



Compensated Neutron
Gamma Ray
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Viper Pyro 41N-14HZR	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API #: 05-123-41653	
SEC 15		TWP 3N	
RGE 67W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4795'	
Gauge Ring		RCBL	
MIT		MIT	
Elevation		K.B. 4815'	
G.L. 4795'		D.F. 4814'	
Date		13-OCT-2015	
Run Number		Two	
Depth Driller		16,806 FT	
Depth Logger		7,291 FT	
Bottom Logged Interval		7,270 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		233°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		10:35 A.M.	
Equipment Number		HD-0119	
Location		Ft. Lupton, CO	
Recorded By		A. Olmsted	
Witnessed By		Jim Adams	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		7	
Intermediate #2		4 1/2	
Liner		11.6	
P-110 LTC/DOX		6,213 FT	
Bottom		840 FT	
Surface		7,363 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 6,213 FT
Adjusted -22 FT to correlate to liner top
Gauge Ring/Junk Basket ran to 7,312 FT
Log ran from as deep as possible in heel to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing FMC Technologies Completion Services, Inc.!!



Main Pass

Reorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341653_anadarko_viper pyro 41n-14hzzr_10-13-15_mit_rbl_cnl\0512341653_anadarko_viper pyro 41n-14hzzr_10-13-15_mit_rbl_cnl

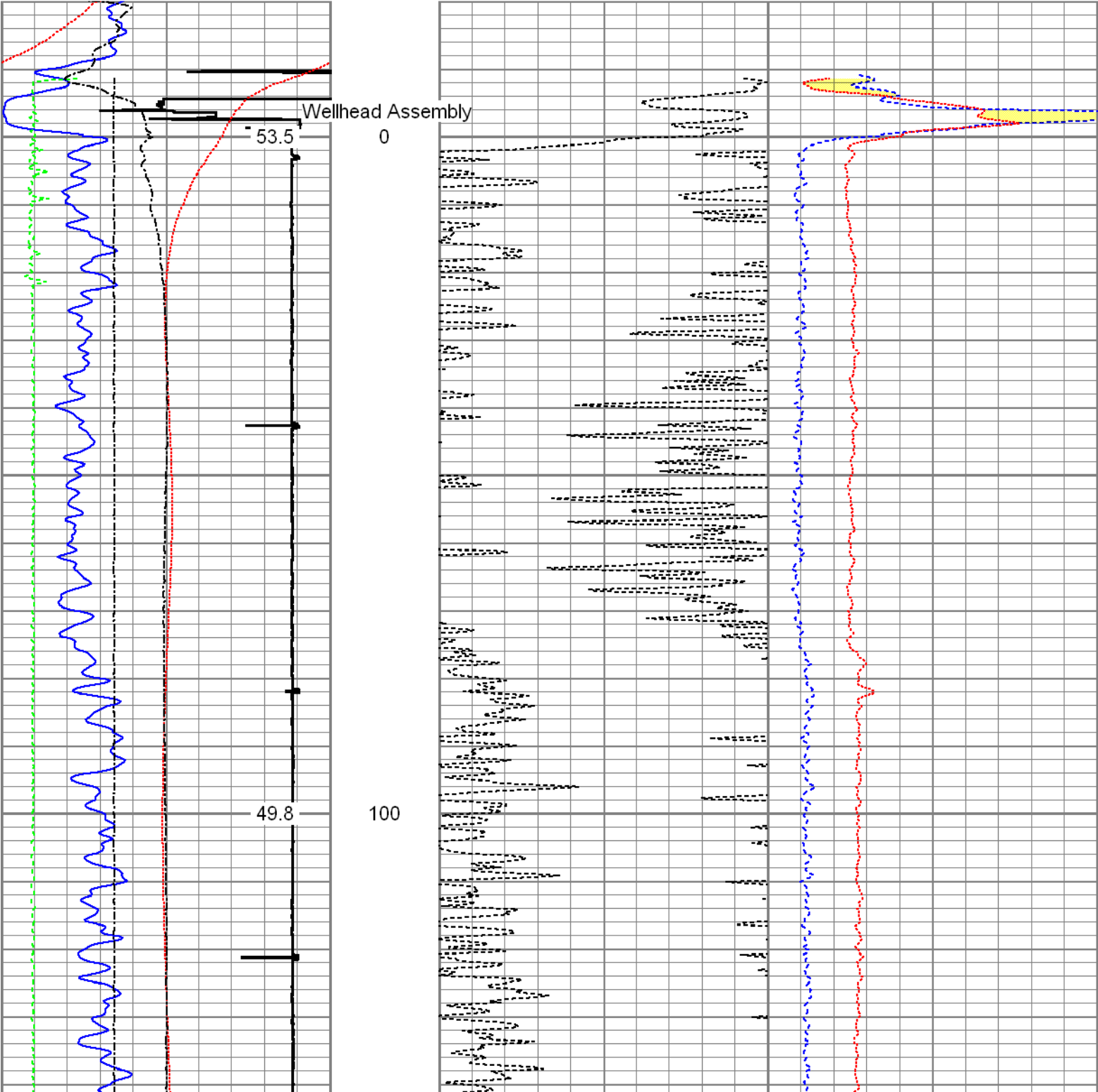
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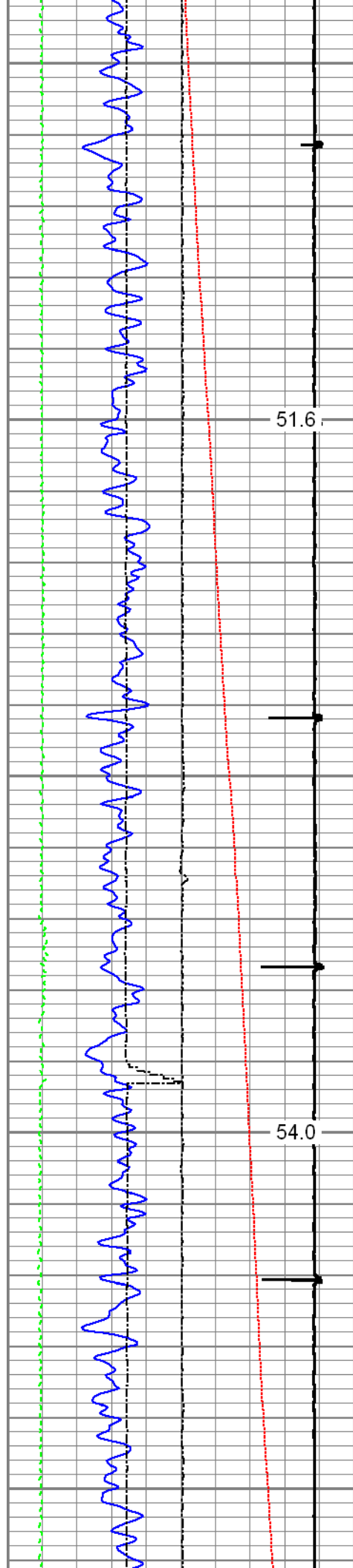
Presentation Format: cnl_mit

Dataset Creation: Tue Oct 13 14:28:47 2015

Charted by: Depth in Feet scaled 1:240

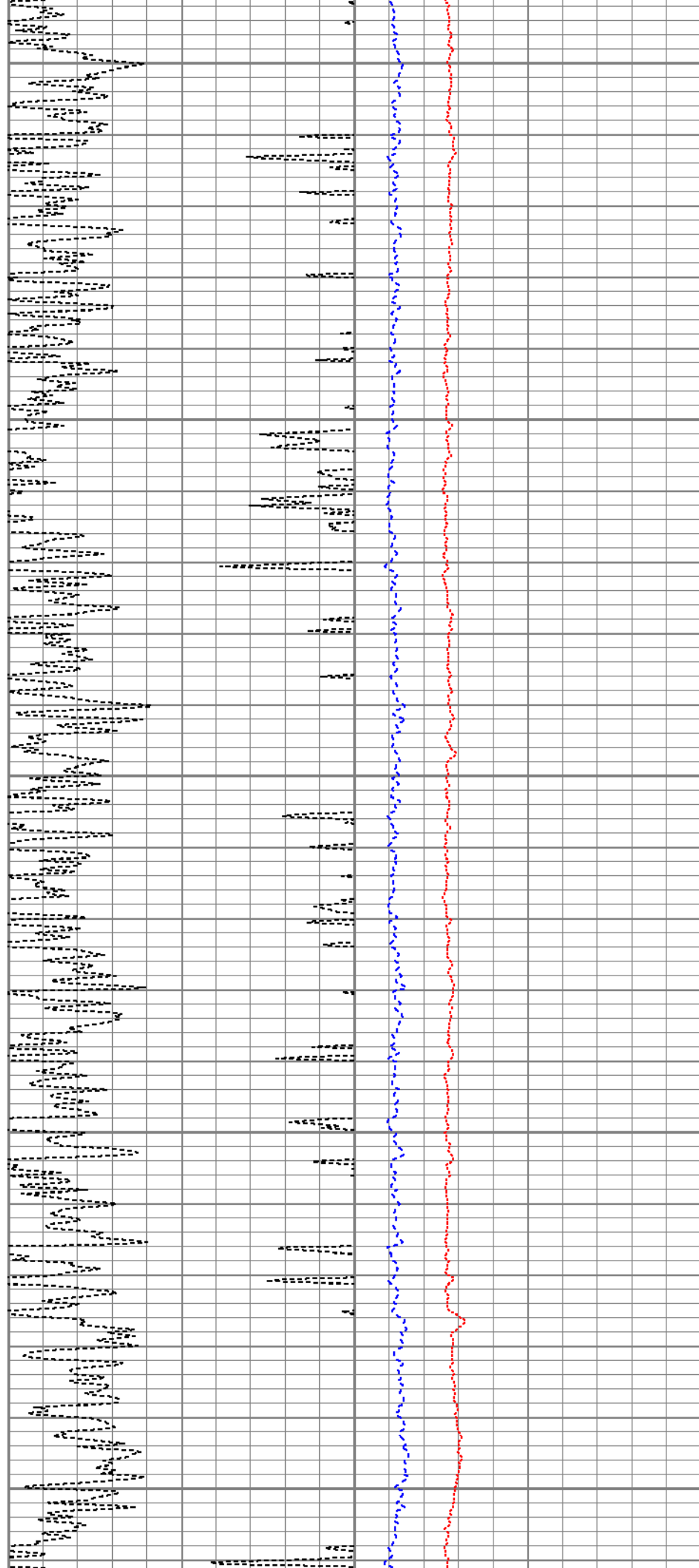
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Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						

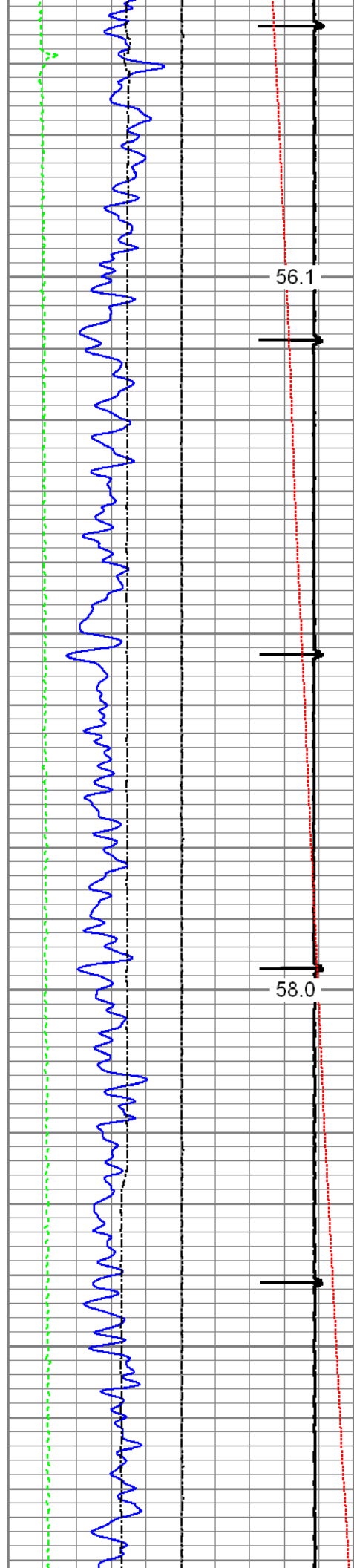




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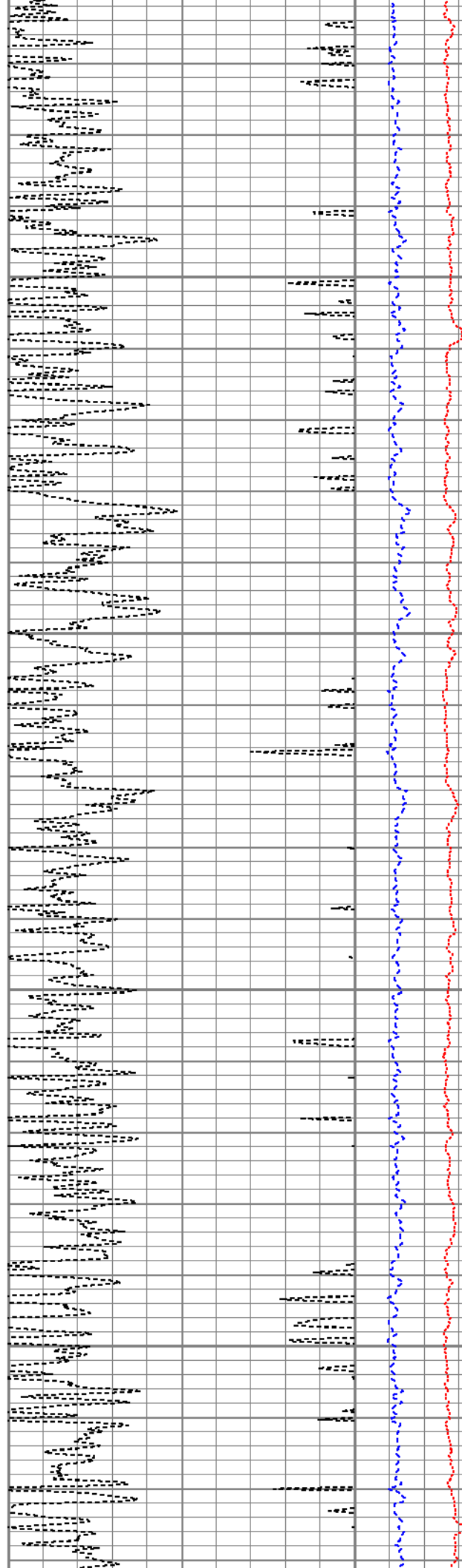
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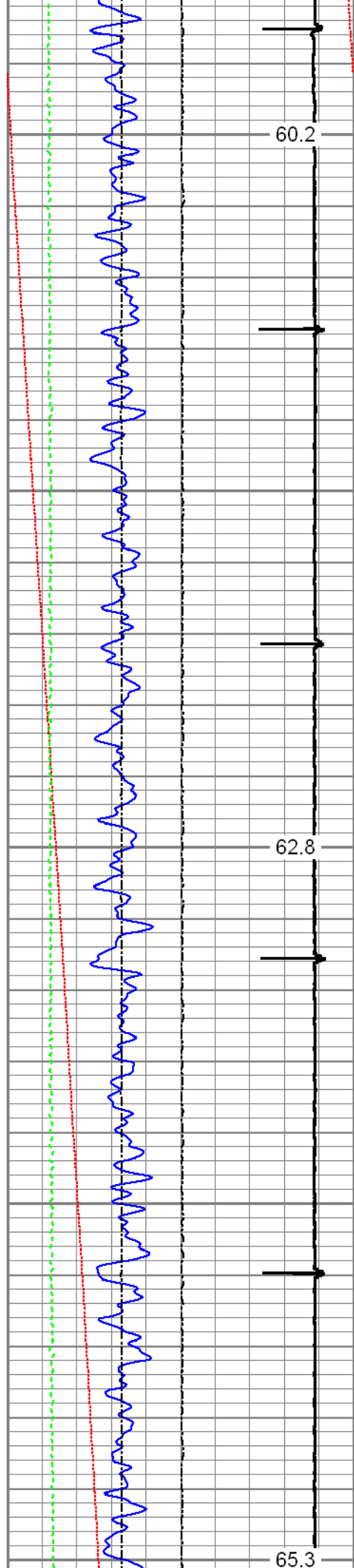




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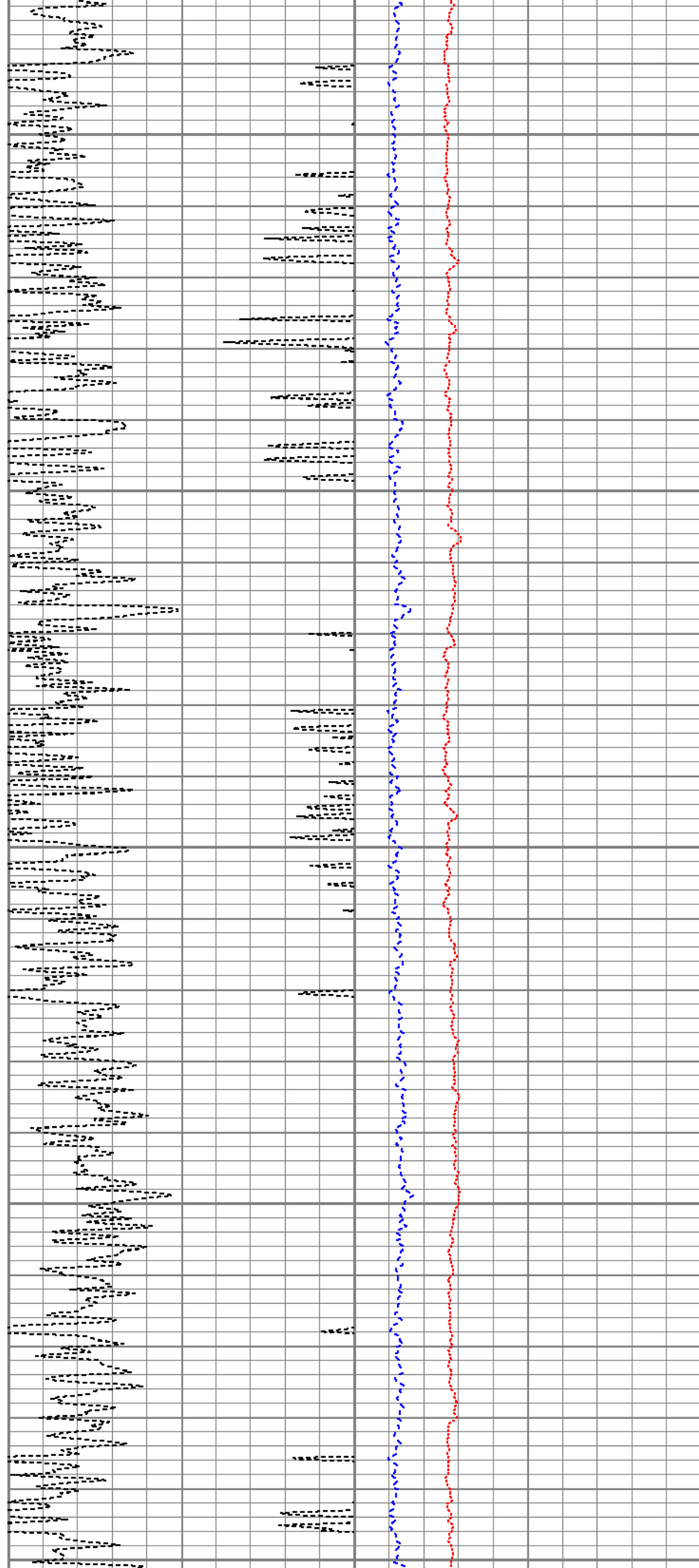


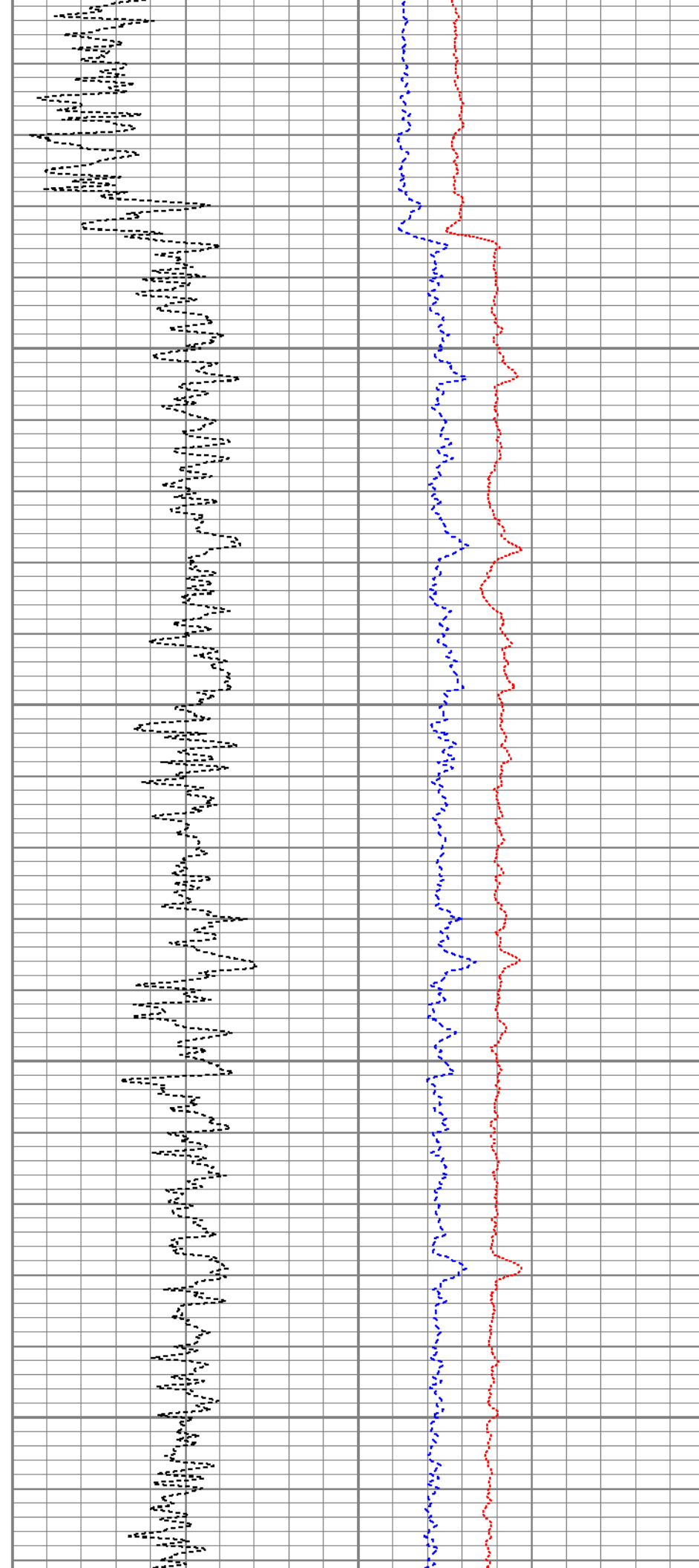
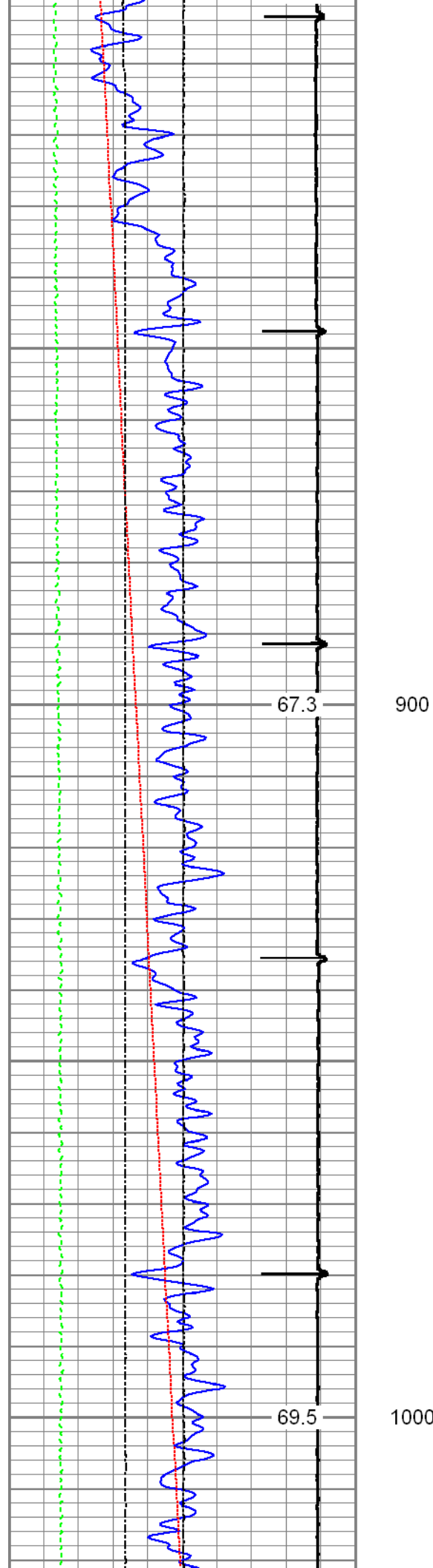


