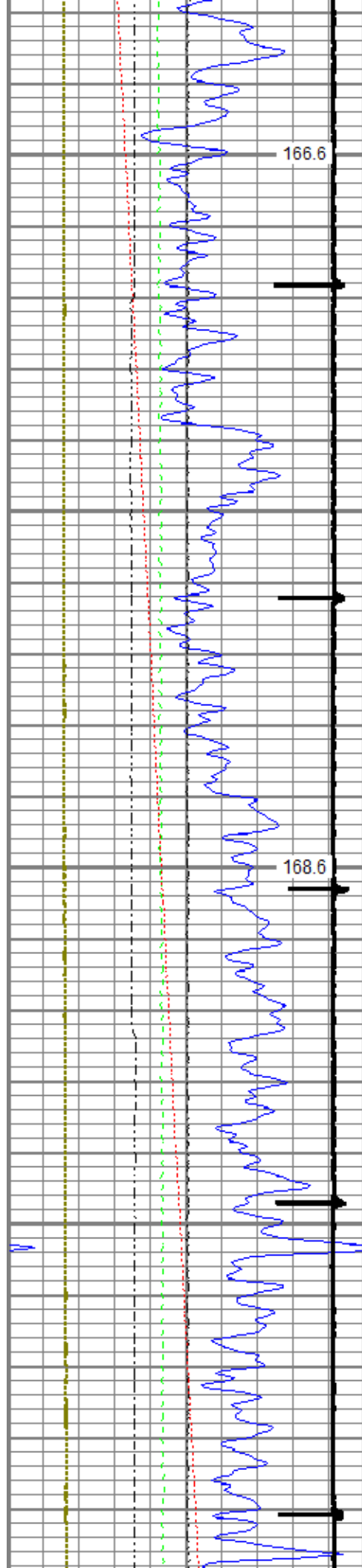
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4600

164.4

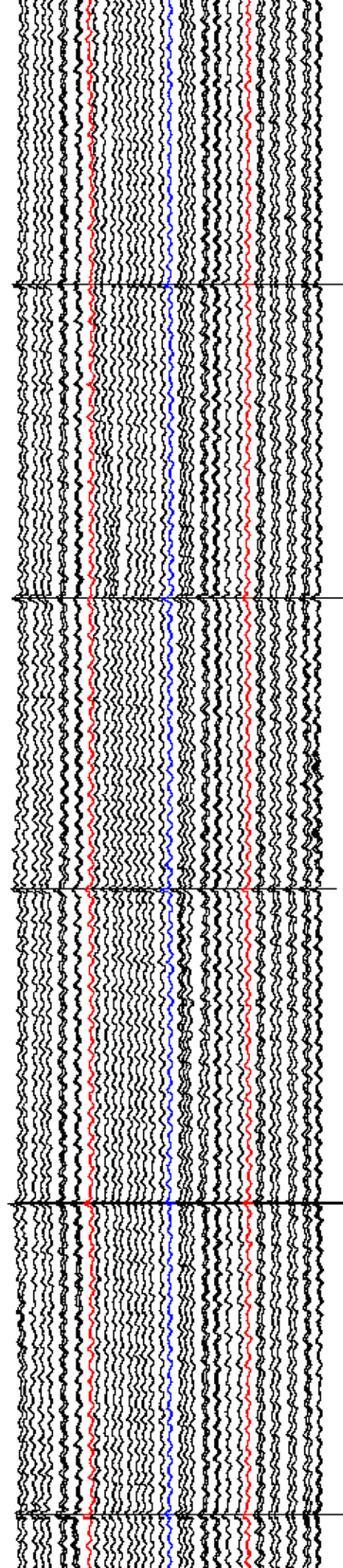
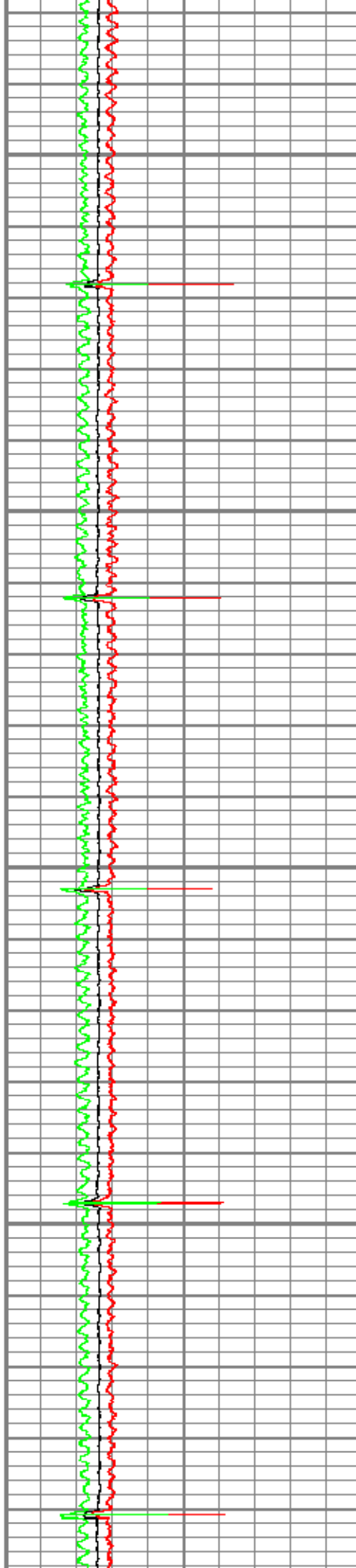
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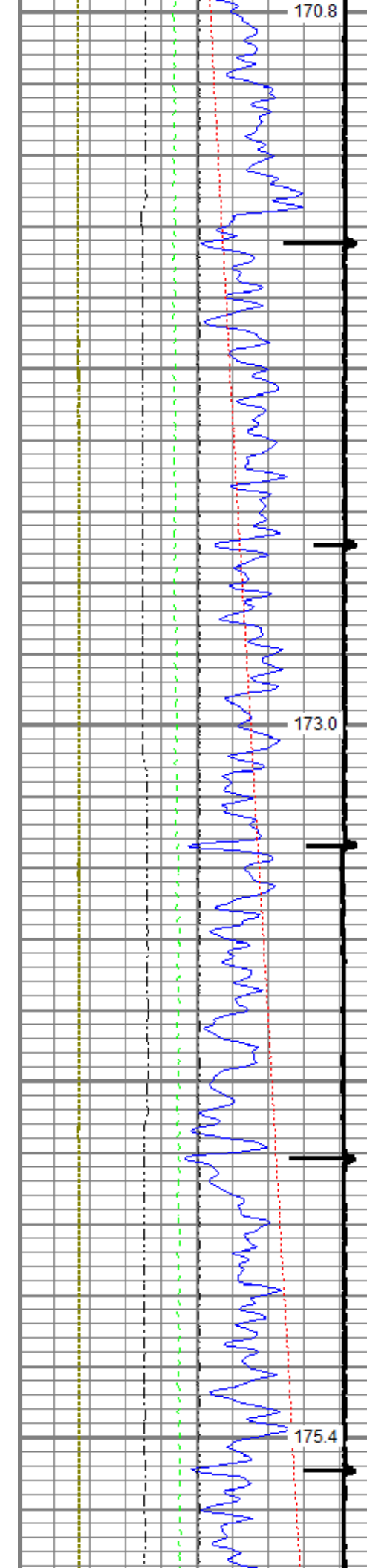




