



Weatherford®

4 3/4 in. WeatherfordM/LWD™
Spectral Gamma Ray
5 in. MEASURED DEPTH
RECORDED DATA
FINAL PRINT

Company: Anadarko
Well: Griffiths 34N-20HZ
Field: Wattenberg
Rig: H&P 307
County: Weld

Location		Other Services:	
Latitude:	40.057105° N	x = 1,264,176.37 ft	Mag Decl: 8.68°
Longitude:	-104.921823° W	y = -3,161,841.59 ft	Mag Dip: 66.67°
COMPANY		Anadarko	
WELL		Griffiths 34N-20HZ	
FIELD		Wattenberg	
RIG		H&P 307	
COUNTY		Weld	
API #		05-123-36634	
STATE		Colorado	
Other Services:		Resistivity, Directional and Temperature	

Permanent Datum:	Mean Sea Level		
Log Measured From:	Drill Floor	Elev: 5095.0 ft	above perm. datum
Depth Reference:	Drillers Tally	Total Depth:	17341 ft
Depth Logged:	6900 ft	to 17341 ft	Runs: 4
Date Logged:	19-Jun-13	to 15-Aug-13	Spud Date: 14-Jun-13

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1086 ft	9.625 in.	32.0 lb/ft	Surface	1086 ft
8.750 in.	1086 ft	7950 ft	7.000 in.	26.0 lb/ft	Surface	7941 ft
6.125 in.	7950 ft	17341 ft				
Borehole Deviation Record			Mud Record			
Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From	To
8.750 in.	0.25°	85.31°	WBM	8.30 - 9.80 ppg	1086 ft	7950 ft
6.125 in.	86.36°	91.67°	OBM	9.90 - 10.20 ppg	8206 ft	17341 ft

All interpretations of log data are opinions based on inferences from electrical or other measurements. Weatherford International does not guarantee the accuracy or correctness of any interpretation or recommendation and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation or recommendation made by any of our employees or agents.

RUN SUMMARY							
M/LWD Run Number		1	2	3	4		
Bit Size	in.	8.750	8.750	6.125	6.125		
Bit Type		PDC	PDC	PDC	PDC		
Bit TFA	sq.in.	1.490	2.220	1.530	1.534		
Bit Start Depth	ft	1086	6943	7950	11158		
Bit End Depth	ft	6943	7950	11158	17341		
Top Log Interval	ft	na	6900	7905	11118		
Bottom Log Interval	ft	na	7950	11158	17341		
Begin Log Time	hrs	na	1:44	21:53	4:43		
Begin Log Date	DD-MMM-YY	na	19-Jun-13	8-Aug-13	11-Aug-13		
End Log Time	hrs	na	18:49	6:04	1:34		
End Log Date	DD-MMM-YY	na	19-Jun-13	10-Aug-13	15-Aug-13		
Drill or Wipe		Drill	Drill	Drill	Drill		
Flow Rate	gal/min	530	522	285	265		
Max AV / CV @ MWD	ft/min	470 / 241	434 / 328	466 / 360	440 / 360		
Min Inc @ Depth	deg @ ft	0.25 @ 5842	5.43 @ 6978	88.02 @ 9743	86.36 @ 17104		
Max Inc @ Depth	deg @ ft	12.67 @ 4423	85.31 @ 7890	91.06 @ 10951	91.67 @ 15875		
MUD DATA							
Depth	ft	6943	7950	11158	17341		
Fluid Type		WBM	WBM	OBM	OBM		
Mud Weight	ppg	8.40	9.80	10.00	9.90		
Plastic Viscosity	cP	5	11	15	19		
Solids / Sand	%	1.5 / 0.10	2.0 / 0.10	16.4 / 0.25	14.5 / 0.25		
NaCl Equiv. Chlorides	ppm	1815	1980	75900	77550		
pH		8.0	8.8	OBM	OBM		
Oil:Water Ratio	% Vol	100.0 : 0.0	100.0 : 0.0	80.0 : 20.0	80.0 : 20.0		
KCl	% Vol	0	0	0	0		
Client Representative		P. Cain	P. Cain	P. Cain	P. Cain		
Weatherford M/LWD Engineer		R. Komrs	R. Komrs	J. Leger	J. Leger		