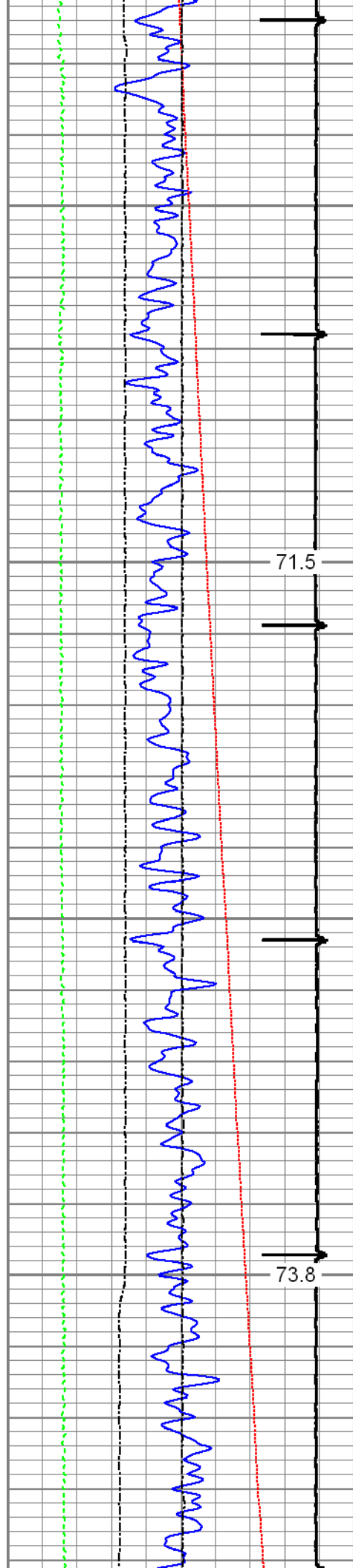
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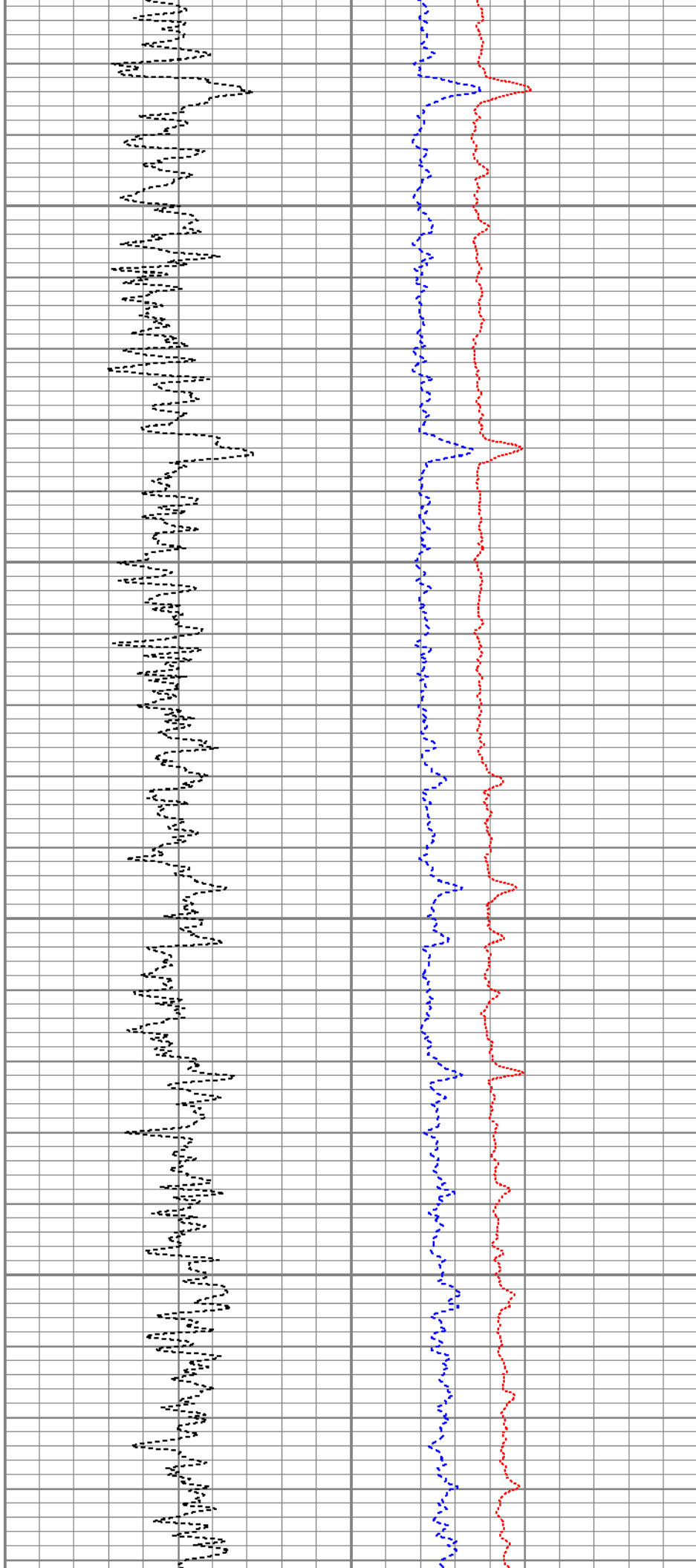


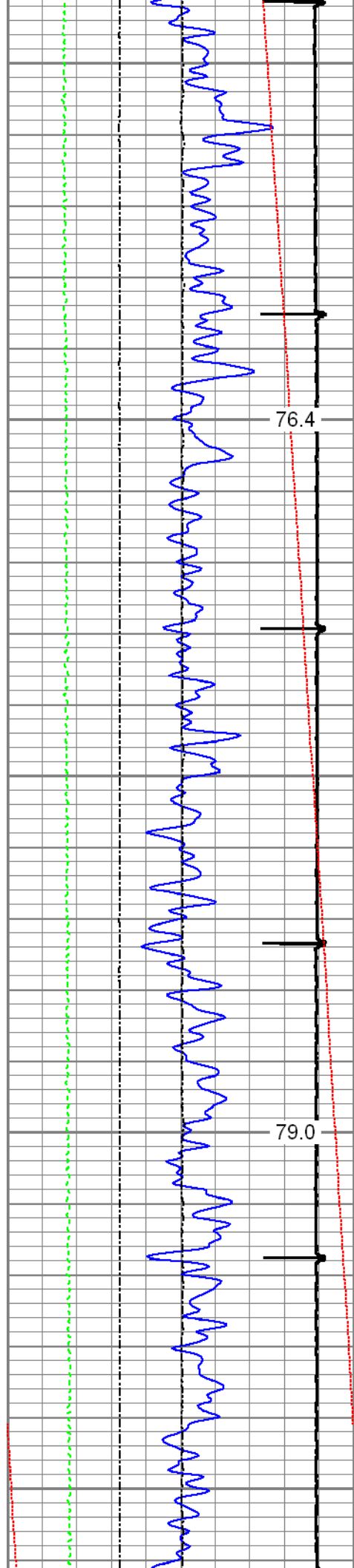




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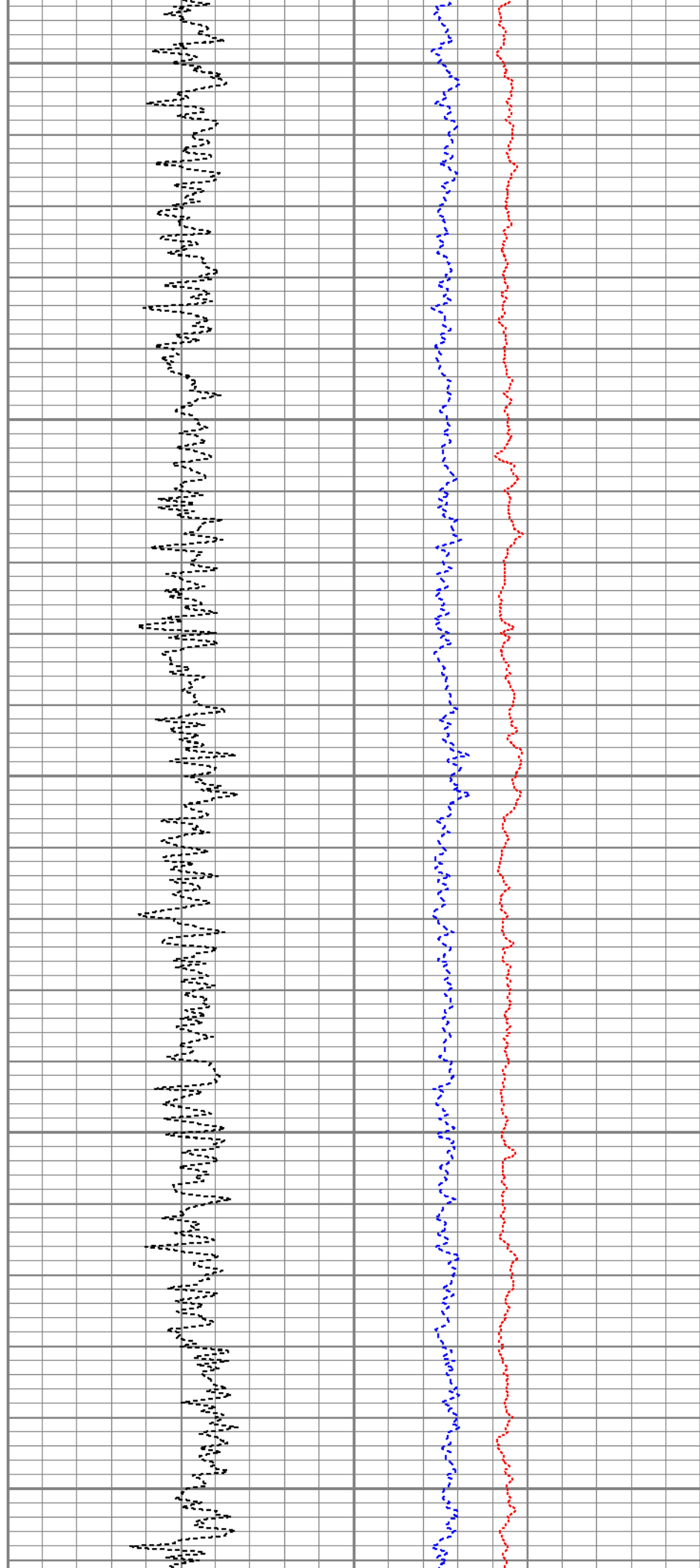
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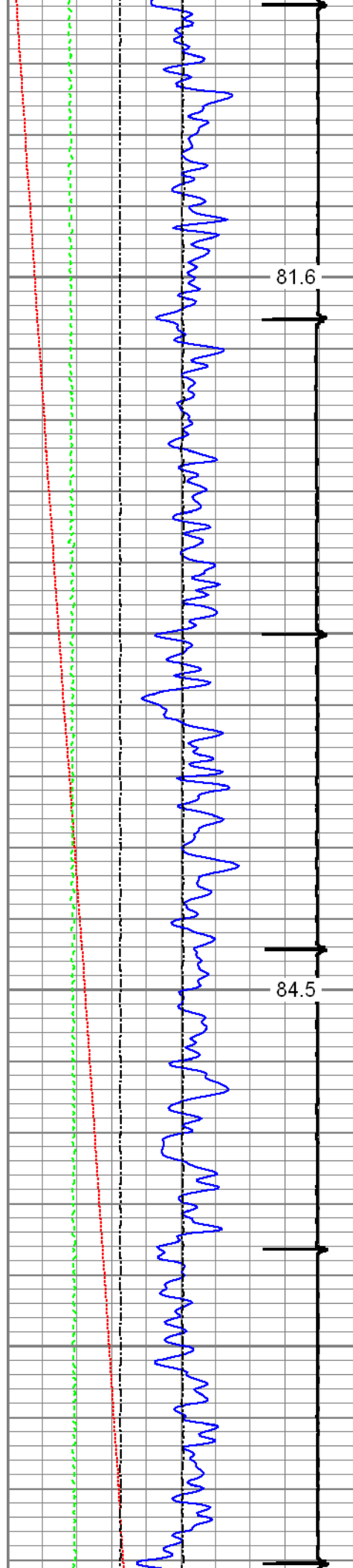




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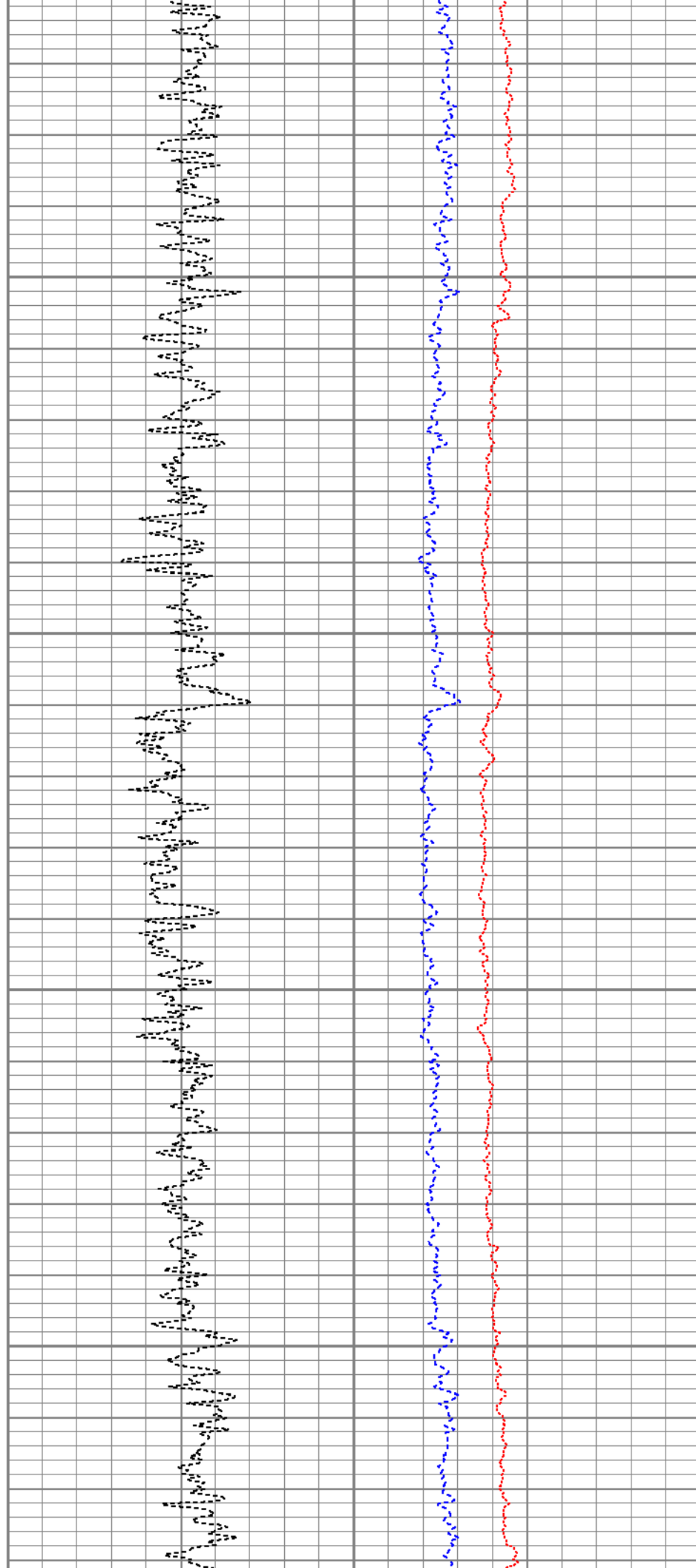
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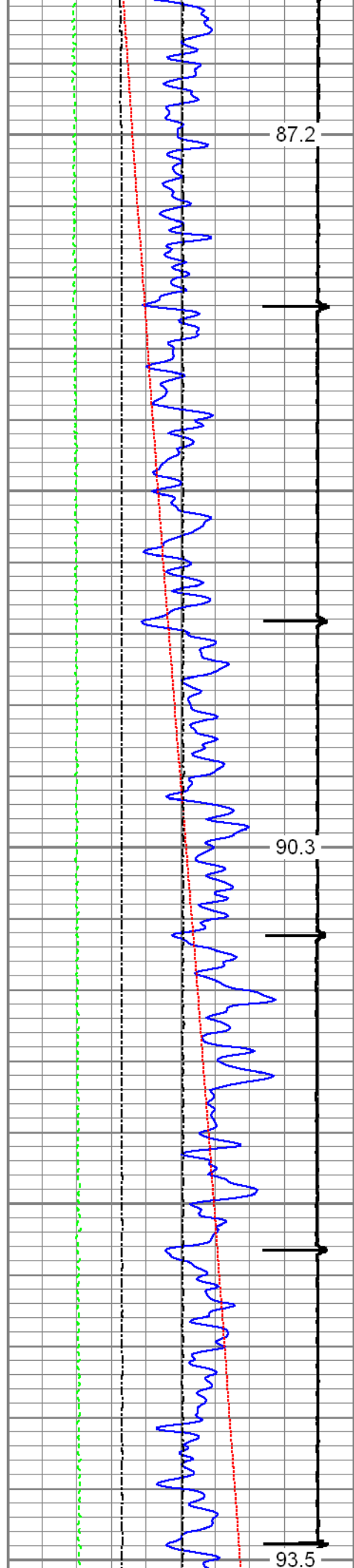




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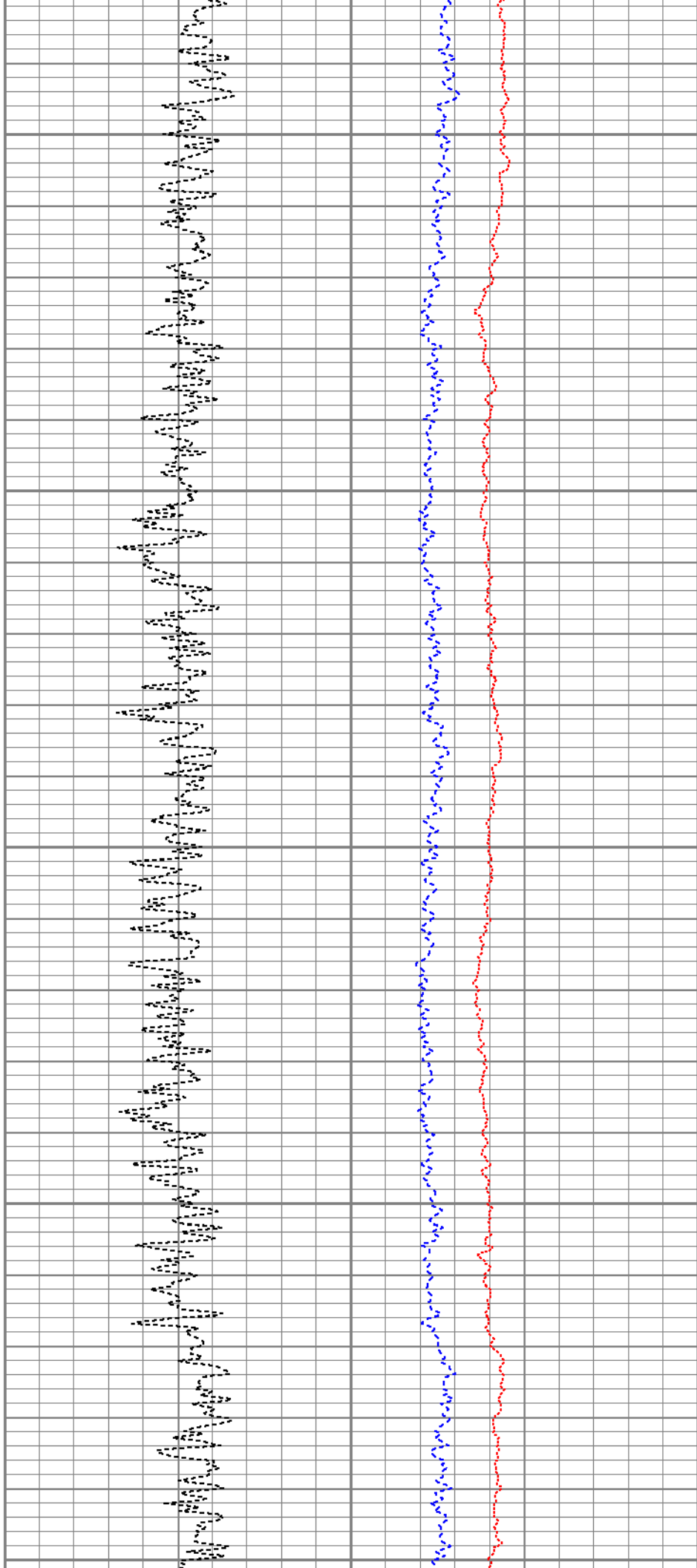