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4900





170.8

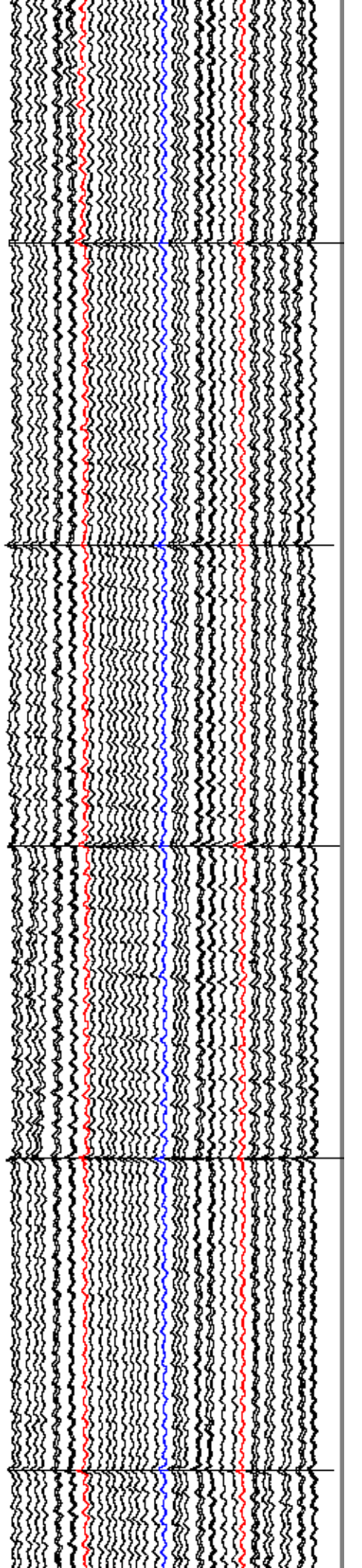
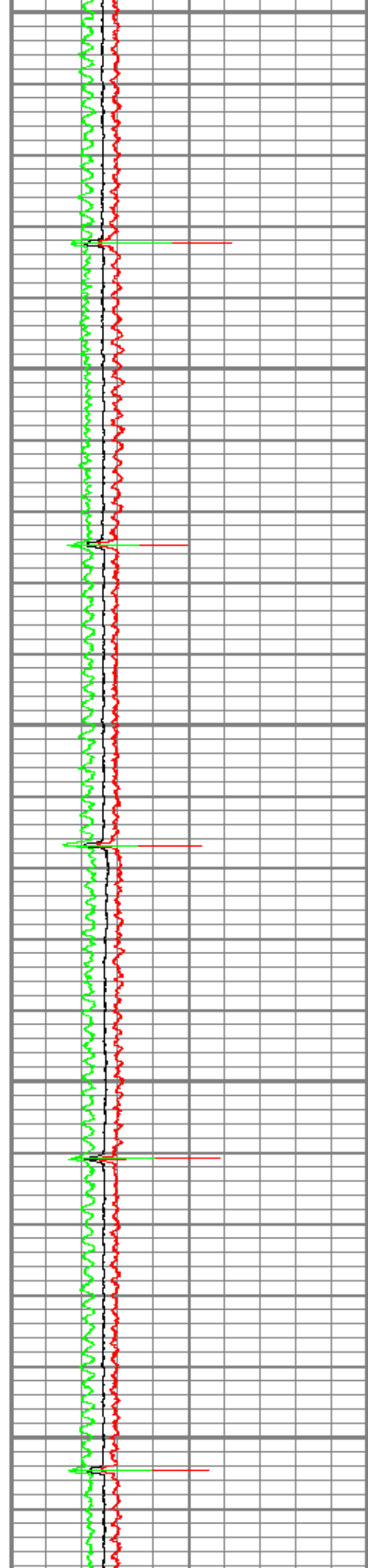
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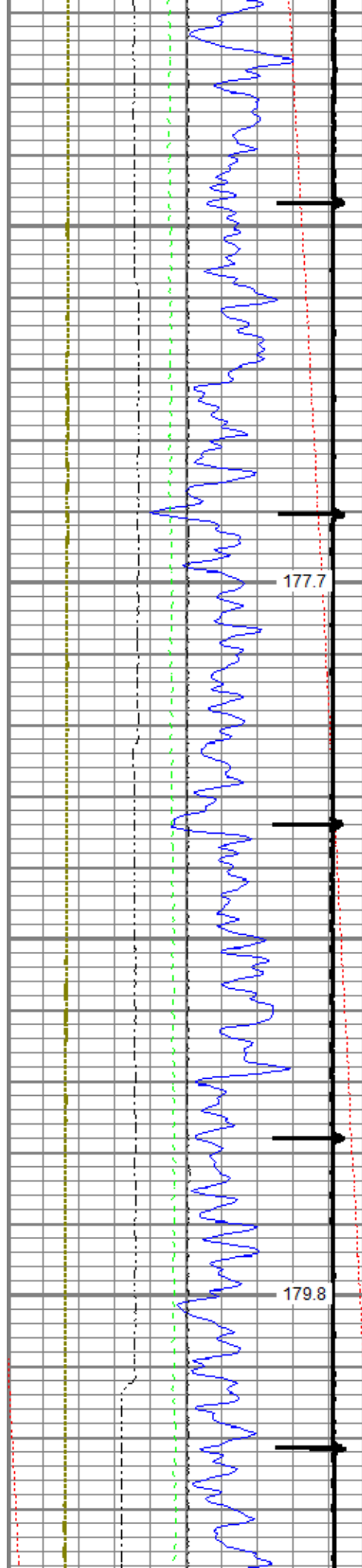
175.4