EQUIPMENT SUMMARY						
M/LWD Run Number	1	2	3	4		
BTR / CDS Serial Number	48159 / 407	48159 / 407	na	na		
Battery Serial Number	403469370	403469370	na	na		
Gamma Ray Serial Number	na	48249	na	na		
CMS Serial Number	1506	1506	na	na		
Pulser Serial Number	44268	44268	na	na		
HEL Serial Number	na	na	NW131662PDBBI4.75-M3	NW131662PDBBI4.75-M3		
SAGR Serial Number	na	na	NW131660JB4.75-M1	NW131660JB4.75-M1		
Sensor to Bit Offsets / Acquisition Rates						
Spectral Gamma Ray	ft / sec	na	na	44.53 / 5	40.28 / 5	
Directional	ft / sec	58.20 / RT	60.00 / RT	59.30 / RT	55.05 / RT	
Gamma Ray	ft / sec	na	44.32 / 16	na	na	
Other Information						
Total BHA Length	ft	97.54	98.01	4052.24	4047.99	
BHA Assembly Type		Steerable	Steerable	Steerable	Steerable	
Stabilizer Location	ft	na	na	33.69	35.62	
Run Circulating Time	hr	37.44	18.54	28.60	99.85	
Run Drilling Time	hr	24.35	10.49	18.95	55.76	

MUD SUMMARY

Date and Time	Run	Bit Depth	Mud Weight	% K	Rm @ Temp	Rmf @ Temp	Rmc @ Temp	BHCT
18 Jun 13 @ 16:00	01	6943 ft	8.40 ppg	0	na	na	na	144 F
19 Jun 13 @ 16:00	02	7950 ft	9.80 ppg	0	na	na	na	176 F
10 Aug 13 @ 16:00	03	11158 ft	10.00 ppg	0	na	na	na	221 F
15 Jul 13 @ 04:00	04	8206 ft	9.90 ppg	0	na	na	na	260 F

M/LWD RUN REMARKS

Run Number: 2 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Gamma Ray and Temperature.

Directional Services: On demand Inclination and Azimuth.

Borehole and Environmental Correction:

Hole Size:	8.750 in.	Gamma Ray: Hole size, mudweight, Collar O.D., Collar I.D. and K1 factor.
Mud Weight:	9.80 ppg	Collar O.D.: 6.750 in.
K1 Factor:	2.9680	Collar I.D.: 3.250 in.

Run Number: 3 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Spectral Gamma Ray and Temperature.

Directional Services: On demand Inclination and Azimuth.

Borehole and Environmental Correction:

Hole Size:	6.125 in.	Gamma Ray: Corrected for mud weight, hole size and KCl concentration.
KCL Concentration:	0%	
Mud Weight:	10.00 ppg	

Run Number: 4 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Spectral Gamma Ray and Temperature.

Directional Services: On demand Inclination and Azimuth.

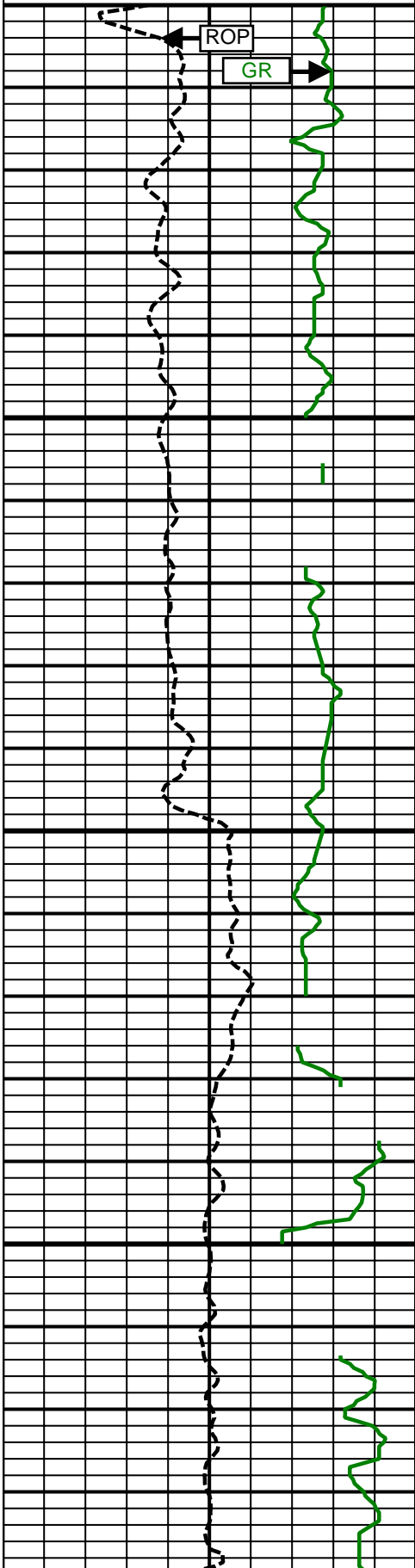
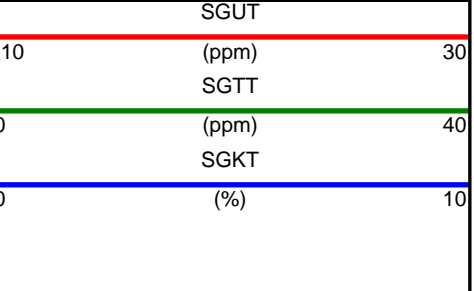
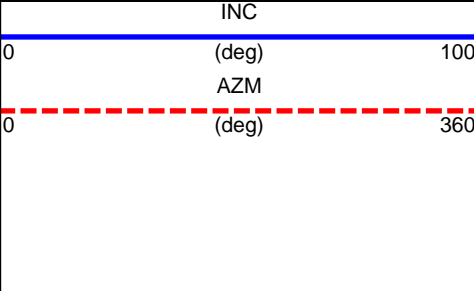
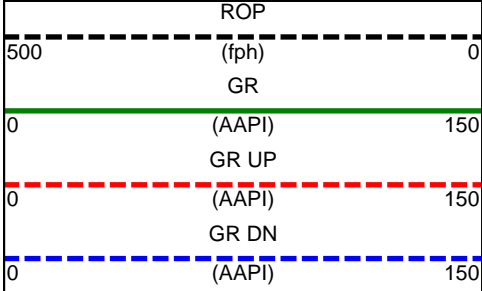
Borehole and Environmental Correction:

Hole Size:	6.125 in.	Gamma Ray: Corrected for mud weight, hole size and KCl concentration.
KCL Concentration:	0%	
Mud Weight:	9.90 ppg	

M/LWD LOG COMMENTS	
Comment No.	1-1
RECORDED DATA LOG	
Start of M/LWD Drilling Run 02	
Weatherford International provided 6 3/4 in. Directional, Gamma Ray, and Temperature for Run 02.	
Run 02 started formation drilling June 19, 2013 at 01:44 at 6900 MD / 6855 TVD. Weatherford International logged the 8.750 in. borehole.	
The WBM at the start of drilling was 9.20 ppg.	
Comment No.	1-2
End of M/LWD Drilling Run 02	
Run 02 ended drilling formation June 19, 2013 at 18:49 at 7950 MD / 7515 TVD.	
The OBM at the end of drilling was 9.80 ppg.	
Comment No.	2-1
RECORDED DATA LOG	
Start of LWD Drilling Run 03	
Weatherford International provided 4 3/4 in. Directional, Spectral Azimuthal Gamma Ray, and Temperature for Run 03.	
Run 03 started formation drilling August 08, 2013 at 21:53 at 7950 MD / 7515 TVD. Weatherford International logged the 6.125 in. borehole.	
The OBM at the start of drilling was 10.20 ppg.	
Comment No.	2-2
End of LWD Drilling Run 03	
Run 03 ended drilling formation August 10, 2013 at 06:04 at 11158 MD / 7531 TVD.	
The OBM at the end of drilling was 10.00 ppg.	
Comment No.	3-1
RECORDED DATA LOG	
Start of LWD Drilling Run 04	
Weatherford International provided 4 3/4 in. Directional, Spectral Azimuthal Gamma Ray, and Temperature for Run 04.	
Run 04 started formation drilling August 11, 2013 at 04:43 at 11158 MD / 7531 TVD. Weatherford International logged the 6.125 in. borehole.	
The OBM at the start of drilling was 10.00 ppg.	
Comment No.	3-2
End of LWD Drilling Run 04	
Run 04 ended drilling formation August 15, 2013 at 01:34 at 17341 MD / 7615 TVD.	
The OBM at the end of drilling was 9.90 ppg.	

CURVE SPECIFICATIONS				
CURVE TYPE	MNEMONIC	UNITS	COMMENTS	CORRECTIONS
Rate of Penetration	ROP	fph	Rate of Penetration 3.0 ft window 0.5 ft Exponential Smoothing	None
Gamma Ray	GR	AAPI	Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	See M/LWD Run Remarks
Gamma Ray Up	GR UP	ohm-m	Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Gamma Ray Down	GR DN	ohm-m	Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Uranium Total	SGUT	ppm	Uranium Concentration 3.0 ft window 0.5 ft Exponential Smoothing	
Thorium Total	SGTT	ppm	Thorium Concentration 3.0 ft window 0.5 ft Exponential Smoothing	
Potassium Total	SGKT	%	Potassium Concentration No Smoothing	None
Inclination	INC	degrees	Survey Inclination 3.0 ft window 0.5 ft Exponential Smoothing	
Azimuth	AZM	degrees	Survey Azimuth 3.0 ft window 0.5 ft Exponential Smoothing	

