



**Well: BMA A5A**

Field: Bream A

Rig: ISDL 453

# State:

# Victoria

# Gamma Ray Service

## 1:200 Measured Depth

# Drilling Mechanics Log

Rig:	ISDL 453					
Field:	Bream A					
Location:	Bass Strait					
Well:	BMA A5A					
Company:	ESSO Australia Pty. Ltd.					
<div style="text-align: right;">Gamma Ray Service 1:200 Measured Depth <b>Drilling Mechanics Log</b></div>						
		Location				
API serial no.	Total depth:	2810.0 m		K.B.	Top Drive	
	Spud date:	11-June-2005		G.L.	-59.40 m	
	Runs:	1 To 1		D.F.	32.82 m	
	Elevation					
	Permanent datum:	Mean Sea Level		Elev.:	0 m	
	Log measured from:	Drill Floor		32.82 m above Perm. datum		
	Depth reference:	Driller's Depth				
	X = 567345.00 m	Y = 5738461.68 m	Longitude E147°46'20.334"	Latitude S38°29'58.778"		

Depth logged: 896.0 m		To 2791.6 m	Mag decl: 13.10°		Other services:	
Date logged: 11-June-05 To 14-June-05		Mag dip: -69.03°		Directional Drilling, D&I		
Bore hole record				Casing record		
Hole size	from	to	Size	Density	from	to
8 1/2 in.	896.0 m	2810.0 m	13 3/8 in.	81.1 lb/m	Surface	896.0 m
Type	Mud record		Borehole deviation record			
	from	to	Min	Max	from	to
KCl/PHPA/Glycol	896.0 m	2810.0 m	18.77 deg.	56.20 deg.	896.0 m	1340.0 m
			56.20 deg.	58.40 deg.	1340.0 m	2810.0 m
Surface equipment			Software record			
Unit	OLU-FB-924	IDEAL Wis	ID10_2B_08			
Depth system	DES-CA-ASQ04-0	SPM	HSPM10_0C_12			
		LWD	N/A			
		MWD	V8.0 B96			

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES FOR RUN1 Directional Drilling Directional Surveys	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
<p>REMARKS: RUN NUMBER 1 8-1/2 in. hole was drilled from 896.0 m to 2810.0m MD</p> <p>Depth is referenced to Driller's Depth.</p> <p>Gamma Ray corrected for Tool Size, Bit Size and Mud Weight.</p> <p>Mud Type is KCl/PHPA/Glycol.</p> <p>POOH due to TD of BMA A5A</p> <p>Data Gaps due to Power Shutdown between 1428.0m to 1431.5m MD</p> <p>Reamed Down for Data between 1116.0m</p>	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER








EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE E

6-3/4 in. Pov MDC: Z MEC: 1 MDI: 1 MGR: 52 DHS: V8.		23.3
D&I GR		19.0 18.4
APWD		15.8
6-3/4 in. N S/N: 9708		14.9
8-3/8 in. NM Rc S/N: GU2		13.5
6-1/4 in. FI S/N: 9612058		11.5
7 in. PowerPe A700G1 S/N: N7 1.5 deg. Bent 8-3/8 in. Mot		9.1



— 0.00 0.25

Smith PC  
OD: 8-1  
S73VPX S/N

Maximum string dia  
All lengths in

# Bit Run Summary

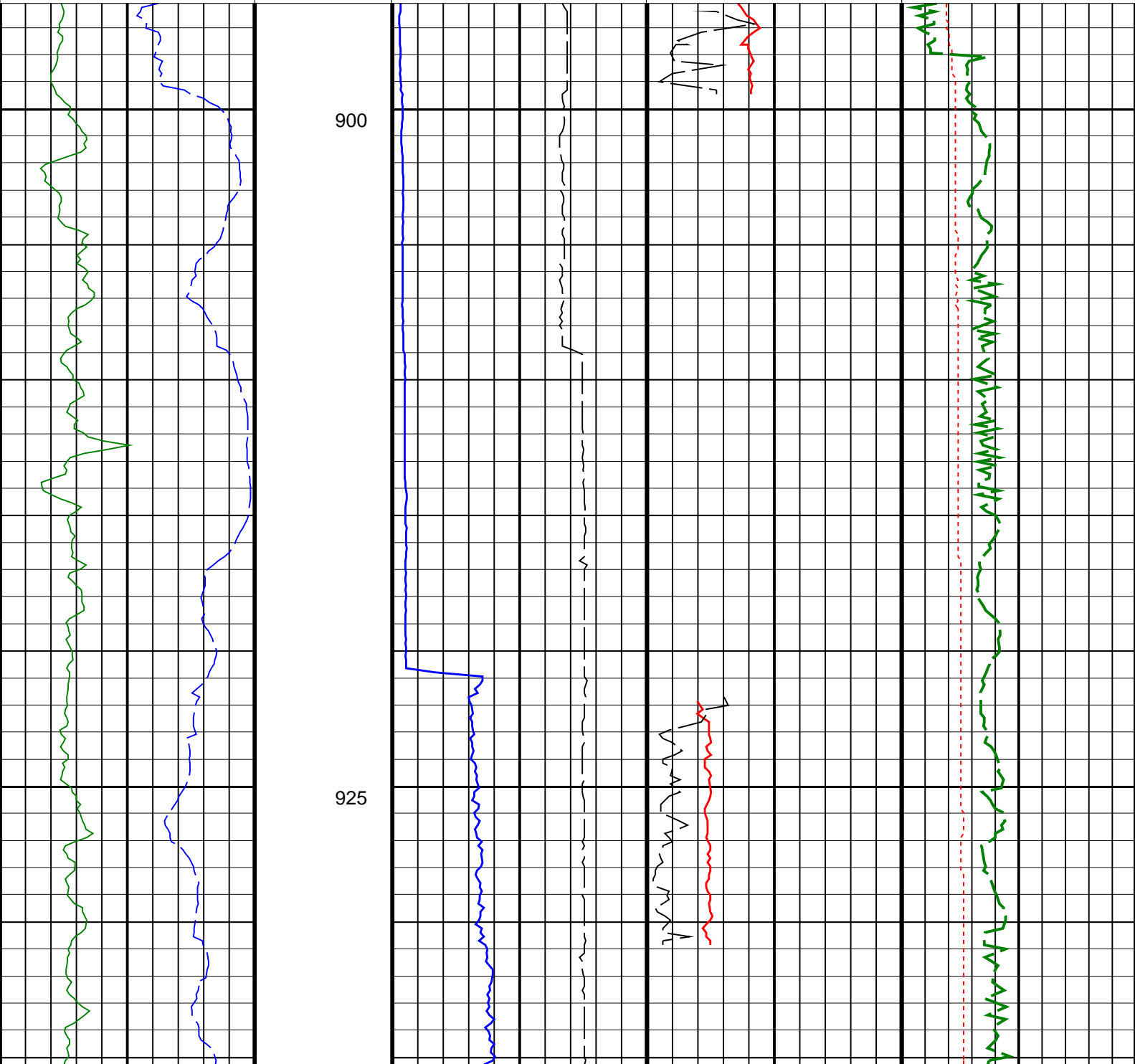
Run number		1									
Bit size	in.	8.5									
Bit start depth	m	896.0									
Bit end depth	m	2810.0									
Top interval logged	m	896.0									
Bottom interval logged	m	2791.6									
Begin log: time		0:02									
Begin log: date		11-Jun-05									
End log: time		16:30									
End log: date		14-Jun-05									
Mud data											
Depth	m	2810.0									
Type		KCl/PHPA/Glycol									
Mud weight	ppg	10.08									
Solids	%	8.5									
Chlorides	mg/L	45,500									
Rm		N/A									
Rmf		N/A									
Rmc		N/A									
Potassium	%	4.5									
Environmental data											
GR											
Mud weight	ppg	10.08									
Bit size	in.	8.5									
Resistivity											
Neutron porosity											
Hole Size											
Mud weight											
Temperature											
Mud salinity											
Formation salinity											
Recording rate 1	SEC	9.47									
Recording rate 2	SEC	N/A									
Filtering GR		3 pt.									
Filtering density		N/A									
Filtering Neutron		N/A									
Company representative		G. Campbell	J. MacKinnon	M. Jackson							
Schlumberger D&M Personnel		R. Borjas	L. Johnston	C. Cocks	T. Auger						

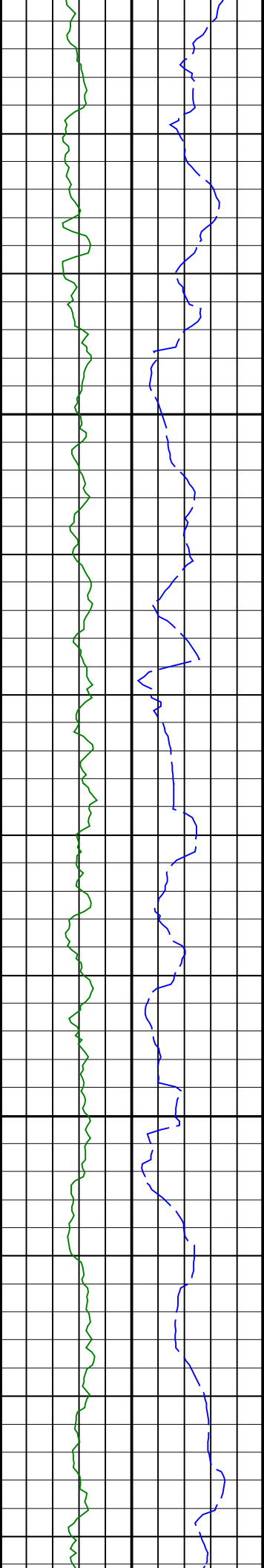
# BMA A05A Drilling Mechanics

IDEAL Version: ID10\_2B\_08 <MD > Vertical Scale: 1:200

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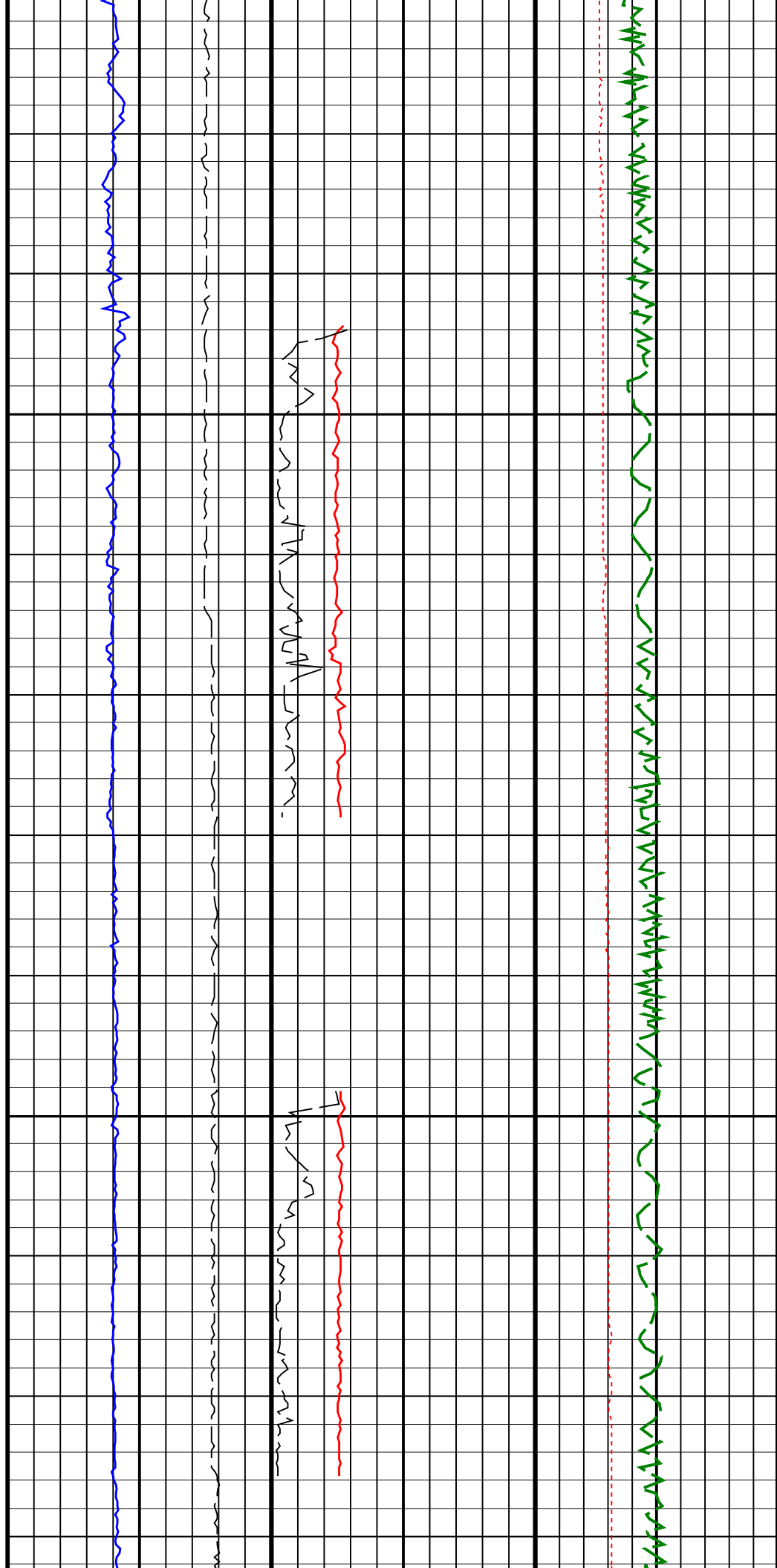
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<div>GR(TM) (GRM1)</div> <div>(GAPI)</div> <div>0200</div>	<div>MWD Shock</div> <div>Rate</div> <div>(SHKRATE_RT)</div> <div>(SH/S) 100</div>	<div>PUMPPRS (SPPA)</div> <div>(PSI)</div> <div>04000</div>	<div>MWD Collar RPM (CRPM_RT)</div> <div>(RPM)</div> <div>0200</div>	<div>MWD Annular Temperature</div> <div>(ATMP_MWD)</div> <div>(DEGC)</div> <div>20100</div>

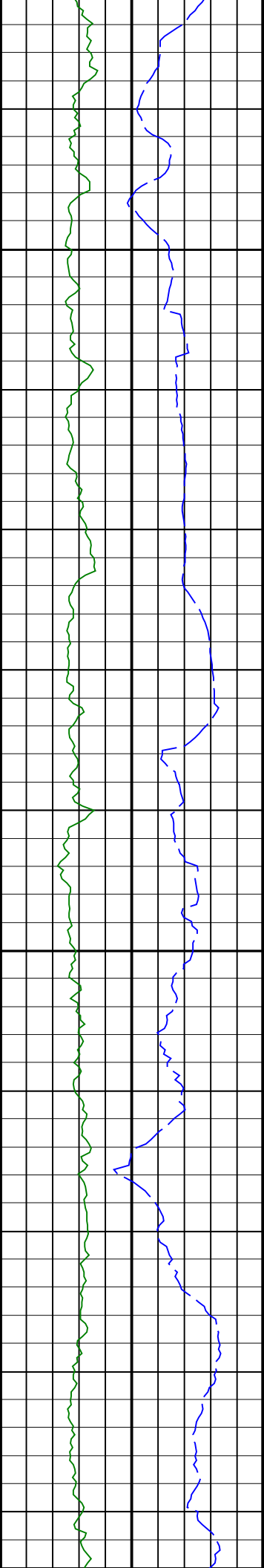




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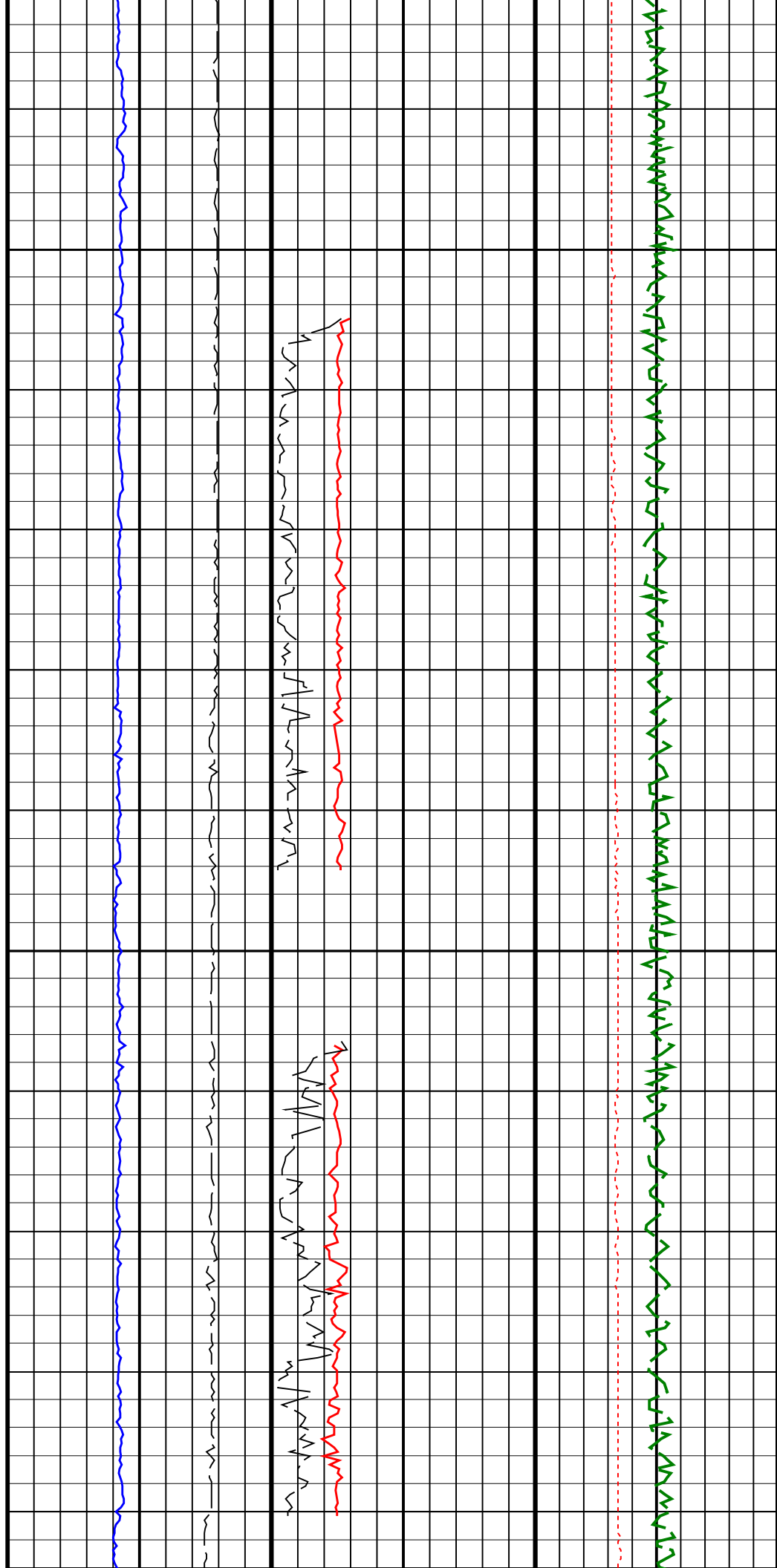
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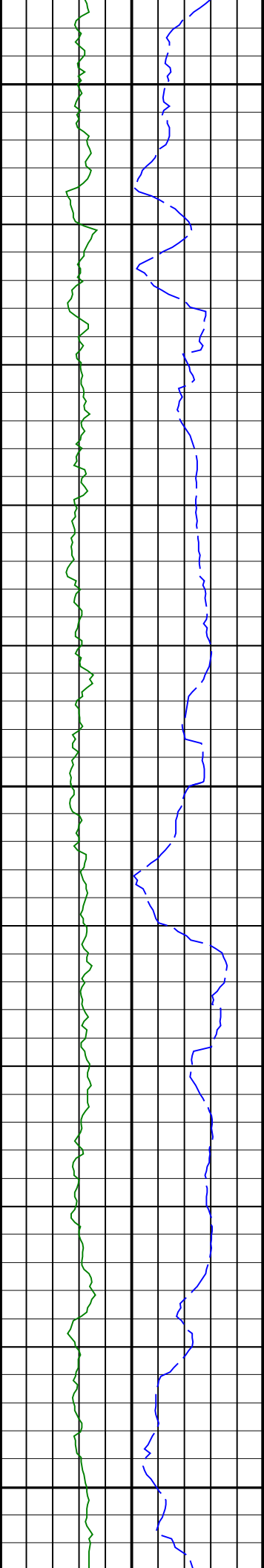




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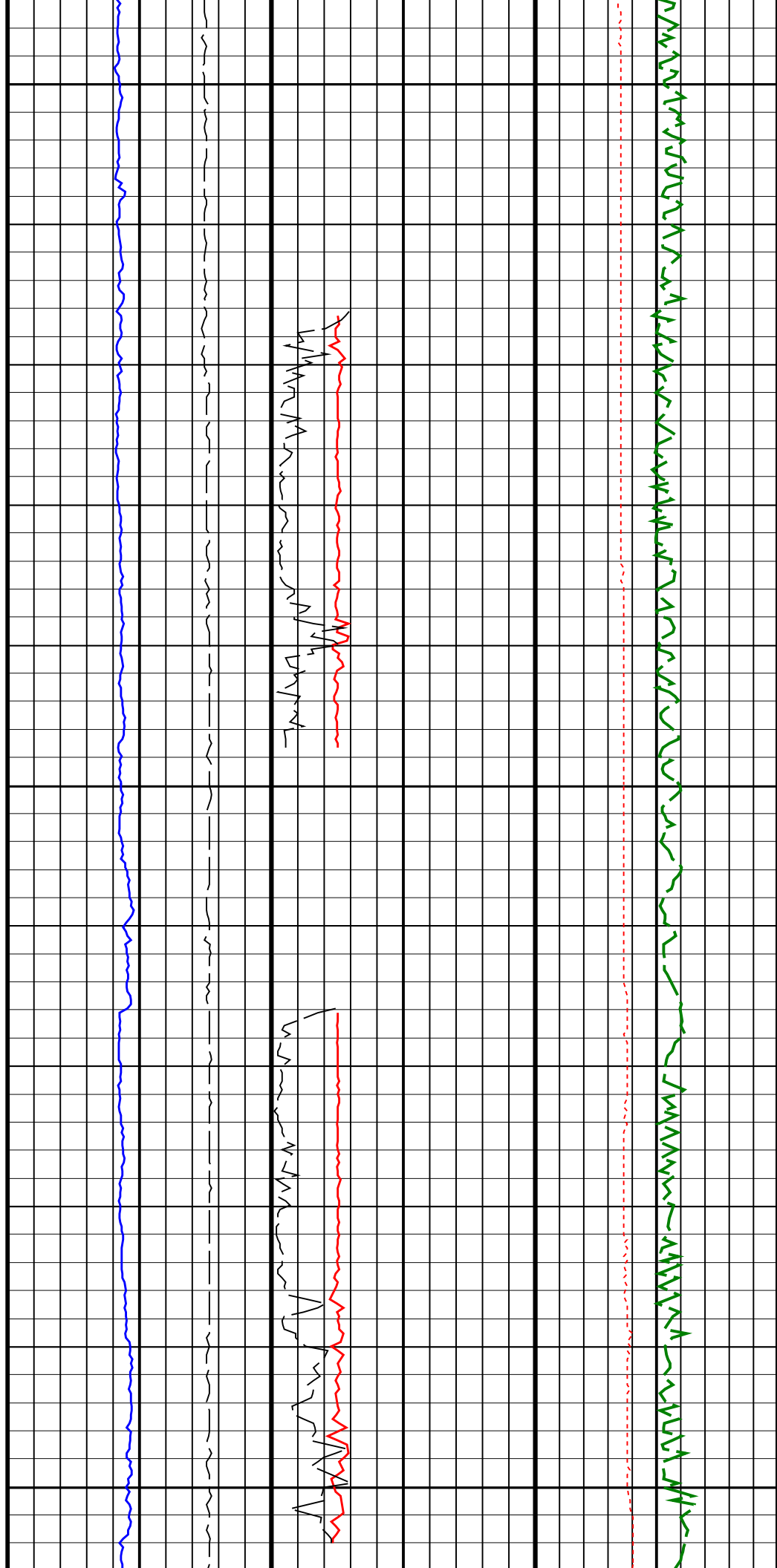