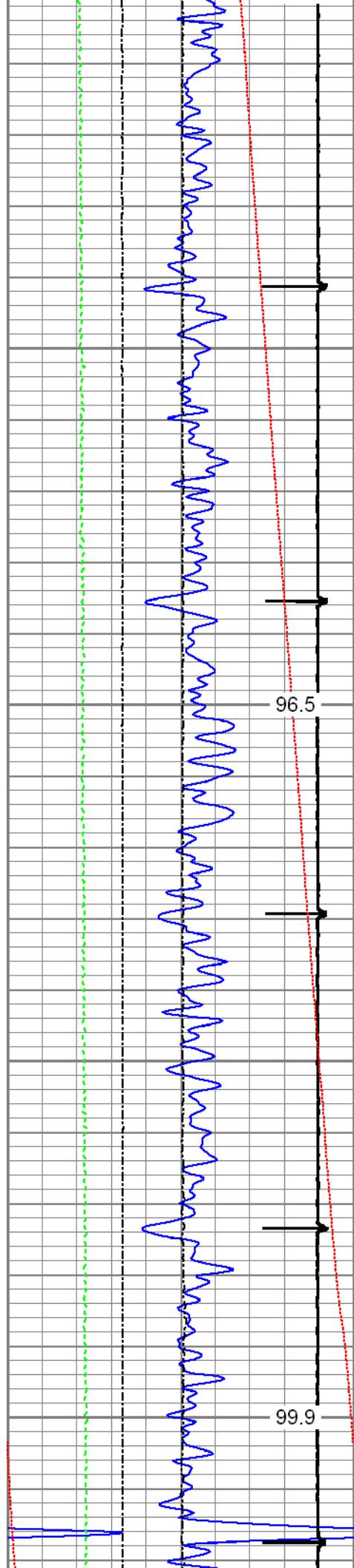


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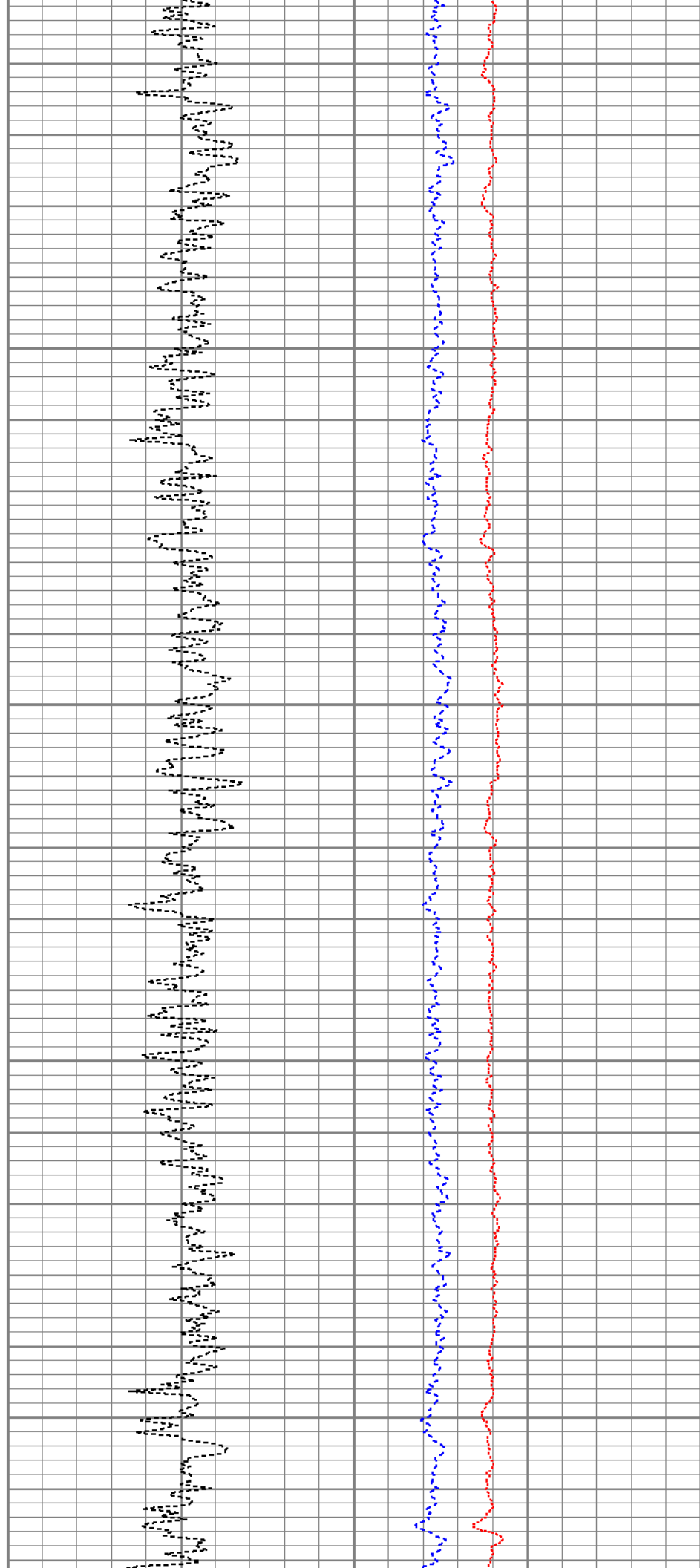
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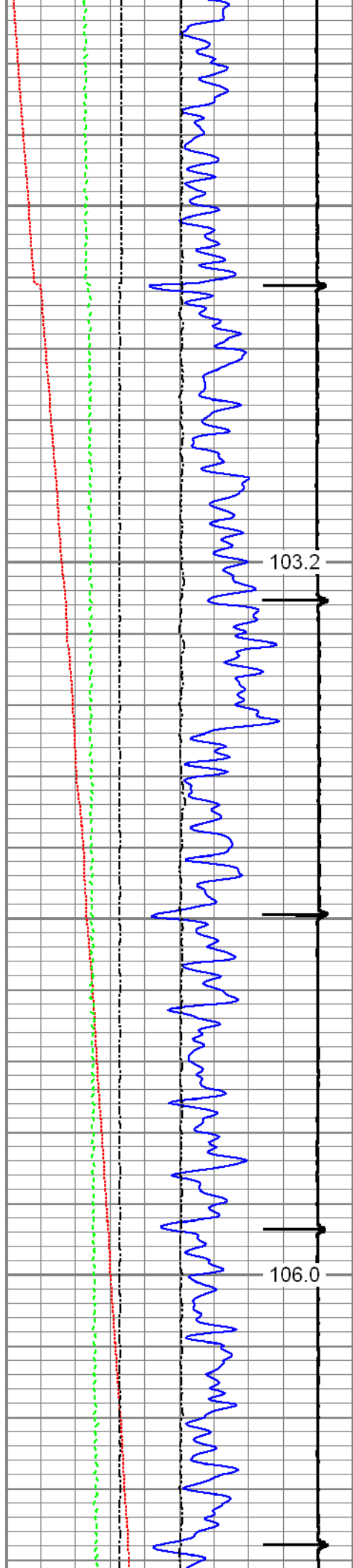




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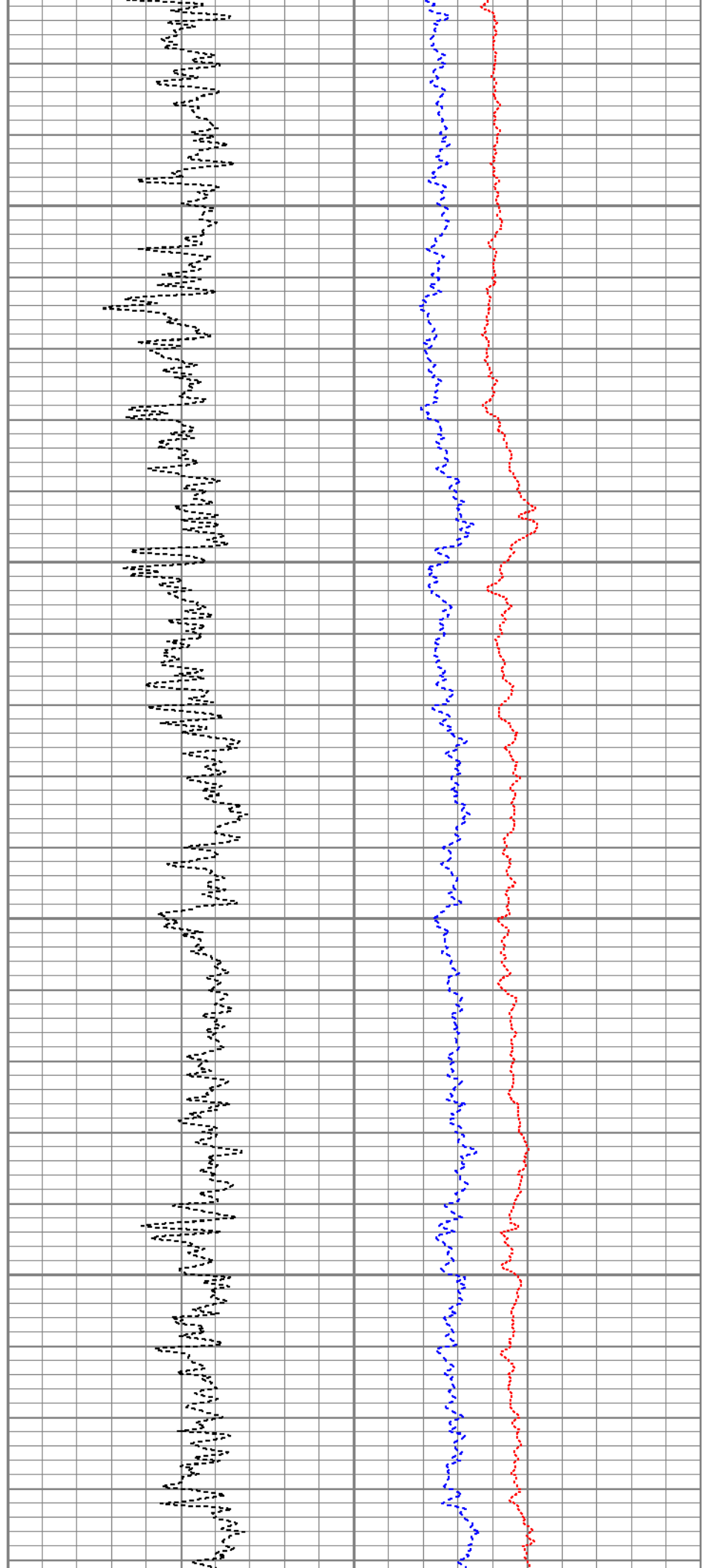
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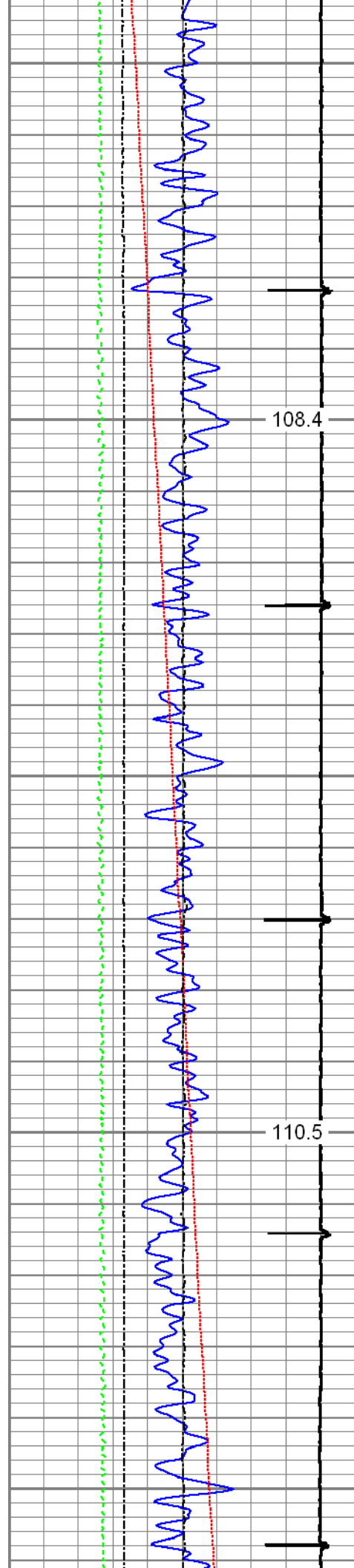




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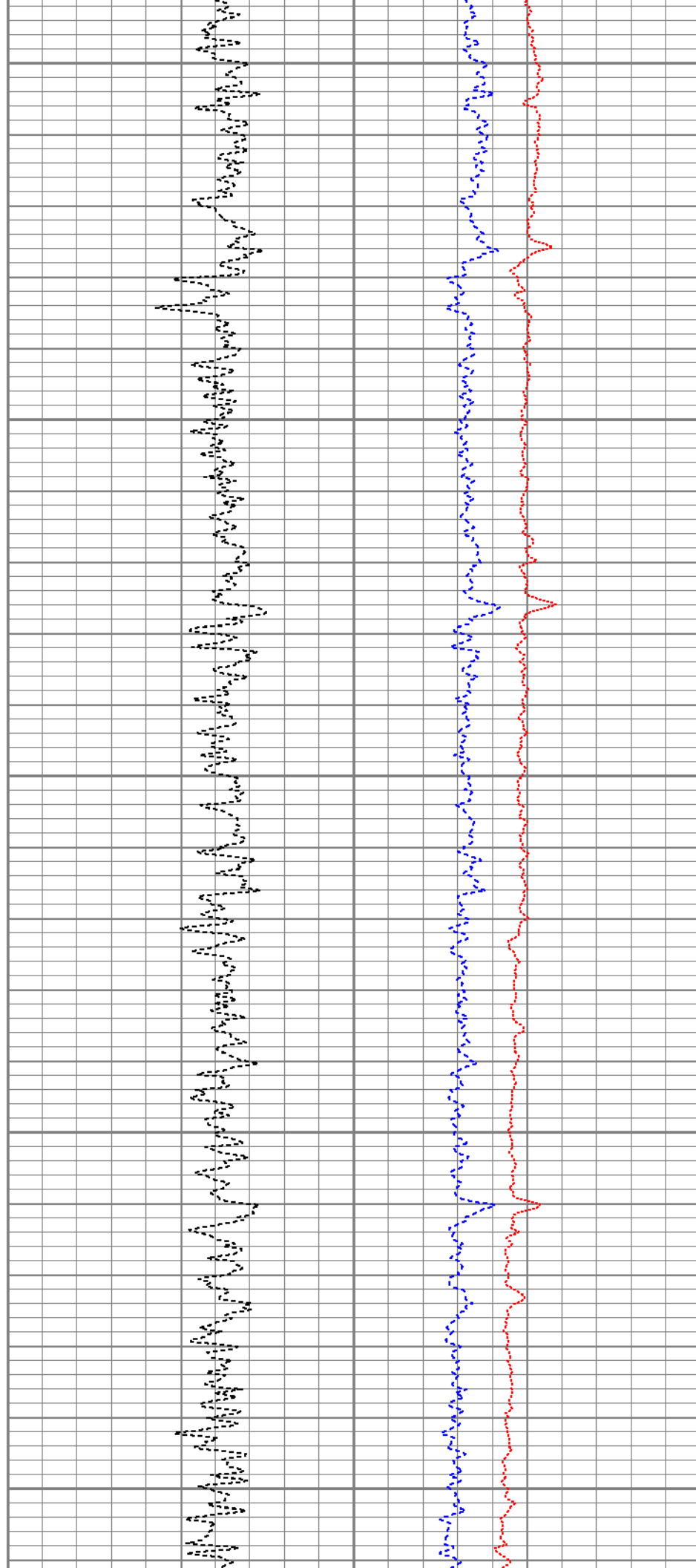
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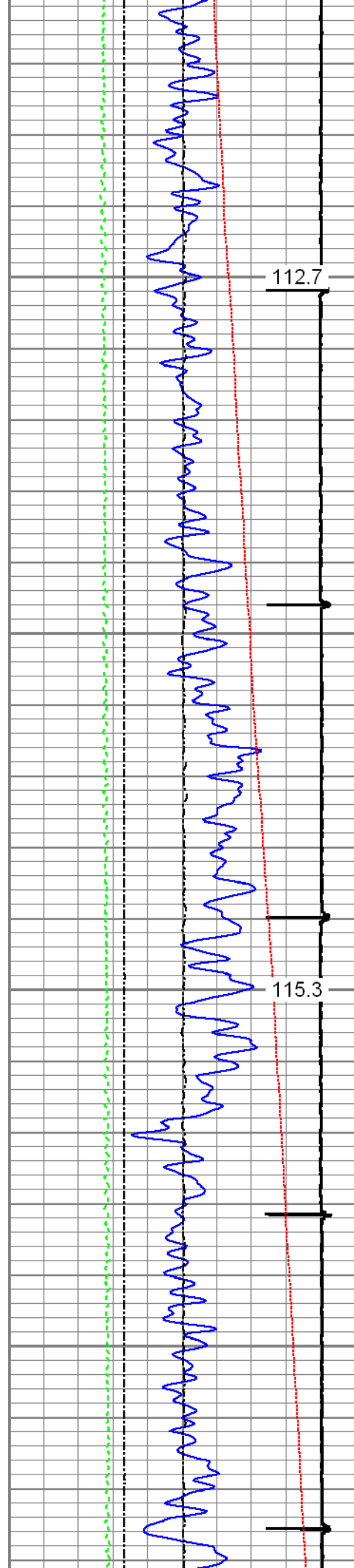




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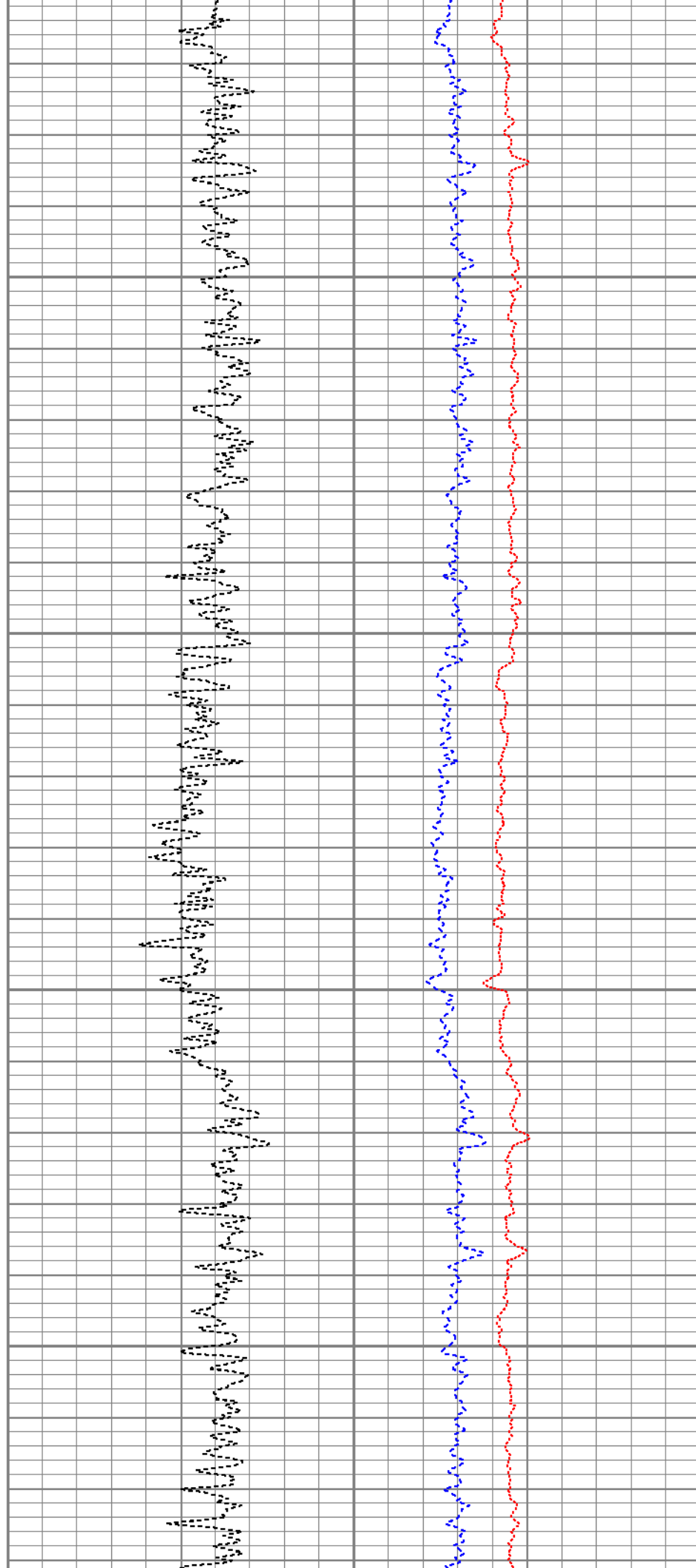
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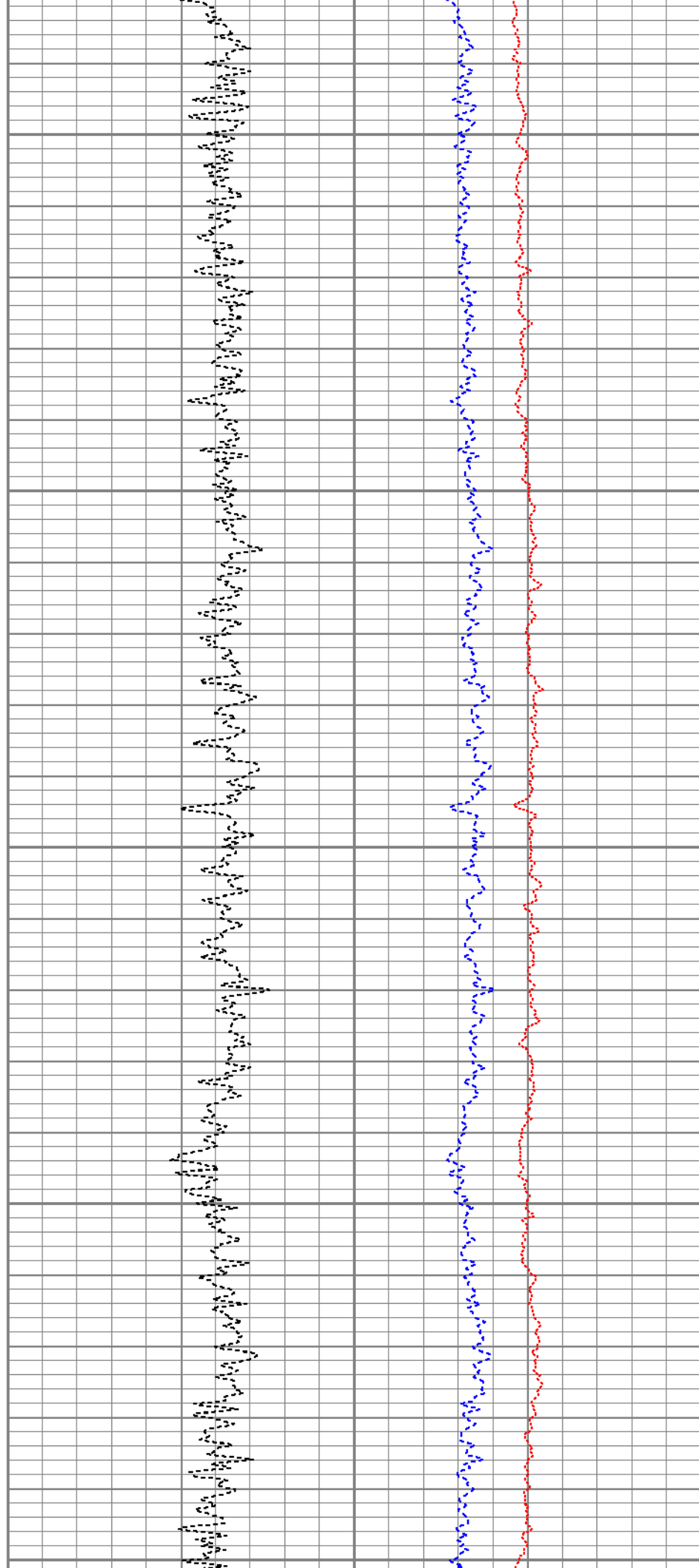
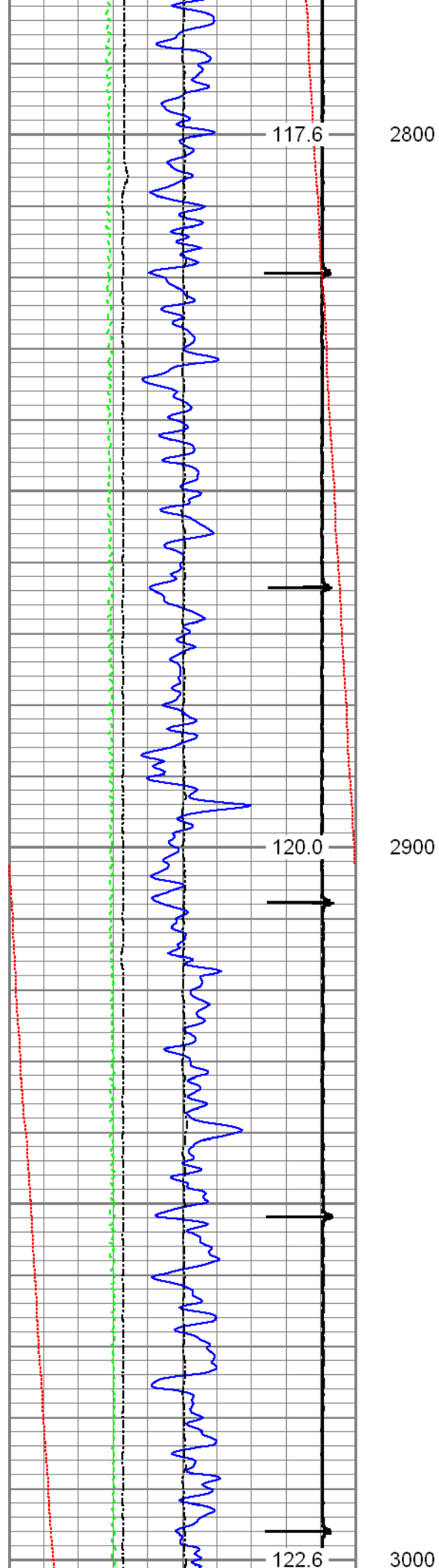