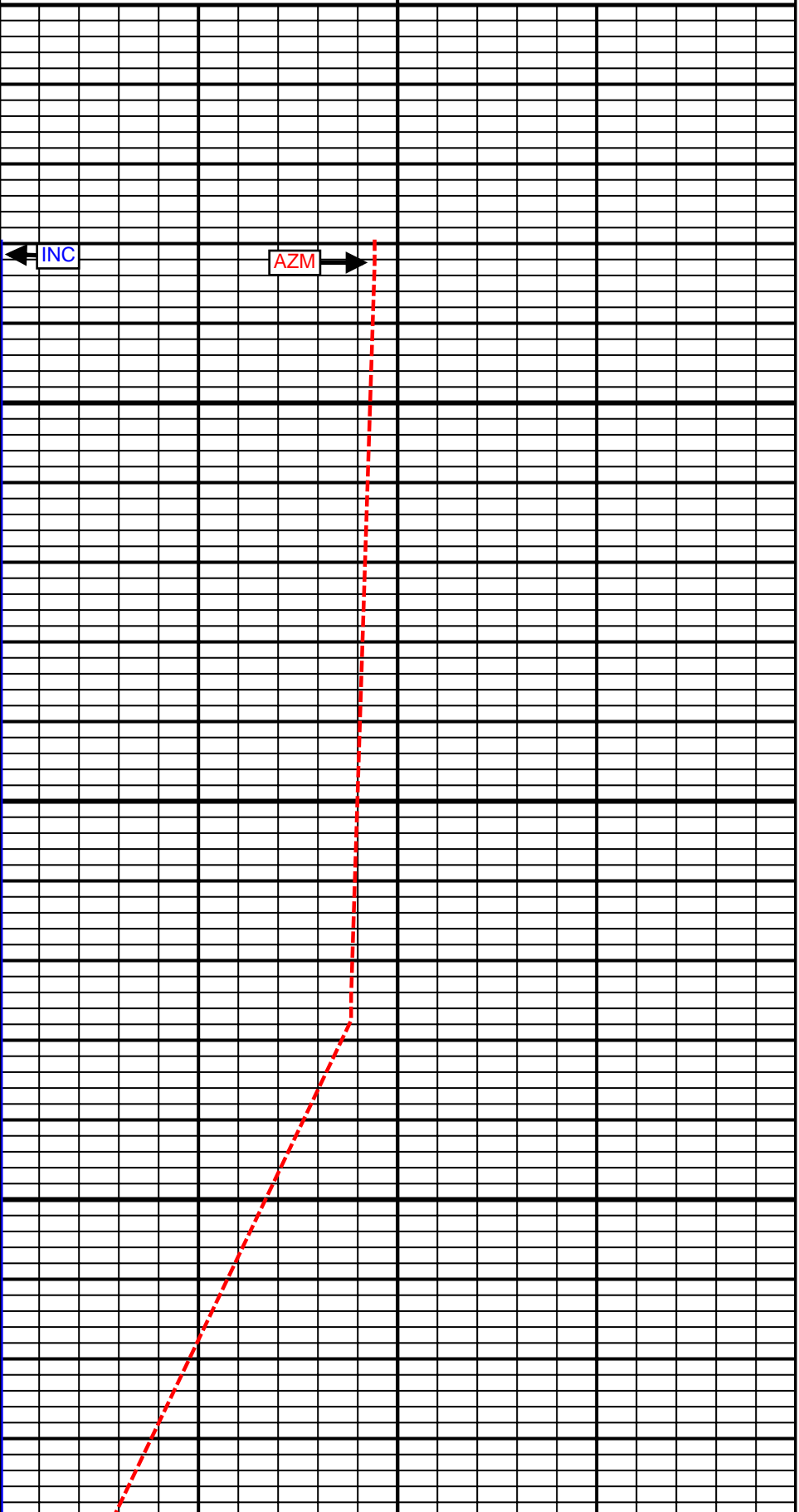
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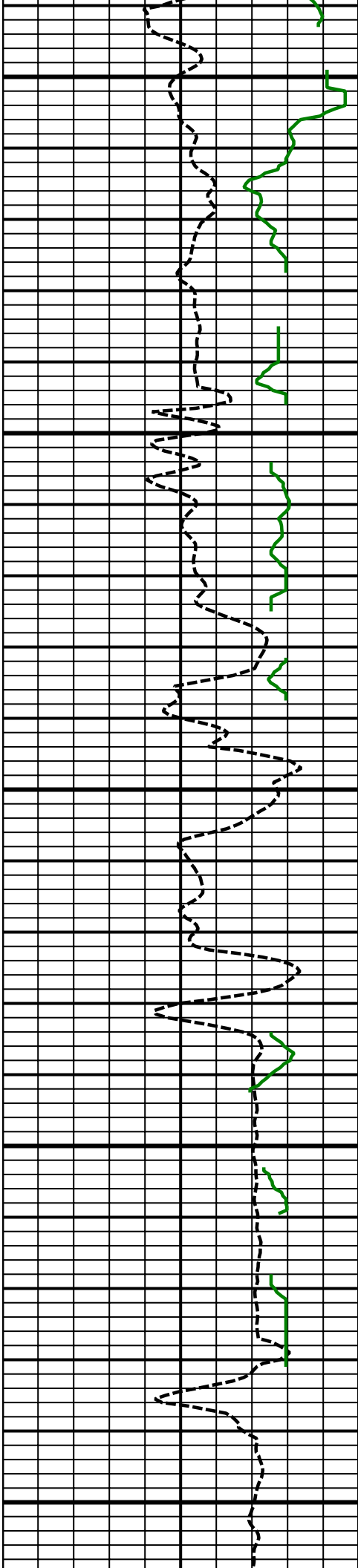