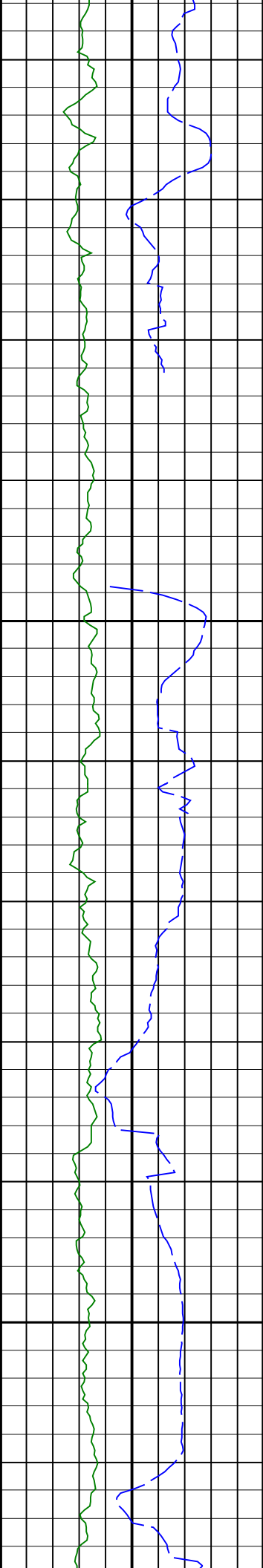


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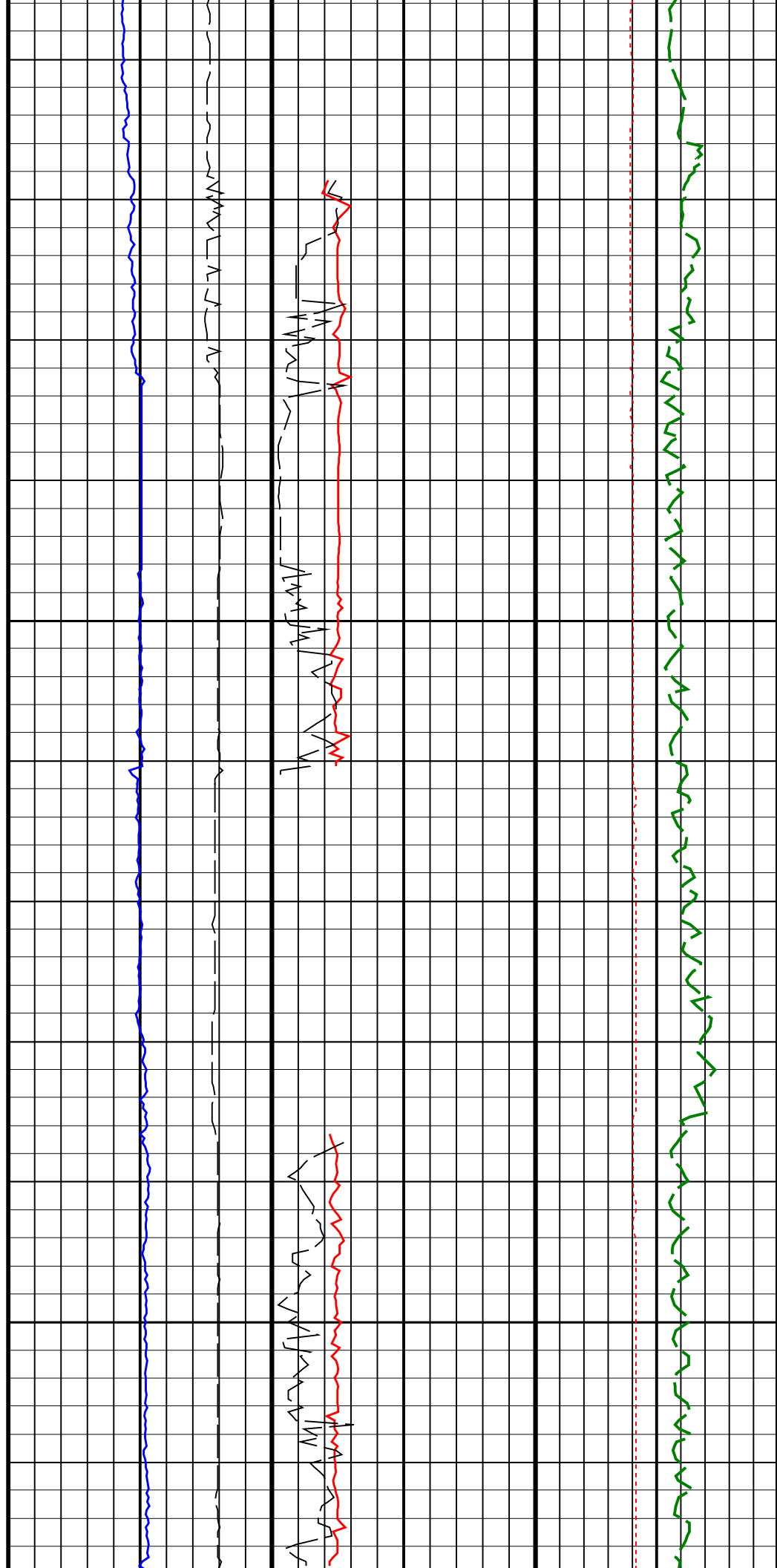
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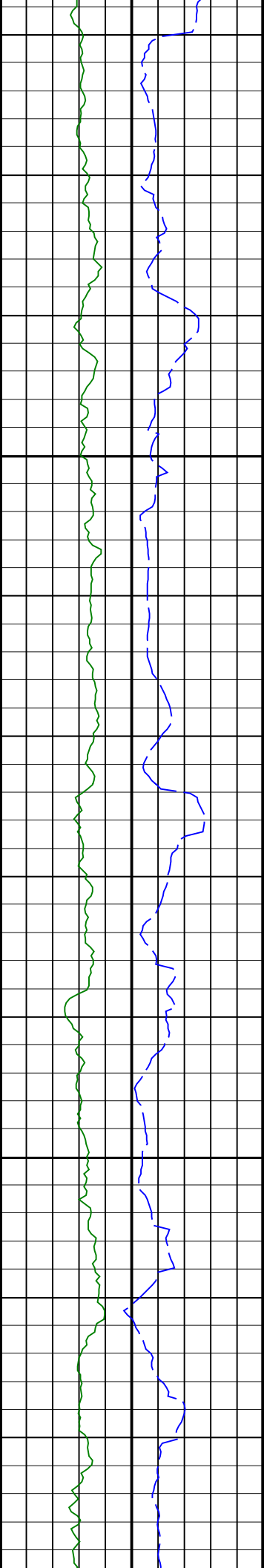


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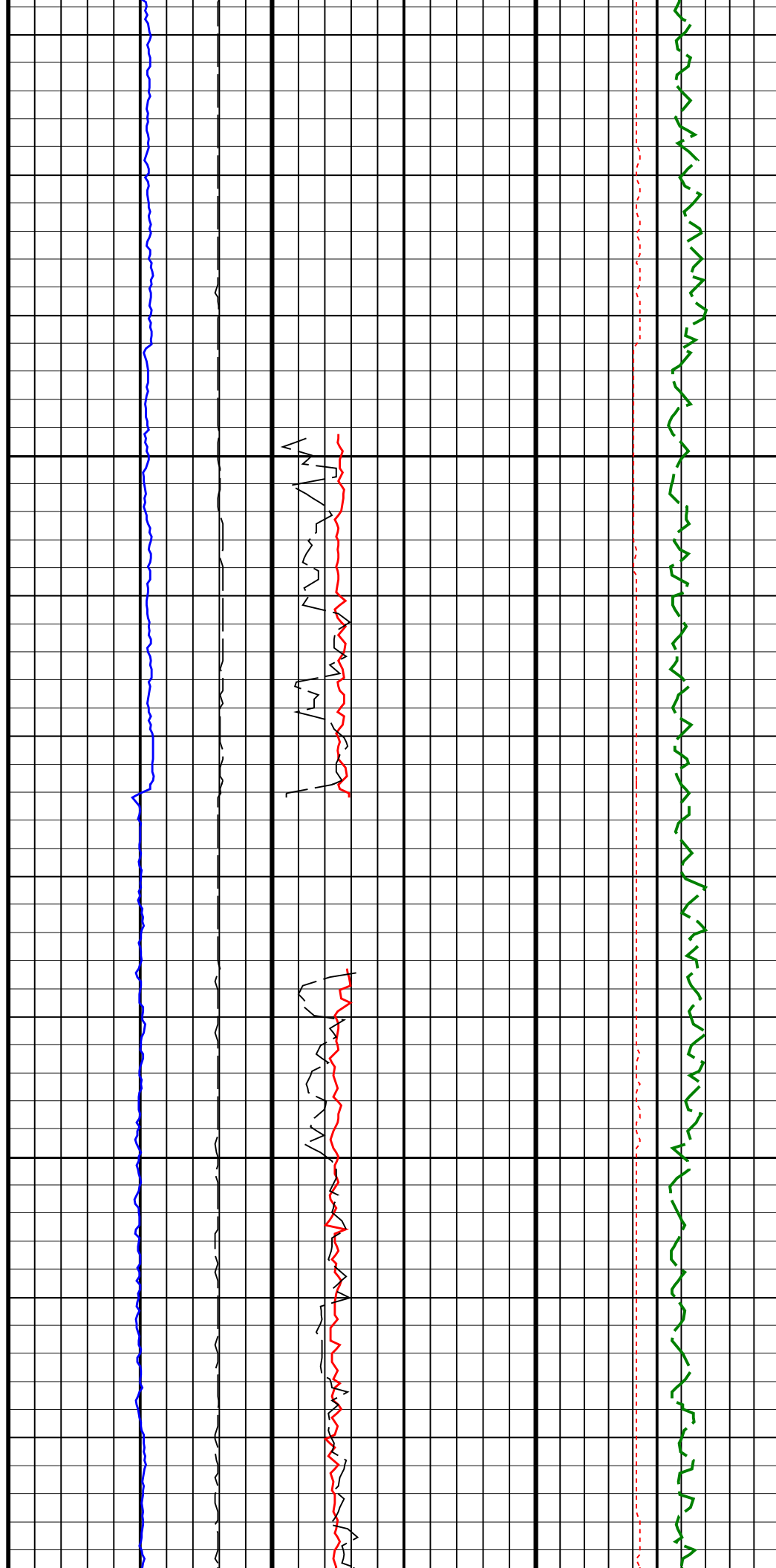


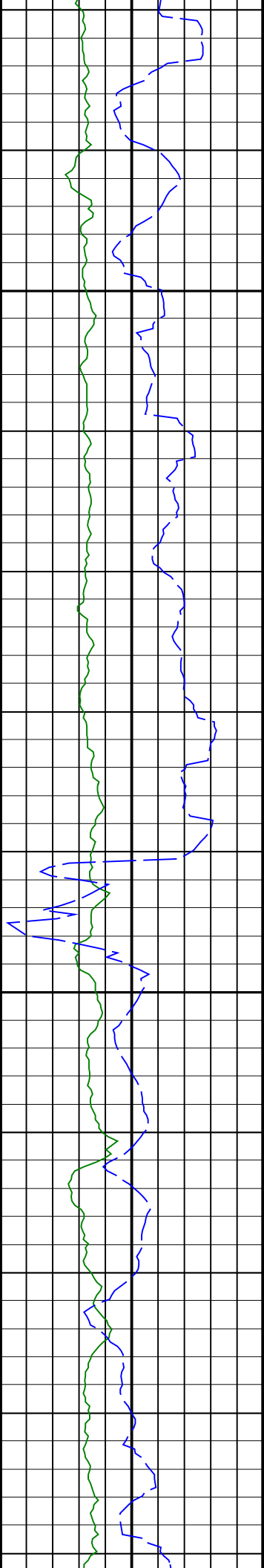




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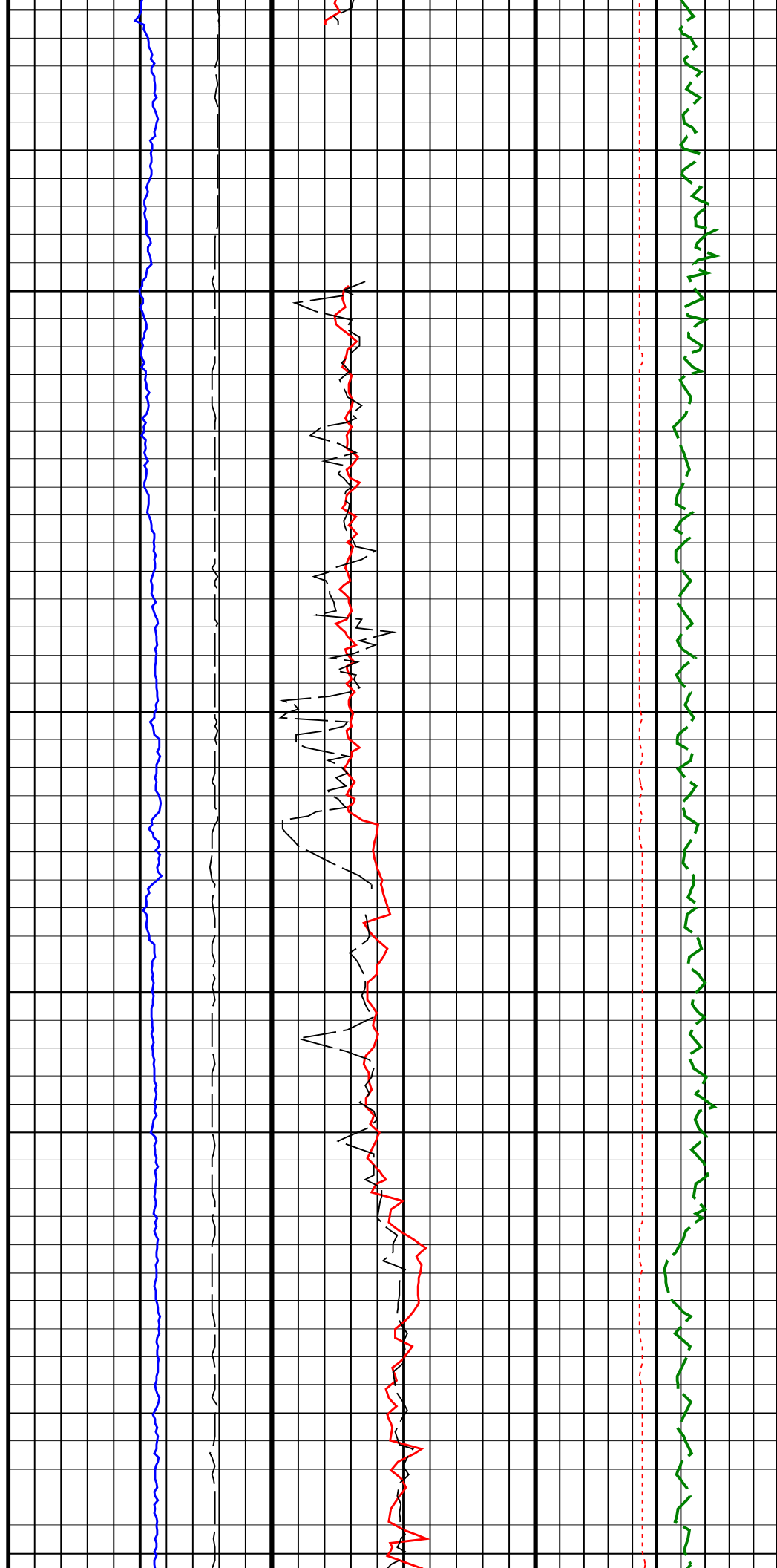
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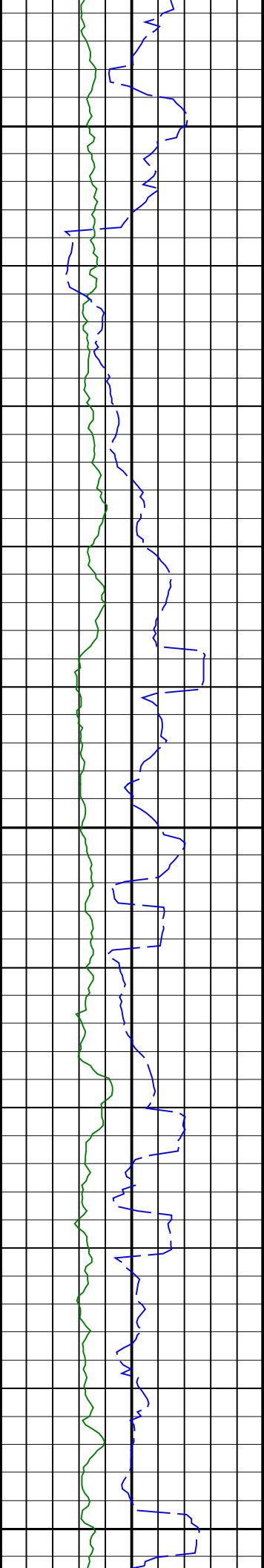




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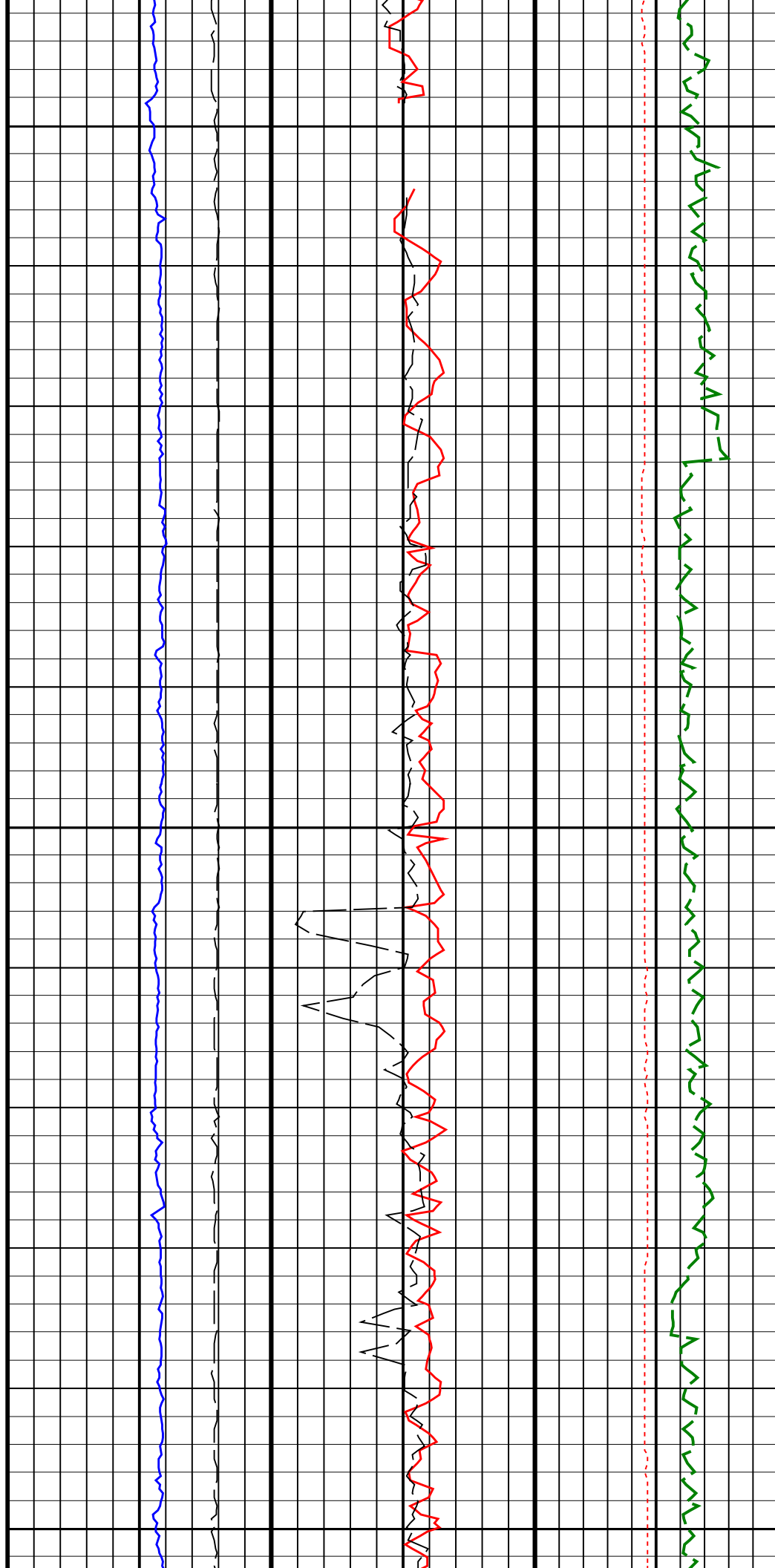