5000

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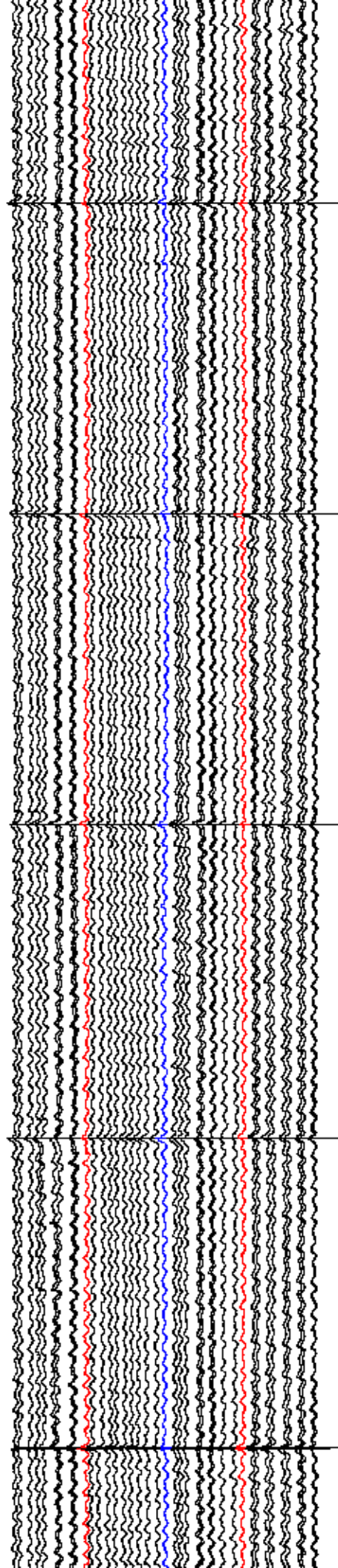
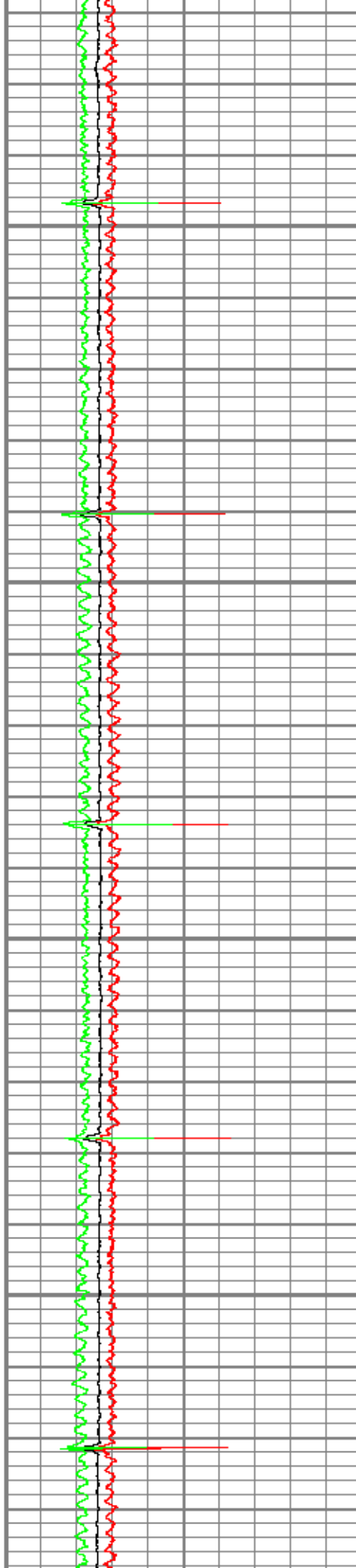
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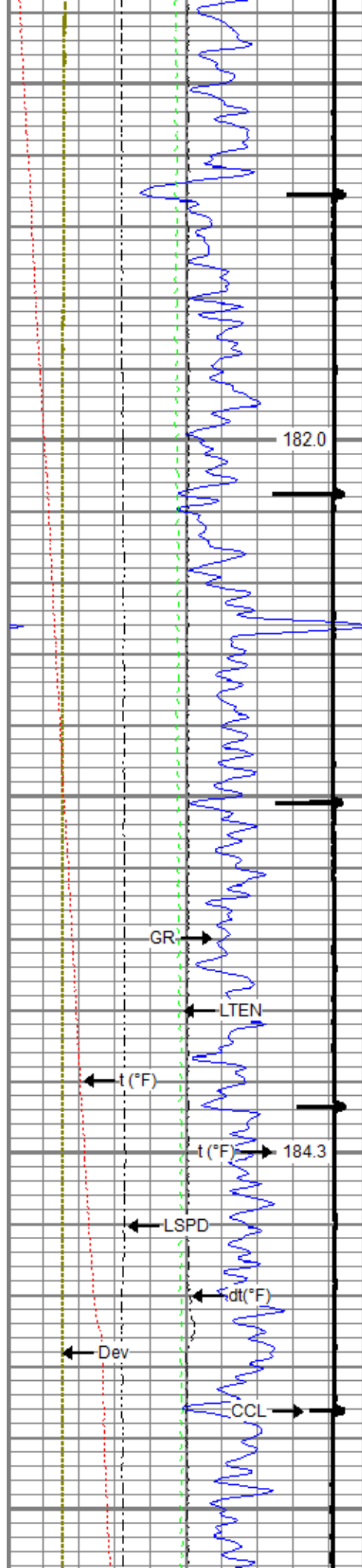