6000 MD

Comment 1-1

6100 MD

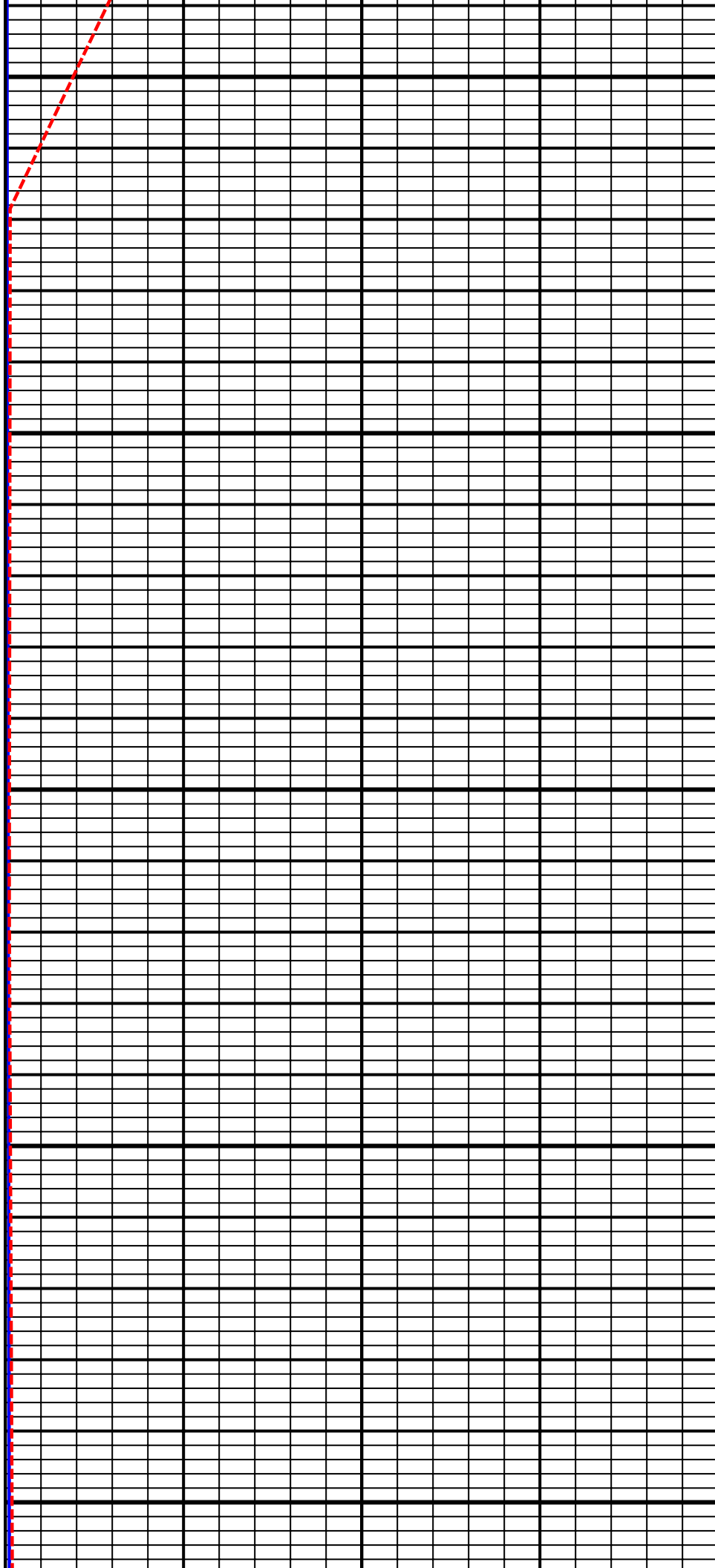


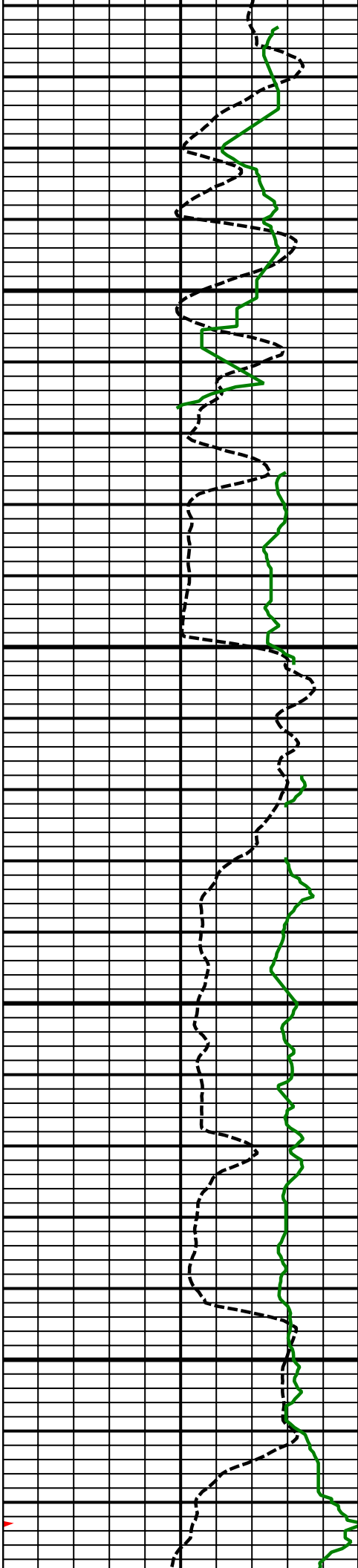