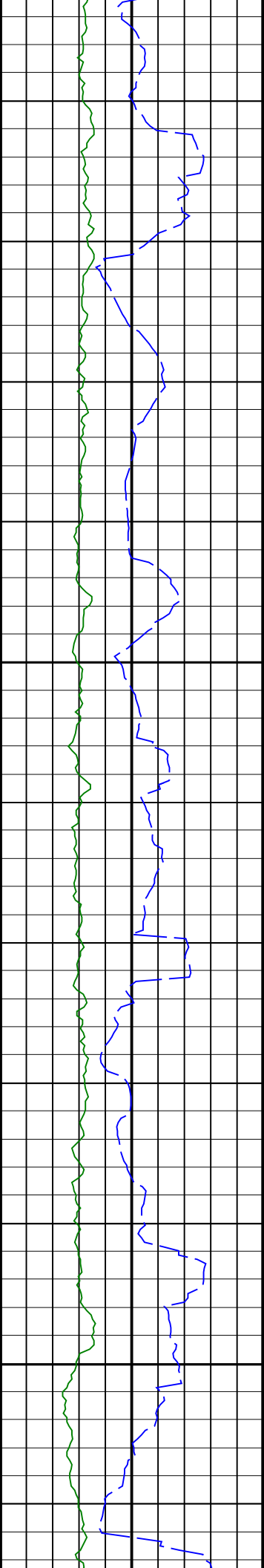


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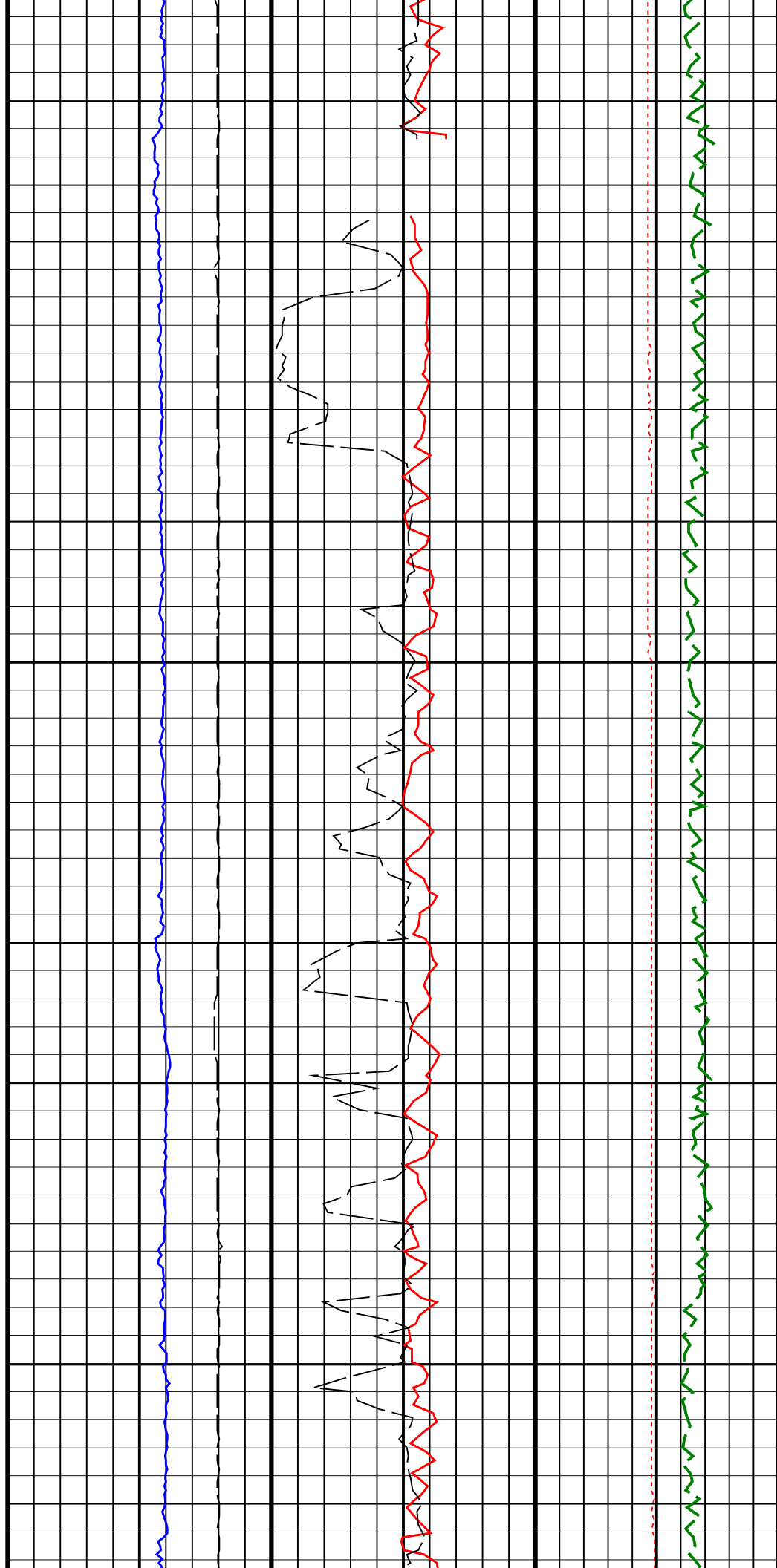
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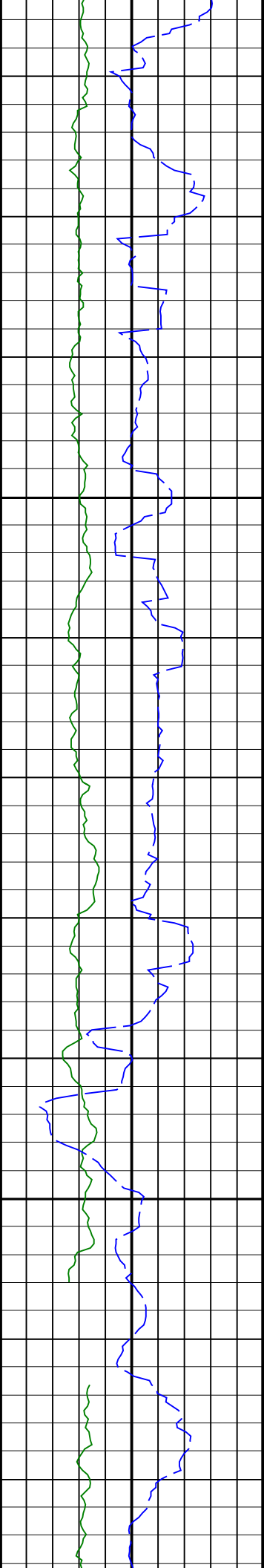




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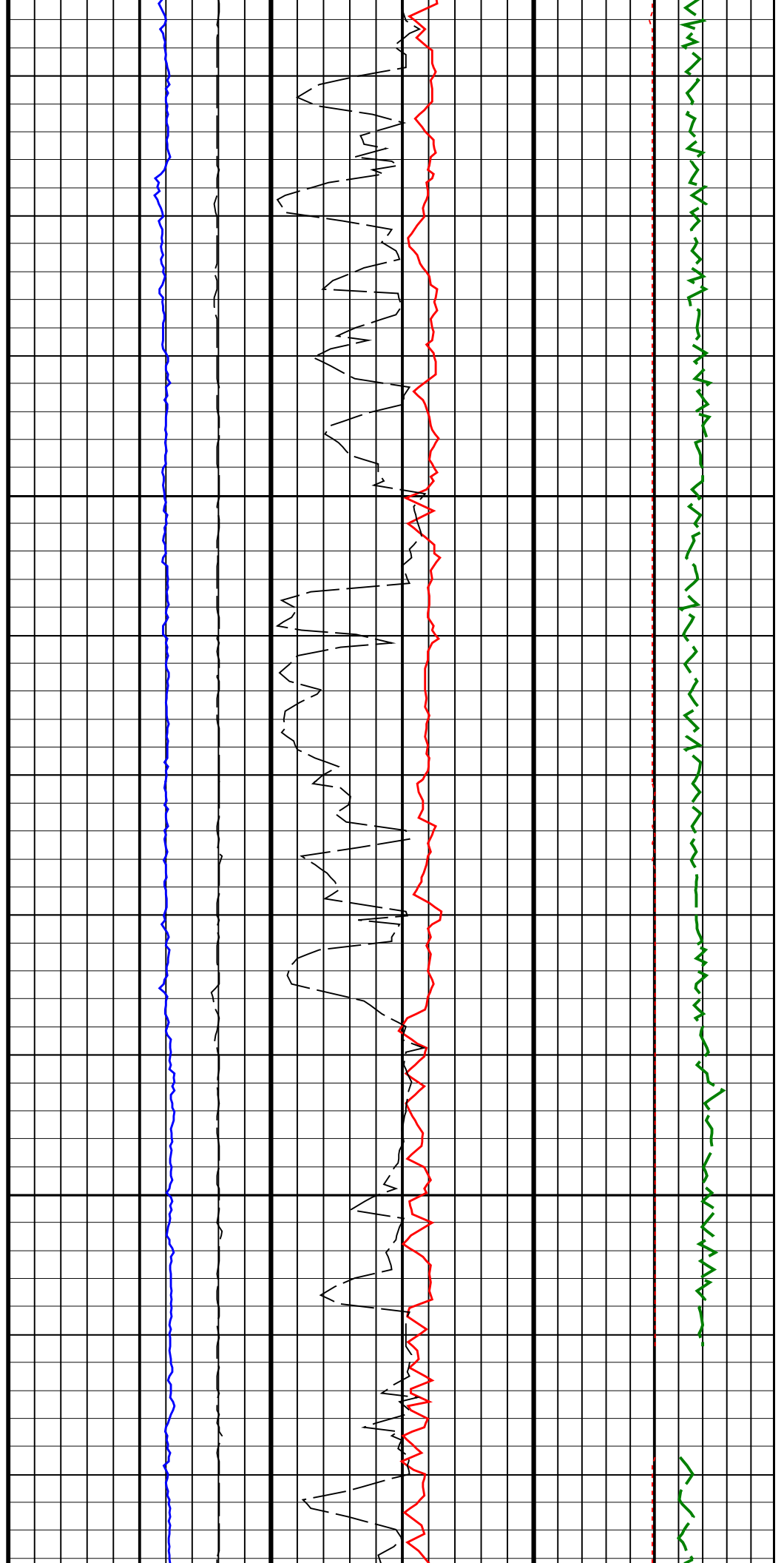
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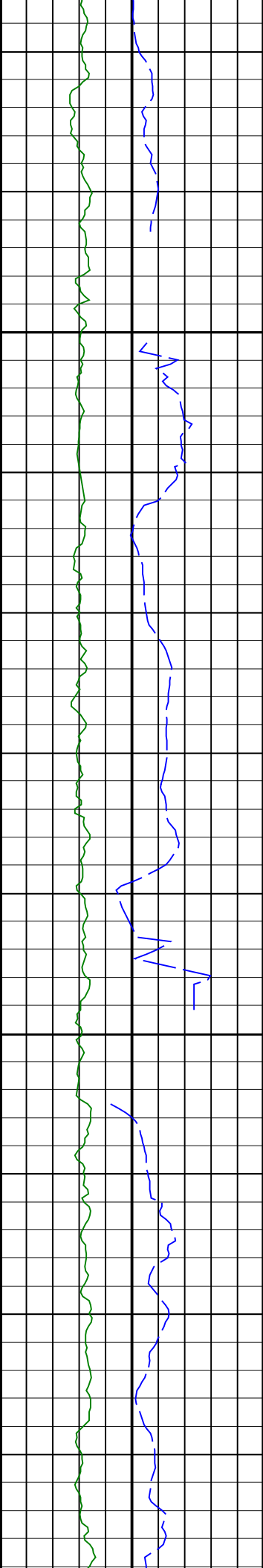




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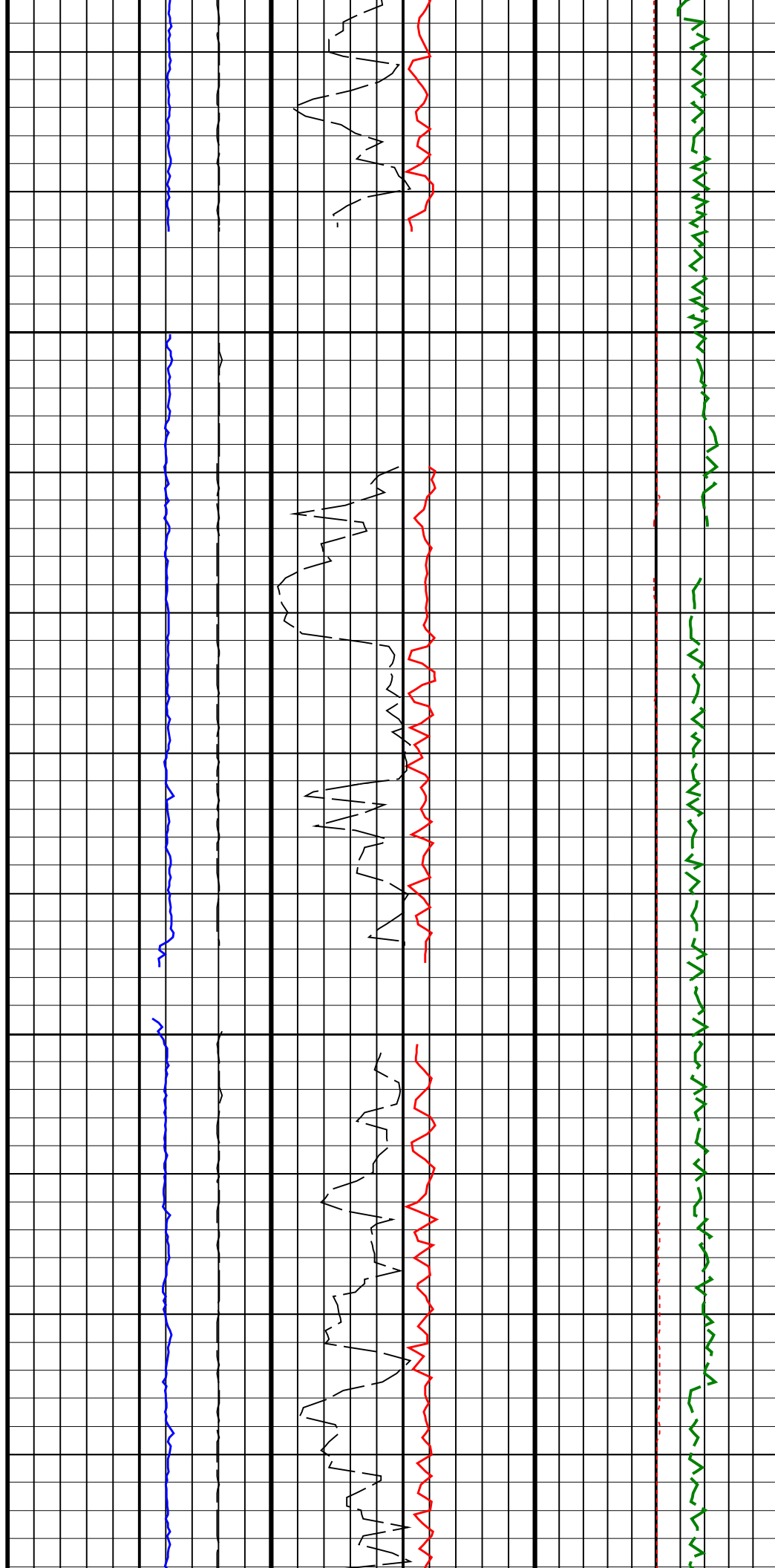
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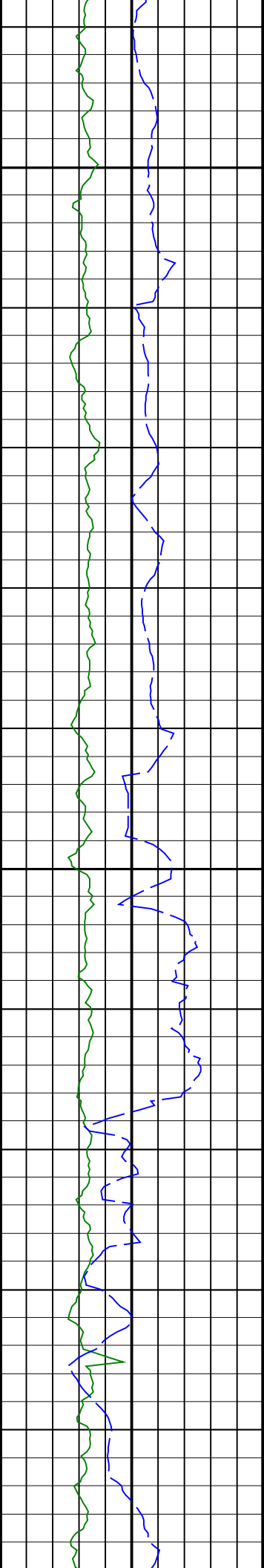




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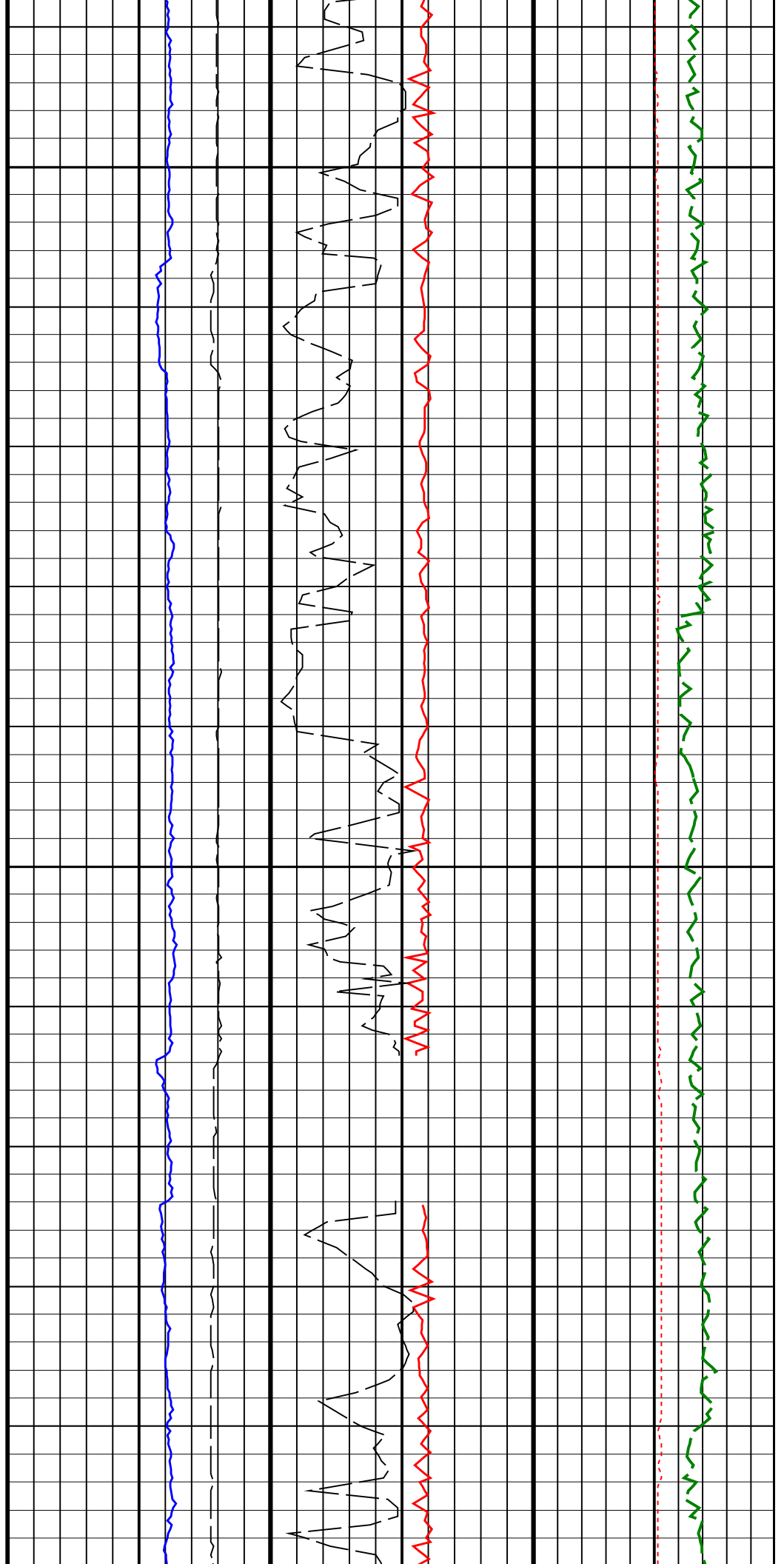
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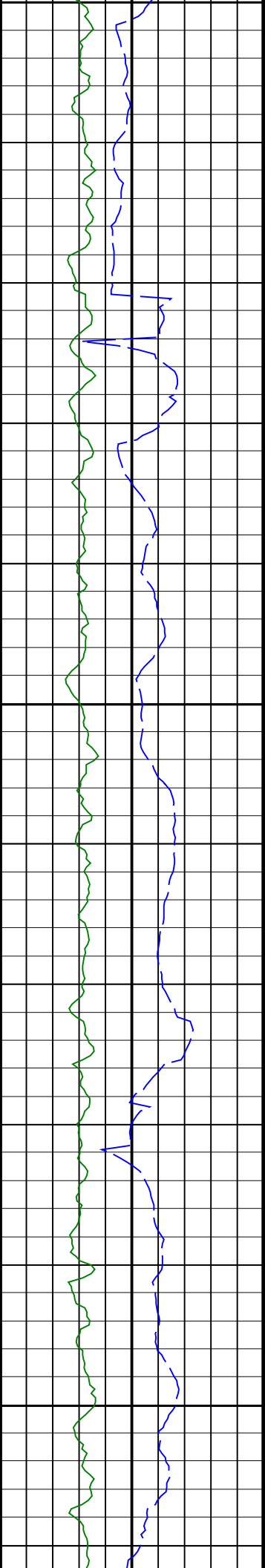




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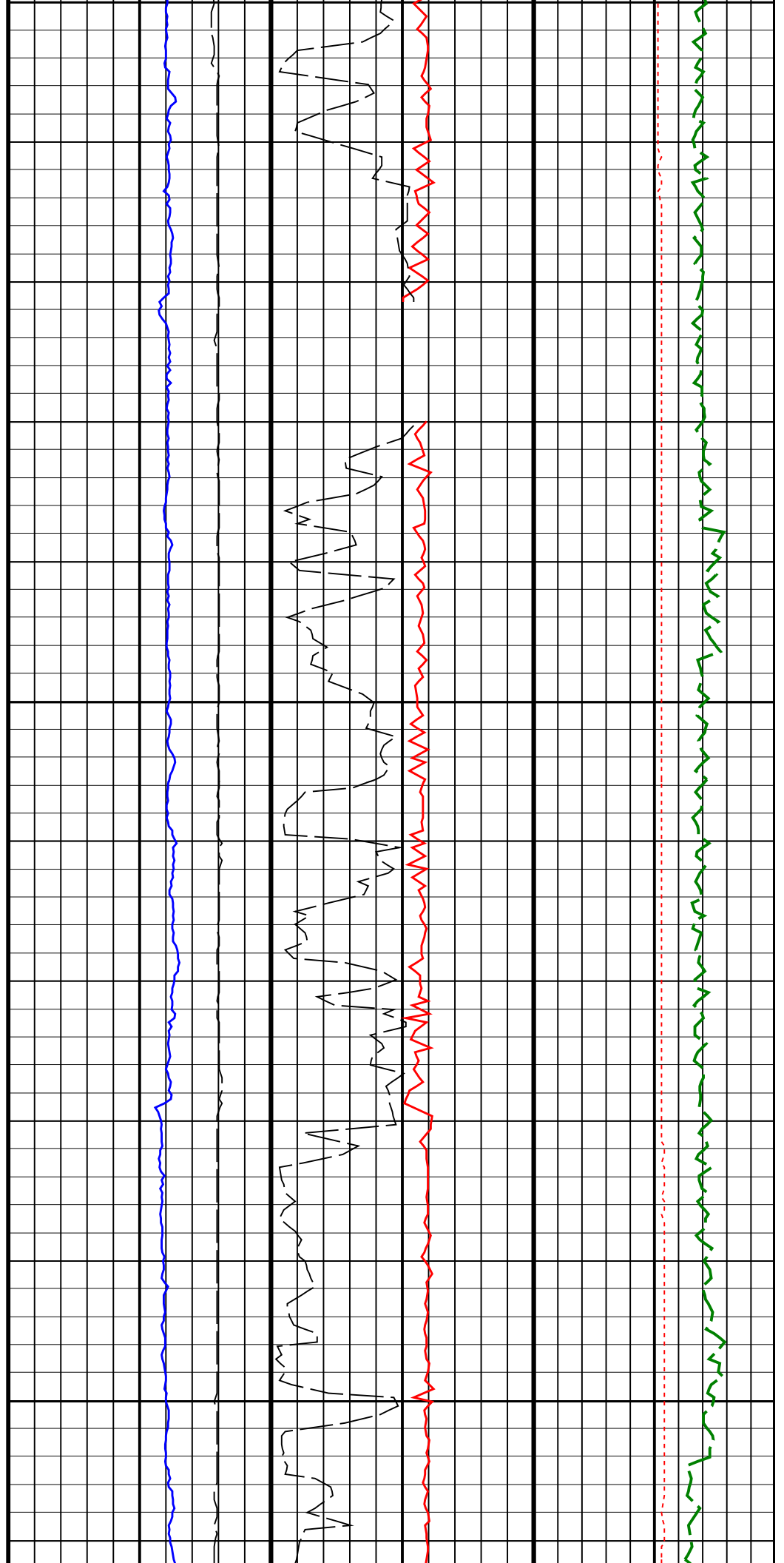