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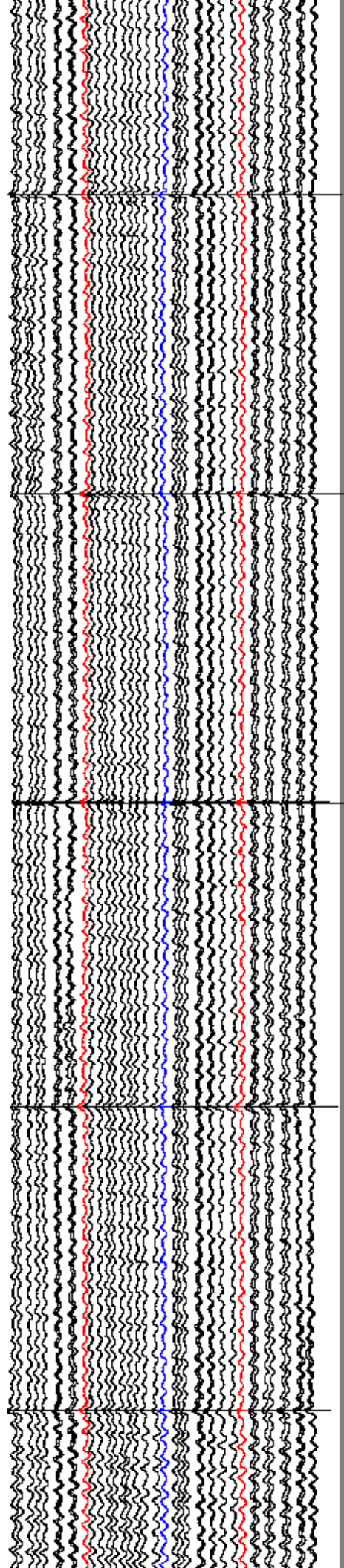
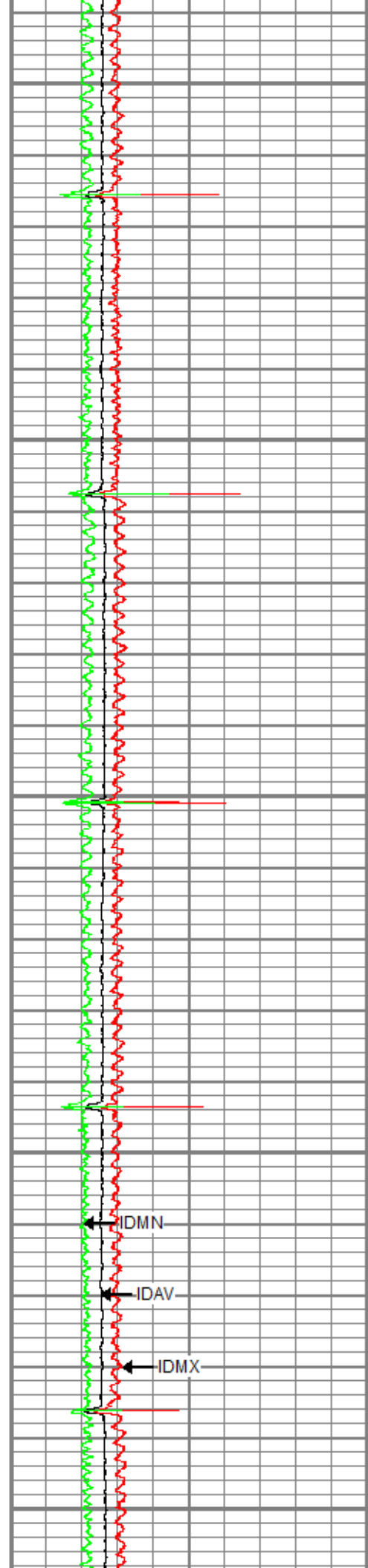
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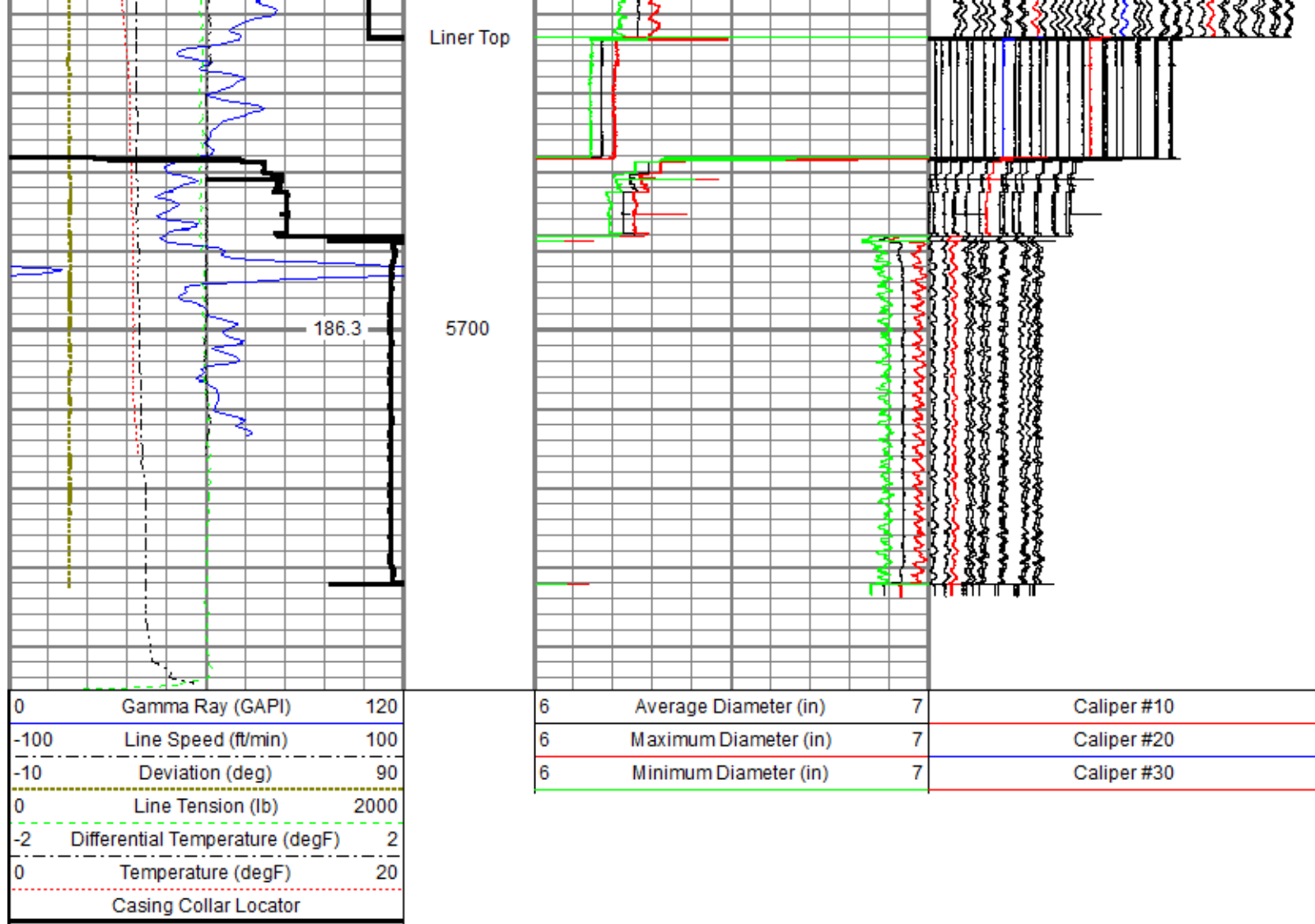