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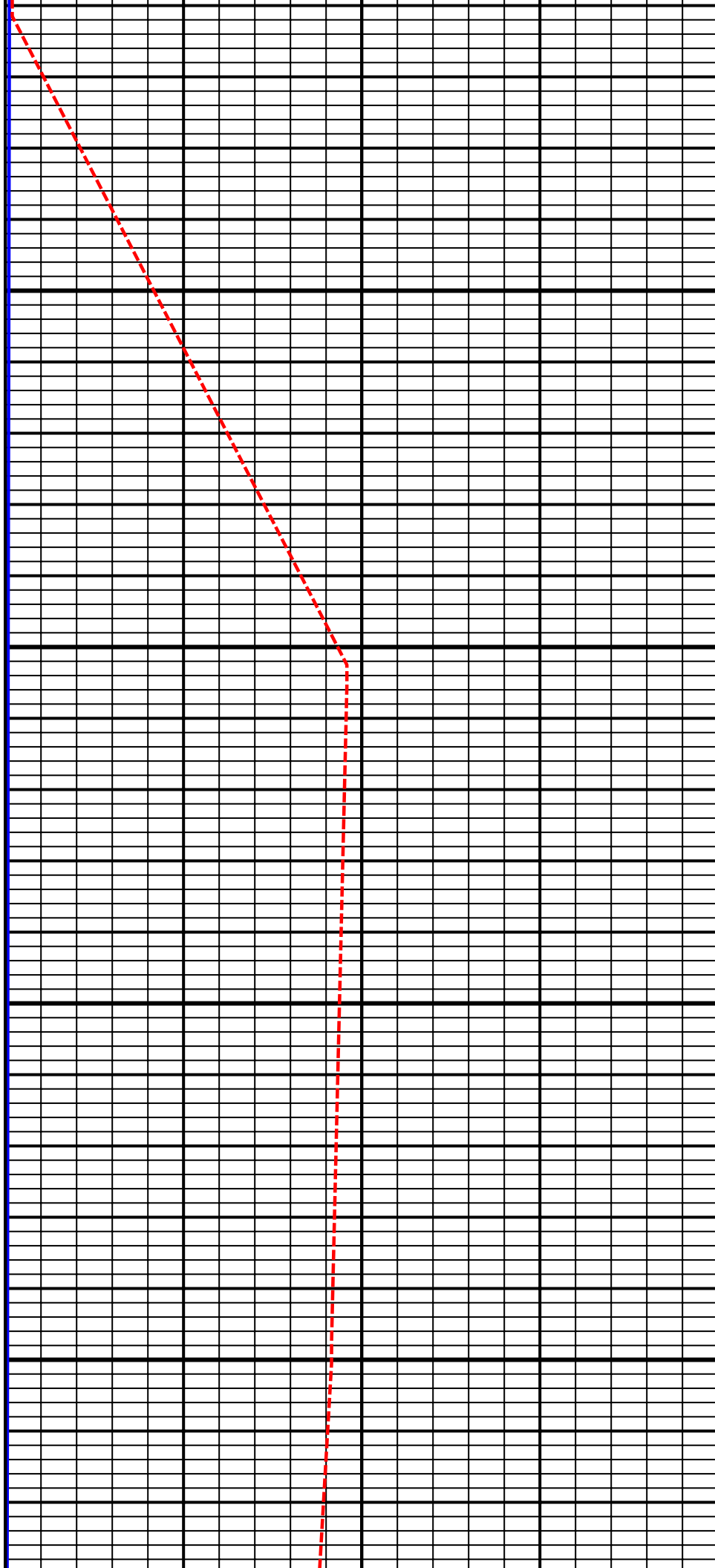