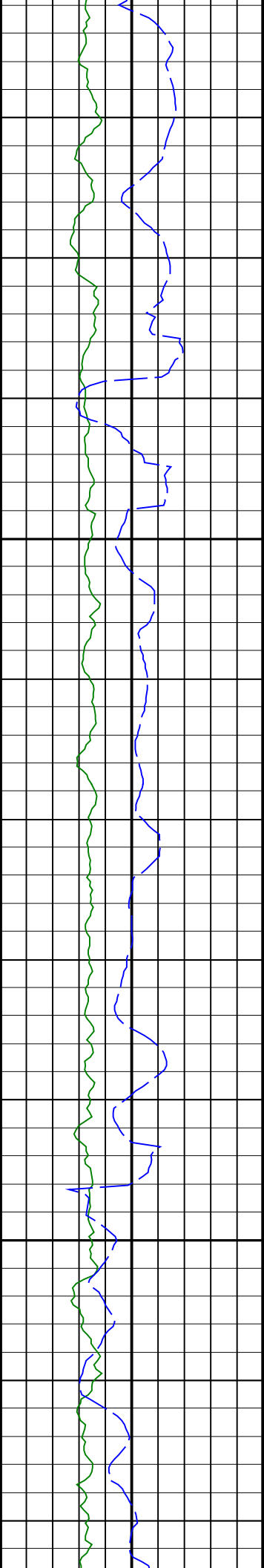
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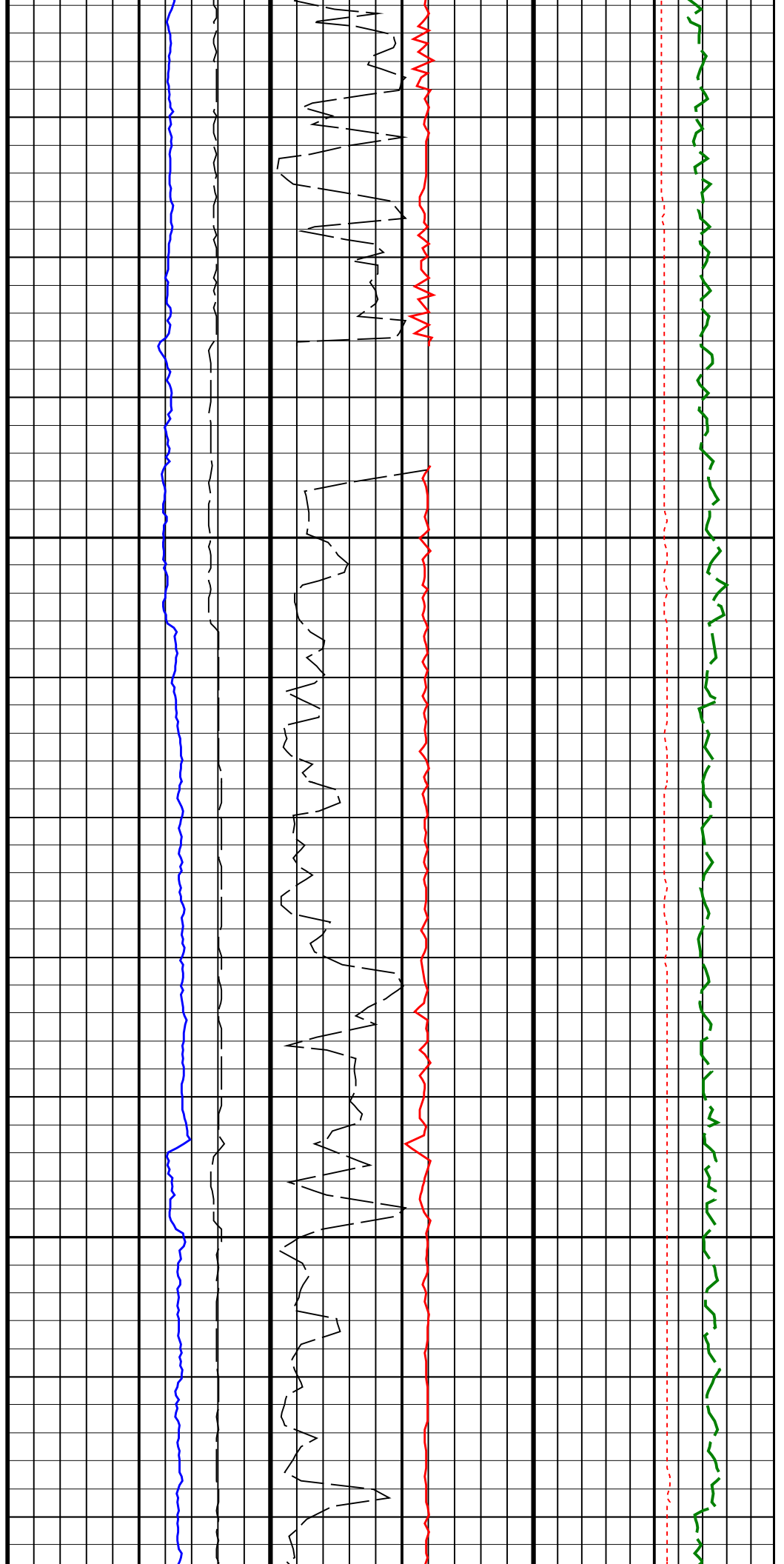


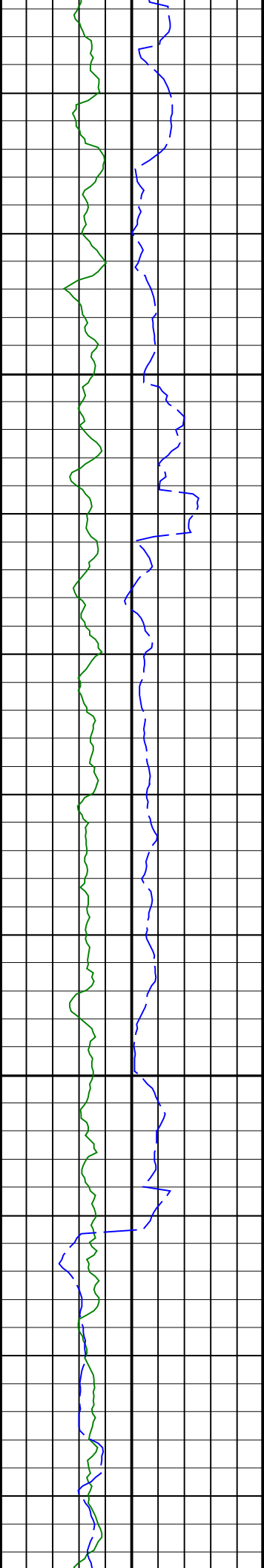




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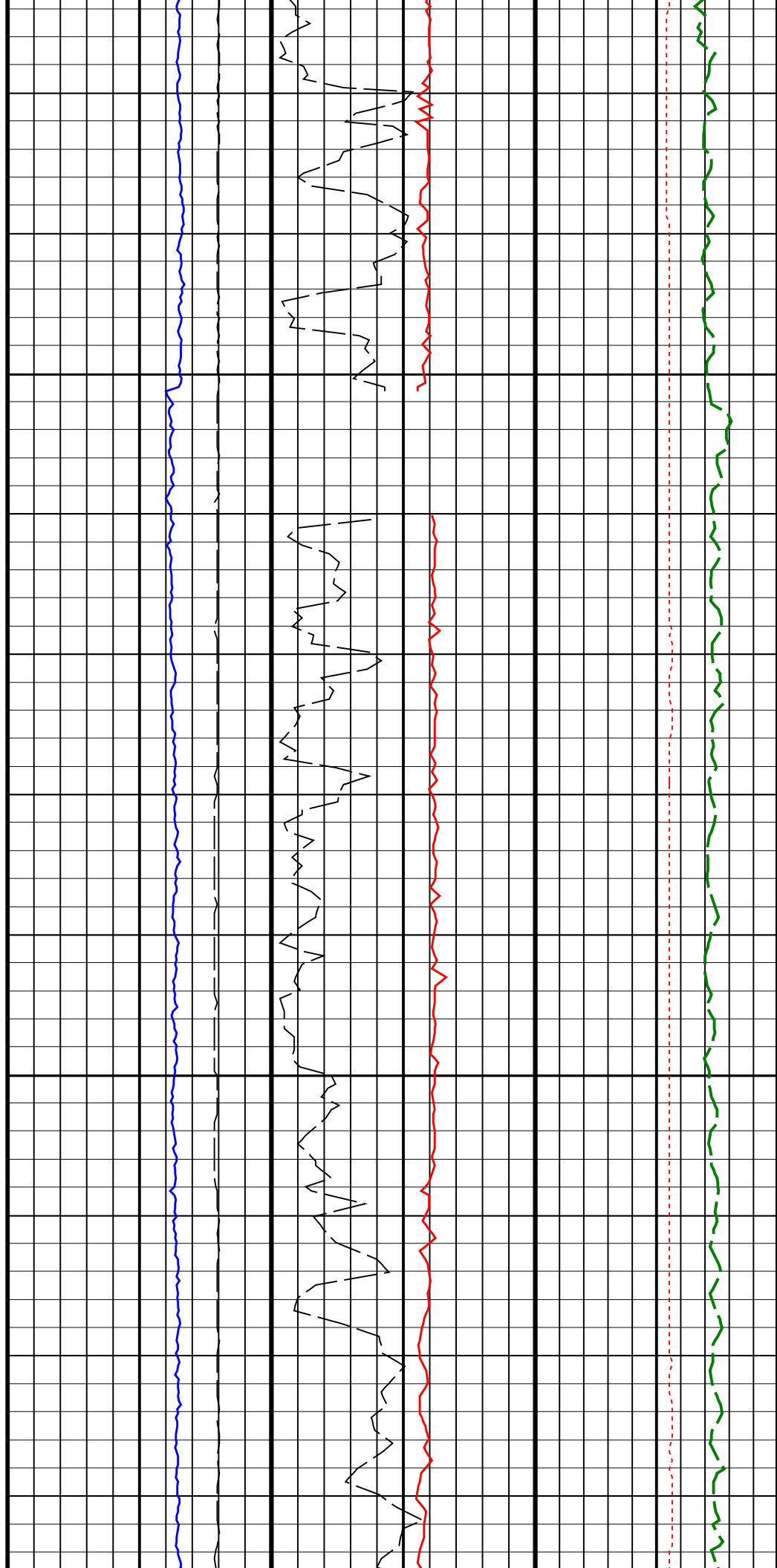
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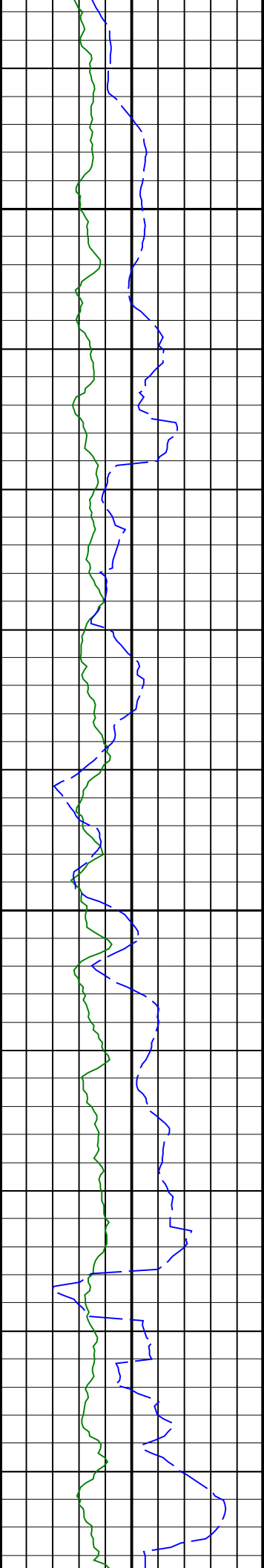




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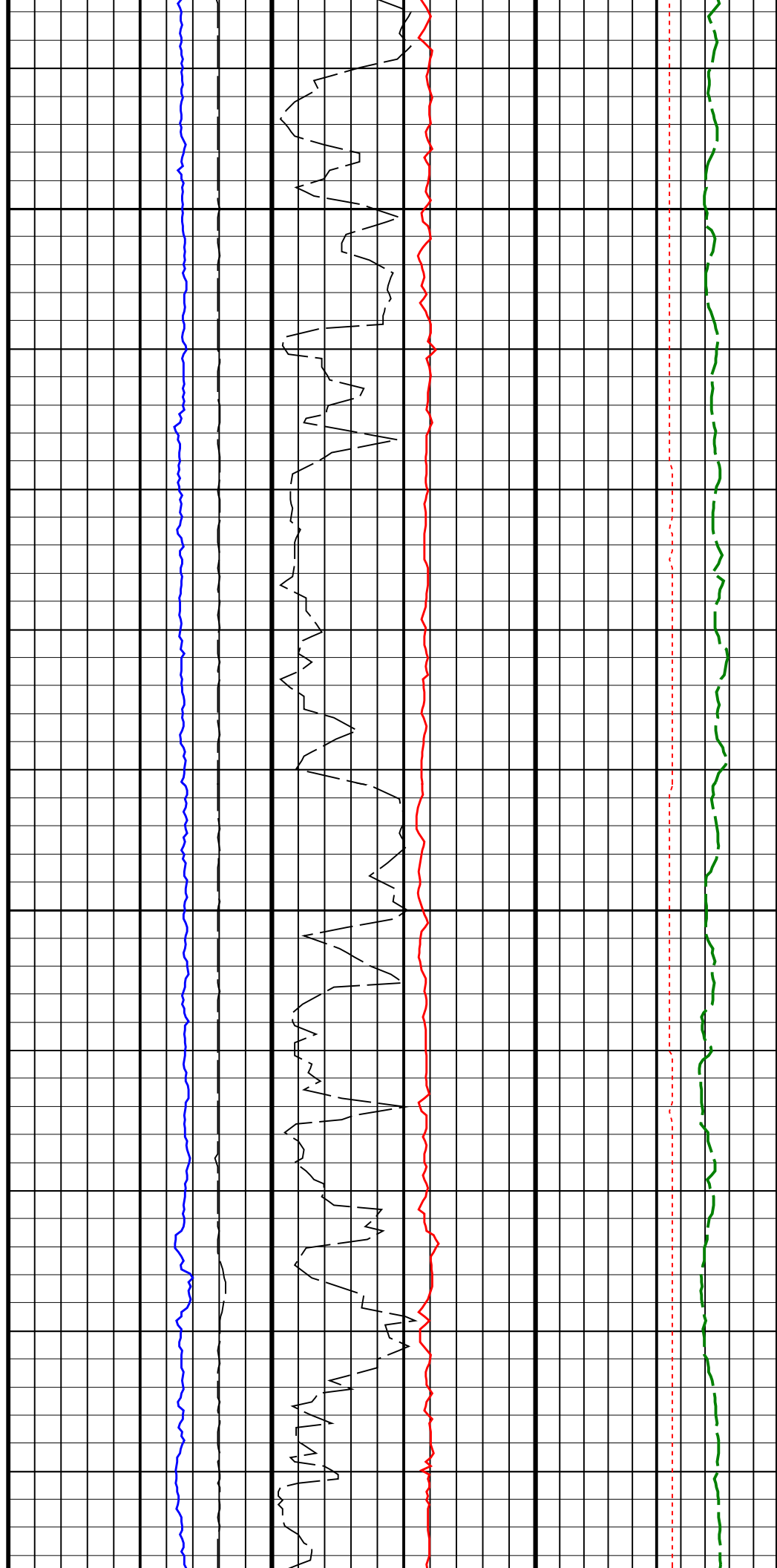
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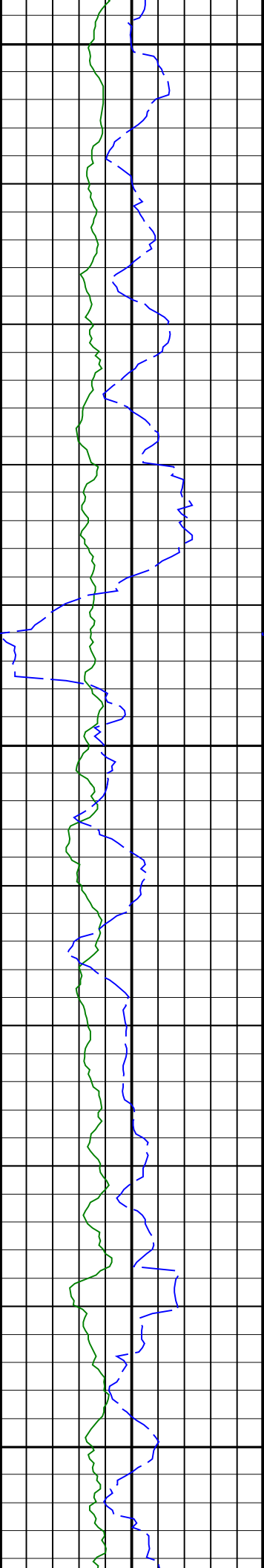




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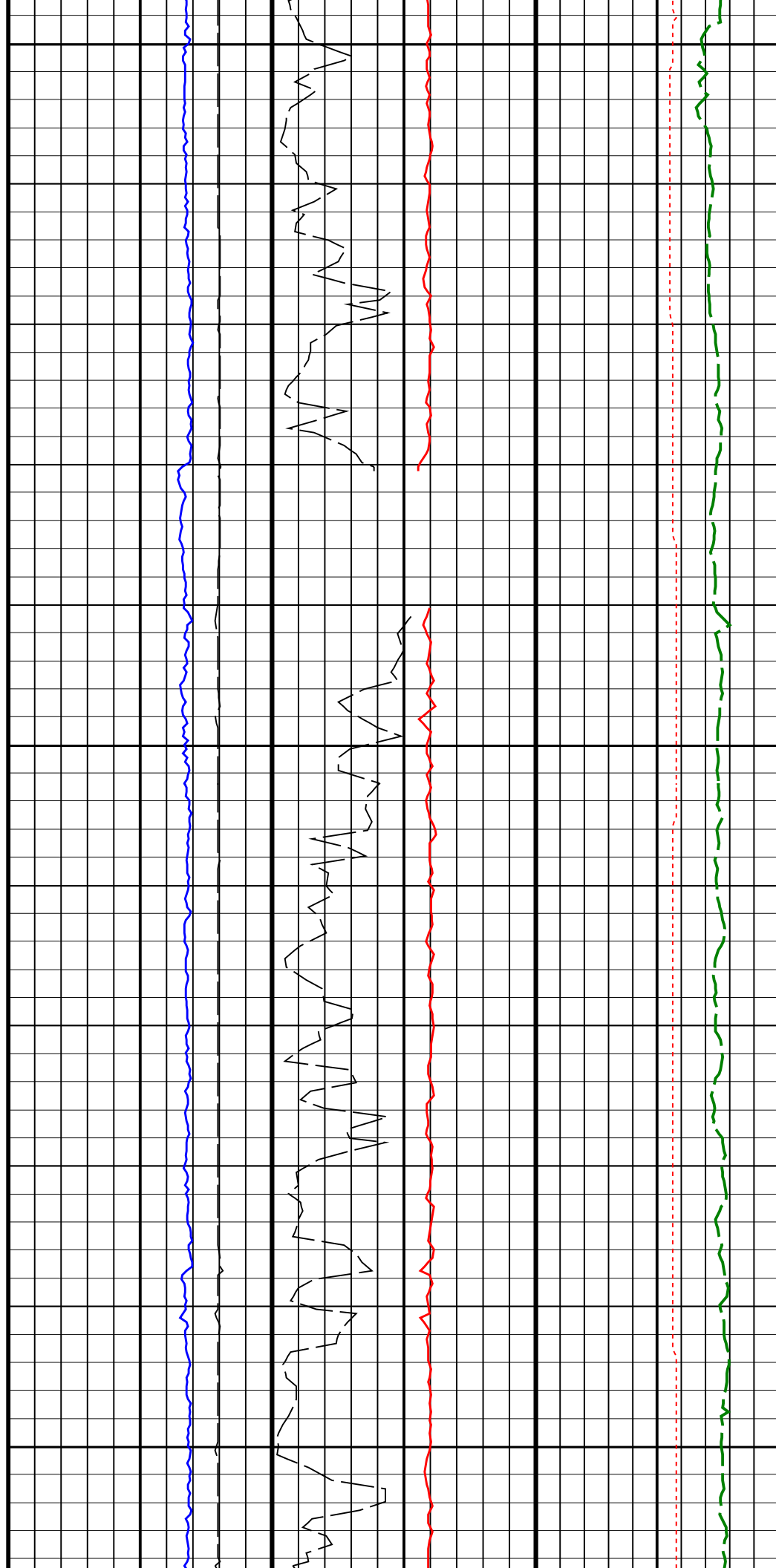


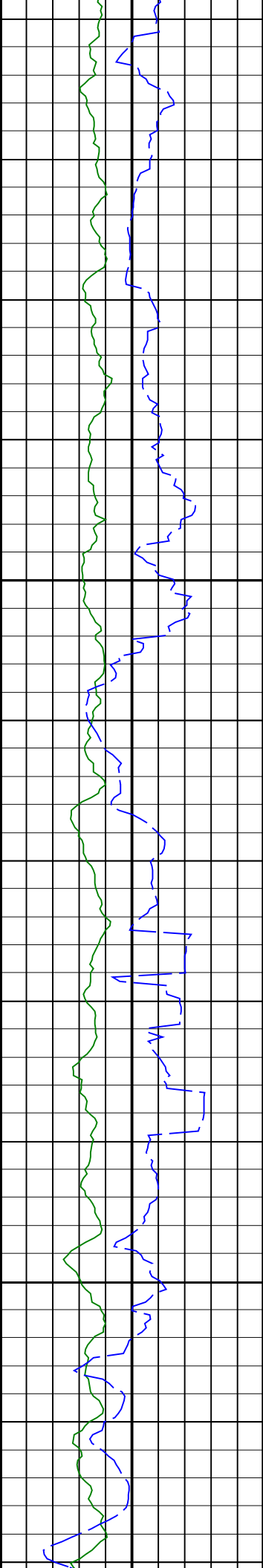


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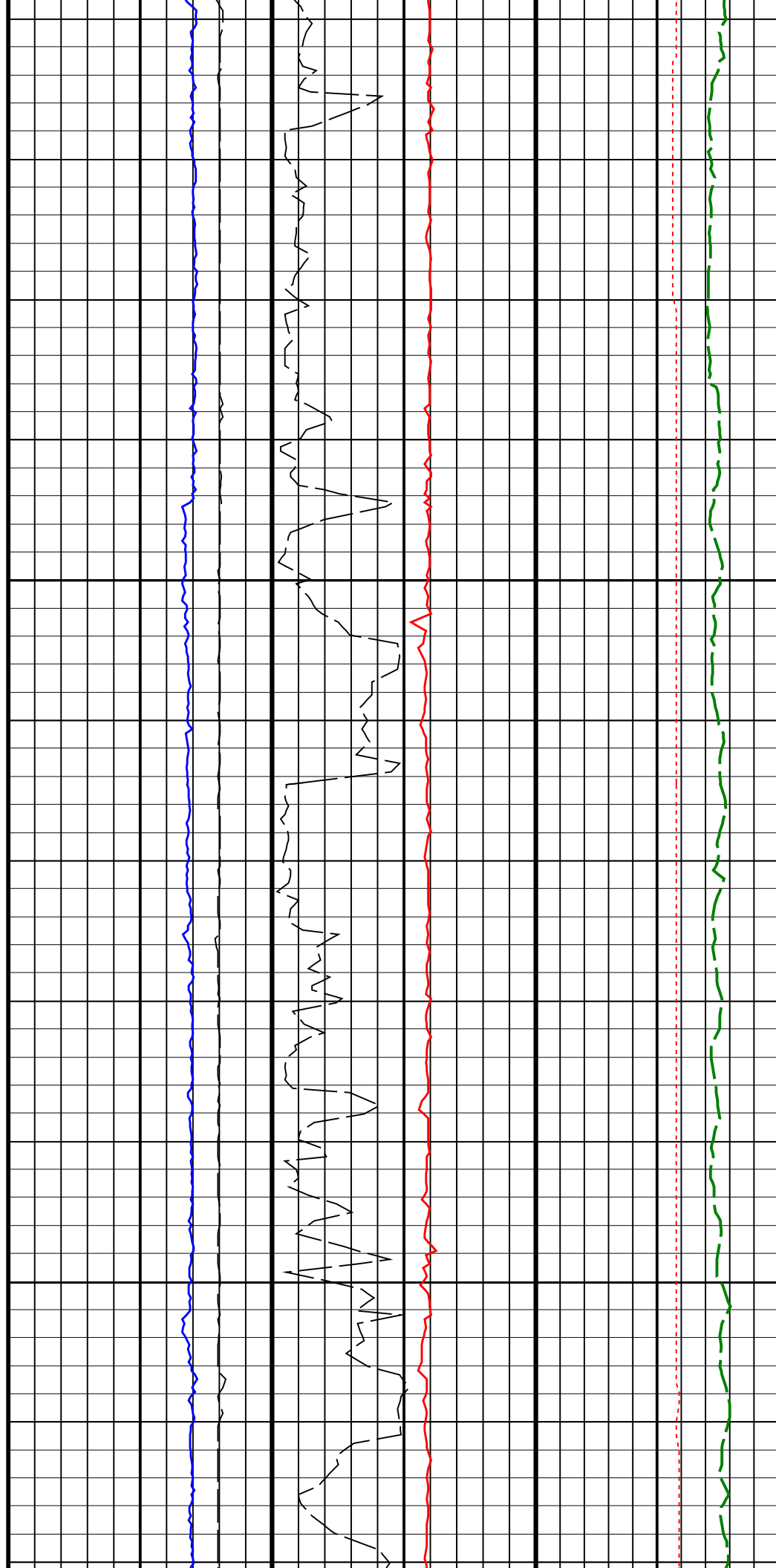
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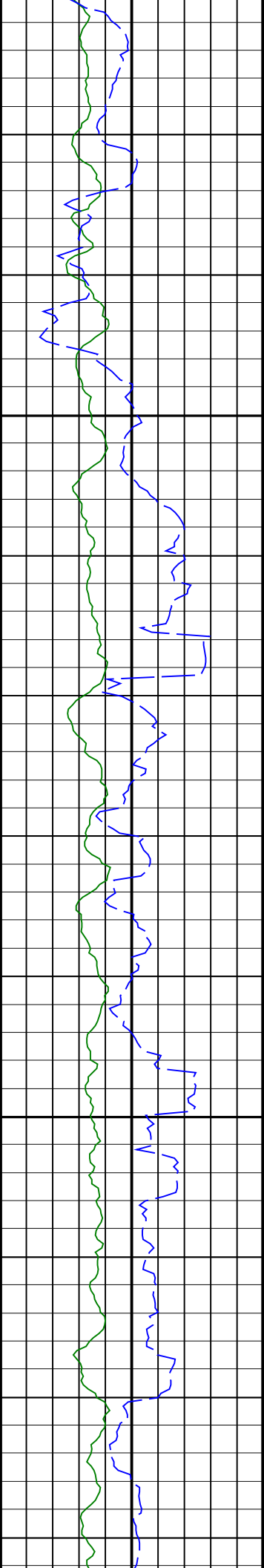