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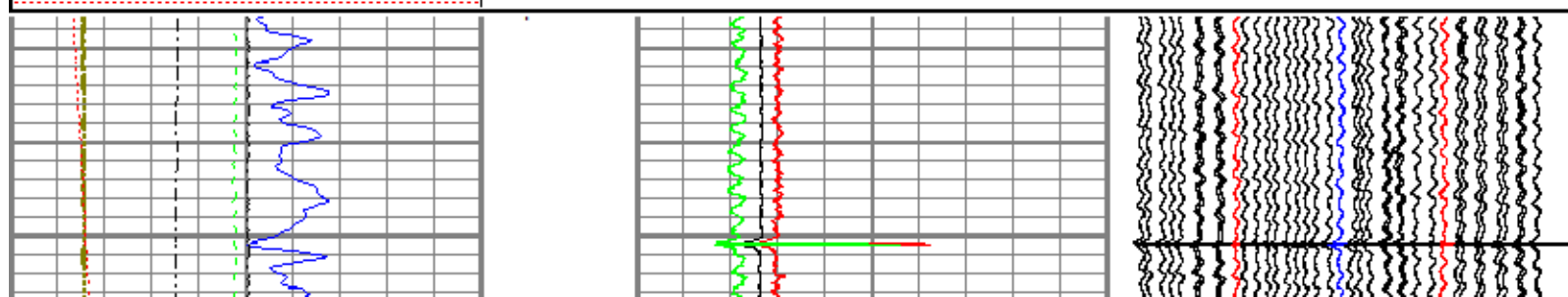
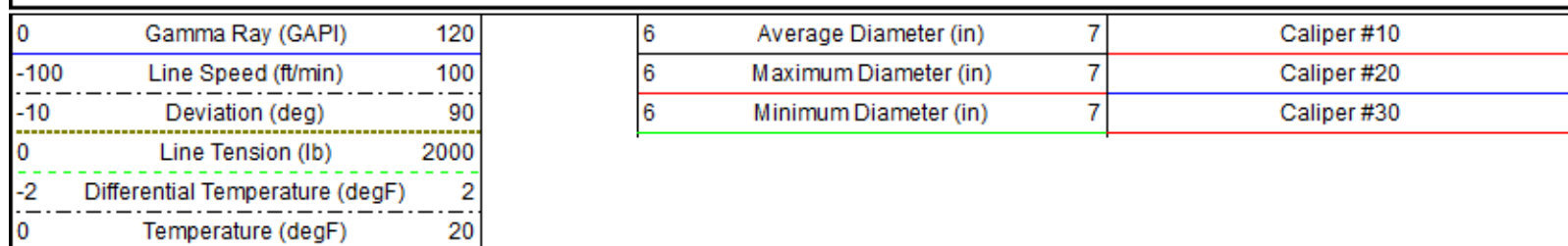