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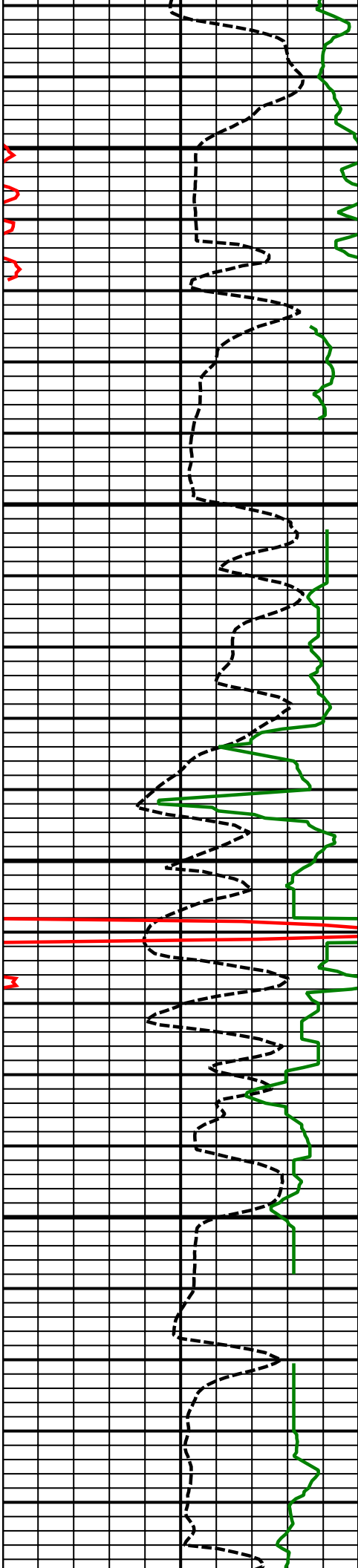