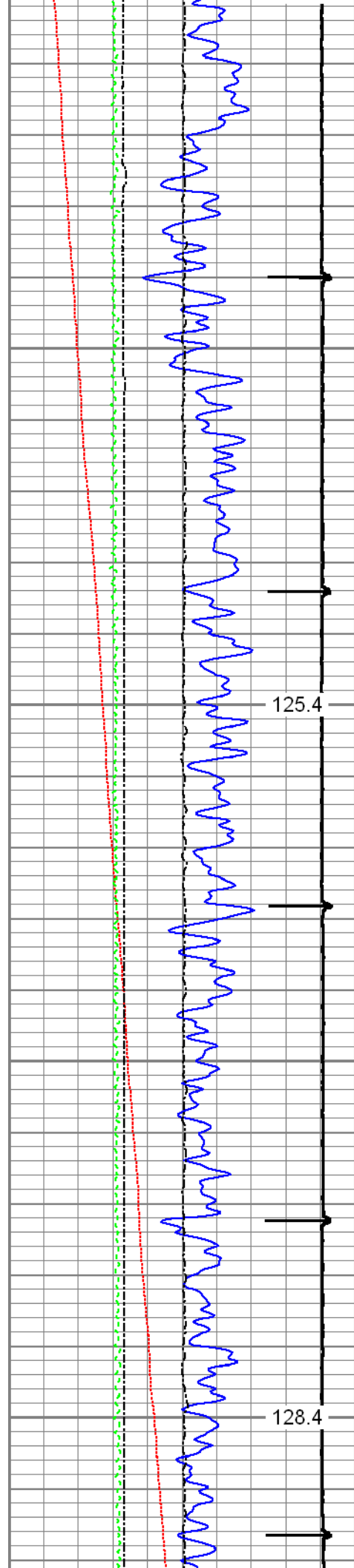


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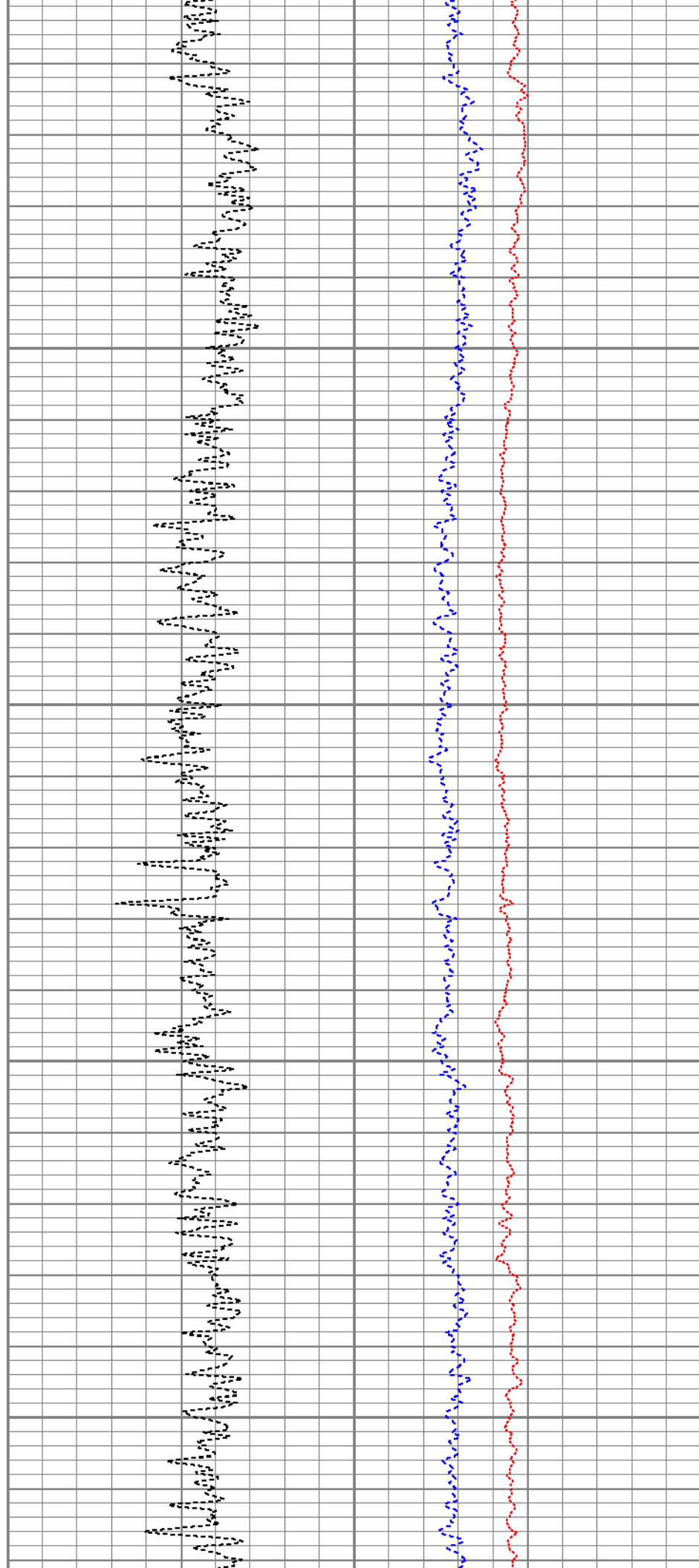


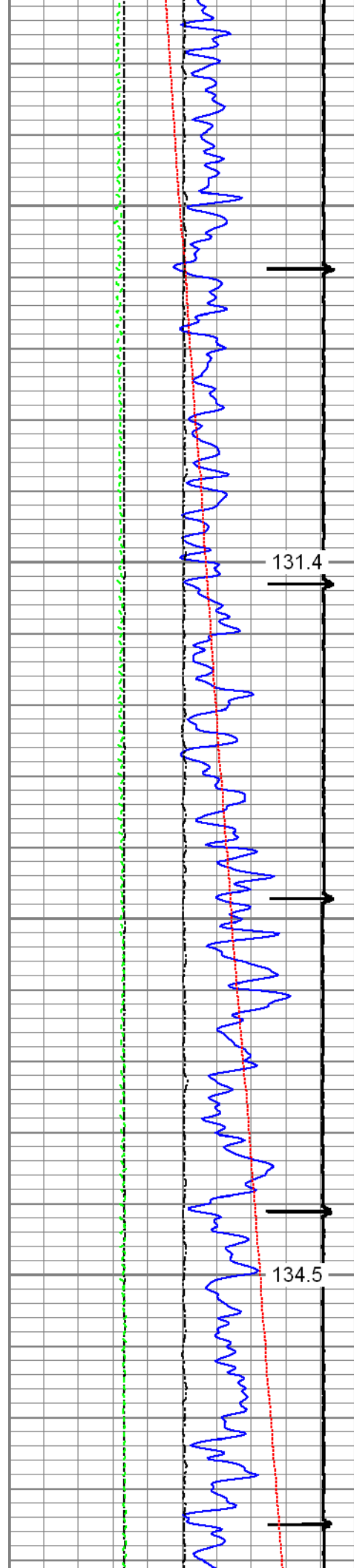




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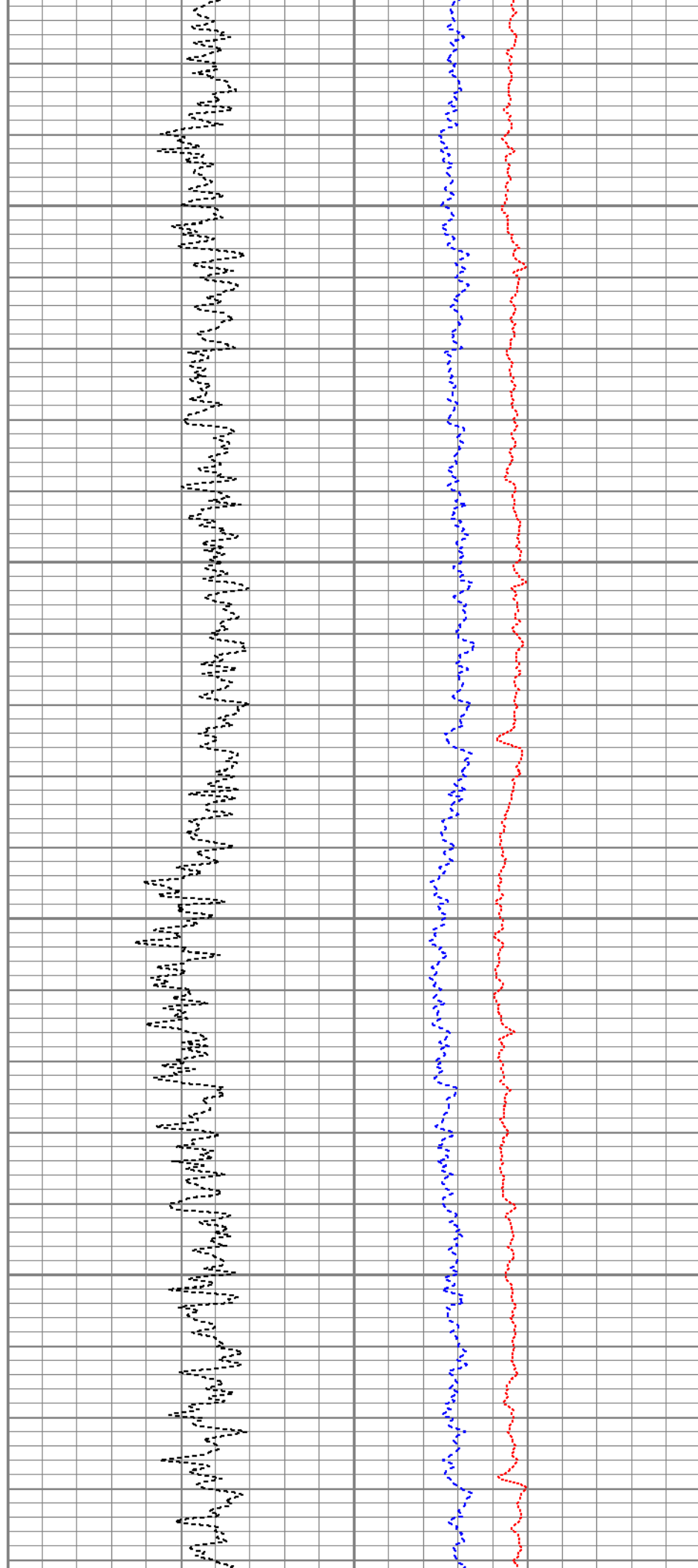


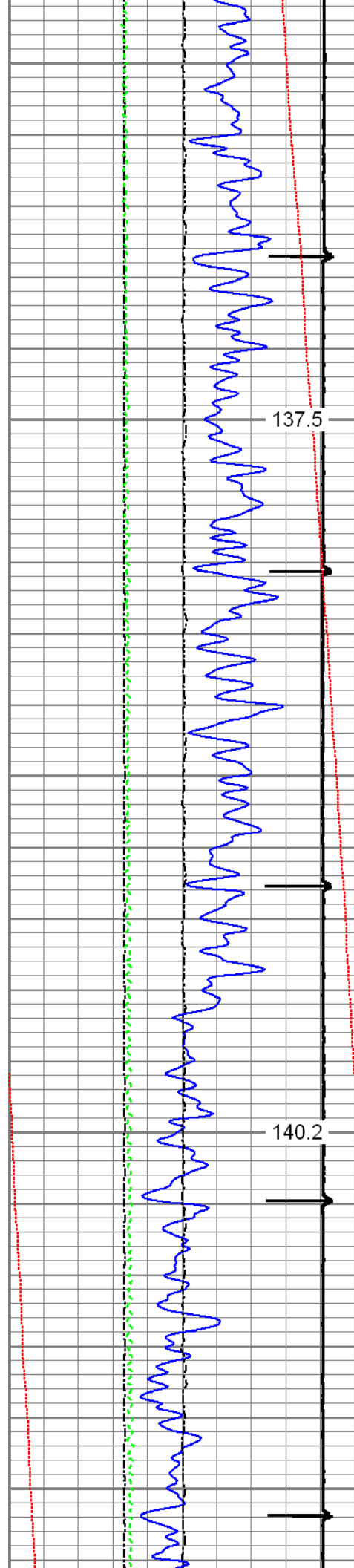
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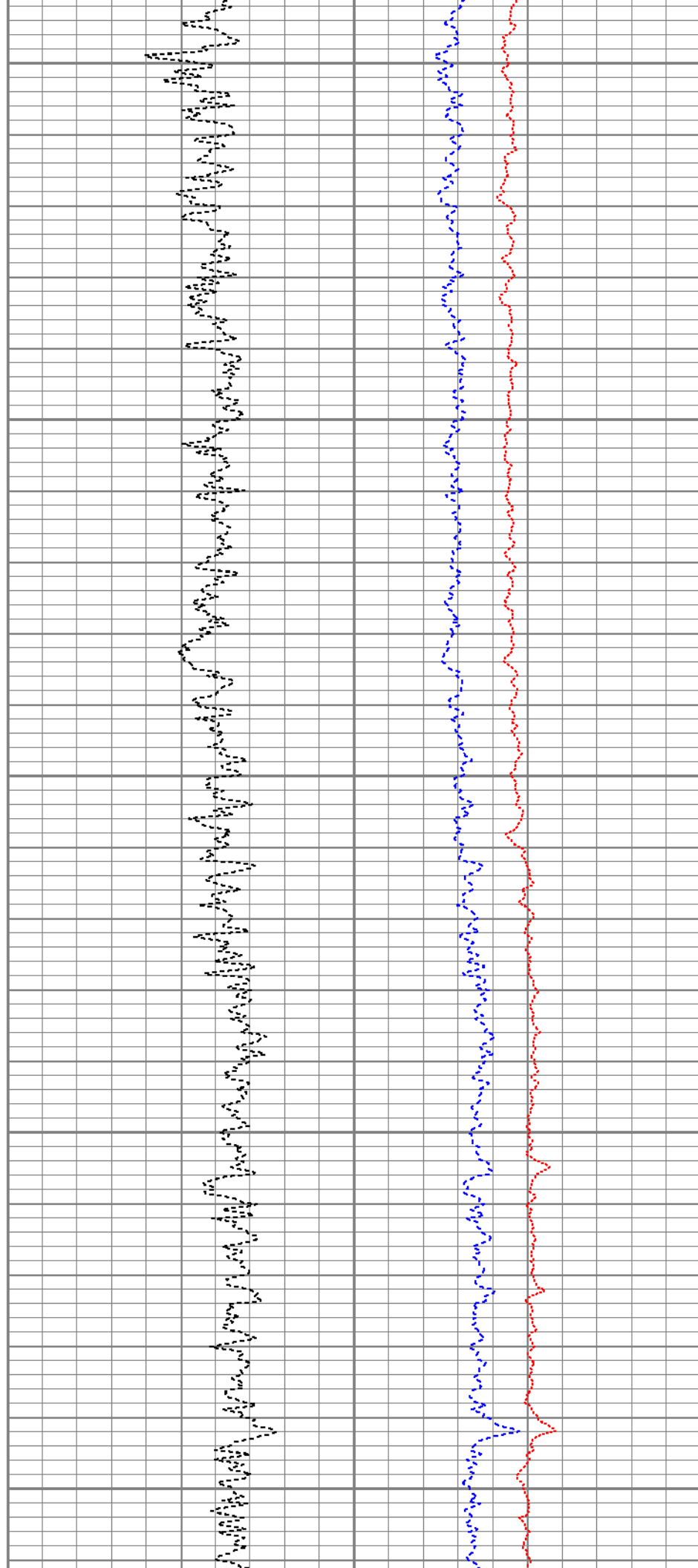
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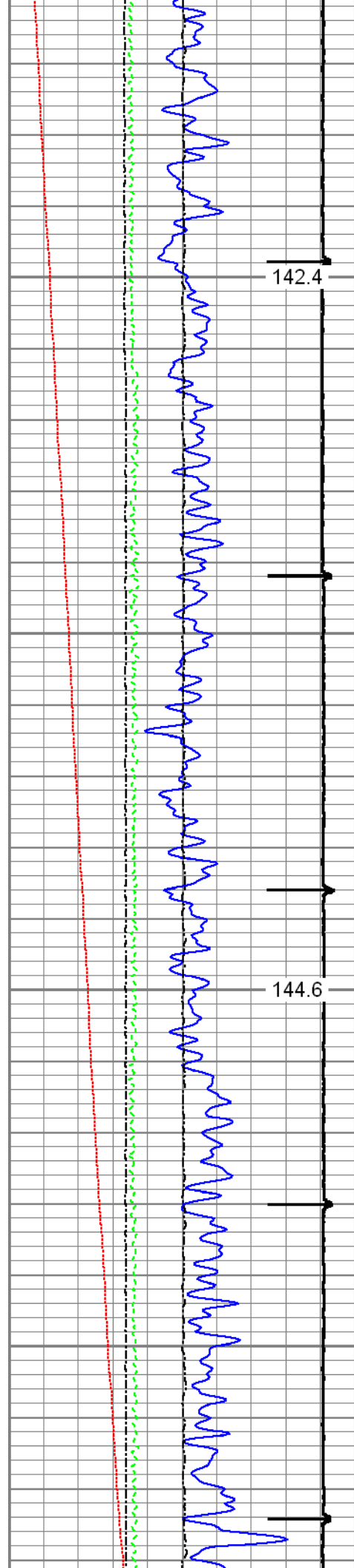




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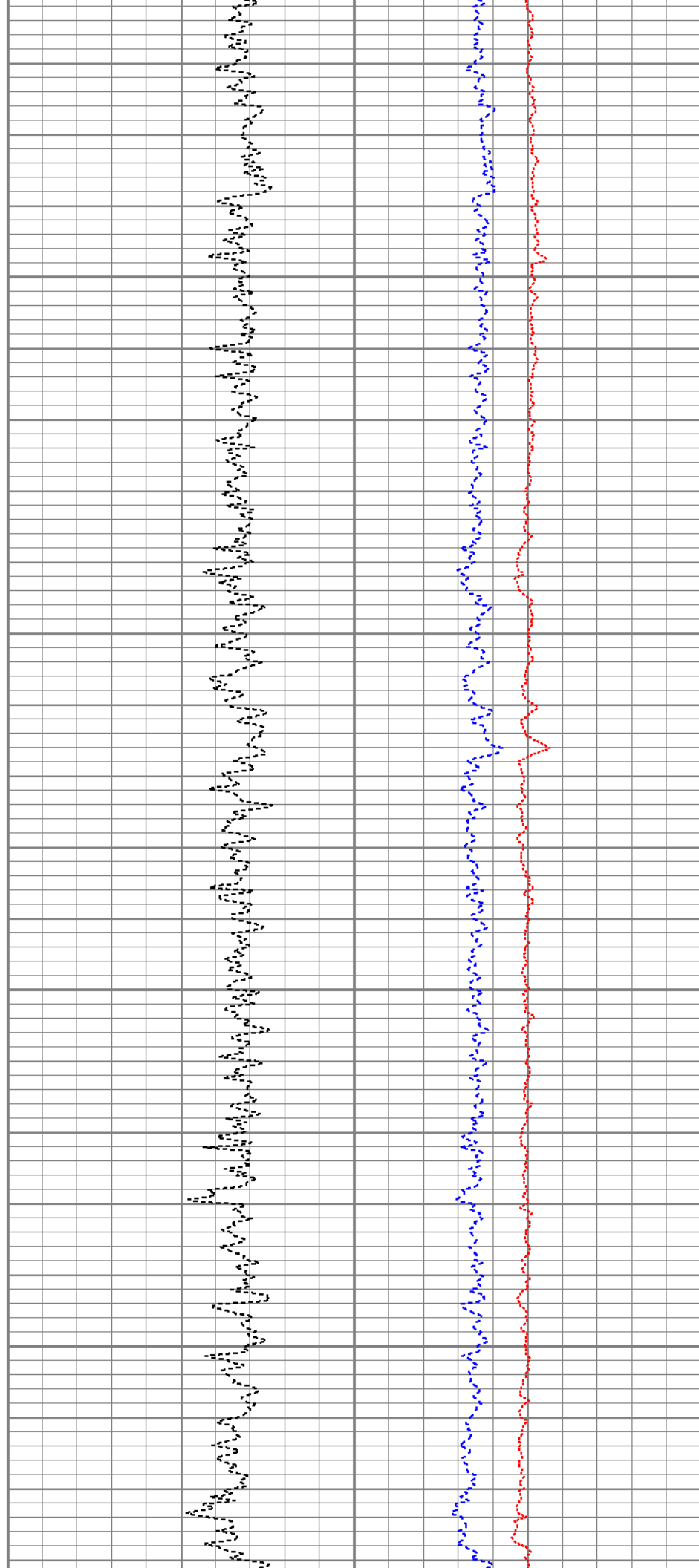