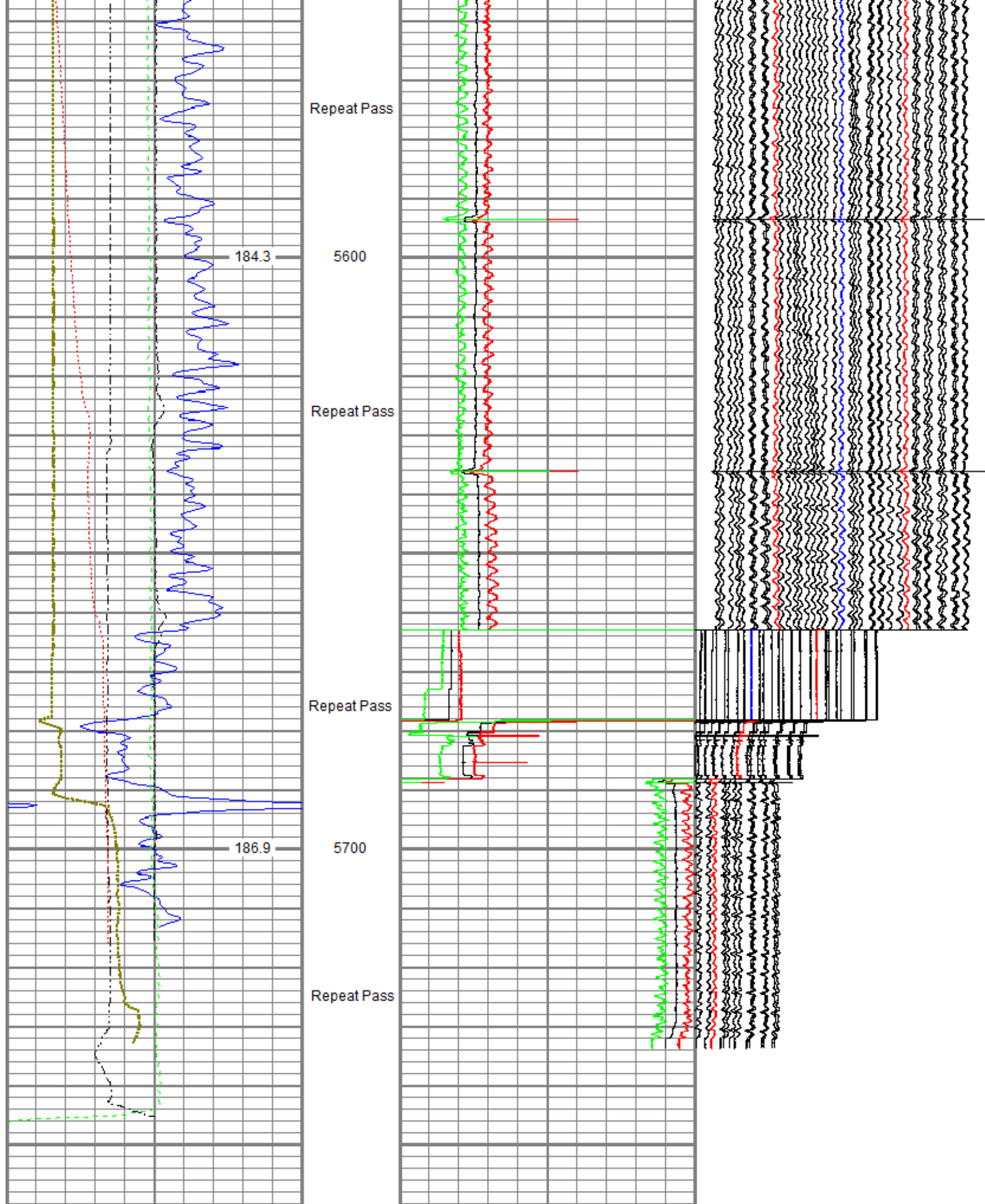


Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure


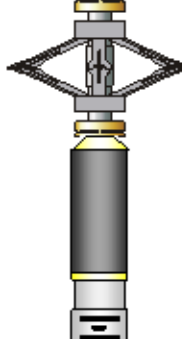
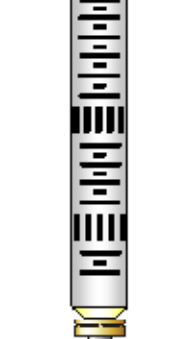

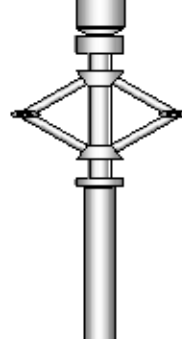
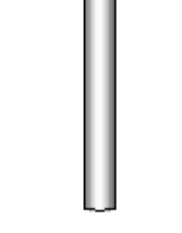
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 Dataset Pathname: pass2
 Presentation Format: ros_70mit40sx
 Dataset Creation: Sat Dec 09 11:58:21 2017
 Charted by: Depth in Feet scaled 1:240