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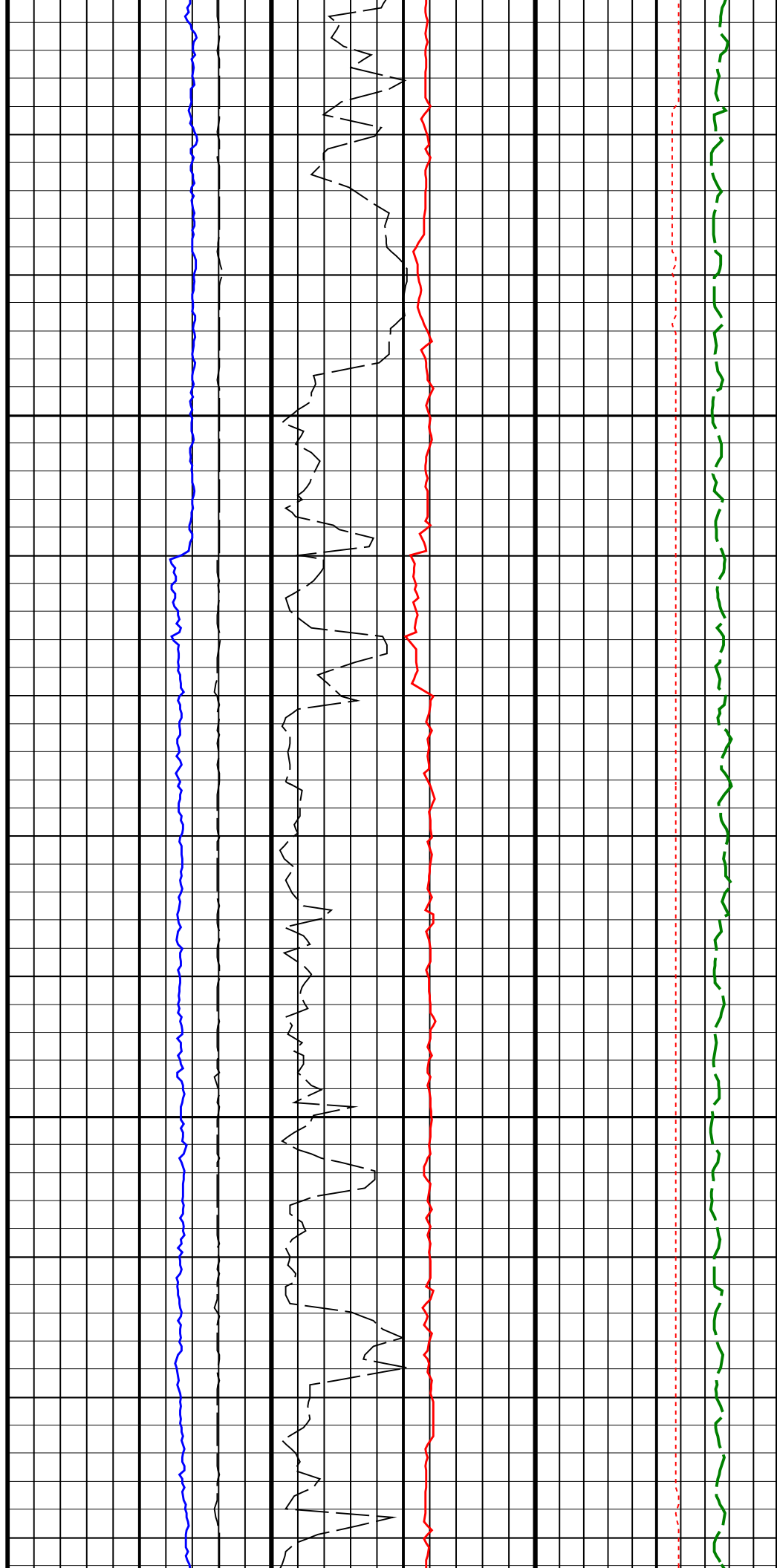
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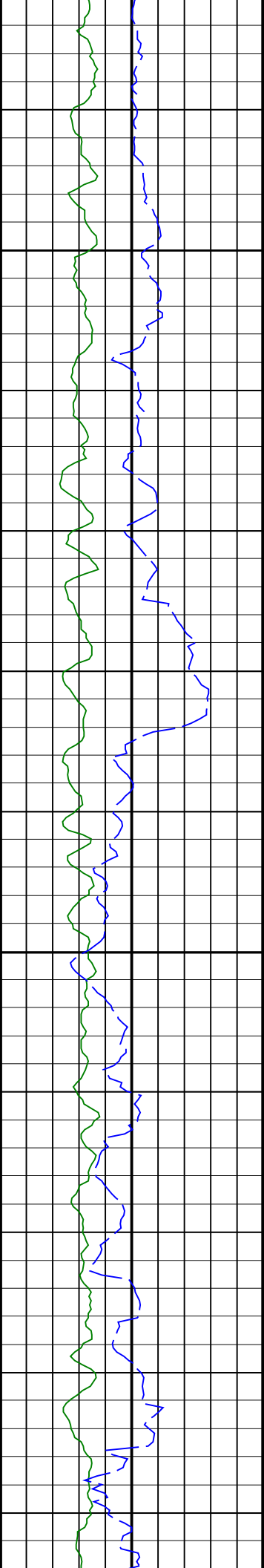




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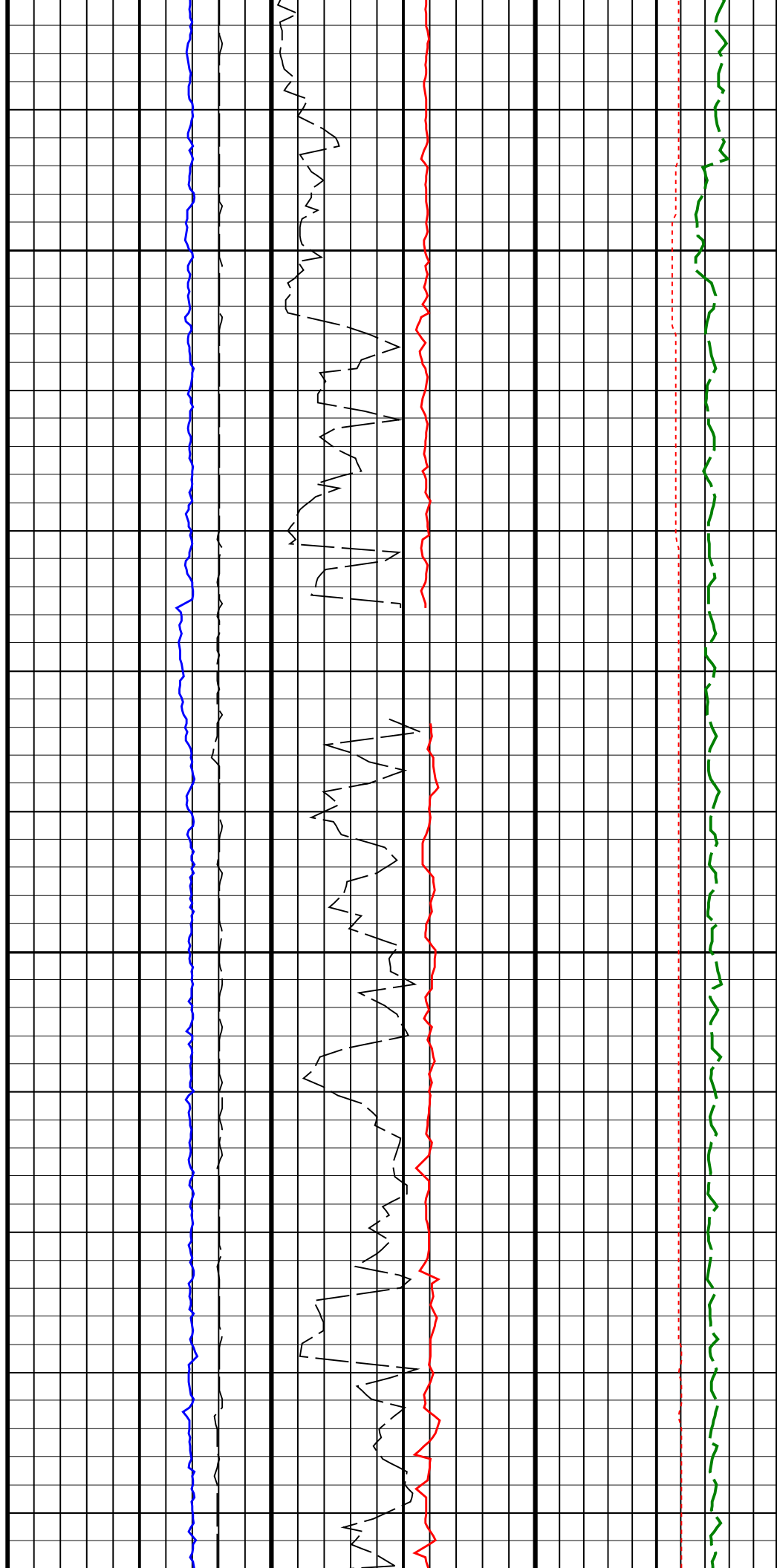
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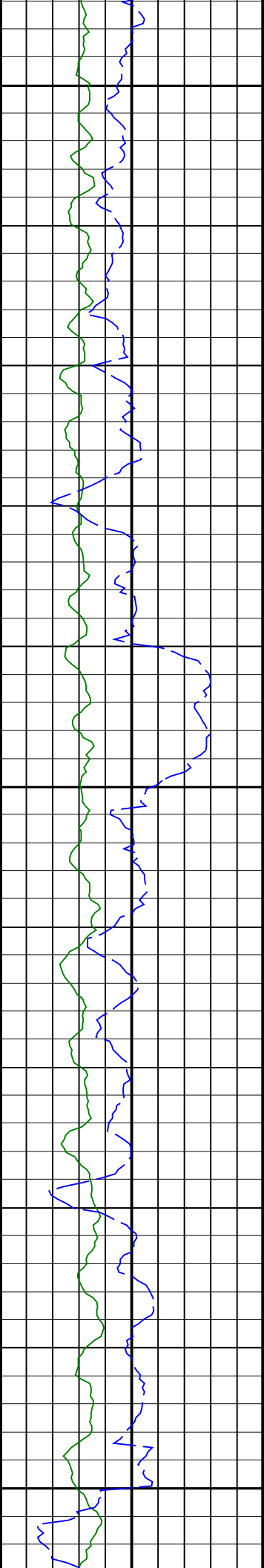




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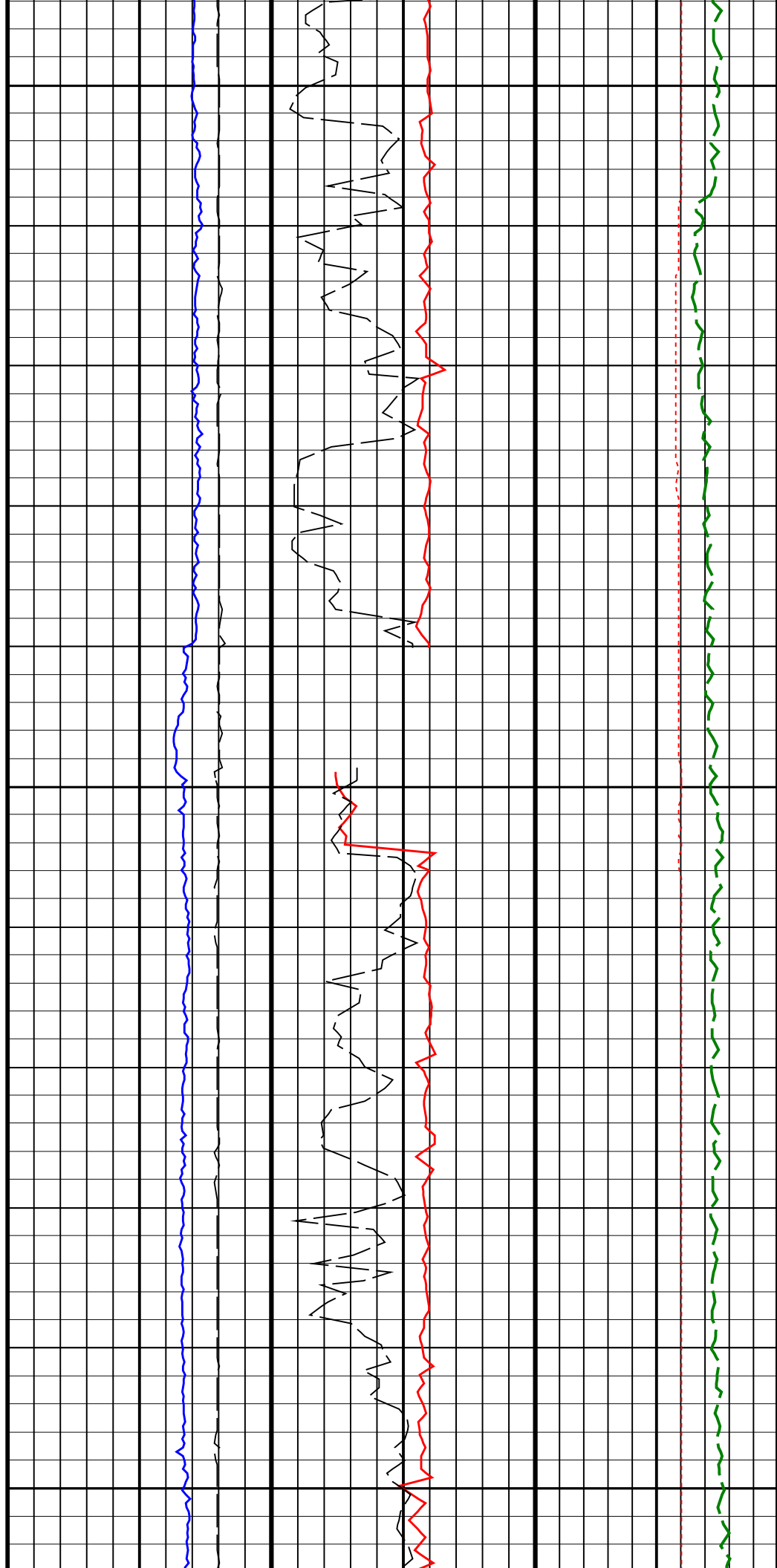




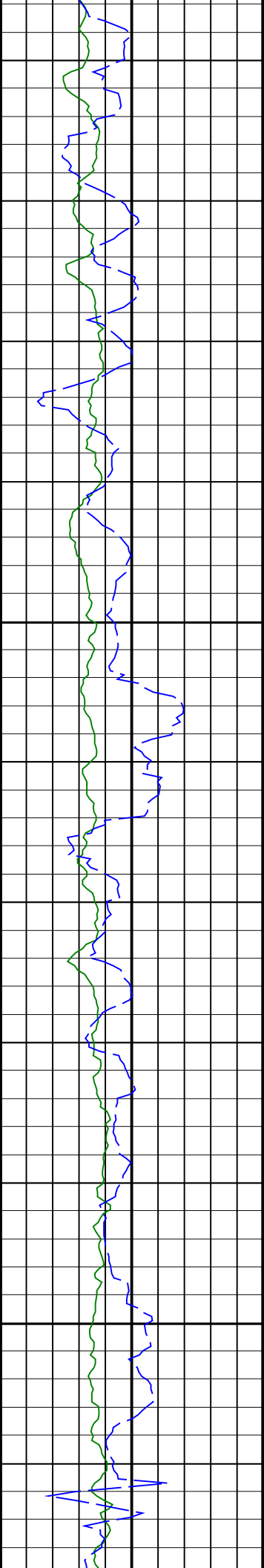
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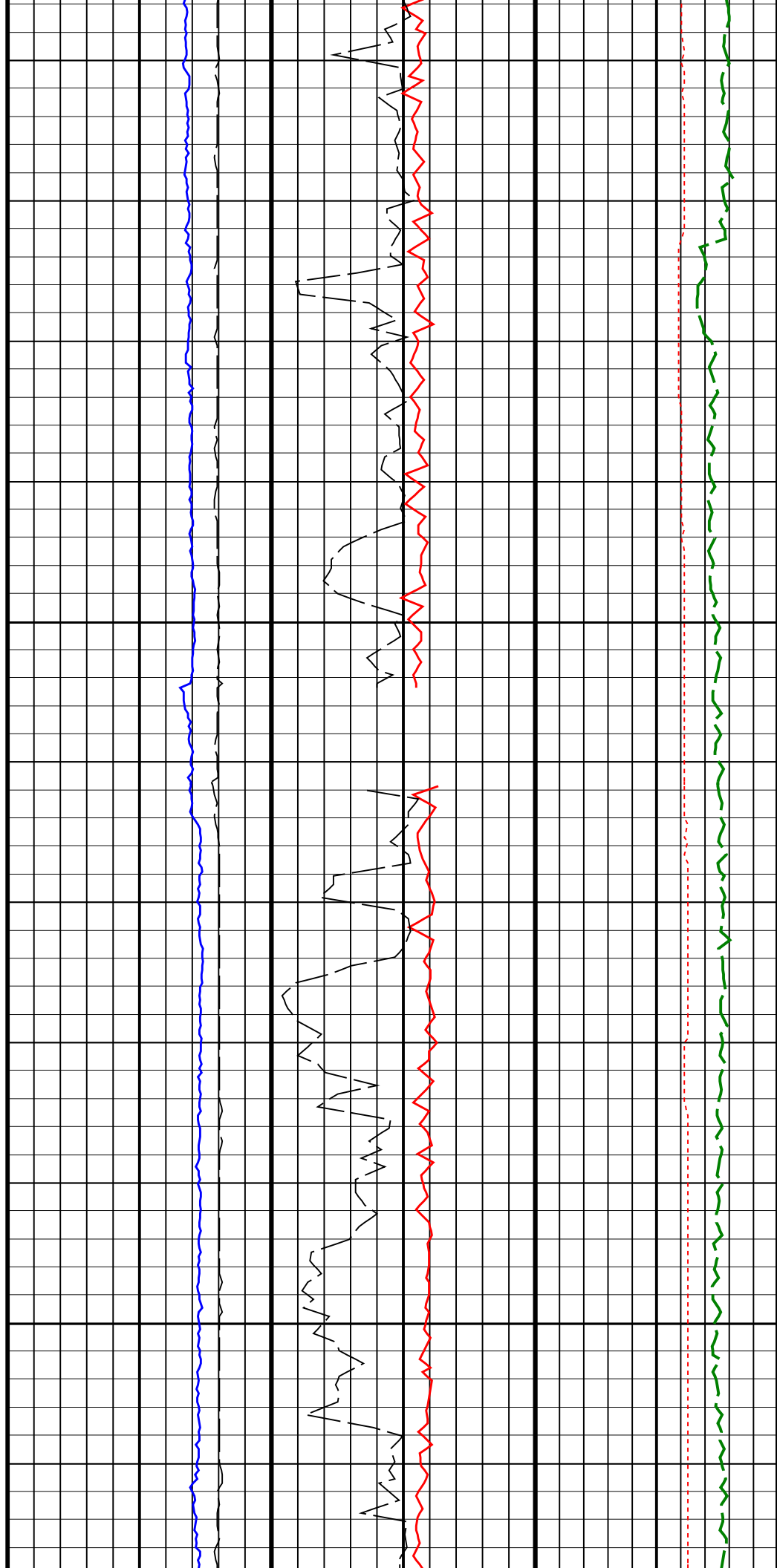