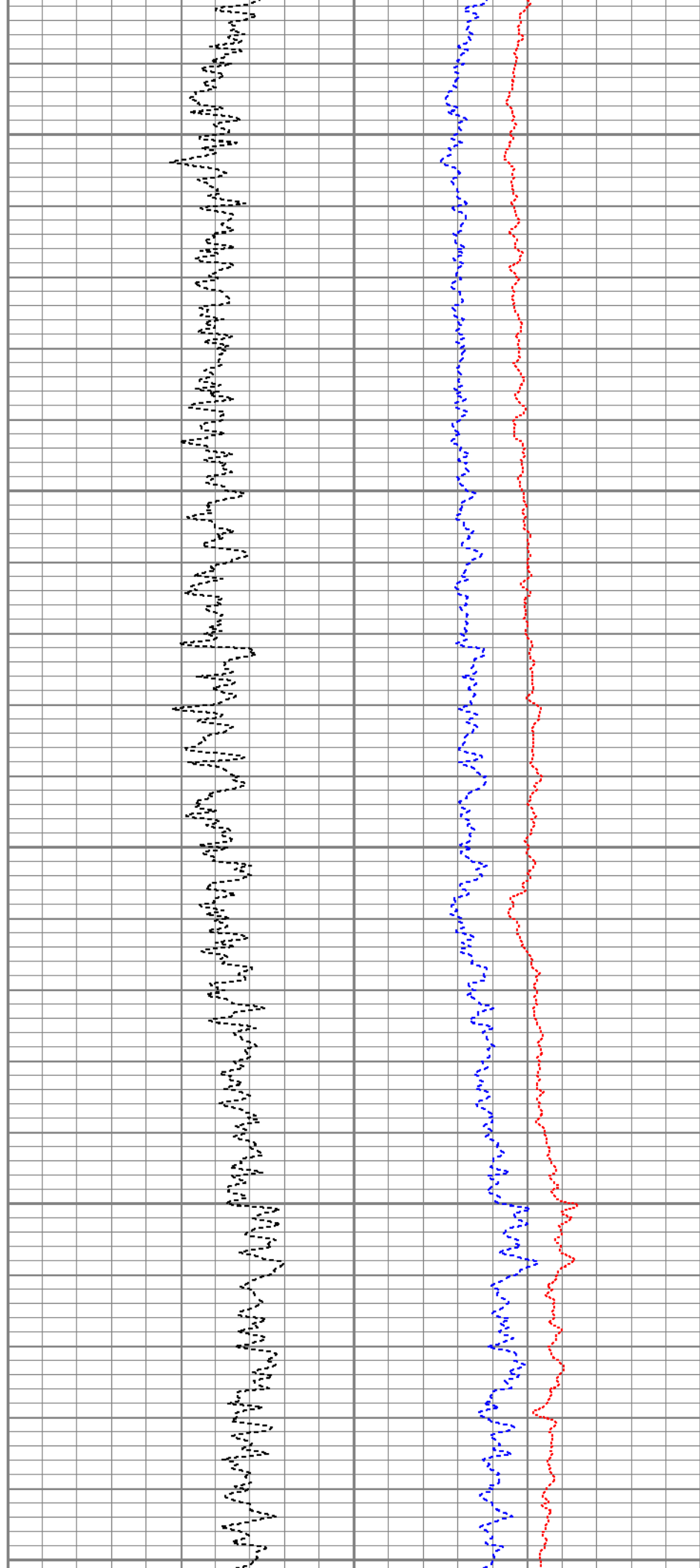
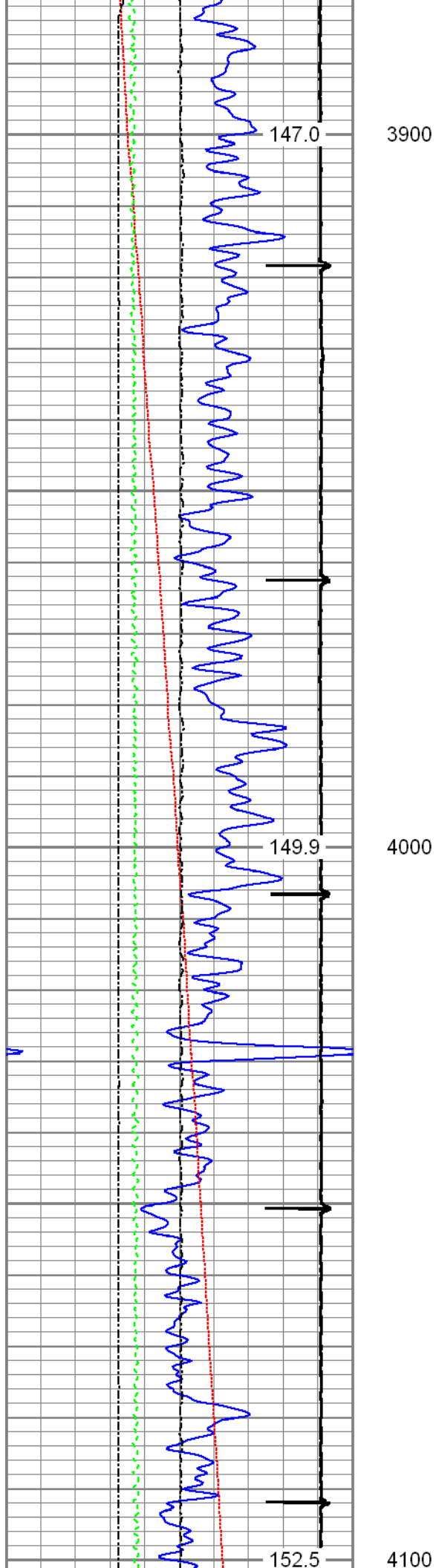
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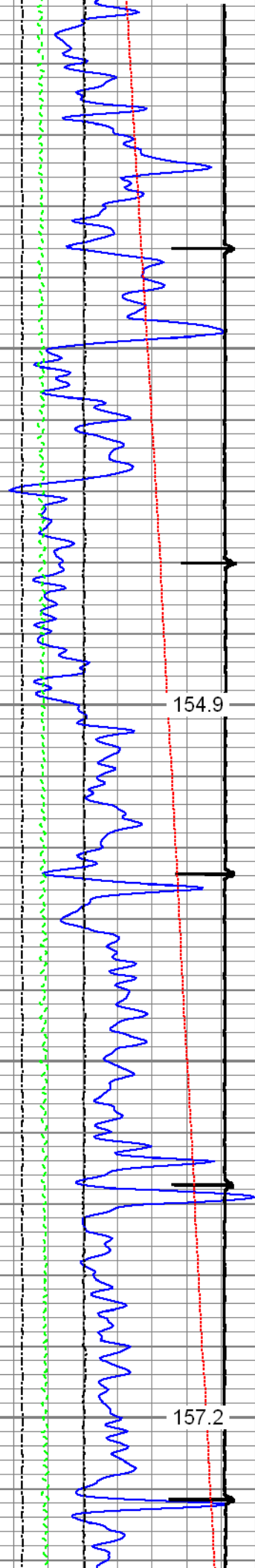
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3800



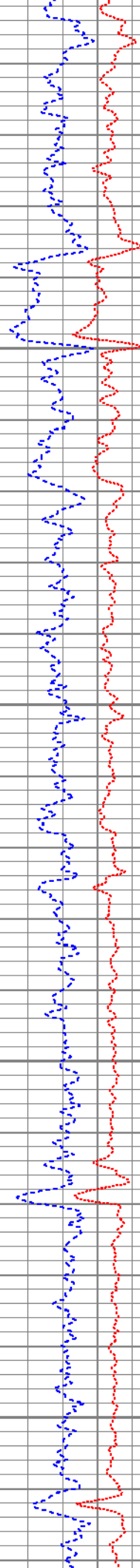
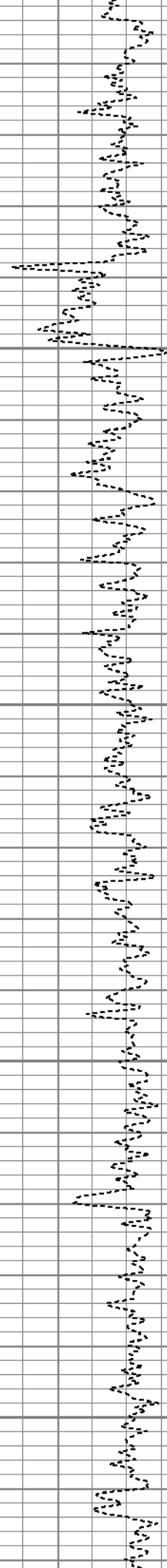


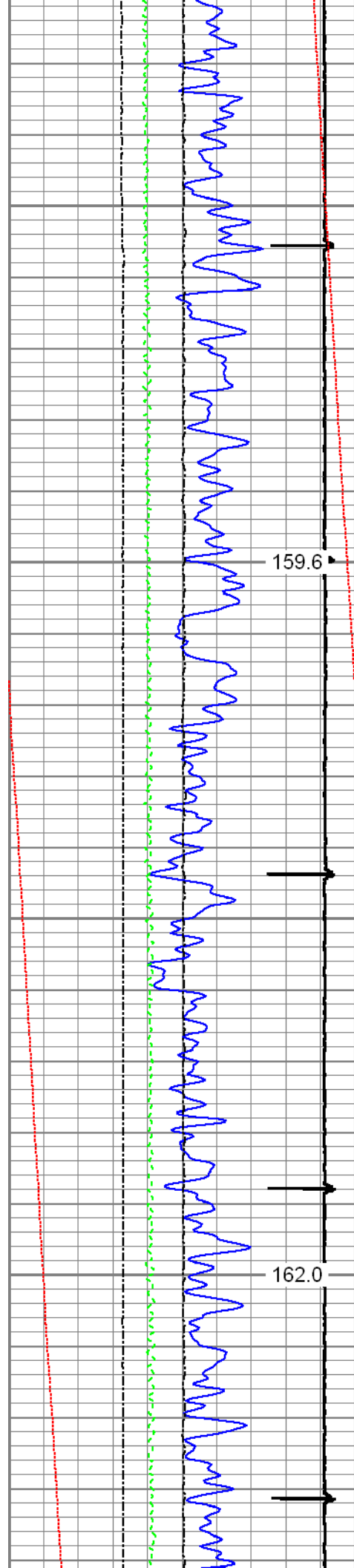


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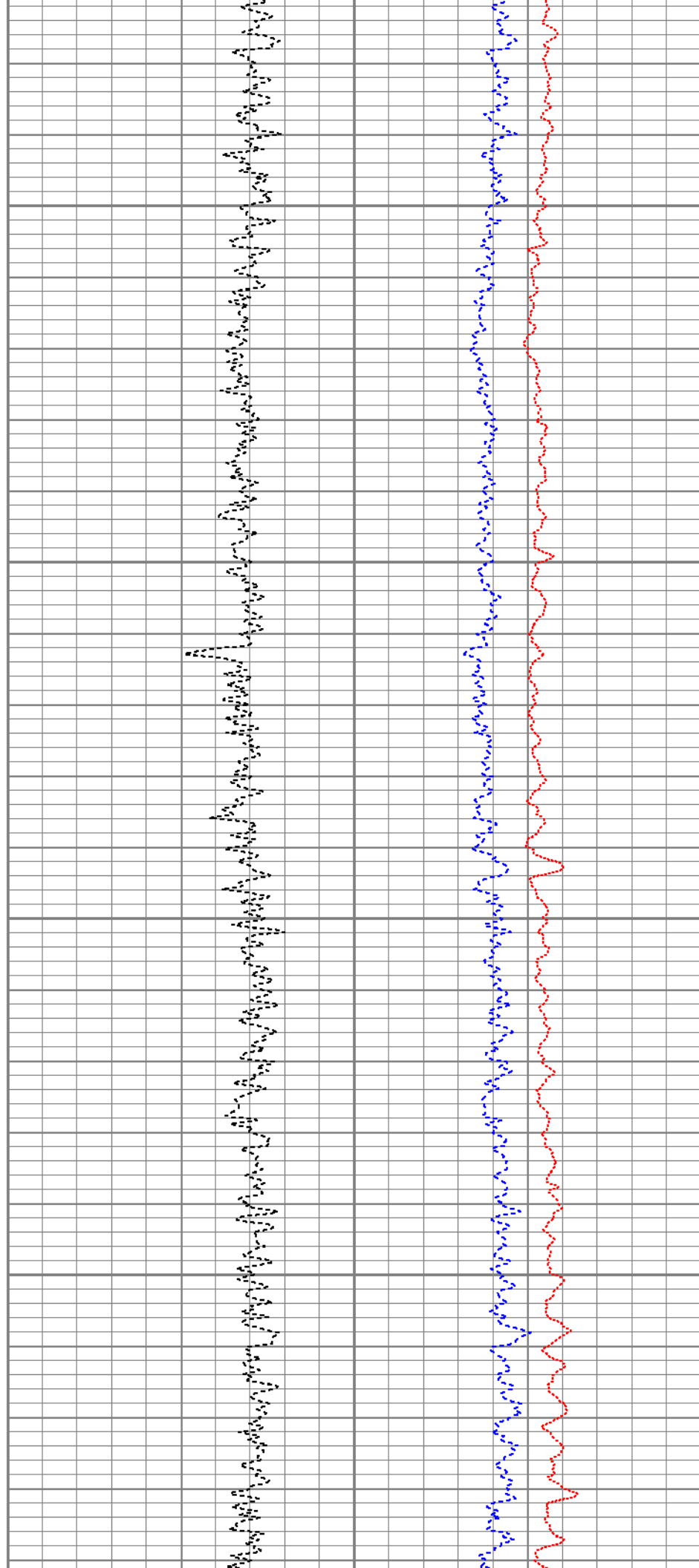


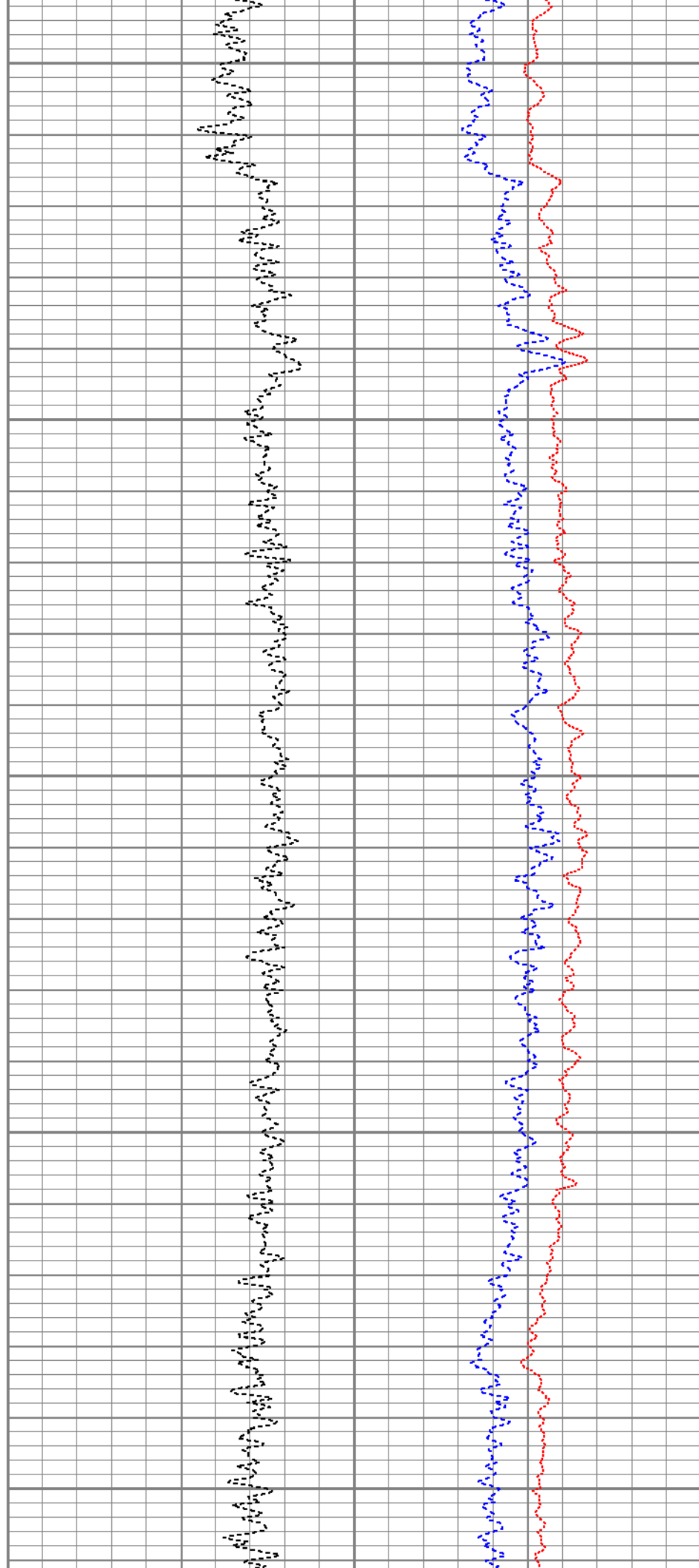
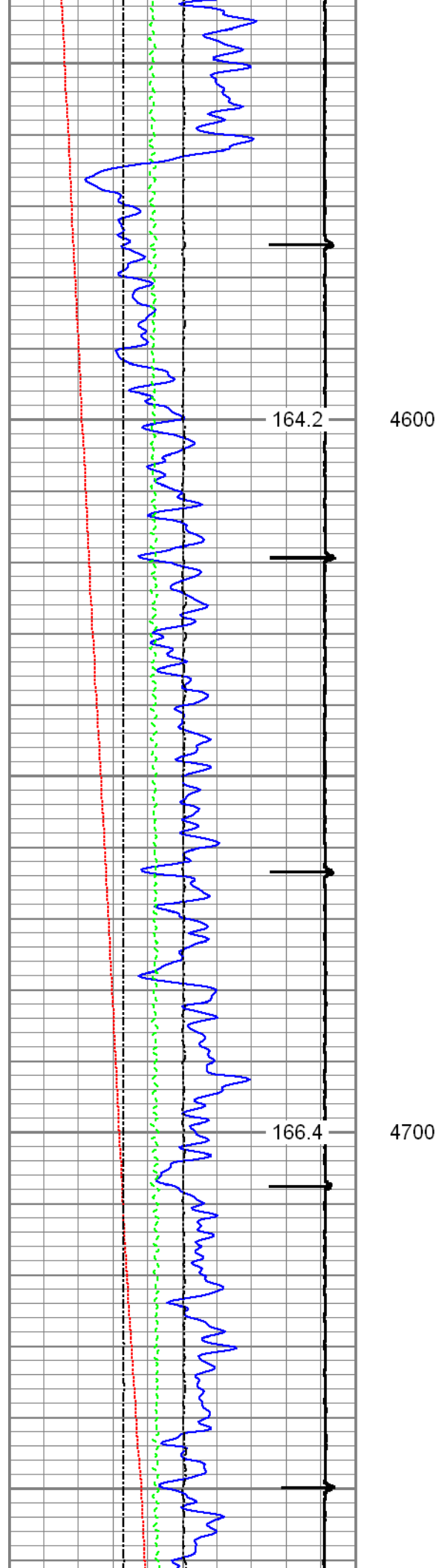
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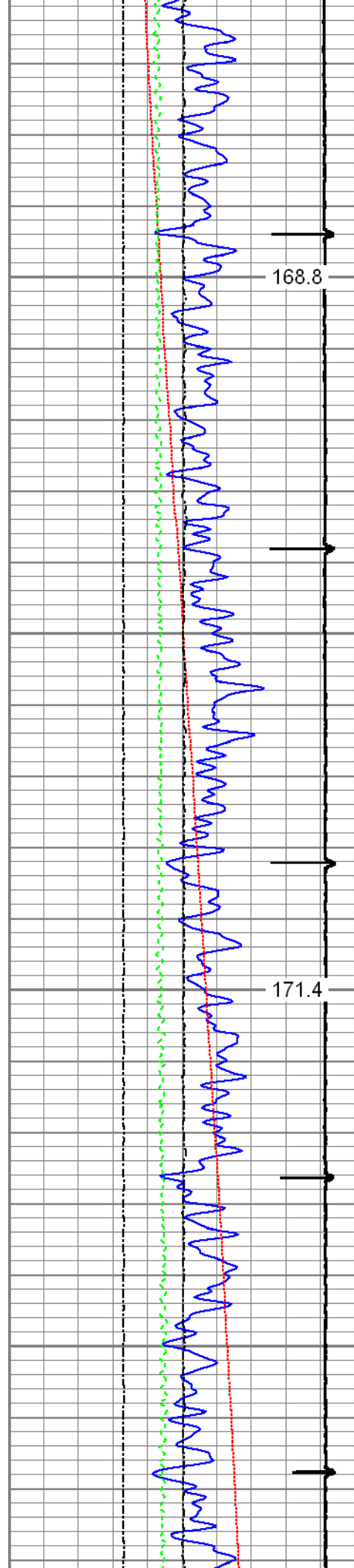
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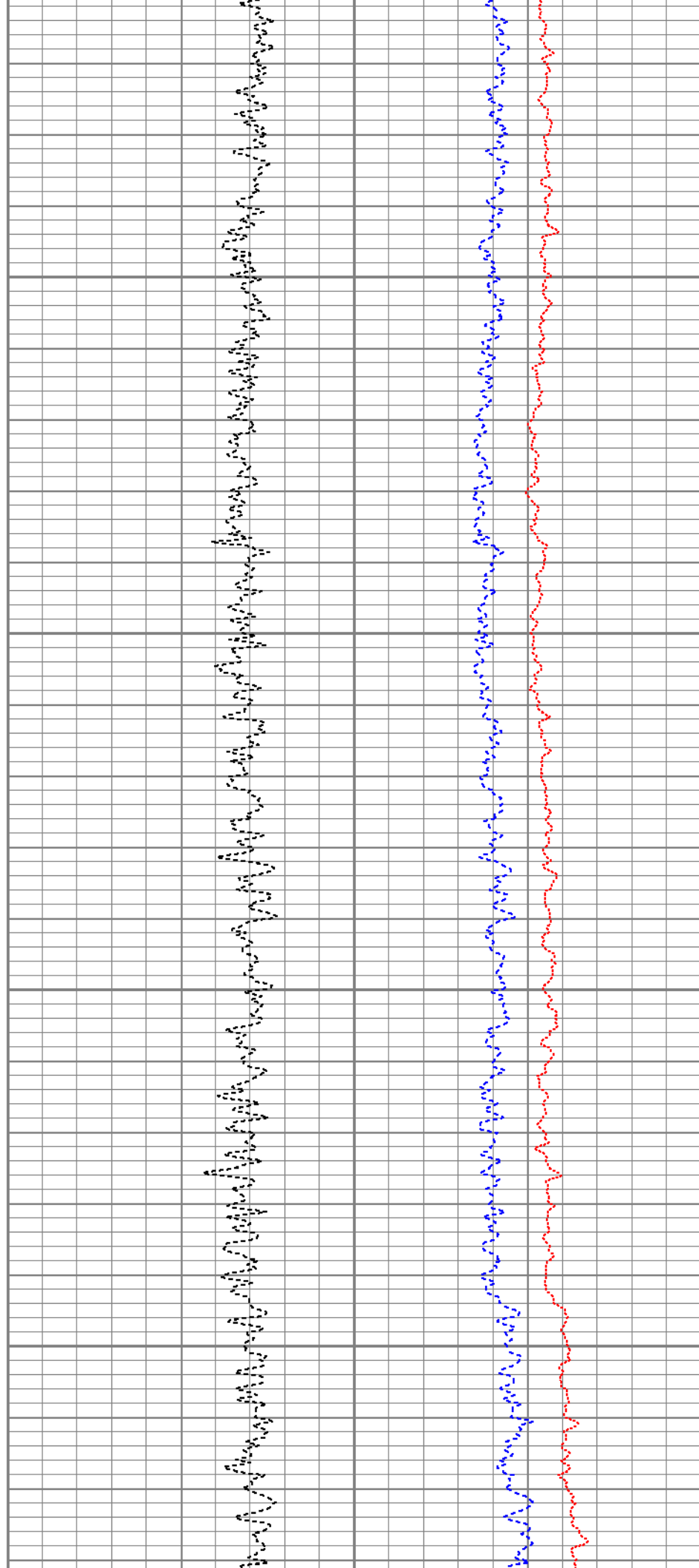