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

-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	29.97		Titan_Electric_Cable_Heads-Titan_1-11/16"	1.03	1.69	5.40
			Electric Cable Head with 1" Fishing Neck			
			UW_AGS-UW_AGS_001 (219135)	0.21	1.69	1.00
			Sondex Adapter - GO Box to Sondex Pin			
			UW_XTU-UW_XTU_002 (051219)	1.58	1.69	6.50
TEMP	28.57		Crossover Ultrawire Toolbus to Ultralink			
			UW_PGR-UW_PGR_020 (10013902)	1.92	1.69	9.50
			Production Gamma Ray			
			UW_PRT-PRT_016 (10024052)	1.04	1.69	5.20
			Platinum Resistance Thermometer			
CBLROT	21.54		UW_PRC-DSS_RAC	2.55	2.75	32.00
			5 Arm 2-3/4" Roller Centralizer			
			UW_RBT-UW_RBT_004 (1066)	9.48	3.13	140.00
			Sondex Ultrawire 3-1/8" Radial Bond Tool			
			UW_PRC-DSS_RAC	2.55	2.75	32.00
			5 Arm 2-3/4" Roller Centralizer			
			UW_MIT-UW_MIT40_027 (218949)	4.54	2.75	65.00
			40 Multifinger Imaging Tool			
			UW_PRC-PRC_057	2.71	2.75	32.00
			4 Arm 2-3/4" Production Roller Centralizer			
CNLSC	1.53		UW_CNL-UW_CNL_007 (1007)	6.61	1.69	30.00
			Sondex Compensated Neutron Logging Tool			
CNSSC	1.12					
TSTAMP	0.00					

Dataset:	0512343474_Anadarko_Wagner 27C-10HZ_MIT_12-09-17.db: field/well/run1/pass1
Total length:	34.22 ft
Total weight:	358.60 lb
O.D.:	3.13 in

Calibration Report	
Database File	C:\ProgramData\Warrior\Data\Anadarko_Wagner 27C-10HZ\0512343474_Anadarko_Wagner 27C-10HZ_MIT_12-09-17.db
Dataset Pathname	calreport
Dataset Creation	Sat Dec 09 15:30:46 2017

Compensated Neutron Calibration Report			
Serial Number:		1007	
Tool Model:		UW_CNL_007	
Master Calibration		Sun Feb 07 11:32:29 2016	
Detector		Readings	
Short Space		240.97	cps
Long Space		302.45	cps
		Measured	Reference
Ratio		0.8150	Sleeve: 1.0000
CNRAT Gain K		1.0211	
Before Survey			
Detector		Readings	
Short Space			cps
Long Space			cps
		Measured	Reference
Ratio			
After Survey			
Detector		Readings	
Short Space			cps
Long Space			cps
		Measured	Reference
Ratio			

Multifinger Imaging Tool Calibration Report			
Serial Number:		218949	
Number of Fingers:		40	
Tool Model:		UW_MIT40_027	

Inclinometer Calibration Report			
Performed:		Mon, Oct, 06 14:03:04 2008	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738
Finger 31 up:		2235	1756
Finger 21 up:		2216	2228
Finger 11 up:		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report					
Performed:			Sat Dec 09 10:59:15 2017		
Ring size:	4	5	6	7	
(in)					

(in)	Sens	Sens	Sens	Sens	Sens	Sens	Sens
Finger 01:	1388	274.0	1662	302.0	1964	306.0	2270
Finger 02:	1463	266.0	1729	297.0	2026	295.0	2321
Finger 03:	1652	272.0	1924	289.0	2213	282.0	2495
Finger 04:	1648	272.0	1920	287.0	2207	276.0	2483
Finger 05:	1551	255.0	1806	282.0	2088	272.0	2360
Finger 06:	1535	249.0	1784	268.0	2052	268.0	2320
Finger 07:	1365	268.0	1633	293.0	1926	298.0	2224
Finger 08:	1546	251.0	1797	269.0	2066	270.0	2336
Finger 09:	1430	264.0	1694	293.0	1987	288.0	2275
Finger 10:	1488	262.0	1750	284.0	2034	276.0	2310
Finger 11:	1484	258.0	1742	279.0	2021	274.0	2295
Finger 12:	1318	276.0	1594	302.0	1896	303.0	2199
Finger 13:	1580	280.0	1860	291.0	2151	294.0	2445
Finger 14:	1417	284.0	1701	300.0	2001	303.0	2304
Finger 15:	1541	264.0	1805	276.0	2081	280.0	2361
Finger 16:	1395	288.0	1683	295.0	1978	306.0	2284
Finger 17:	1616	276.0	1892	280.0	2172	287.0	2459
Finger 18:	1379	293.0	1672	305.0	1977	322.0	2299
Finger 19:	1636	266.0	1902	258.0	2160	267.0	2427
Finger 20:	1505	269.0	1774	273.0	2047	297.0	2344
Finger 21:	1592	256.0	1848	253.0	2101	273.0	2374
Finger 22:	1520	281.0	1801	278.0	2079	306.0	2385
Finger 23:	1343	280.0	1623	281.0	1904	313.0	2217
Finger 24:	1665	269.0	1934	264.0	2198	289.0	2487
Finger 25:	1361	298.0	1659	299.0	1958	332.0	2290
Finger 26:	1529	290.0	1819	291.0	2110	317.0	2427
Finger 27:	1447	266.0	1713	267.0	1980	290.0	2270
Finger 28:	1638	282.0	1920	280.0	2200	300.0	2500
Finger 29:	1463	279.0	1742	285.0	2027	310.0	2337
Finger 30:	1409	275.0	1684	285.0	1969	312.0	2281
Finger 31:	1519	269.0	1788	275.0	2063	295.0	2358
Finger 32:	1338	266.0	1604	278.0	1882	299.0	2181
Finger 33:	1625	300.0	1925	309.0	2234	323.0	2557
Finger 34:	1541	268.0	1809	279.0	2088	286.0	2374
Finger 35:	1437	269.0	1706	285.0	1991	295.0	2286
Finger 36:	1592	280.0	1872	291.0	2163	297.0	2460
Finger 37:	1603	271.0	1874	286.0	2160	294.0	2454
Finger 38:	1499	271.0	1770	290.0	2060	297.0	2357
Finger 39:	1461	279.0	1740	301.0	2041	306.0	2347
Finger 40:	1597	280.0	1877	303.0	2180	305.0	2485