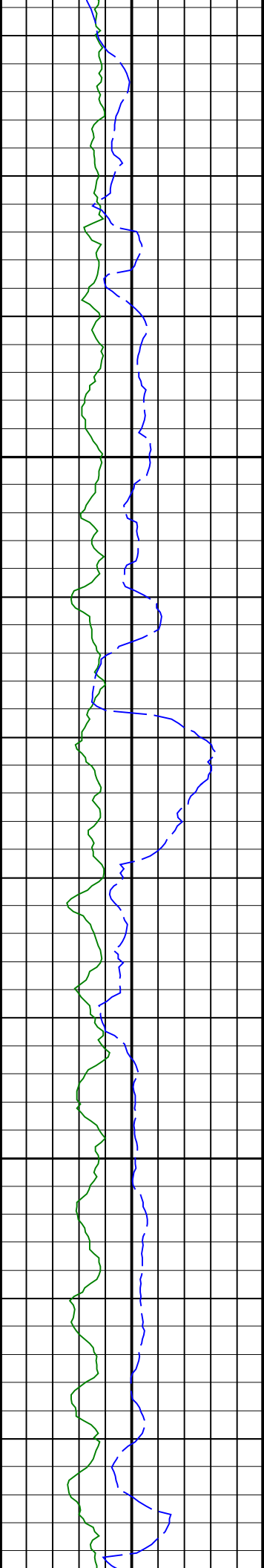




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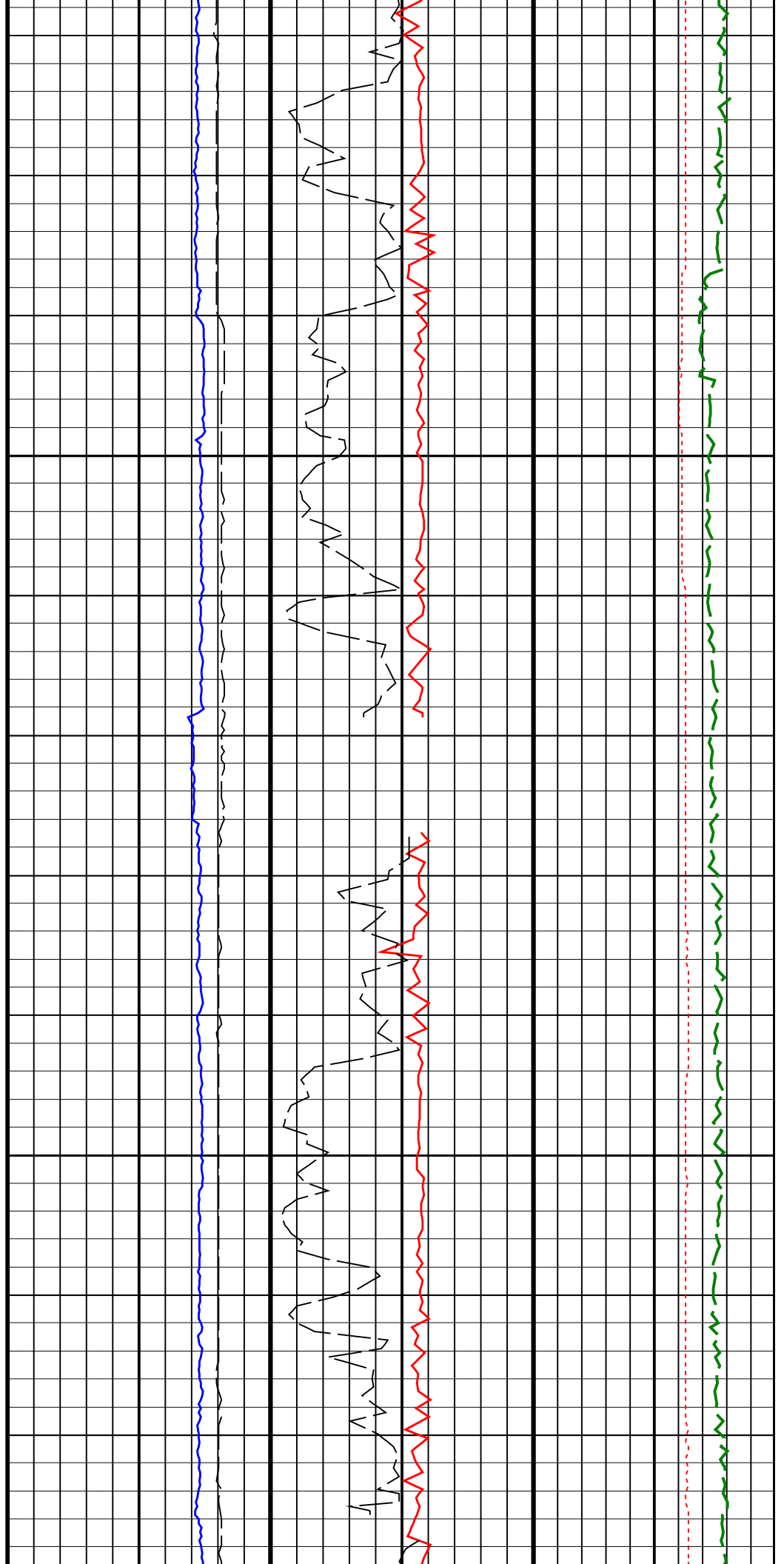
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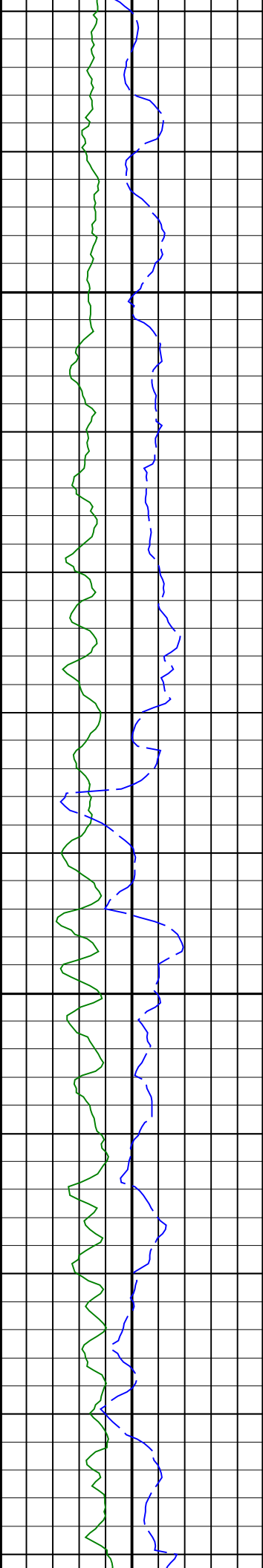




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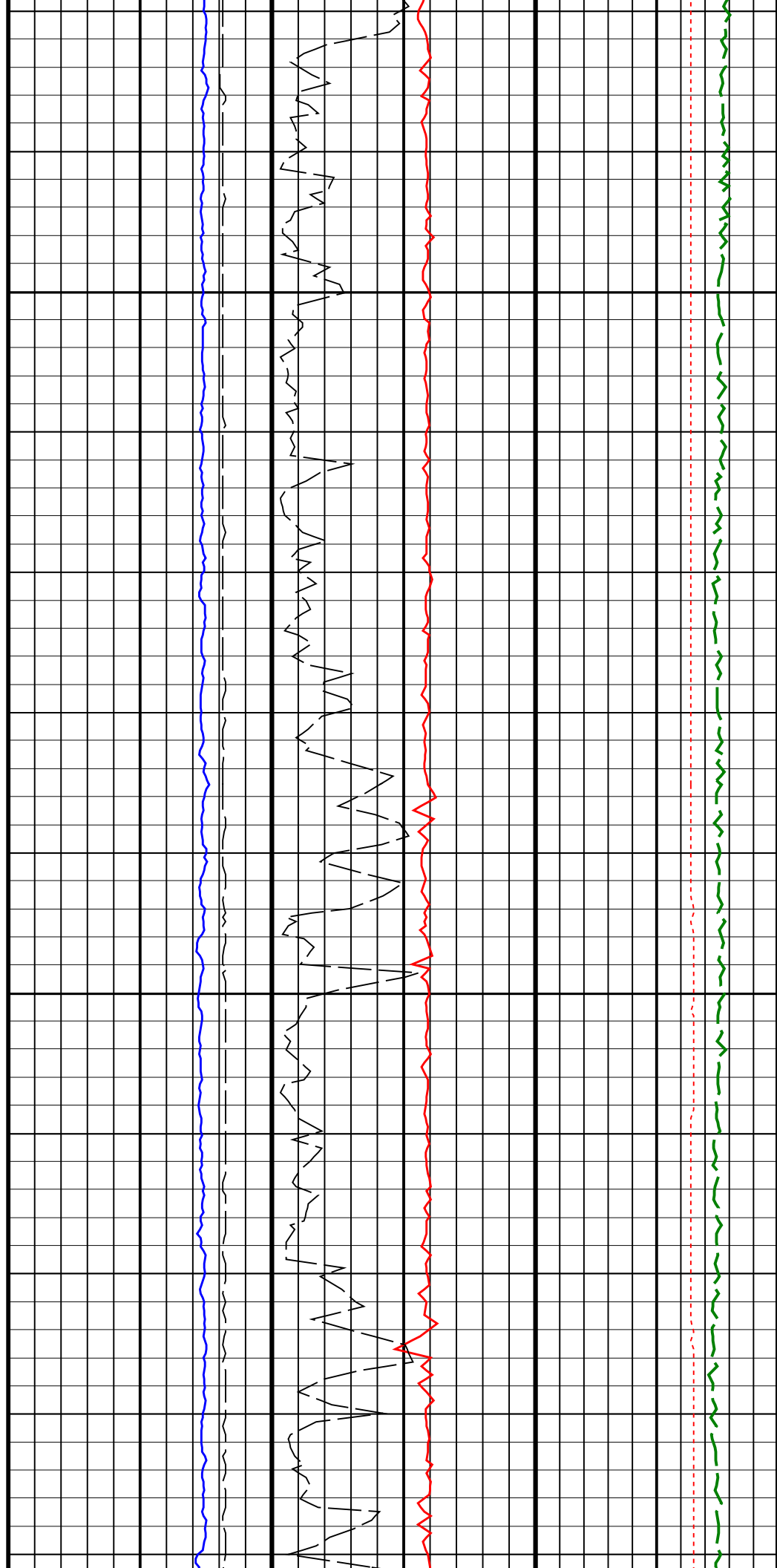
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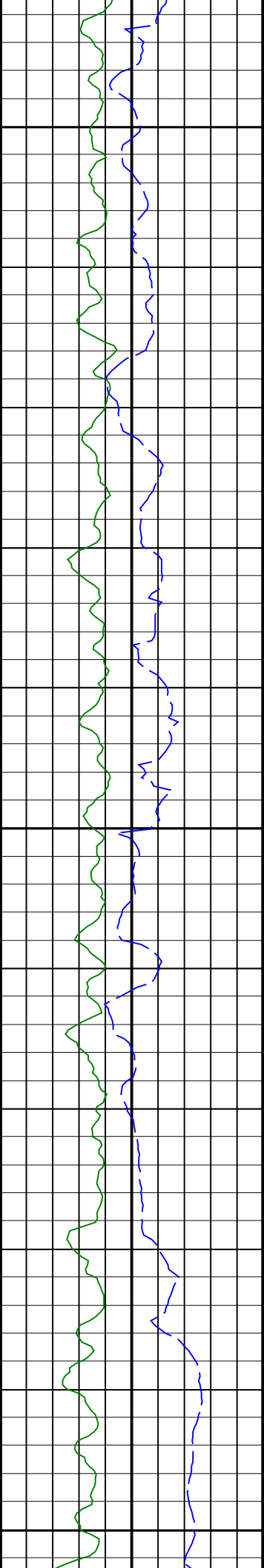




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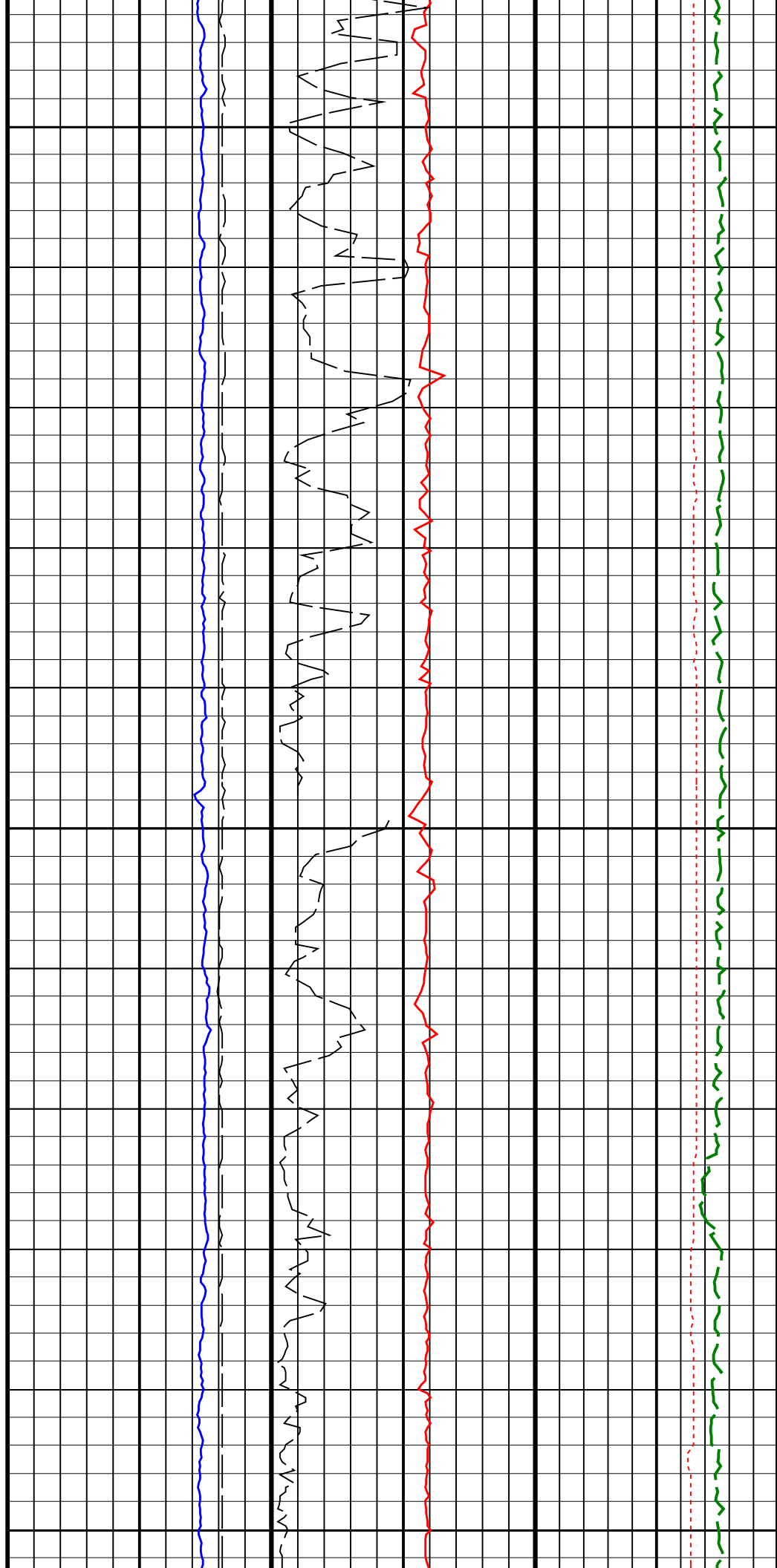


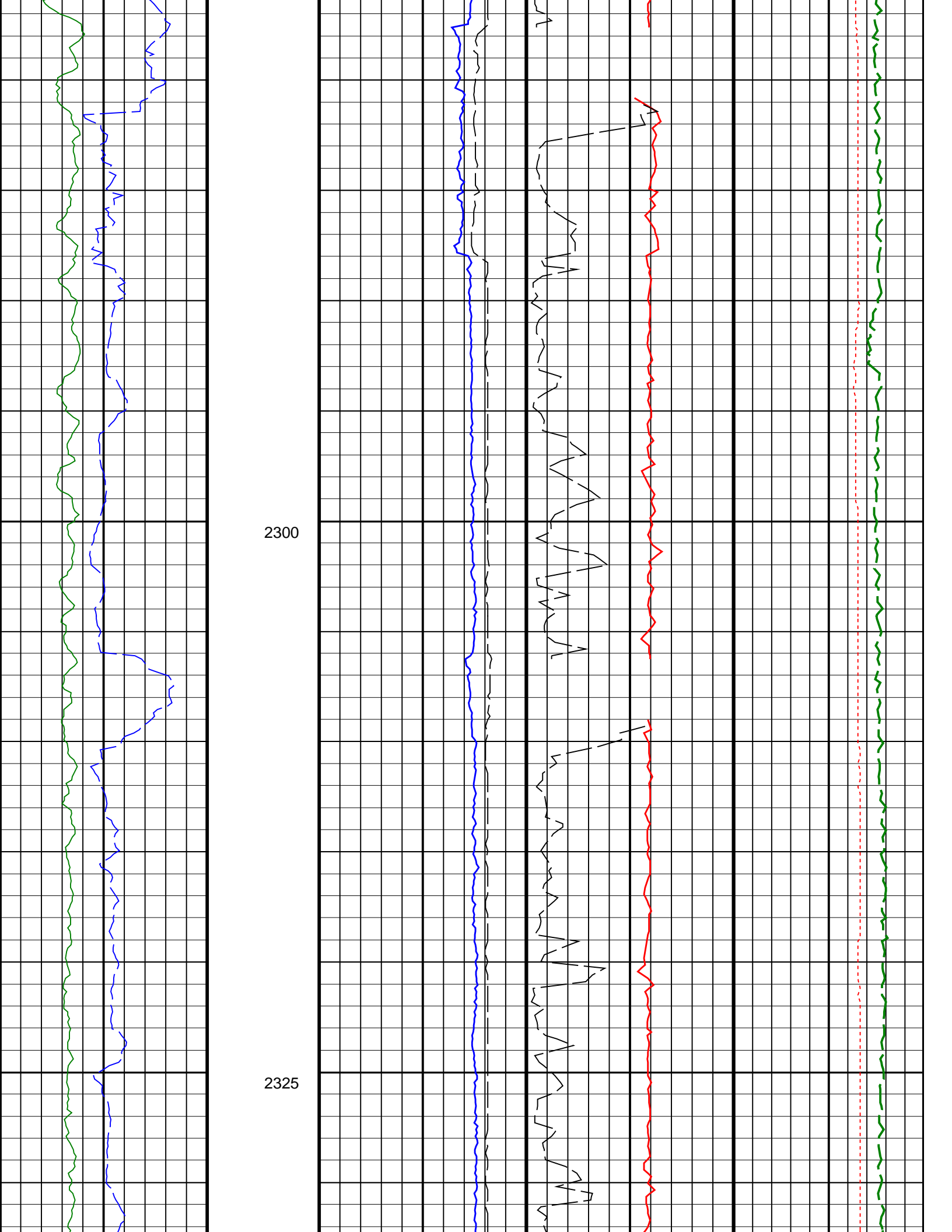


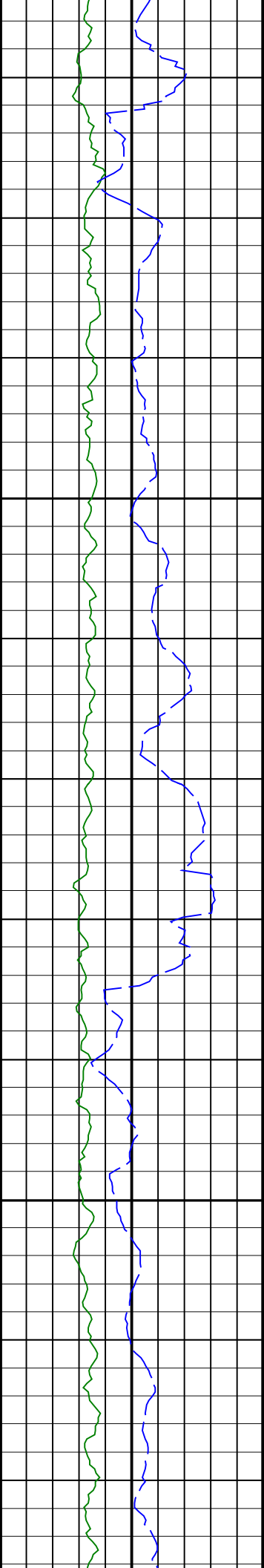
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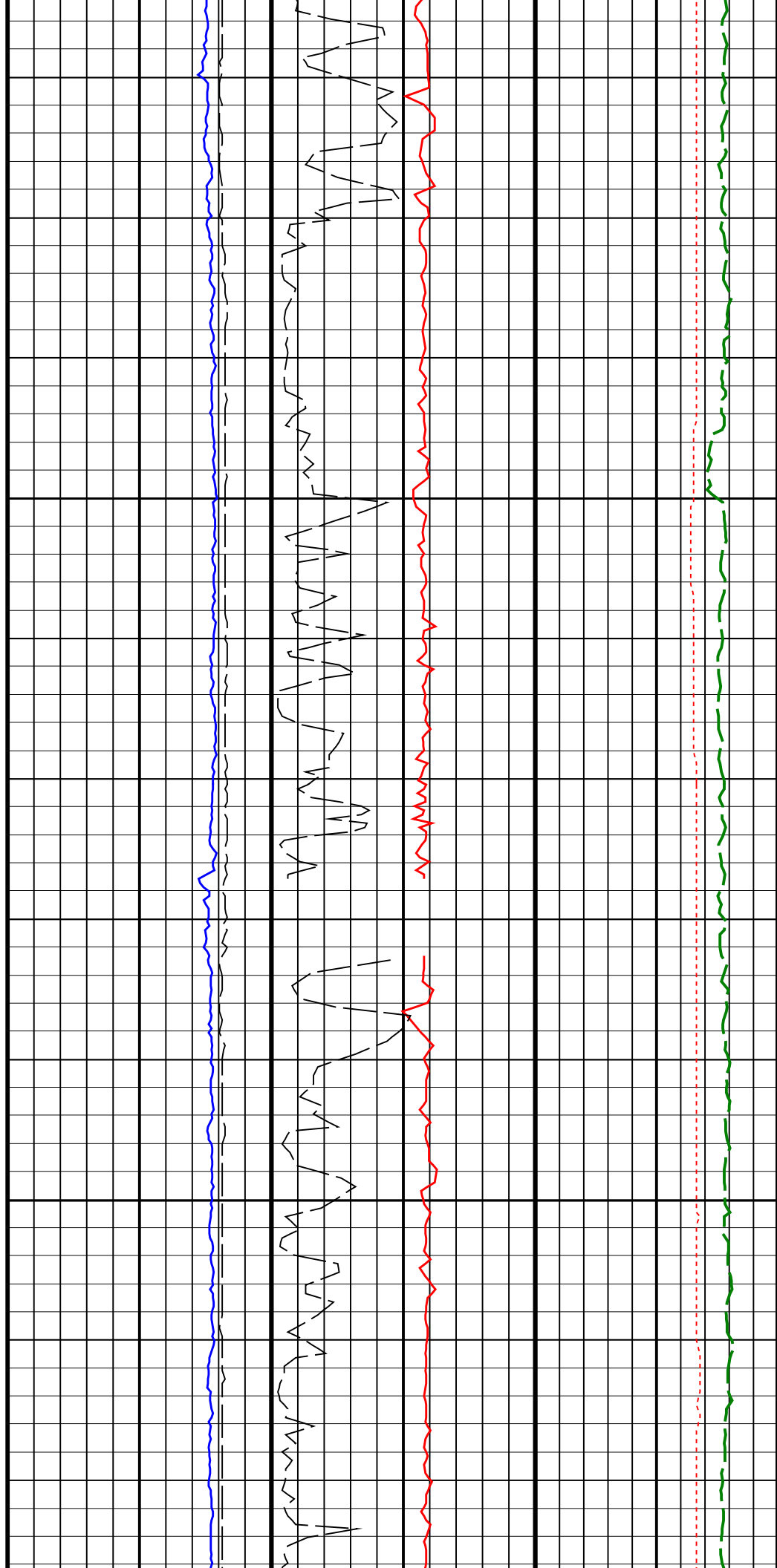