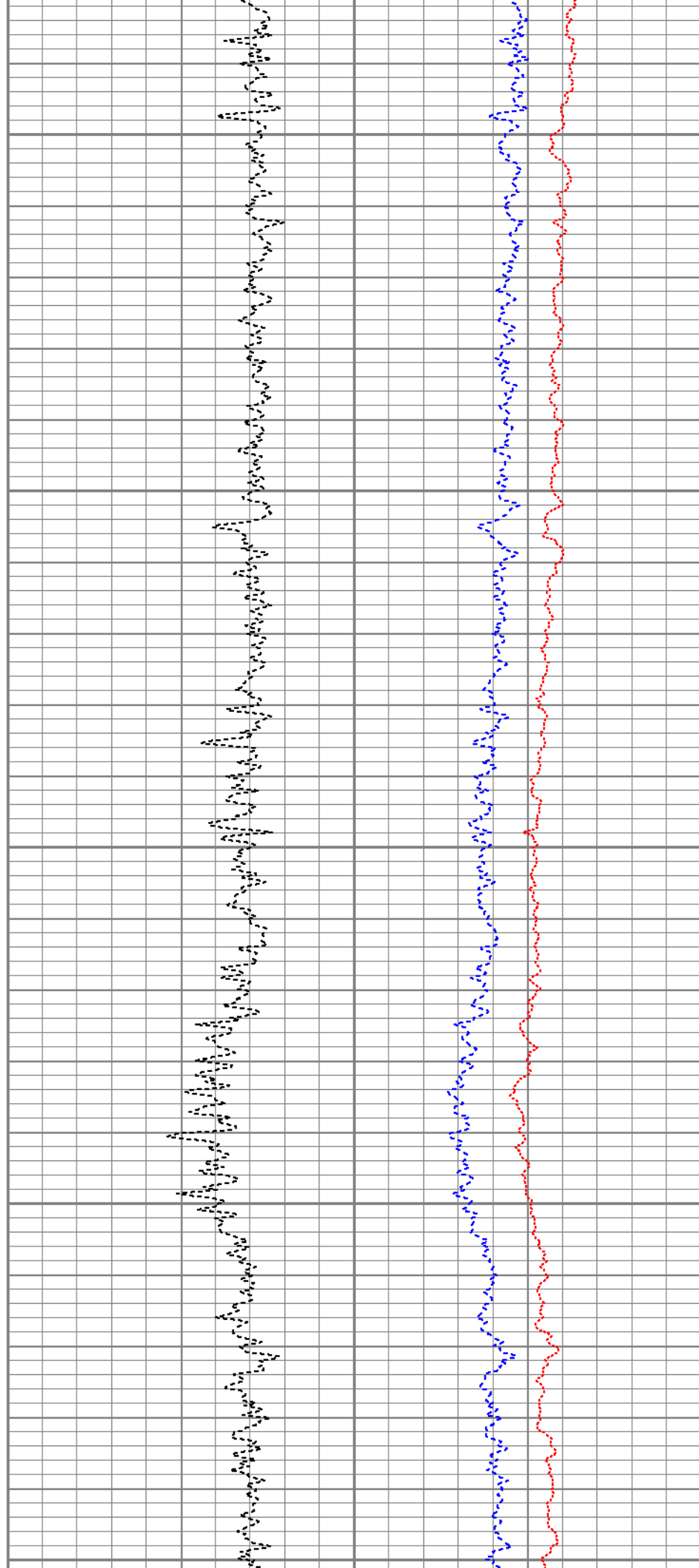
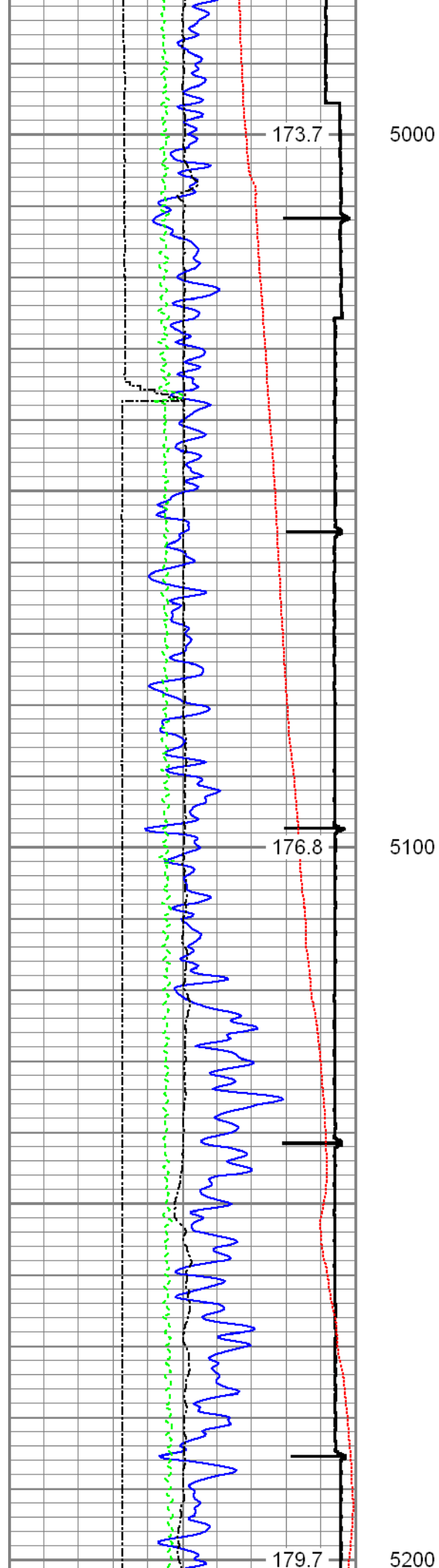


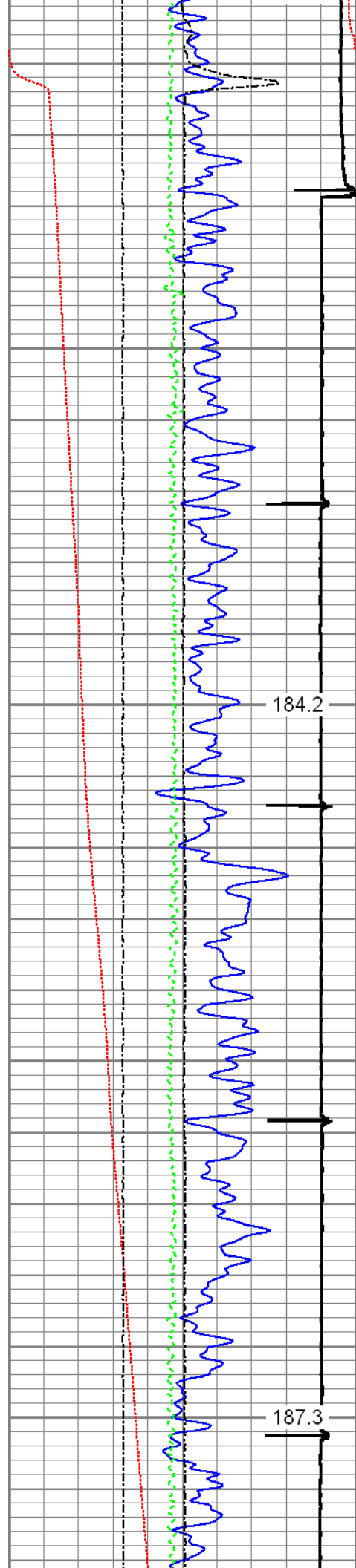


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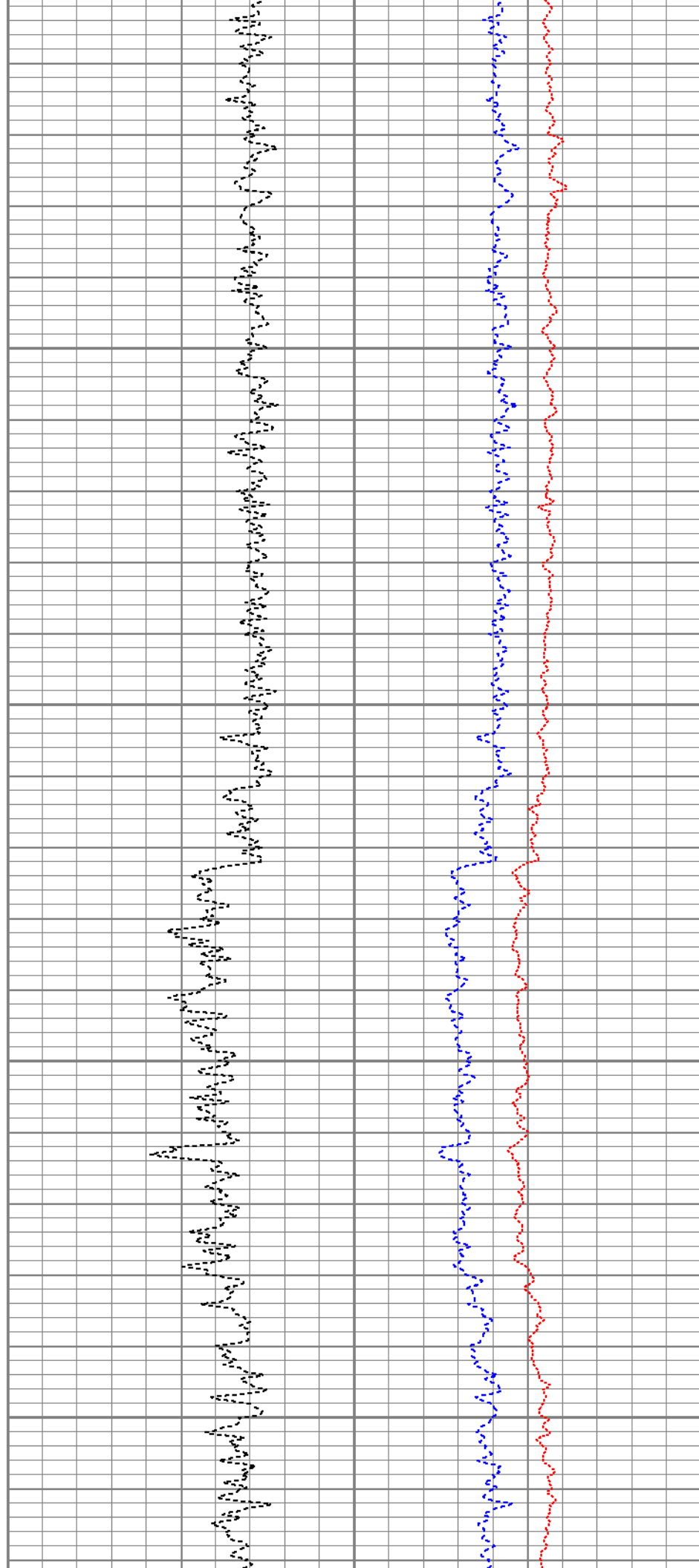


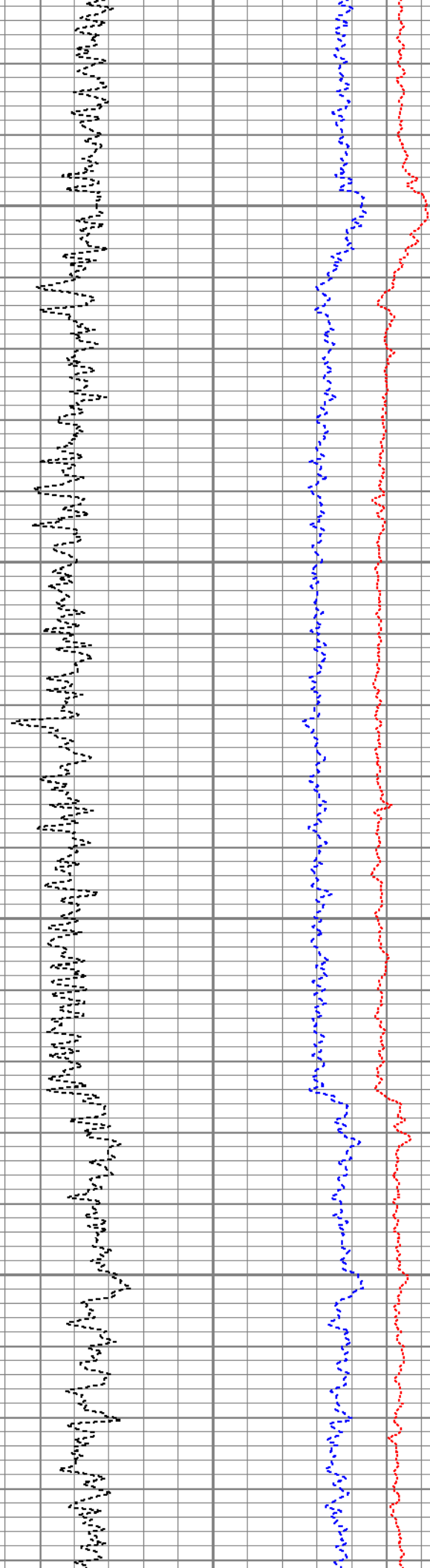
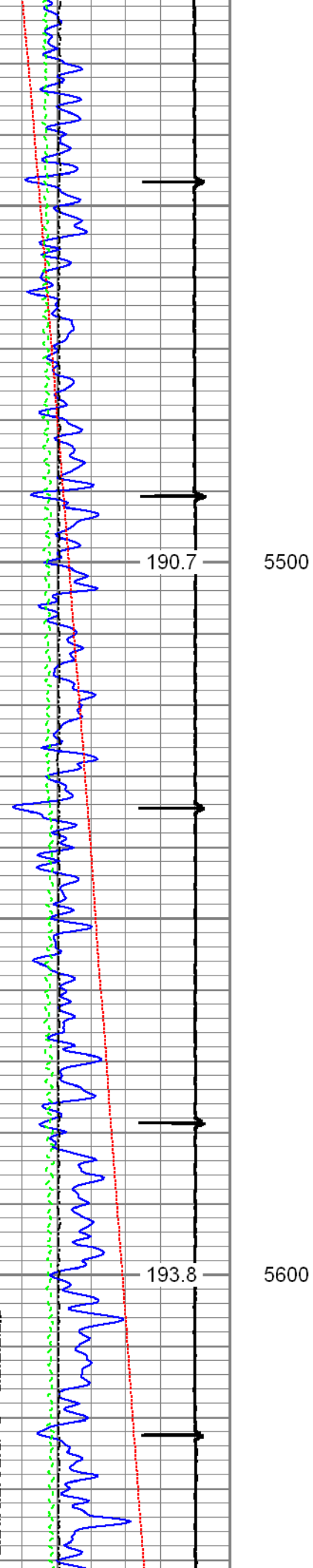


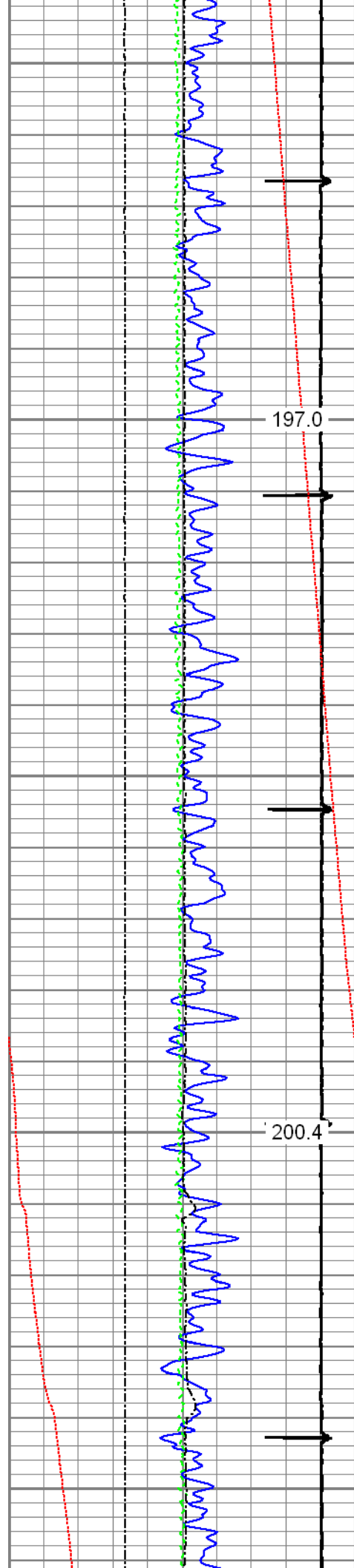


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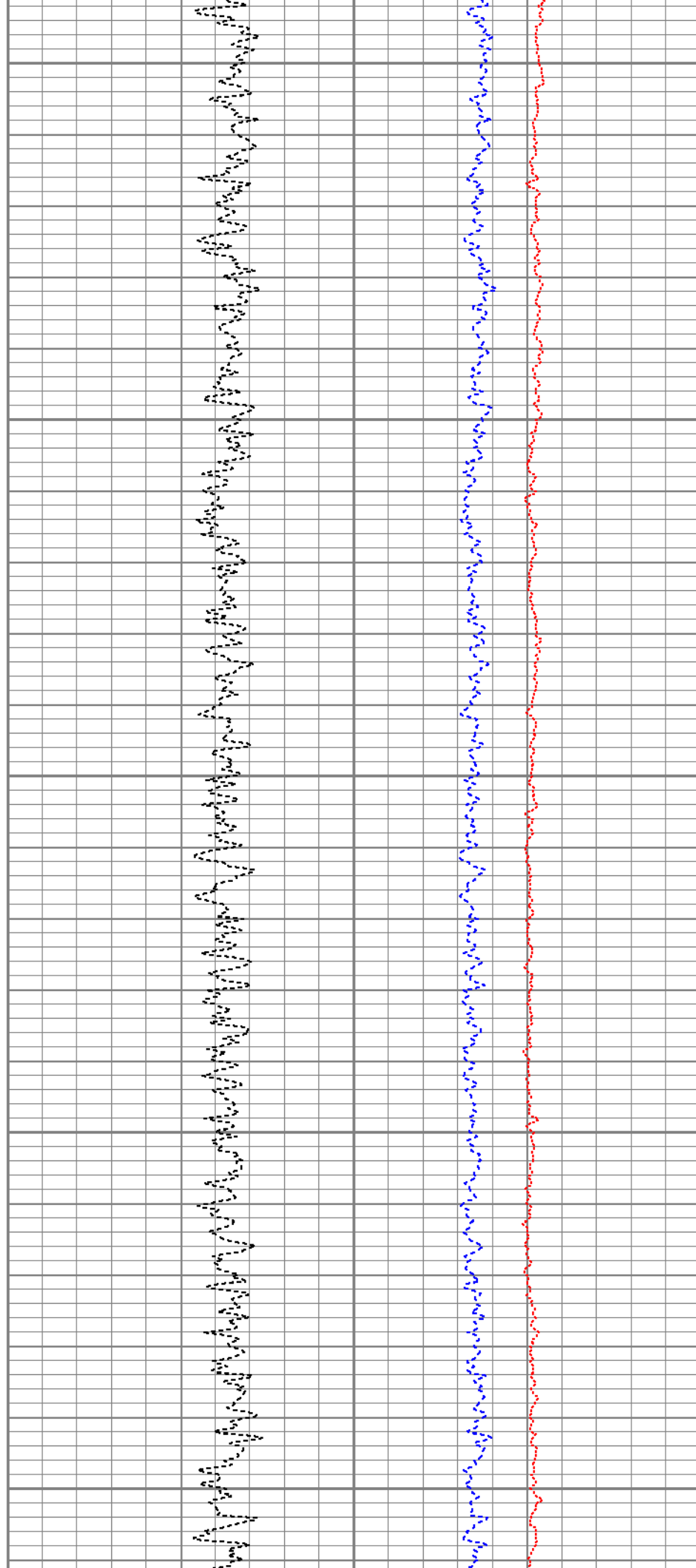


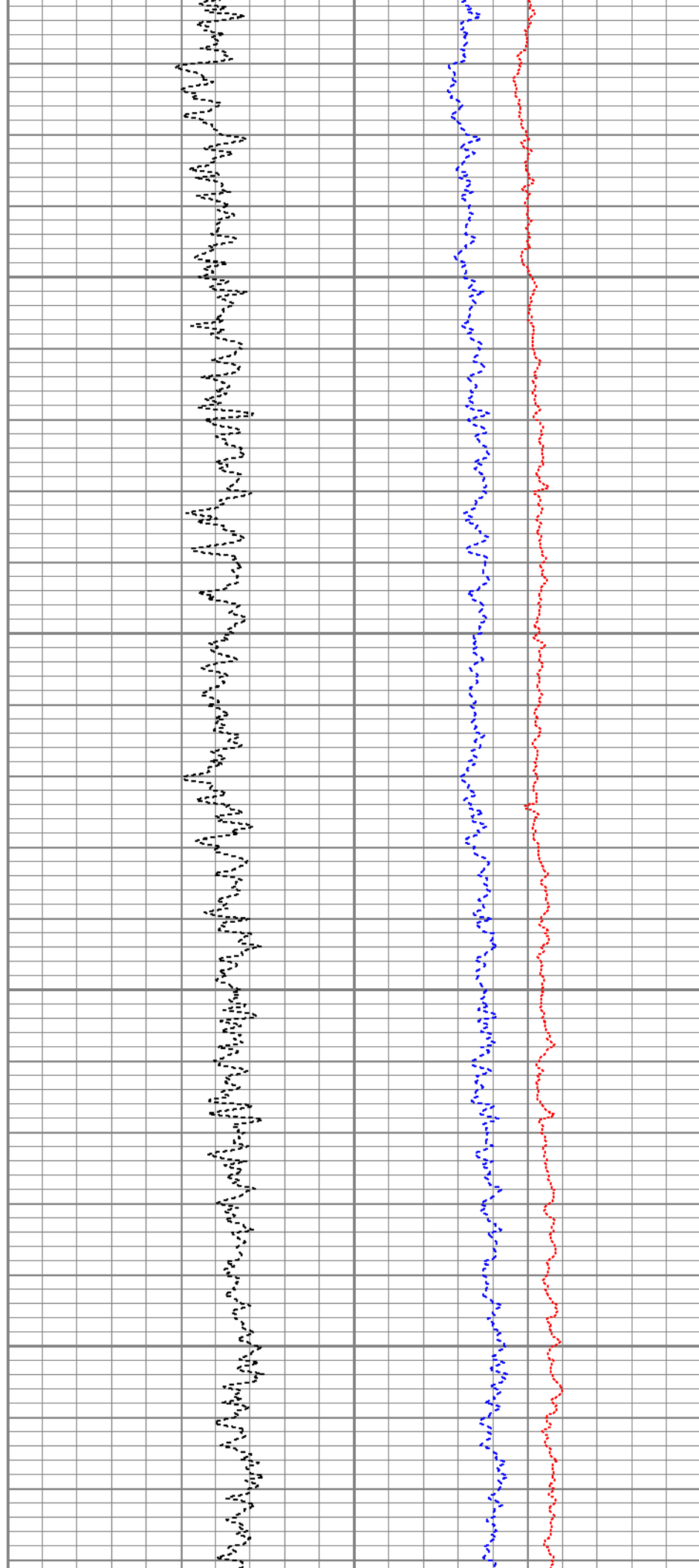
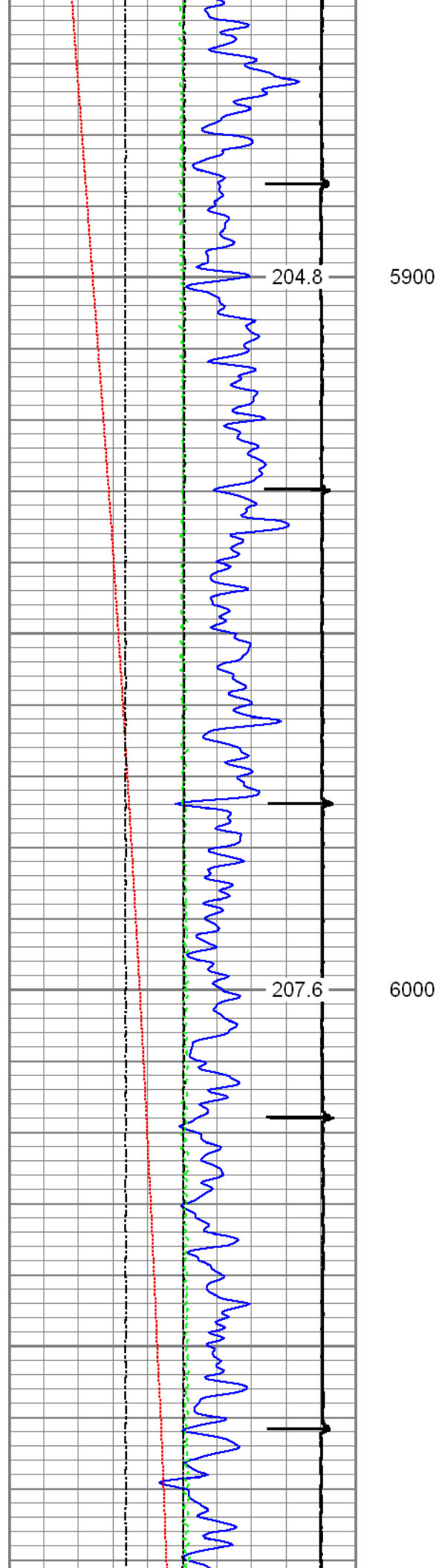