Post Survey Calibration Check								
Performed: Sat Dec 09 15:26:51 2017								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.002	0.001	4.997	-0.001	6.001	0.000	6.987	-0.007
Finger 02:	3.995	-0.002	5.000	0.000	6.001	0.000	7.004	0.002
Finger 03:	4.001	0.001	4.990	-0.005	5.992	-0.004	6.996	-0.002
Finger 04:	3.998	-0.001	4.989	-0.005	5.998	-0.001	7.011	0.005
Finger 05:	3.991	-0.005	4.999	-0.001	5.989	-0.005	6.989	-0.006
Finger 06:	4.000	0.000	5.005	0.002	6.016	0.008	7.018	0.009
Finger 07:	4.004	0.002	5.011	0.006	6.008	0.004	6.989	-0.005
Finger 08:	3.995	-0.003	4.995	-0.002	5.999	-0.000	6.994	-0.003
Finger 09:	3.993	-0.004	4.991	-0.004	5.990	-0.005	6.987	-0.006
Finger 10:	4.003	0.002	4.997	-0.002	5.992	-0.004	7.000	0.000
Finger 11:	4.002	0.001	5.002	0.001	5.994	-0.003	6.999	-0.000
Finger 12:	4.001	0.000	5.004	0.002	6.001	0.000	7.005	0.003
Finger 13:	3.999	-0.001	4.992	-0.004	5.992	-0.004	6.987	-0.006
Finger 14:	4.003	0.002	4.997	-0.001	5.994	-0.003	7.000	-0.000
Finger 15:	3.997	-0.001	4.996	-0.002	5.990	-0.005	6.999	-0.001
Finger 16:	4.002	0.001	4.984	-0.008	5.988	-0.006	6.997	-0.001
Finger 17:	4.000	0.000	5.000	-0.000	5.995	-0.003	6.996	-0.002
Finger 18:	4.001	0.001	4.998	-0.001	5.996	-0.002	7.008	0.004
Finger 19:	4.003	0.001	4.991	-0.005	5.985	-0.007	6.983	-0.008
Finger 20:	4.002	0.001	4.997	-0.001	5.995	-0.002	6.991	-0.005
Finger 21:	4.001	0.000	4.994	-0.003	5.999	-0.000	6.993	-0.003
Finger 22:	4.002	0.001	5.000	0.000	6.008	0.004	6.996	-0.002
Finger 23:	3.994	-0.003	5.004	0.002	6.007	0.003	6.983	-0.008
Finger 24:	3.999	-0.001	5.005	0.003	6.004	0.002	7.003	0.002
Finger 25:	3.999	-0.000	4.990	-0.005	5.998	-0.001	7.002	0.001
Finger 26:	3.995	-0.003	5.002	0.001	5.998	-0.001	7.000	-0.000
Finger 27:	3.996	-0.002	5.004	0.002	5.996	-0.002	7.004	0.002

Finger 27:	3.999	-0.002	4.997	-0.002	5.998	-0.006	6.997	-0.002
Finger 28:	4.001	0.001	4.994	-0.003	5.988	-0.006	6.998	-0.001
Finger 29:	3.995	-0.003	4.995	-0.003	5.992	-0.004	6.995	-0.002
Finger 30:	3.996	-0.002	5.000	-0.000	5.999	-0.000	7.002	0.001
Finger 31:	3.998	-0.001	4.994	-0.003	5.998	-0.001	6.997	-0.001
Finger 32:	4.000	0.000	4.992	-0.004	5.993	-0.004	6.998	-0.001
Finger 33:	3.998	-0.001	4.992	-0.004	6.001	0.000	6.996	-0.002
Finger 34:	4.001	0.000	4.999	-0.000	5.995	-0.002	7.004	0.002
Finger 35:	4.018	0.009	5.001	0.000	6.000	0.000	7.001	0.001
Finger 36:	3.998	-0.001	4.996	-0.002	5.981	-0.009	6.982	-0.009
Finger 37:	4.003	0.002	5.004	0.002	5.999	-0.001	6.993	-0.003
Finger 38:	3.997	-0.001	4.995	-0.003	5.993	-0.004	6.988	-0.006
Finger 39:	4.003	0.001	4.993	-0.004	5.990	-0.005	7.002	0.001
Finger 40:	3.996	-0.002	4.997	-0.002	5.996	-0.002	6.990	-0.005
Average:	4.000	-0.000	4.997	-0.001	5.996	-0.002	6.997	-0.002

Segmented Cement Bond Log Calibration Report						
Serial Number:		1066				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		21.037	ft			
Master Calibration, performed Fri Dec 08 15:20:27 2017:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.002	0.580	0.800	62.165	106.226	0.546
5FT	-0.002	0.568	0.800	62.165	107.645	1.063
S1	0.002	0.567	0.000	100.000	177.194	-0.430
S2	0.001	0.588	0.000	100.000	170.284	-0.208
S3	0.002	0.582	0.000	100.000	172.246	-0.296
S4	0.001	0.592	0.000	100.000	169.288	-0.198
S5	0.002	0.586	0.000	100.000	171.292	-0.364
S6	0.001	0.586	0.000	100.000	170.941	-0.248
S7	0.002	0.592	0.000	100.000	169.610	-0.408
S8	0.003	0.573	0.000	100.000	175.223	-0.473

Temperature Calibration Report					
Serial Number:			10024052		
Tool Model:			PRT_016		
Performed:			Sun Oct 11 12:16:39 2015		
Point #	Reading		Reference		
1	12242.00	cps	68.00	degF	
2	18329.00	cps	104.00	degF	
3	29563.00	cps	176.00	degF	
4	41222.00	cps	248.00	degF	
5	52988.00	cps	320.00	degF	
6	58824.00	cps	356.00	degF	
7		cps		degF	
8		cps		degF	
9		cps		degF	
10		cps		degF	

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



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Wagner 27C-10HZ
Field	Wattenberg
County	Weld
State	Colorado