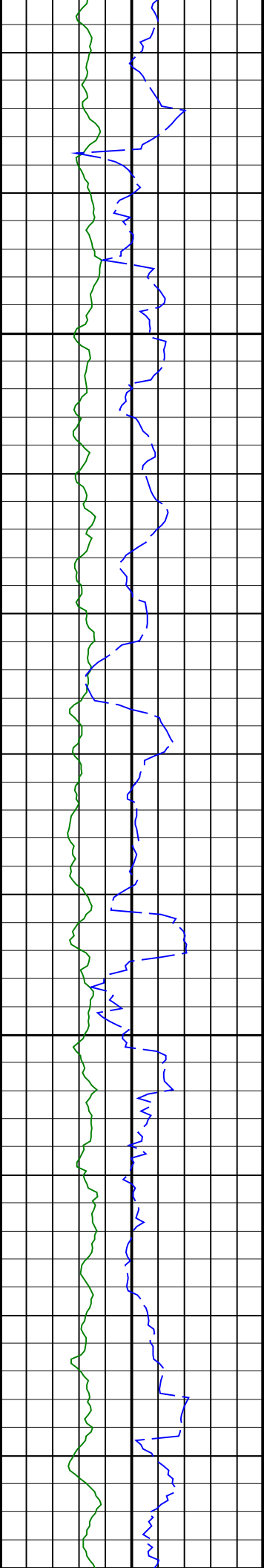




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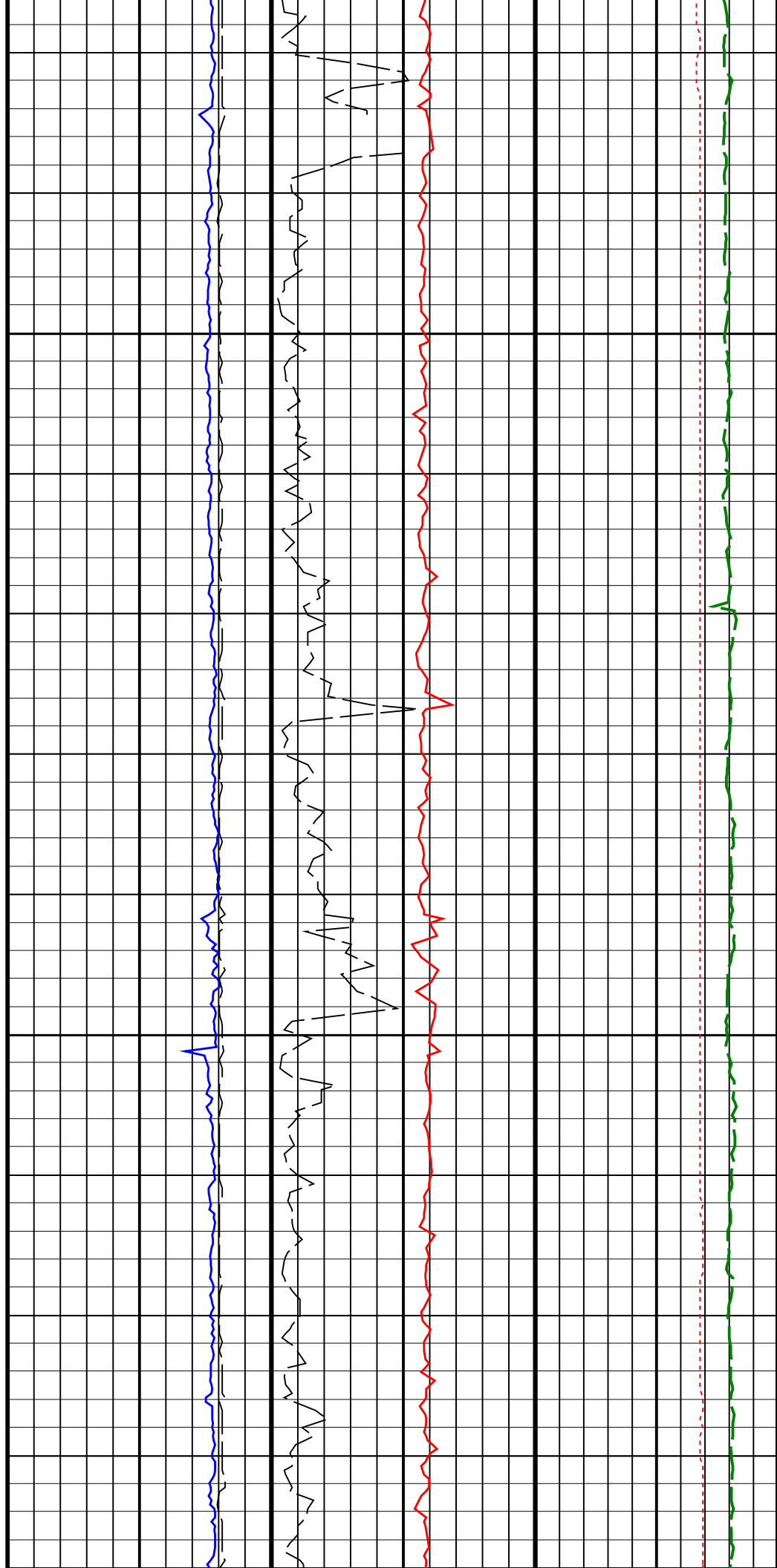
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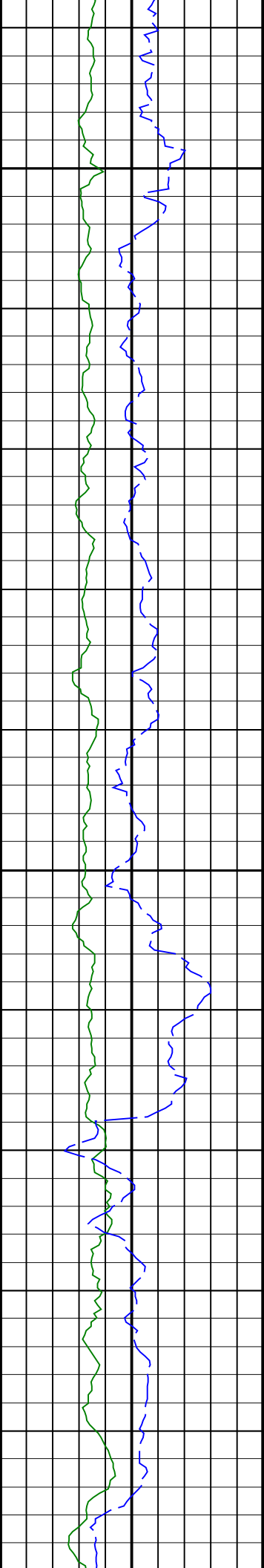




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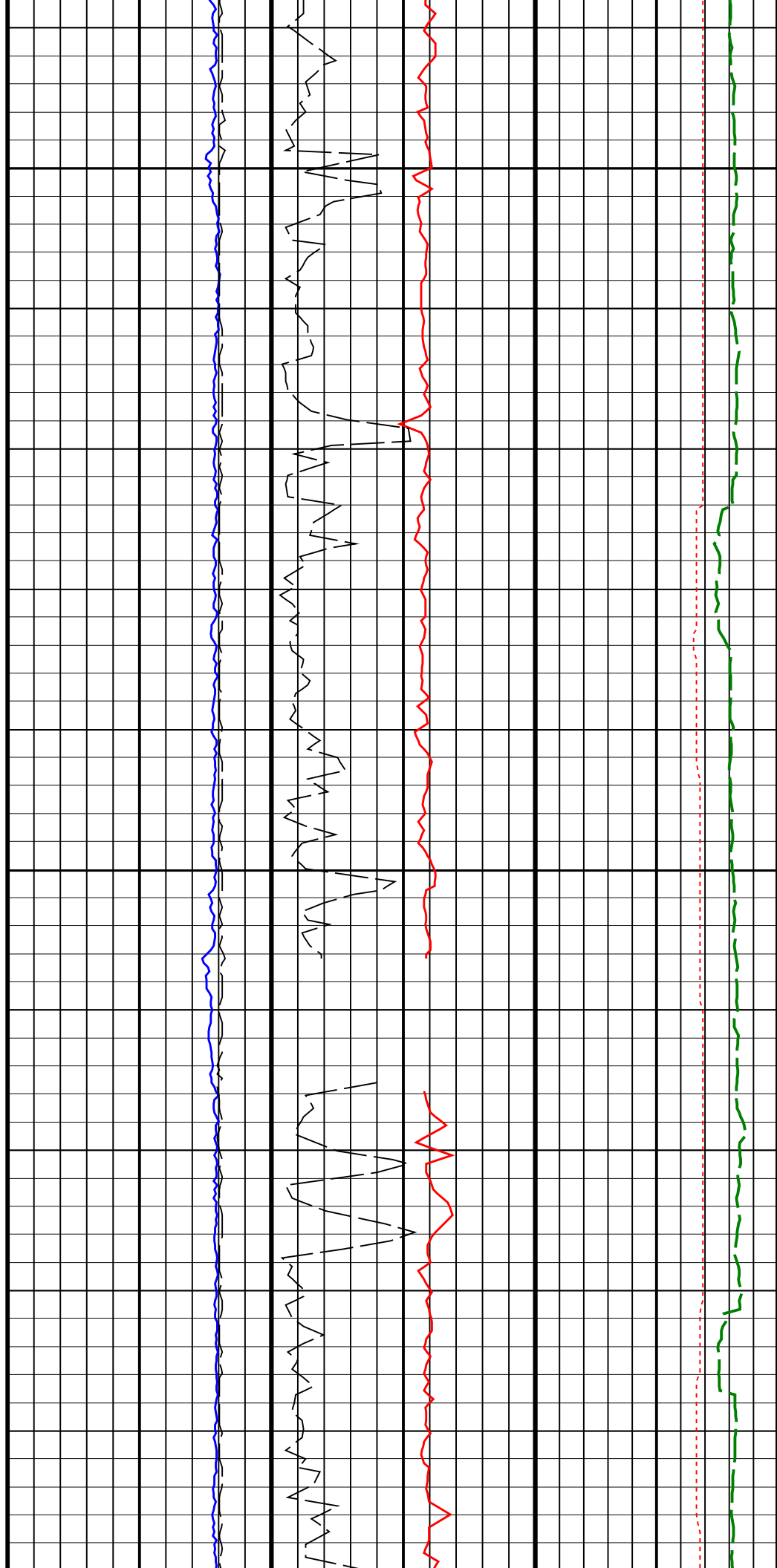
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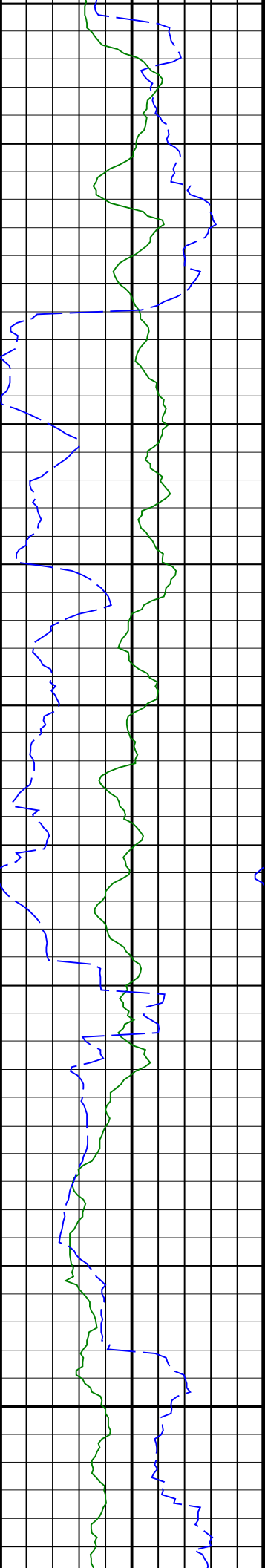


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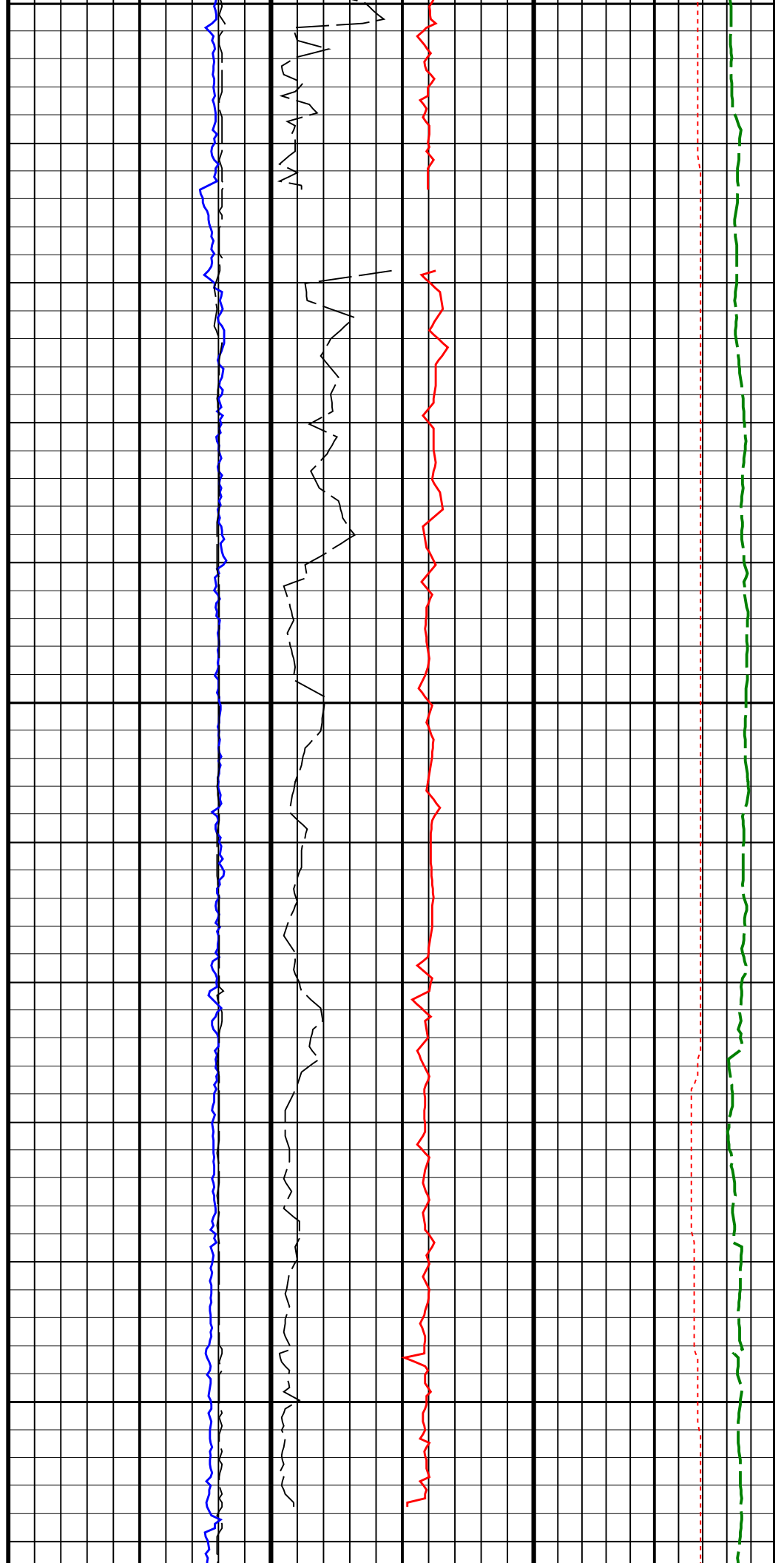


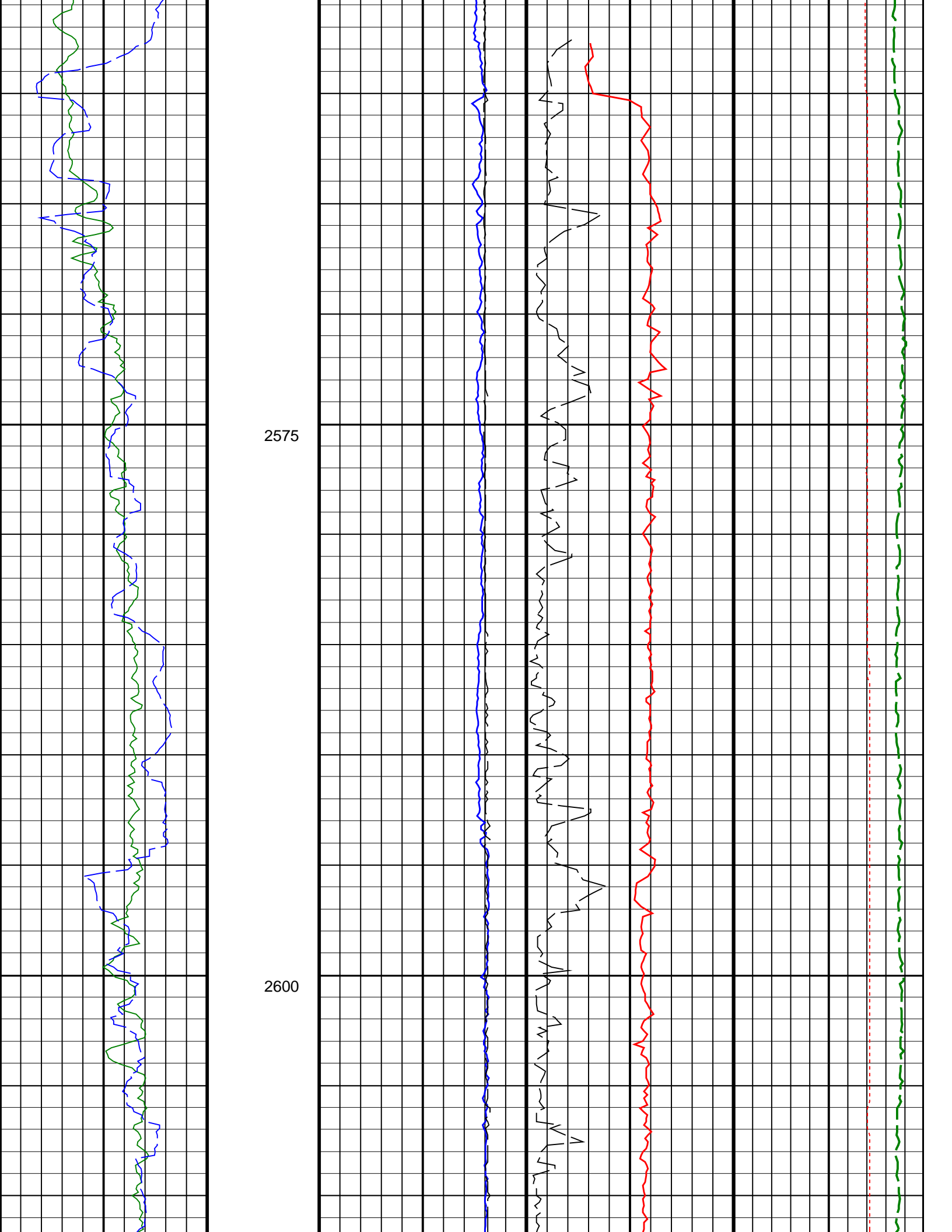


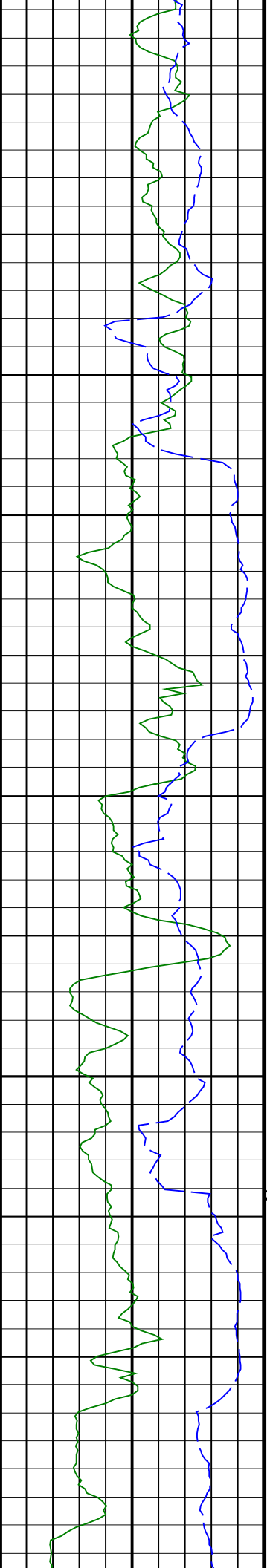
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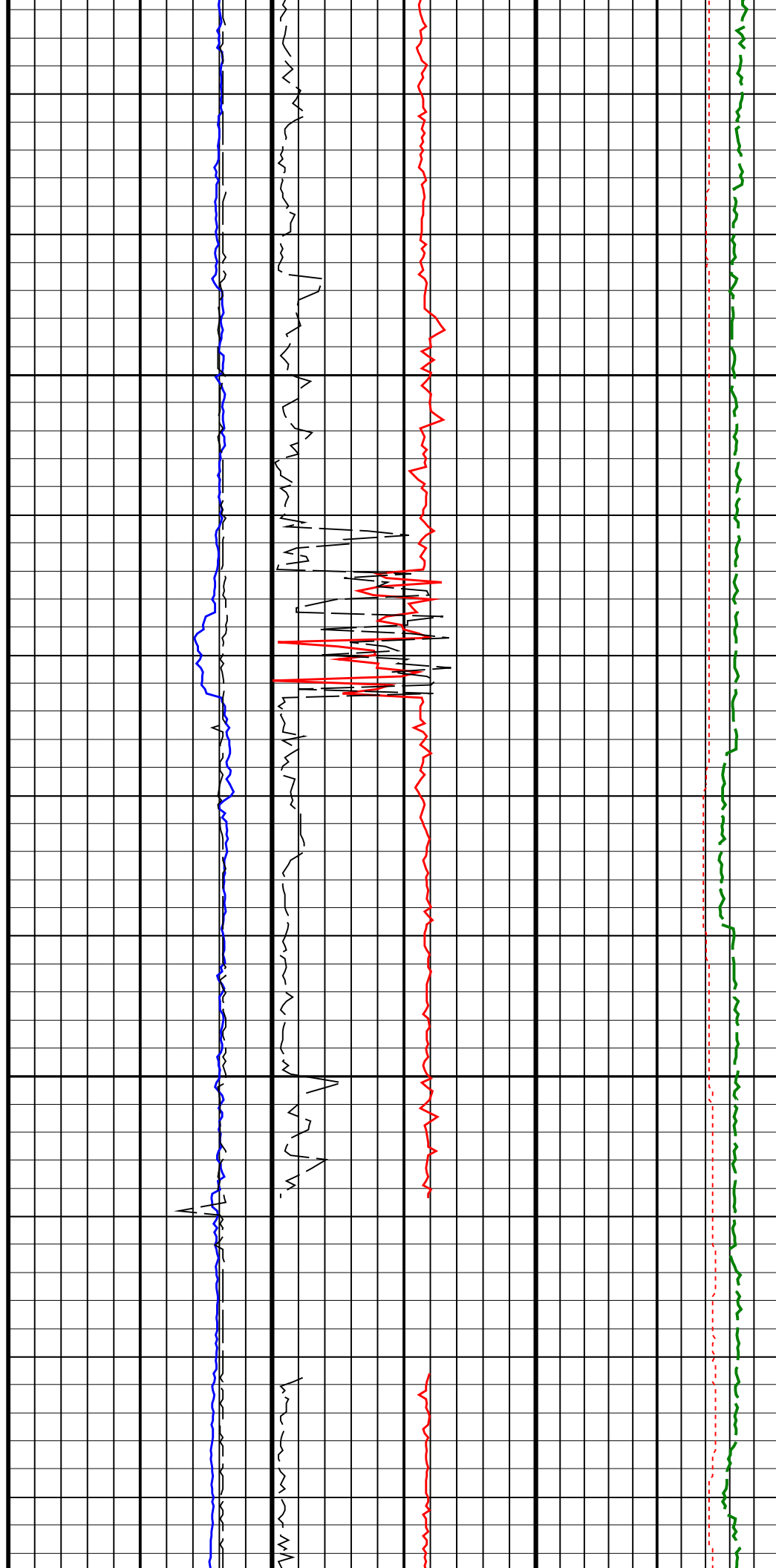