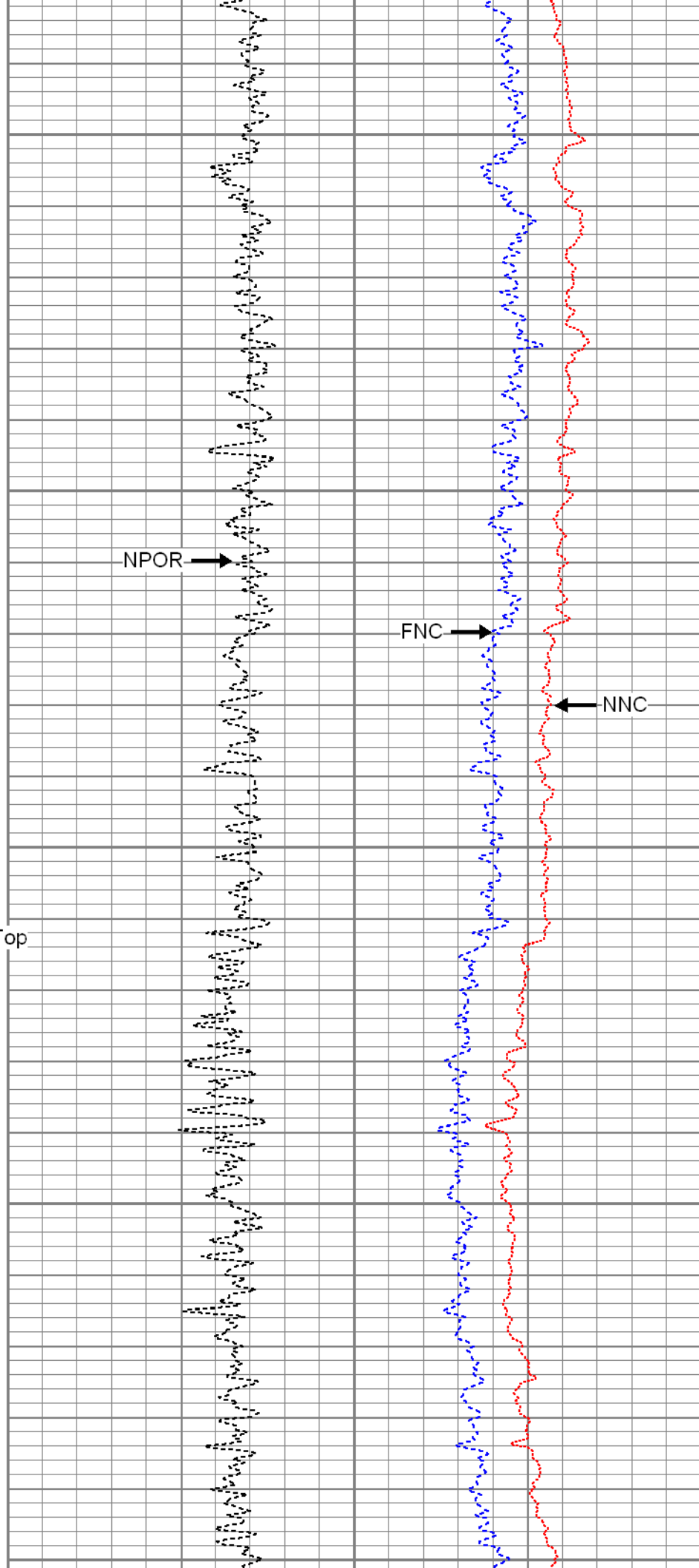
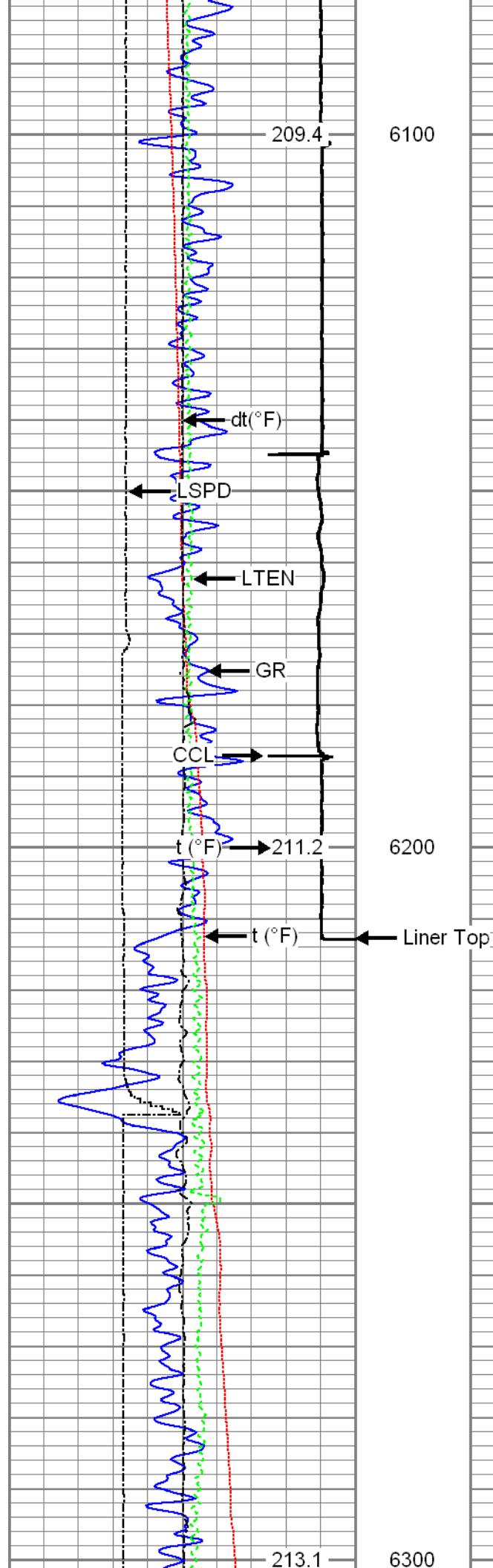


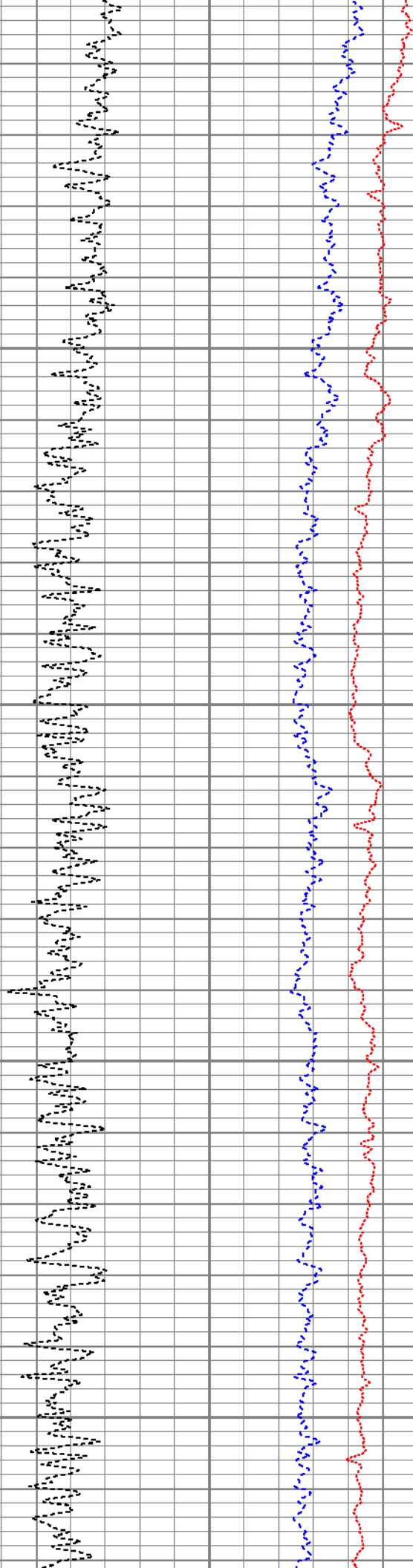
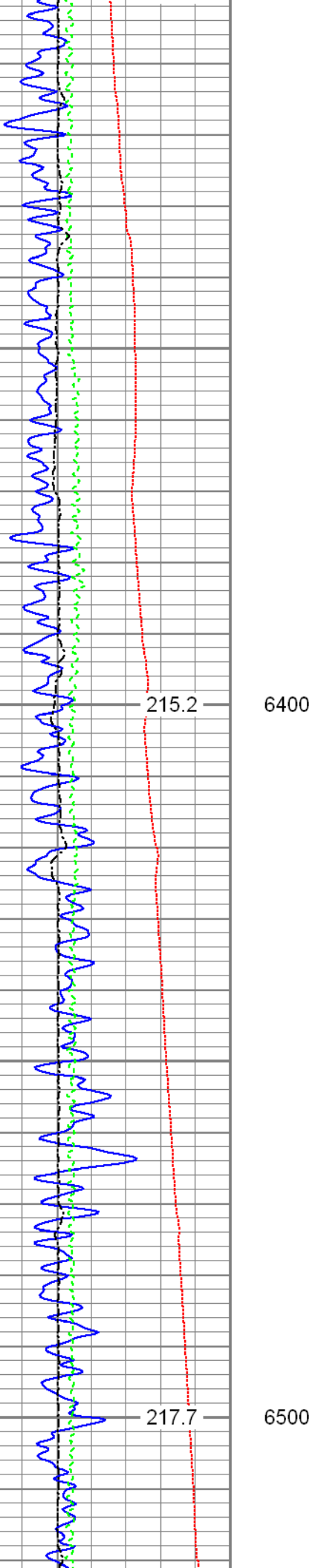
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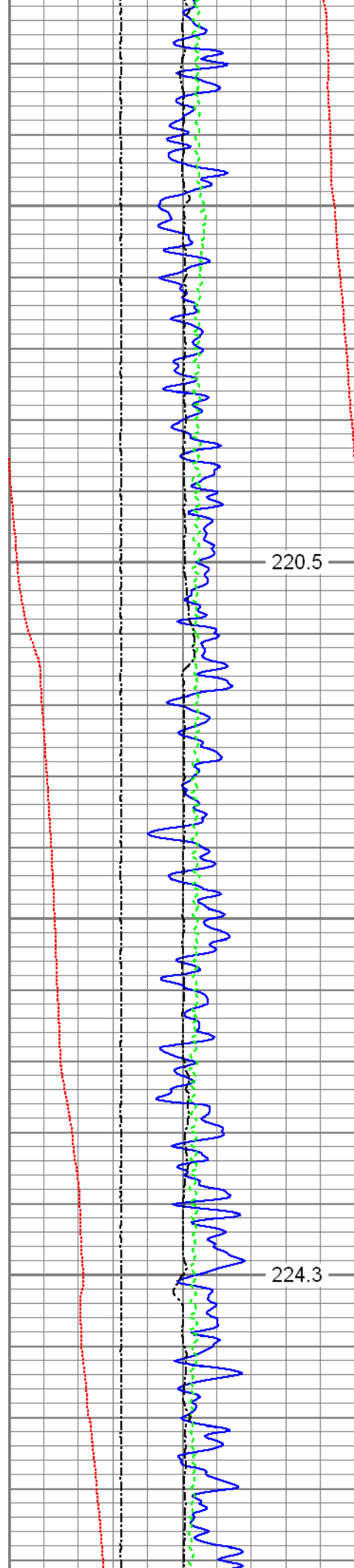
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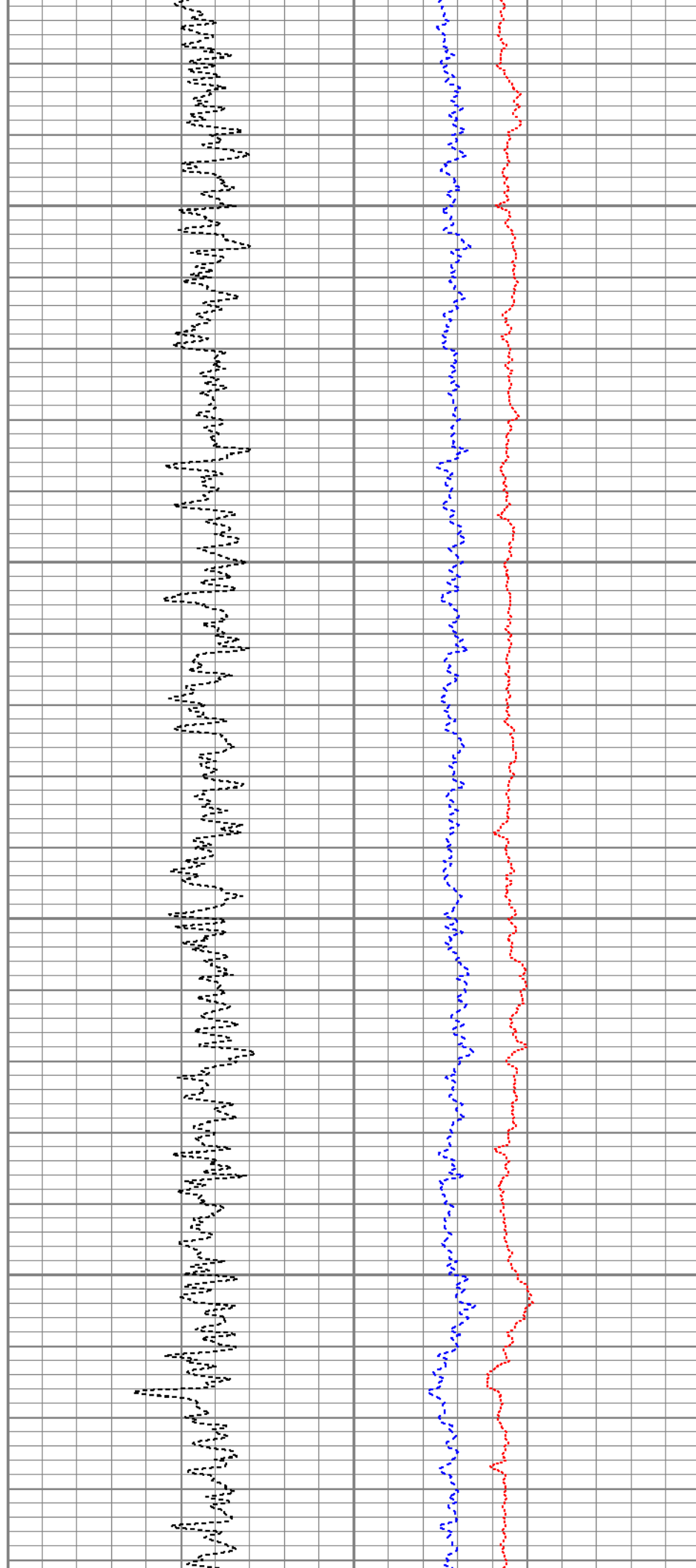


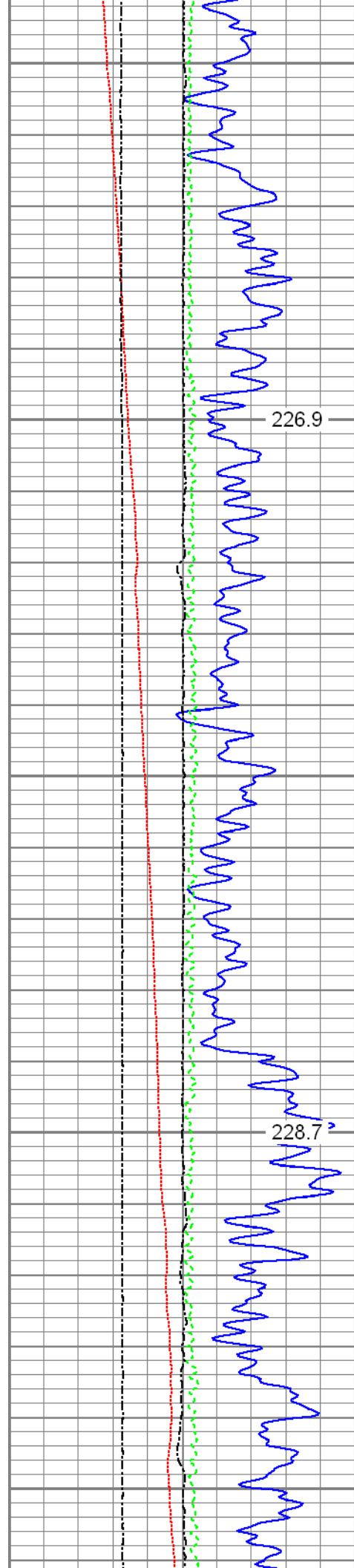
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224.3

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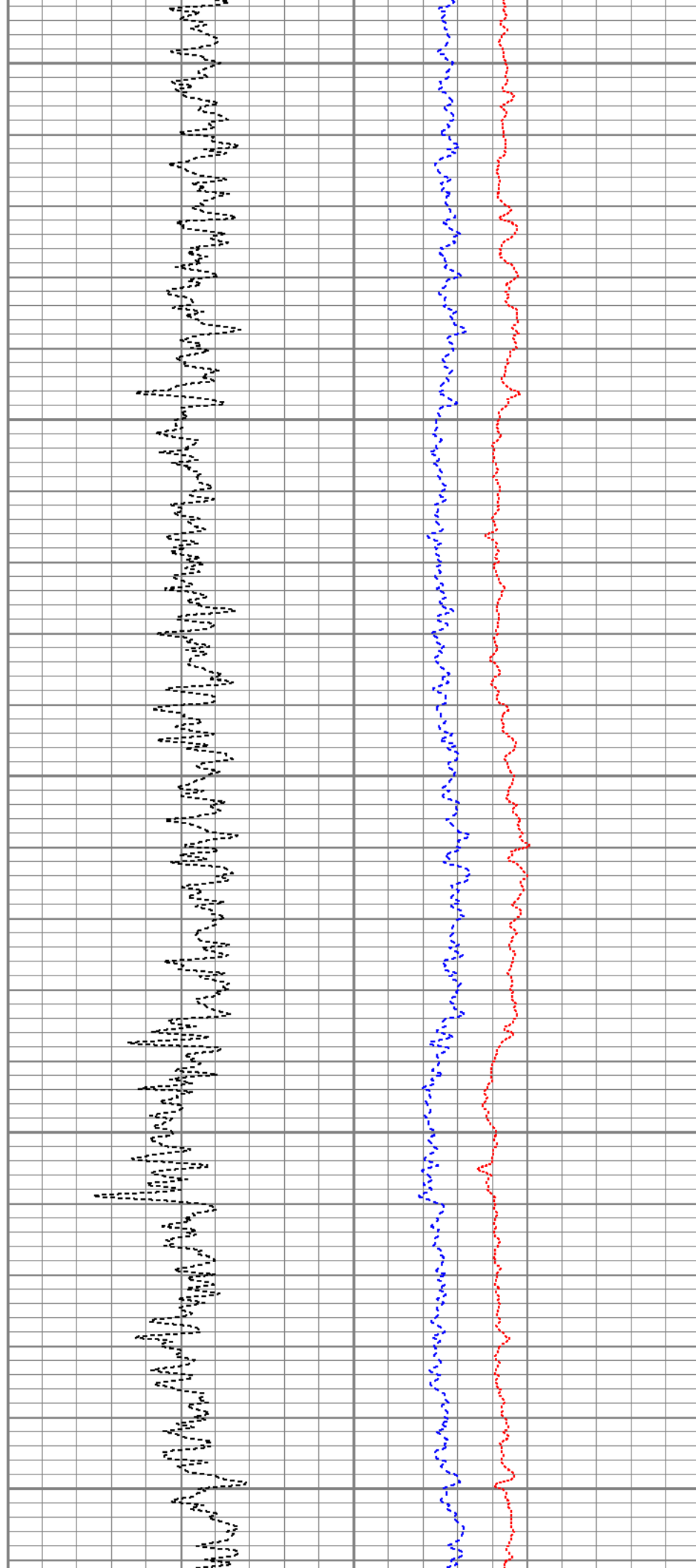
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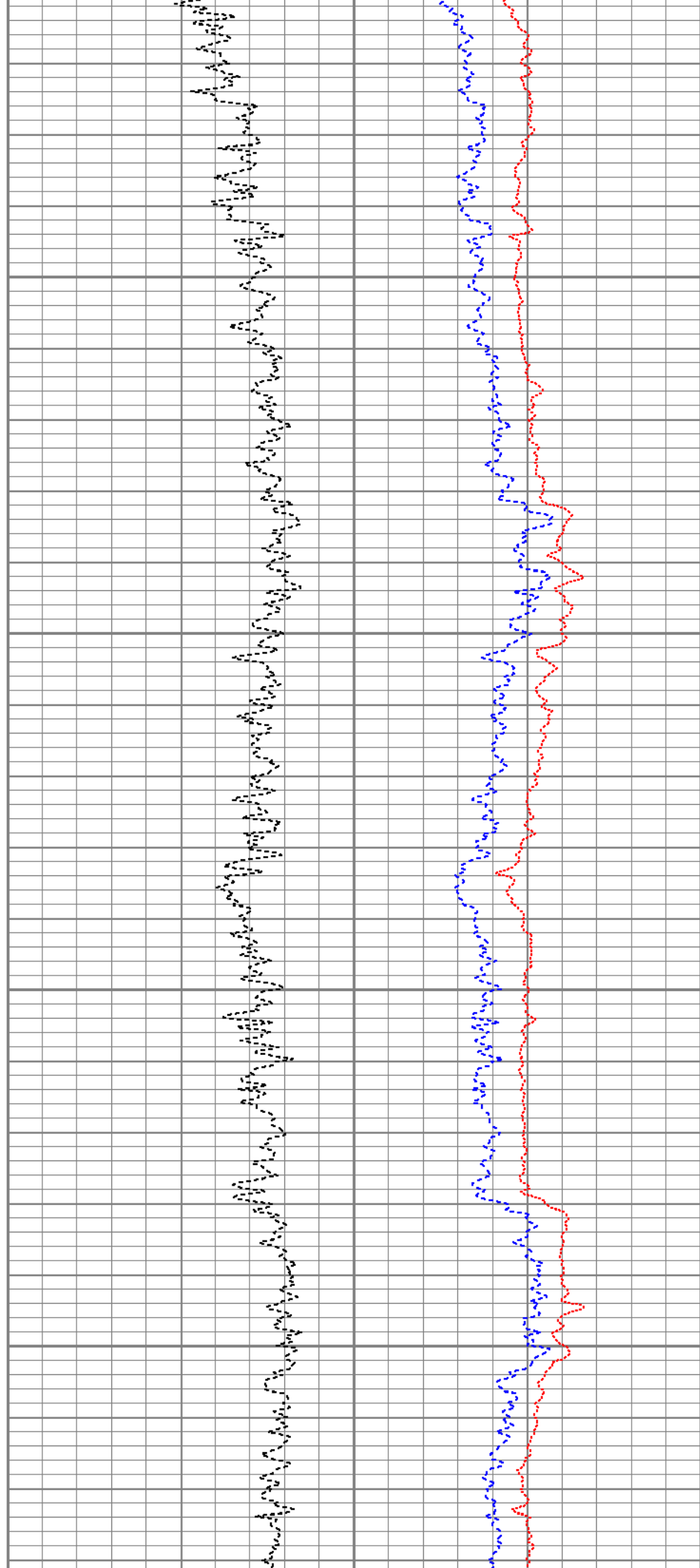
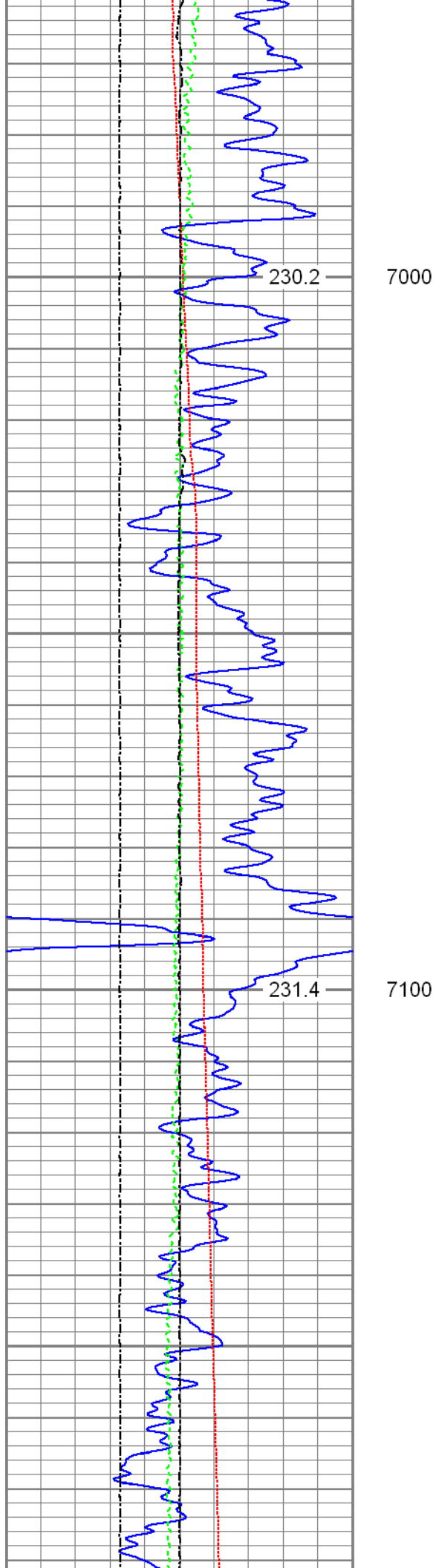