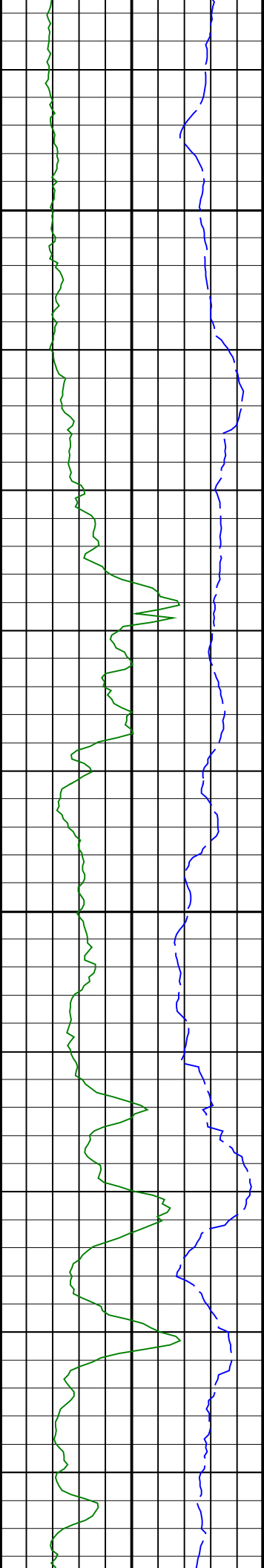




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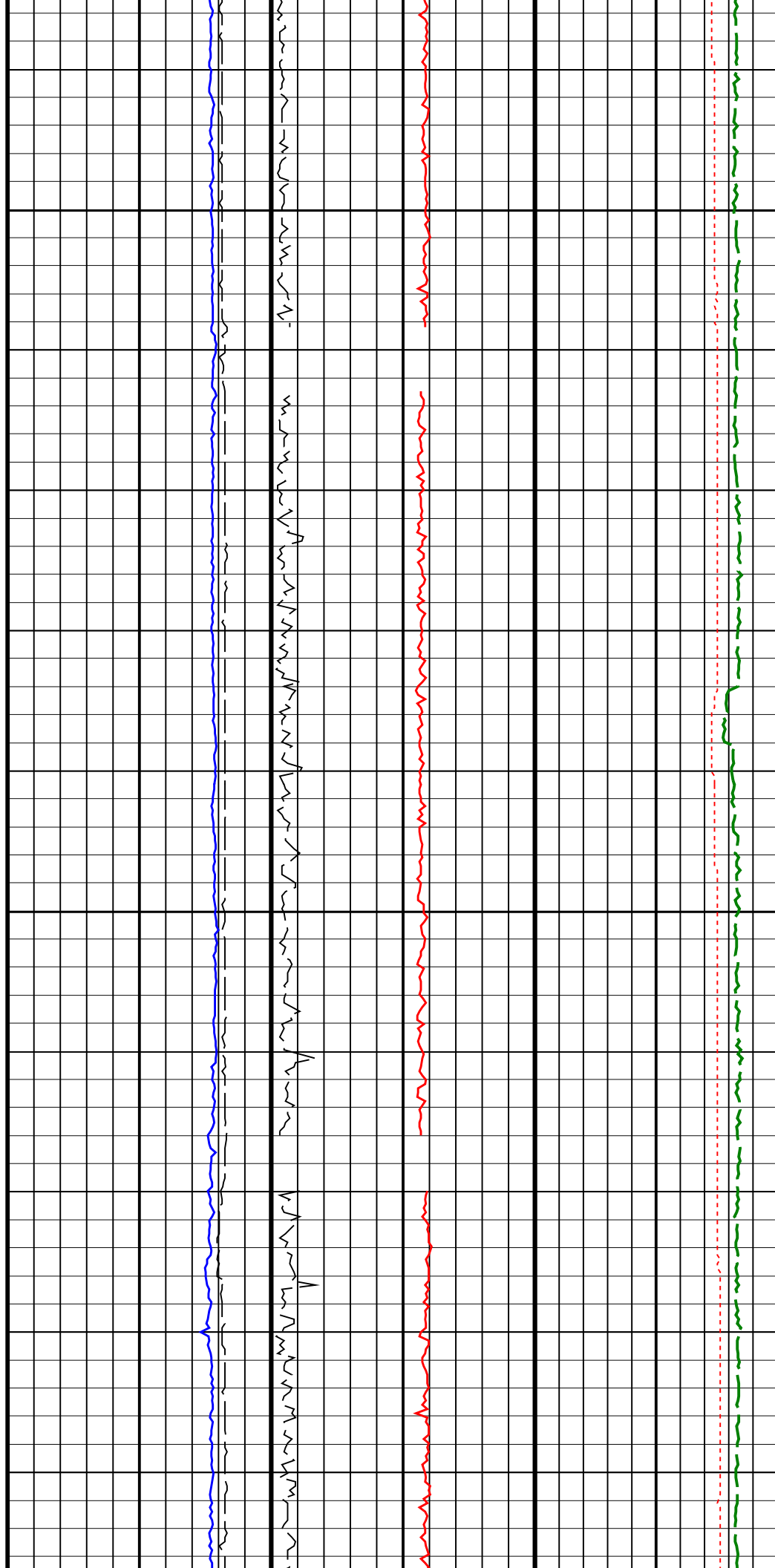
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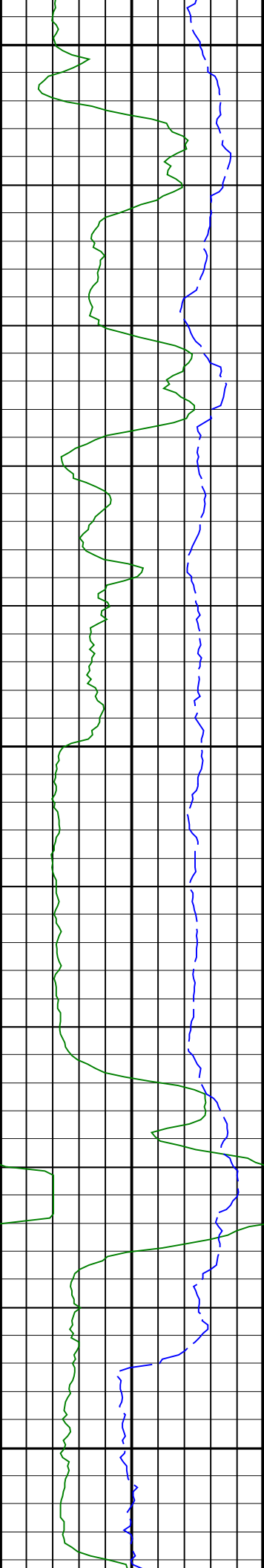




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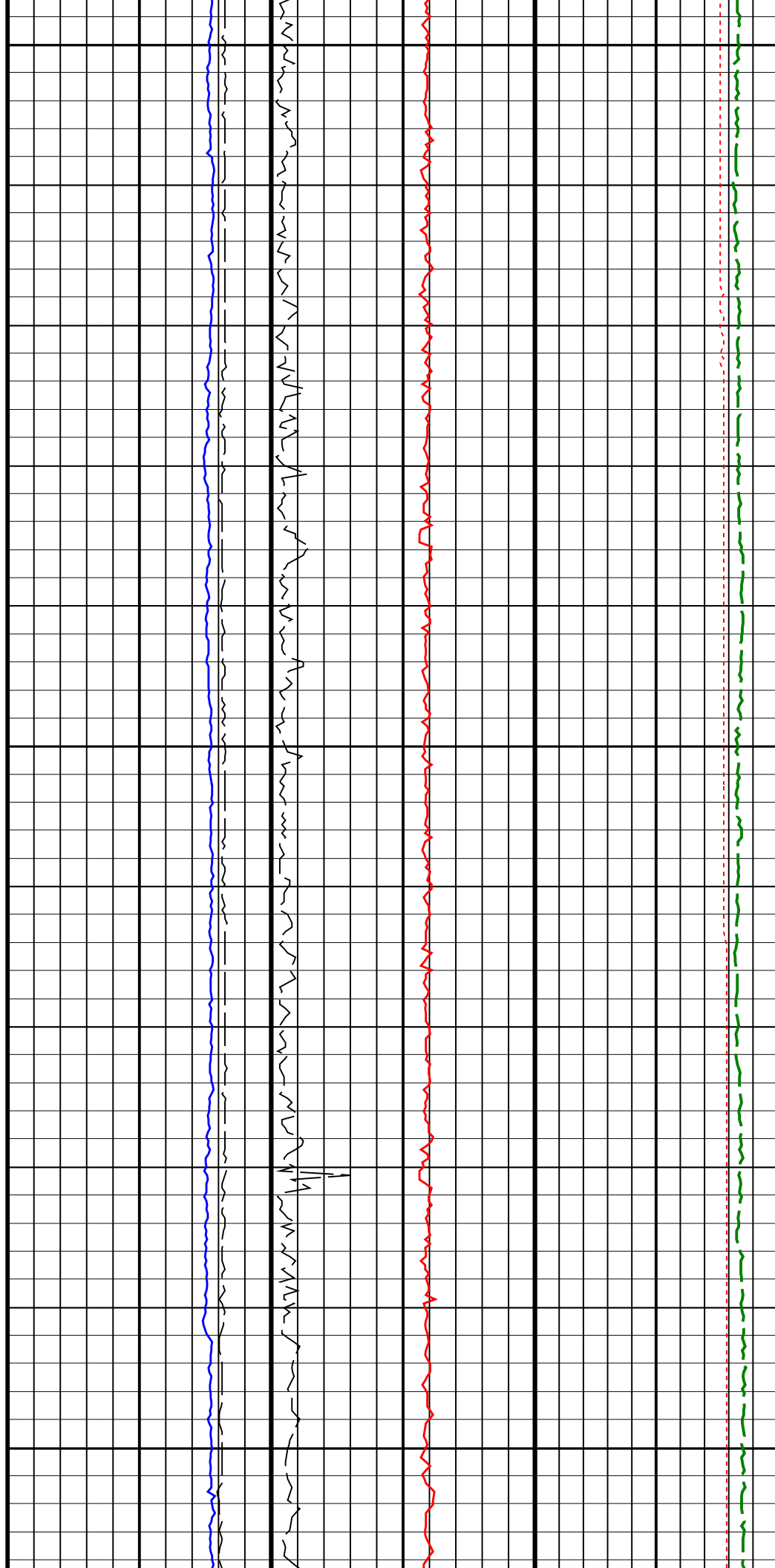


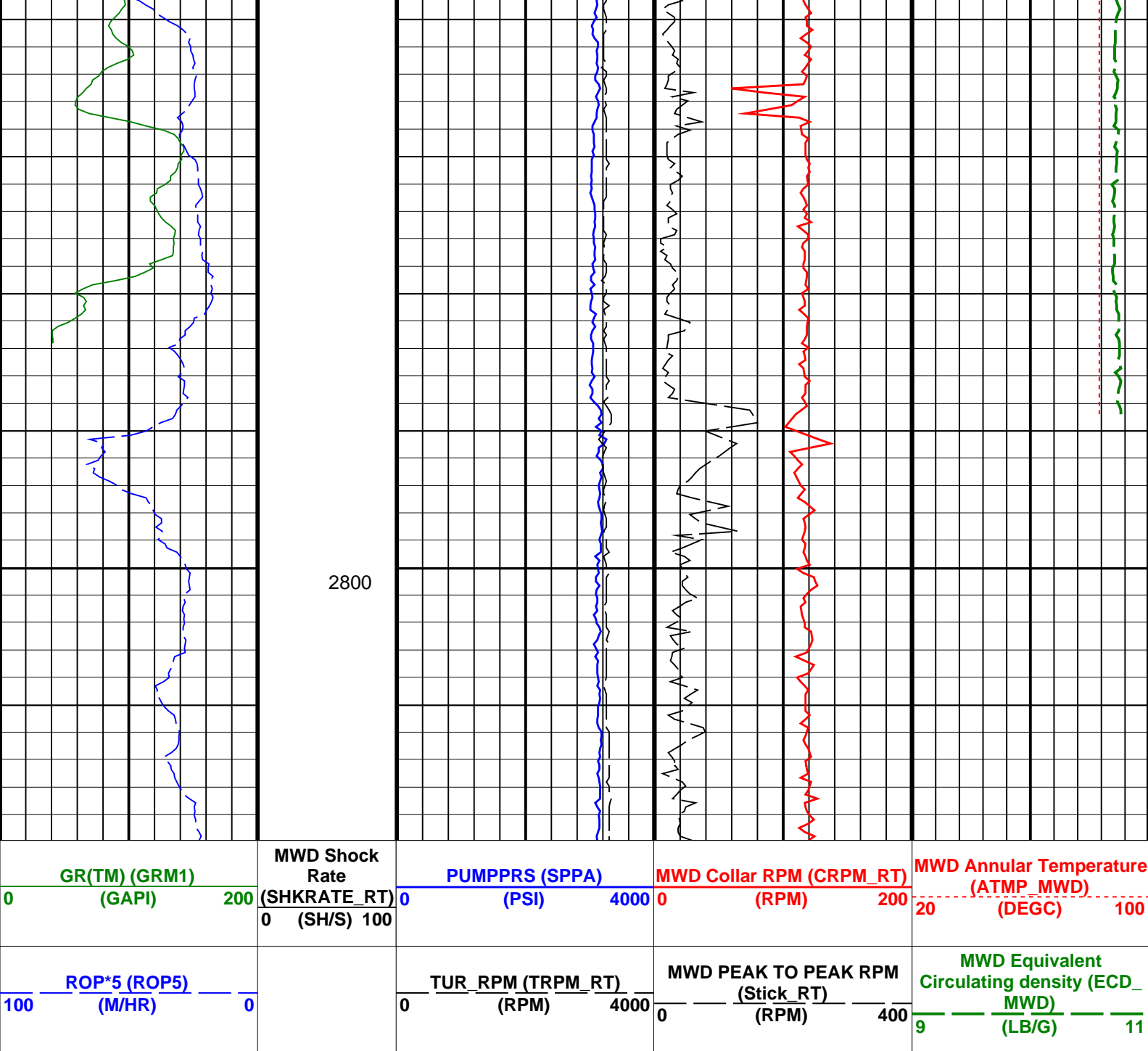


2725

2750

2775





SCHLUMBERGER

Survey report 15-Jun-2005 18:28:25 Page 1 of 4

Client.....: ESSO Australia Pty. Ltd.  
Field.....: Bream A

Well.....: BMA A5A Spud date.....: 11-June-2005  
API number.....: Last survey date.....: 14-Jun-05  
Engineer.....: R. Borjas, L. Johnston Total accepted surveys...: 67  
MD of first survey.....: 898.00 m  
Rig.....: ISDL 453 MD of last survey.....: 2810.00 m  
State.....: Victoria

----- Survey calculation methods-----  
Method for positions.....: Minimum curvature  
Method for DLS.....: Mason & Taylor  
----- Depth reference -----  
Permanent datum.....: Mean Sea Level  
Depth reference.....: Drillers Depth  
GL above permanent.....: -59.40 m  
KB above permanent.....: 9219.15 m  
DF above permanent.....: 32.82 m  
----- Vertical section origin -----  
Latitude (+N/S-).....: -0.78 m  
Departure (+E/W-).....: 8.50 m  
----- Geomagnetic data -----  
Magnetic model.....: BGGM version 2004  
Magnetic date.....: 06-Jun-2005  
Magnetic field strength...: 1202.99 HCNT  
Magnetic dec (+E/W-).....: 13  
Magnetic dip.....: -69.03 degrees  
----- MWD survey Reference Criteria -----  
Reference G.....: 1000.05 mGal  
Reference H.....: 1202.99 HCNT  
Reference Dip.....: -69.03 degrees  
Tolerance of G.....: (+/-) 2.0  
Tolerance of H.....: (+/-) 6.00 HCNT  
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----  
 Magnetic dec (+E/W-).....: 13.10 degrees  
 Grid convergence (+E/W-)..: -0.48 degrees  
 Total az corr (+E/W-).....: 13.58 degrees  
 Azimuth from Vsect Origin to target: 237.07 degrees (Total az corr = magnetic dec - grid conv)  
 Survey Correction Type ....  
 I=Sag Corrected Inclination  
 M=Schlumberger Magnetic Correction  
 S=Shell Magnetic Correction  
 F=Failed Axis Correction  
 R=Magnetic Resonance Tool Correction  
 D=Dmag Magnetic Correction

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 SCHLUMBERGER Survey Report 15-Jun-2005 18:28:25 Page 2 of 4

Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
1	898.00	18.77	284.15	0.00	856.01	185.55	30.51	-232.83	234.82	277.47	0.00	TIP	None
2	966.80	28.43	257.97	68.80	919.15	208.50	29.80	-259.72	261.42	276.55	6.22	MWD	None
3	995.62	33.51	257.04	28.82	943.85	222.39	26.58	-274.19	275.47	275.54	5.40	MWD	None
4	1024.44	36.09	254.25	28.82	967.52	237.99	22.49	-290.11	290.98	274.43	3.21	MWD	None
5	1052.94	39.62	250.42	28.50	990.02	254.85	17.17	-306.76	307.24	273.20	4.53	MWD	None
6	1081.54	42.92	246.85	28.60	1011.52	273.33	10.28	-324.31	324.48	271.82	4.32	MWD	None
7	1109.93	45.33	243.50	28.39	1031.90	292.89	1.97	-342.24	342.25	270.33	3.60	MWD	None
8	1138.40	48.75	241.39	28.47	1051.30	313.63	-7.67	-360.70	360.79	268.78	4.02	MWD	None
9	1166.60	51.88	234.98	28.20	1069.31	335.31	-19.12	-379.11	379.59	267.11	6.31	MWD	None
10	1195.16	54.08	231.63	28.56	1086.51	358.05	-32.75	-397.38	398.73	265.29	3.70	MWD	None
11	1223.60	55.44	228.23	28.44	1102.92	381.10	-47.71	-415.15	417.88	263.44	3.31	MWD	None
12	1254.14	55.31	227.89	30.54	1120.28	405.92	-64.50	-433.84	438.61	261.54	0.31	MWD	None
13	1282.54	56.21	227.72	28.40	1136.26	429.09	-80.27	-451.24	458.32	259.91	0.98	MWD	None
14	1311.31	55.68	227.71	28.77	1152.37	452.61	-96.31	-468.87	478.66	258.39	0.56	MWD	None
15	1339.95	56.20	228.63	28.64	1168.41	476.05	-112.13	-486.55	499.31	257.02	0.98	MWD	None
16	1368.59	56.02	228.31	28.64	1184.38	499.55	-127.89	-504.35	520.31	255.77	0.34	MWD	None
17	1397.42	55.90	227.95	28.83	1200.51	523.15	-143.84	-522.14	541.59	254.60	0.34	MWD	None
18	1427.92	55.55	227.39	30.50	1217.69	548.02	-160.81	-540.77	564.18	253.44	0.58	MWD	None
19	1455.09	55.36	228.89	27.17	1233.10	570.13	-175.75	-557.44	584.49	252.50	1.40	MWD	None
20	1483.16	55.14	229.20	28.07	1249.10	592.96	-190.86	-574.86	605.71	251.63	0.37	MWD	None
21	1512.02	54.35	229.06	28.86	1265.76	616.30	-206.28	-592.68	627.55	250.81	0.84	MWD	None
22	1540.91	54.88	230.06	28.89	1282.49	639.65	-221.56	-610.60	649.56	250.06	1.03	MWD	None
23	1569.53	55.84	229.71	28.62	1298.76	663.01	-236.73	-628.61	671.71	249.36	1.06	MWD	None
24	1598.06	55.39	229.72	28.53	1314.87	686.36	-251.96	-646.57	693.92	248.71	0.47	MWD	None
25	1626.78	55.95	230.07	28.72	1331.07	709.90	-267.24	-664.71	716.41	248.10	0.67	MWD	None
26	1655.43	55.32	229.93	28.65	1347.24	733.36	-282.44	-682.82	738.93	247.53	0.68	MWD	None
27	1683.72	56.42	229.37	28.29	1363.11	756.59	-297.60	-700.67	761.25	246.99	1.29	MWD	None
28	1712.45	56.26	229.02	28.73	1379.04	780.27	-313.23	-718.77	784.05	246.45	0.35	MWD	None
29	1741.09	55.75	228.66	28.64	1395.05	803.77	-328.85	-736.65	806.72	245.94	0.63	MWD	None
30	1770.00	55.22	228.45	28.91	1411.43	827.33	-344.62	-754.50	829.48	245.45	0.59	MWD	None

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 SCHLUMBERGER Survey Report 15-Jun-2005 18:28:25 Page 3 of 4

Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
31	1798.98	56.22	228.15	28.98	1427.75	851.00	-360.55	-772.38	852.39	244.98	1.08	MWD	None
32	1827.38	55.67	228.12	28.40	1443.66	874.24	-376.25	-789.90	874.94	244.53	0.59	MWD	None
33	1856.22	55.37	227.89	28.84	1459.98	897.72	-392.16	-807.57	897.75	244.10	0.38	MWD	None
34	1885.10	54.95	227.75	28.88	1476.48	921.11	-408.07	-825.14	920.53	243.69	0.46	MWD	None
35	1913.84	54.76	227.59	28.74	1493.03	944.30	-423.90	-842.51	943.14	243.29	0.24	MWD	None
36	1942.52	54.23	227.73	28.68	1509.68	967.33	-439.63	-859.77	965.65	242.92	0.58	MWD	None
37	1971.34	55.16	228.07	28.82	1526.34	990.55	-455.39	-877.22	988.38	242.56	1.03	MWD	None
38	2000.13	54.87	227.76	28.79	1542.84	1013.84	-471.20	-894.73	1011.22	242.23	0.41	MWD	None
39	2028.59	55.60	228.87	28.46	1559.07	1036.94	-486.75	-912.19	1033.93	241.92	1.25	MWD	None
40	2057.47	55.15	228.63	28.88	1575.48	1060.46	-502.42	-930.05	1057.08	241.62	0.52	MWD	None
41	2085.70	56.15	228.38	28.23	1591.41	1083.51	-517.86	-947.51	1079.79	241.34	1.10	MWD	None
42	2113.96	55.53	228.22	28.26	1607.28	1106.61	-533.42	-964.97	1102.59	241.07	0.68	MWD	None
43	2142.51	56.95	227.90	28.54	1623.14	1130.05	-549.28	-982.62	1125.72	240.80	1.54	MWD	None
44	2171.01	56.53	227.84	28.50	1638.77	1153.58	-565.26	-1000.29	1148.96	240.53	0.45	MWD	None
45	2199.62	56.33	227.52	28.61	1654.59	1177.10	-581.31	-1017.92	1172.21	240.27	0.36	MWD	None
46	2228.56	56.16	227.27	28.94	1670.67	1200.82	-597.60	-1035.63	1195.68	240.01	0.28	MWD	None
47	2256.86	55.96	227.18	28.31	1686.48	1223.95	-613.55	-1052.87	1218.60	239.77	0.23	MWD	None
48	2285.73	55.59	228.30	28.87	1702.71	1247.51	-629.60	-1070.53	1241.95	239.54	1.05	MWD	None
49	2314.37	55.68	228.68	28.63	1718.88	1270.88	-645.27	-1088.23	1265.16	239.33	0.35	MWD	None
50	2342.91	55.67	228.64	28.54	1734.97	1294.20	-660.84	-1105.93	1288.33	239.14	0.04	MWD	None
51	2371.48	55.45	229.48	28.57	1751.13	1317.53	-676.27	-1123.73	1311.53	238.96	0.78	MWD	None
52	2400.20	55.35	229.02	28.72	1767.44	1340.95	-691.71	-1141.64	1334.84	238.79	0.42	MWD	None
53	2429.43	55.21	228.77	29.24	1784.09	1364.73	-707.50	-1159.74	1358.52	238.61	0.26	MWD	None
54	2457.95	54.99	228.91	28.52	1800.40	1387.88	-722.90	-1177.35	1381.57	238.45	0.27	MWD	None
55	2486.70	55.47	230.11	28.75	1816.80	1411.29	-738.23	-1195.31	1404.90	238.30	1.16	MWD	None
56	2515.40	56.27	230.52	28.70	1832.90	1434.88	-753.40	-1213.60	1428.43	238.17	0.92	MWD	None
57	2544.25	57.18	230.64	28.85	1848.73	1458.85	-768.72	-1232.23	1452.35	238.04	0.97	MWD	None
58	2572.83	56.41	230.34	28.58	1864.38	1482.61	-783.93	-1250.68	1476.06	237.92	0.86	MWD	None
59	2601.59	56.46	230.30	28.76	1880.28	1506.40	-799.23	-1269.12	1499.81	237.80	0.06	MWD	None
60	2630.34	56.56	230.09	28.75	1896.15	1530.21	-814.58	-1287.54	1523.58	237.68	0.21	MWD	None

Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
61	2658.55	56.02	229.02	28.21	1911.80	1553.47	-829.80	-1305.40	1546.82	237.56	1.12	MWD	None
62	2687.16	56.05	228.09	28.62	1927.79	1576.94	-845.51	-1323.19	1570.26	237.42	0.82	MWD	None
63	2716.60	56.25	227.84	29.43	1944.18	1601.08	-861.88	-1341.34	1594.38	237.28	0.30	MWD	None
64	2744.47	56.92	227.78	27.87	1959.53	1624.04	-877.50	-1358.58	1617.33	237.14	0.73	MWD	None
65	2773.23	57.67	227.57	28.76	1975.07	1647.91	-893.80	-1376.47	1641.20	237.00	0.82	MWD	None
66	2790.16	58.07	227.42	16.94	1984.08	1662.06	-903.49	-1387.05	1655.35	236.92	0.76	MWD	None
67	2810.00	58.40	227.30	19.84	1994.52	1678.68	-914.91	-1399.45	1671.98	236.82	0.53	Projection to TD	

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Company: **ESSO Australia Pty. Ltd.****Schlumberger**Well: **BMA A5A**Field: **Bream A**Rig: **ISDL 453**State: **Victoria****Gamma Ray Service  
1:200 Measured Depth  
Drilling Mechanics Log**