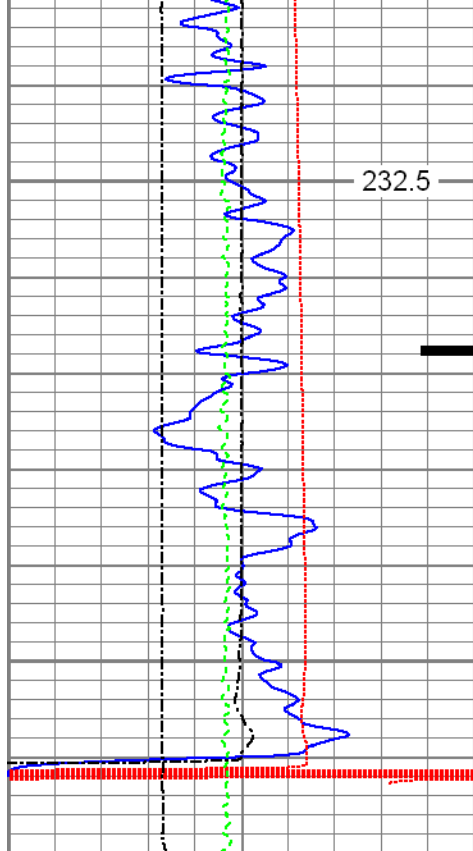


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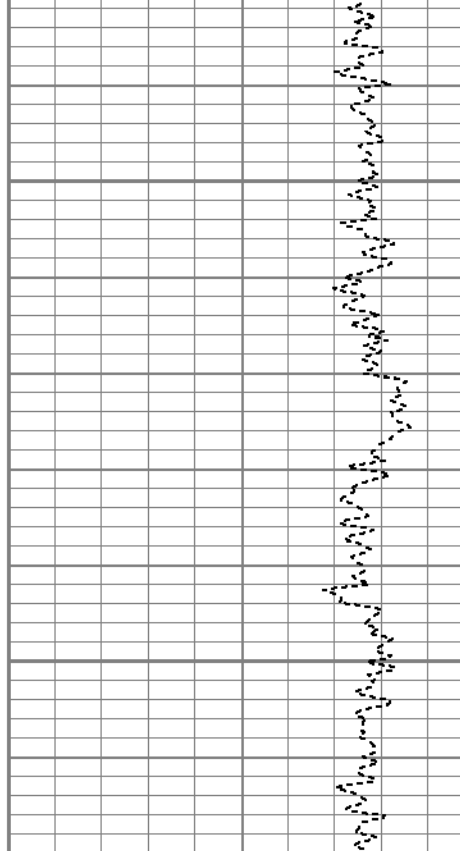




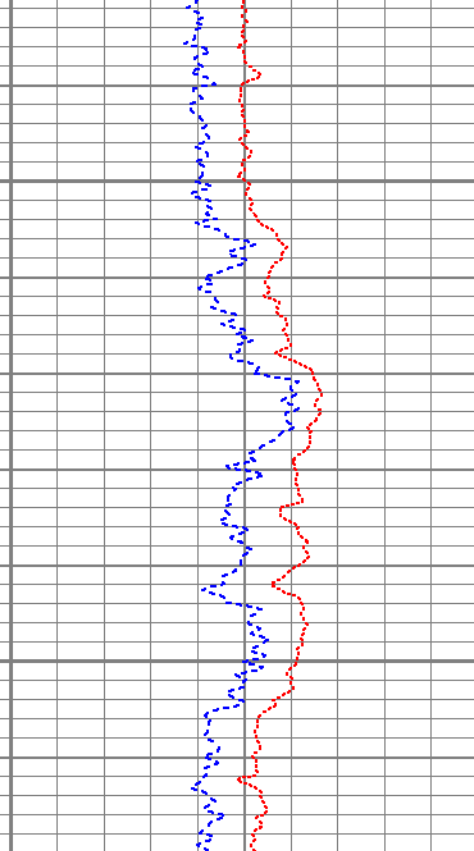


232.5 7200

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



60	Neutron Porosity (pu)	0
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0	Far Neutron (cps)	1000
0	Near Neutron (cps)	10000



Repeat Pass

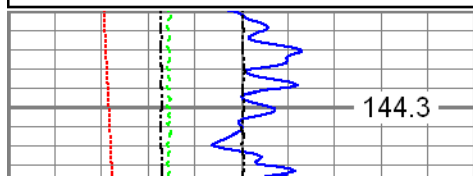
Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341653_anadarko_viper pyro 41n-14hxr_10-13-15_mit_rbl_cnl\0512341653_anadarko_viper pyro 41n-14hxr_10-13-15_mit_rbl_cnl
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 Presentation Format: cnl_mit
 Dataset Creation: Tue Oct 13 10:10:42 2015 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

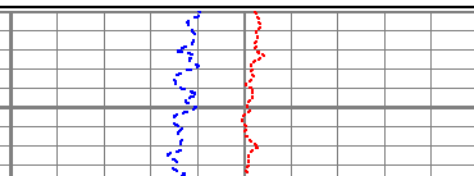
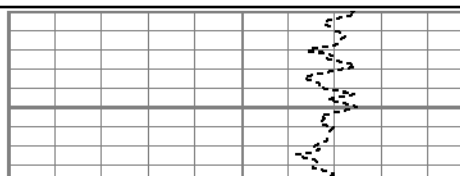
0	Gamma Ray (GAPI)	120
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2

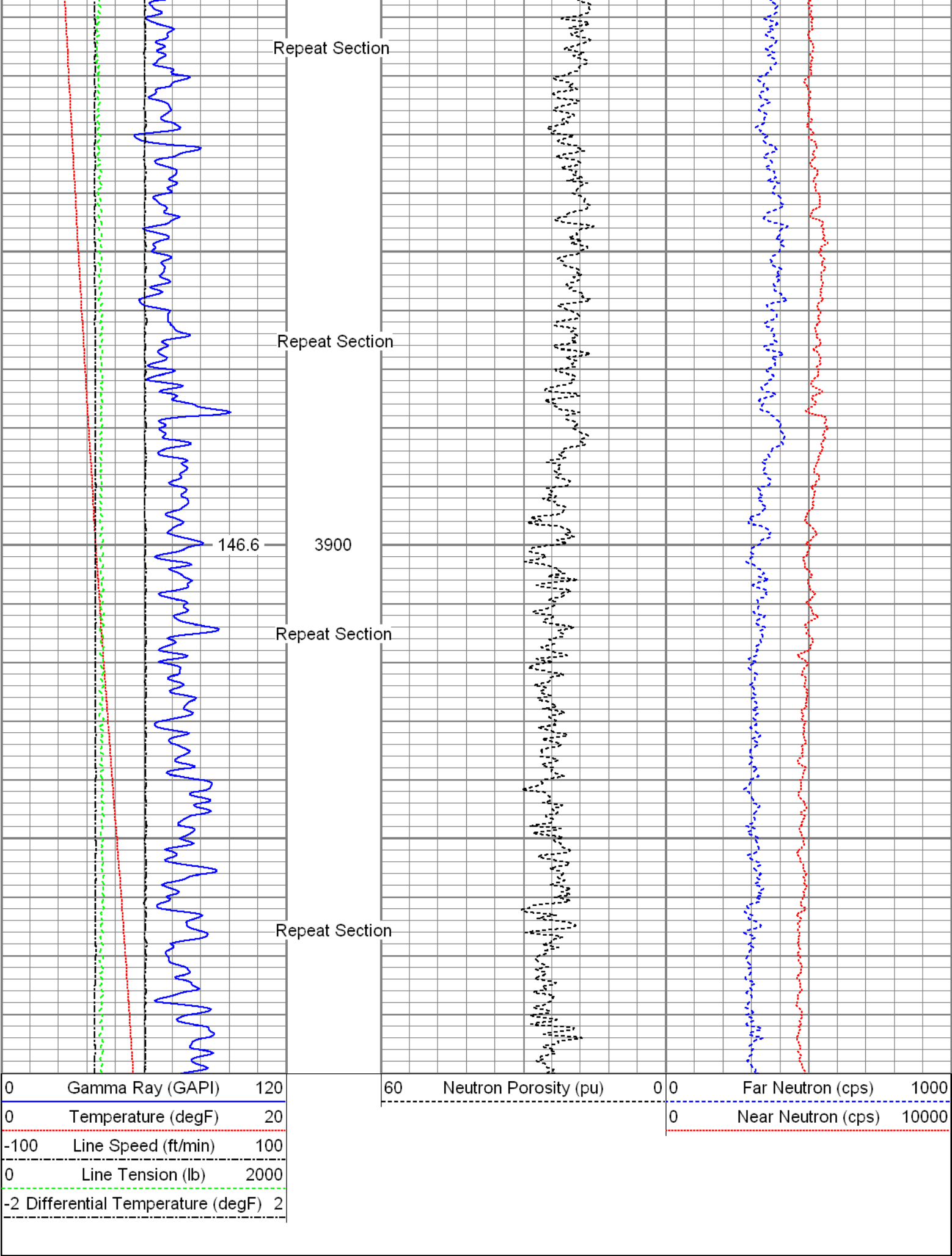
60	Neutron Porosity (pu)	0
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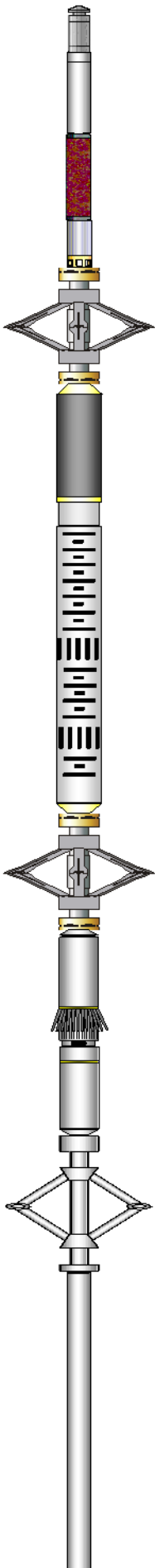
0	Far Neutron (cps)	1000
0	Near Neutron (cps)	10000



144.3 3800





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	30.24		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (219135) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray	1.93	1.69	9.50
			UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	28.84		UW_PRC-DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	21.81		UW_RBT-UW_RBT_004 (1063) Sondex Ultrawire 3- 1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	21.81					
WVFS2	21.81					
WVFS3	21.81					
WVFS4	21.81					
WVFS5	21.81					
WVFS6	21.81					
WVFS7	21.81					
WVFS8	21.81		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CBLTEMP	21.81					
CBLROT	21.81					
WVF5FT	20.81		UW_MIT-UW_MIT40_027 (218949) 40 Multifinger Imaging Tool	4.54	2.75	61.10
MIT	11.80					
CNLSC CNSSC TSTAMP	1.53 1.12 0.00		UW_PRC #4 -UW_PRC_057 (1038) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			CNL-007 (1004) Compensated Neutron Logging Tool	6.61	1.69	30.00

Calibration Report

Database File: C:\Warrior\Data\0512341653_Anadarko_Viper Pyro 41N-14HZR_10-13-15_MIT_RBL_CNL\05123416
 Dataset Pathname: pass6
 Dataset Creation: Tue Oct 13 14:57:01 2015 by Log 7.0 B1

Compensated Neutron Calibration Report

Serial Number:	1004		
Tool Model:	007		
Master Calibration	Tue Jun 03 14:35:57 2014		
Detector	Readings		
Short Space	241.46	cps	
Long Space	300.95	cps	
	Measured	Reference	
Ratio	0.8150	Sleeve: 1.0000	
CNRAT Gain K	1.0158		

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			

Multi-finger 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:	Tue Oct 13 09:09:28 2015
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Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1370	270.0	1640	295.0	1935	312.0	2247
Finger 02:	1436	266.0	1702	288.0	1990	312.0	2302
Finger 03:	1647	270.0	1917	282.0	2199	292.0	2491
Finger 04:	1656	268.0	1924	279.0	2203	285.0	2488
Finger 05:	1523	252.0	1775	268.0	2043	282.0	2325
Finger 06:	1513	252.0	1765	262.0	2027	273.0	2300
Finger 07:	1329	263.0	1592	284.0	1876	302.0	2178
Finger 08:	1522	250.0	1772	262.0	2034	275.0	2309
Finger 09:	1393	266.0	1659	280.0	1939	300.0	2239
Finger 10:	1471	258.0	1729	274.0	2003	286.0	2289
Finger 11:	1457	253.0	1710	271.0	1981	284.0	2265
Finger 12:	1301	271.0	1572	294.0	1866	311.0	2177
Finger 13:	1560	276.0	1836	287.0	2123	295.0	2418
Finger 14:	1435	281.0	1716	298.0	2014	307.0	2321
Finger 15:	1521	261.0	1782	273.0	2055	286.0	2341
Finger 16:	1388	280.0	1668	295.0	1963	311.0	2274
Finger 17:	1628	272.0	1900	279.0	2179	286.0	2465
Finger 18:	1367	289.0	1656	307.0	1963	326.0	2289
Finger 19:	1632	262.0	1894	261.0	2155	266.0	2421
Finger 20:	1501	269.0	1770	275.0	2045	295.0	2340
Finger 21:	1588	256.0	1844	260.0	2104	270.0	2374
Finger 22:	1460	272.0	1732	304.0	2036	274.0	2310
Finger 23:	1348	282.0	1630	292.0	1922	305.0	2227
Finger 24:	1683	269.0	1952	274.0	2226	279.0	2505
Finger 25:	1365	298.0	1663	311.0	1974	324.0	2298
Finger 26:	1538	297.0	1835	300.0	2135	309.0	2444
Finger 27:	1484	268.0	1752	274.0	2026	283.0	2309
Finger 28:	1642	280.0	1922	287.0	2209	291.0	2500
Finger 29:	1473	282.0	1755	291.0	2046	304.0	2350
Finger 30:	1430	279.0	1709	296.0	2005	303.0	2308
Finger 31:	1533	272.0	1805	281.0	2086	289.0	2375
Finger 32:	1350	272.0	1622	285.0	1907	299.0	2206
Finger 33:	1612	307.0	1919	312.0	2231	321.0	2552
Finger 34:	1543	273.0	1816	279.0	2095	288.0	2383
Finger 35:	1445	263.0	1708	282.0	1990	296.0	2286
Finger 36:	1591	277.0	1868	292.0	2160	300.0	2460
Finger 37:	1604	267.0	1871	284.0	2155	298.0	2453
Finger 38:	1489	271.0	1760	284.0	2044	300.0	2344
Finger 39:	1456	271.0	1727	292.0	2019	311.0	2330
Finger 40:	1580	274.0	1854	293.0	2147	310.0	2457

Post Survey Calibration Check								
Performed: Tue Oct 13 14:56:54 2015								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.011	0.005	5.014	0.007	5.961	-0.019	7.015	0.007
Finger 02:	3.996	-0.002	5.000	-0.000	5.950	-0.025	6.988	-0.006
Finger 03:	4.000	-0.000	5.000	0.000	5.953	-0.023	7.014	0.007
Finger 04:	4.009	0.004	5.009	0.005	5.955	-0.023	7.017	0.009
Finger 05:	3.994	-0.003	5.000	0.000	5.955	-0.023	7.014	0.007
Finger 06:	4.009	0.005	4.999	-0.001	5.949	-0.025	7.021	0.010
Finger 07:	4.008	0.004	4.999	-0.000	5.950	-0.025	7.006	0.003
Finger 08:	4.003	0.002	5.002	0.001	5.953	-0.023	7.023	0.011
Finger 09:	4.011	0.005	4.989	-0.006	5.954	-0.023	7.007	0.004
Finger 10:	4.011	0.006	5.012	0.006	5.967	-0.017	7.020	0.010
Finger 11:	3.996	-0.002	5.003	0.002	5.959	-0.021	7.004	0.002
Finger 12:	4.010	0.005	5.009	0.004	5.955	-0.022	7.011	0.006
Finger 13:	4.040	0.020	5.042	0.021	5.994	-0.003	7.041	0.021
Finger 14:	4.030	0.015	5.041	0.021	5.990	-0.005	7.042	0.021
Finger 15:	4.001	0.000	5.003	0.001	5.952	-0.024	7.006	0.003
Finger 16:	4.010	0.005	5.021	0.011	5.962	-0.019	7.006	0.003
Finger 17:	3.994	-0.003	4.994	-0.003	5.953	-0.024	7.010	0.005
Finger 18:	4.004	0.002	5.002	0.001	5.951	-0.024	6.999	-0.001

Finger 19:	3.994	-0.003	5.015	0.007	5.956	-0.022	7.010	0.005
Finger 20:	4.003	0.002	5.007	0.003	5.965	-0.017	7.006	0.003
Finger 21:	3.999	-0.000	5.007	0.004	5.961	-0.020	7.019	0.010
Finger 22:	3.990	-0.005	5.000	0.000	6.083	0.042	6.983	-0.008
Finger 23:	4.005	0.003	5.002	0.001	5.949	-0.025	7.005	0.002
Finger 24:	3.995	-0.002	4.993	-0.003	5.944	-0.028	7.024	0.012
Finger 25:	4.011	0.005	5.005	0.003	5.956	-0.022	7.013	0.007
Finger 26:	4.011	0.006	5.003	0.001	5.952	-0.024	7.007	0.004
Finger 27:	4.068	0.034	5.071	0.036	6.031	0.015	7.089	0.045
Finger 28:	3.987	-0.007	5.001	0.000	5.945	-0.028	7.016	0.008
Finger 29:	3.680	-0.160	4.663	-0.169	5.599	-0.201	6.625	-0.188
Finger 30:	3.748	-0.126	4.750	-0.125	5.675	-0.162	6.726	-0.137
Finger 31:	3.962	-0.019	4.964	-0.018	5.907	-0.047	6.966	-0.017
Finger 32:	4.012	0.006	5.001	0.000	5.948	-0.026	6.993	-0.003
Finger 33:	4.015	0.008	5.004	0.002	5.959	-0.020	7.012	0.006
Finger 34:	4.013	0.006	5.008	0.004	5.958	-0.021	7.013	0.006
Finger 35:	4.034	0.017	5.056	0.028	6.014	0.007	7.059	0.030
Finger 36:	3.998	-0.001	5.007	0.003	5.950	-0.025	7.010	0.005
Finger 37:	4.006	0.003	5.028	0.014	5.972	-0.014	7.014	0.007
Finger 38:	4.019	0.009	5.014	0.007	5.968	-0.016	7.022	0.011
Finger 39:	4.057	0.029	5.061	0.030	6.022	0.011	7.067	0.033
Finger 40:	4.008	0.004	5.020	0.010	5.974	-0.013	7.029	0.015
Average:	3.994	-0.003	4.995	-0.002	5.949	-0.026	6.999	-0.001


Segmented Cement Bond Log Calibration Report								
Serial Number:			1063					
Tool Model:			UW_RBT_004					
Calibration Casing Diameter:			7.000	in				
Calibration Depth:			-0.550	ft				

Master Calibration, performed Tue Oct 13 09:00:25 2015:							
	Raw (v)		Calibrated (mv)		Results		
	Zero	Cal	Zero	Cal	Gain	Offset	
3FT	-0.003	1.000	0.800	62.165	61.173	0.992	
5FT	-0.006	1.000	0.800	62.165	60.993	1.172	
S1	-0.004	1.000	0.000	100.000	99.635	0.365	
S2	-0.003	1.000	0.000	100.000	99.652	0.348	
S3	-0.004	1.000	0.000	100.000	99.635	0.365	
S4	-0.004	1.000	0.000	100.000	99.635	0.365	
S5	-0.003	1.000	0.000	100.000	99.686	0.314	
S6	-0.003	1.000	0.000	100.000	99.680	0.320	
S7	-0.003	1.000	0.000	100.000	99.737	0.263	
S8	-0.003	1.000	0.000	100.000	99.687	0.313	

Temperature Calibration Report					
Serial Number:			10025100		
Tool Model:			UW_PRT_016		
Performed:			Wed Feb 11 13:47:59 2015		
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:	10013902	
Tool Model:	UW_PGR_020	
Performed:	Sun Jun 13 13:33:21 1993	
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	Viper Pyro 41N-14HZR
	Field	Wattenberg
	County	Weld
	State	Colorado