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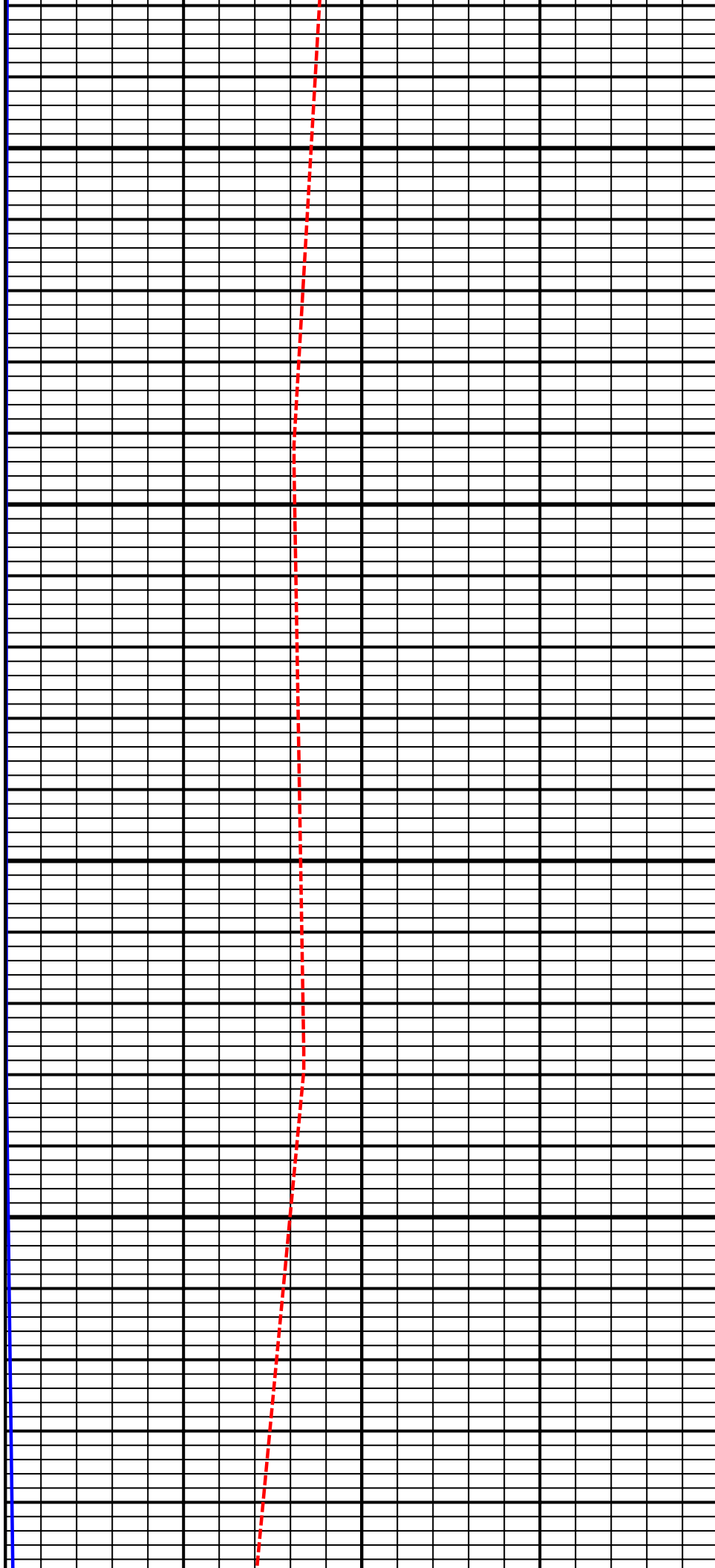
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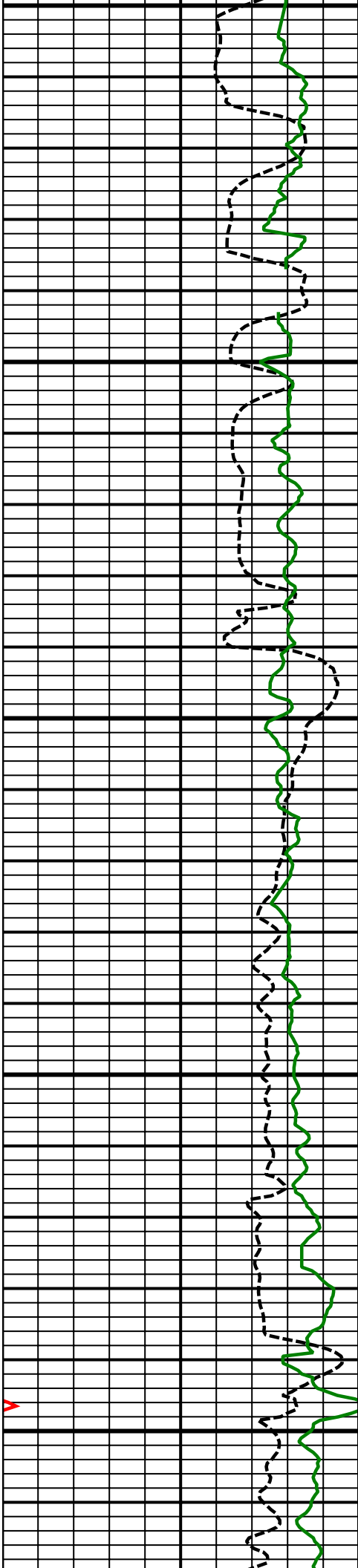




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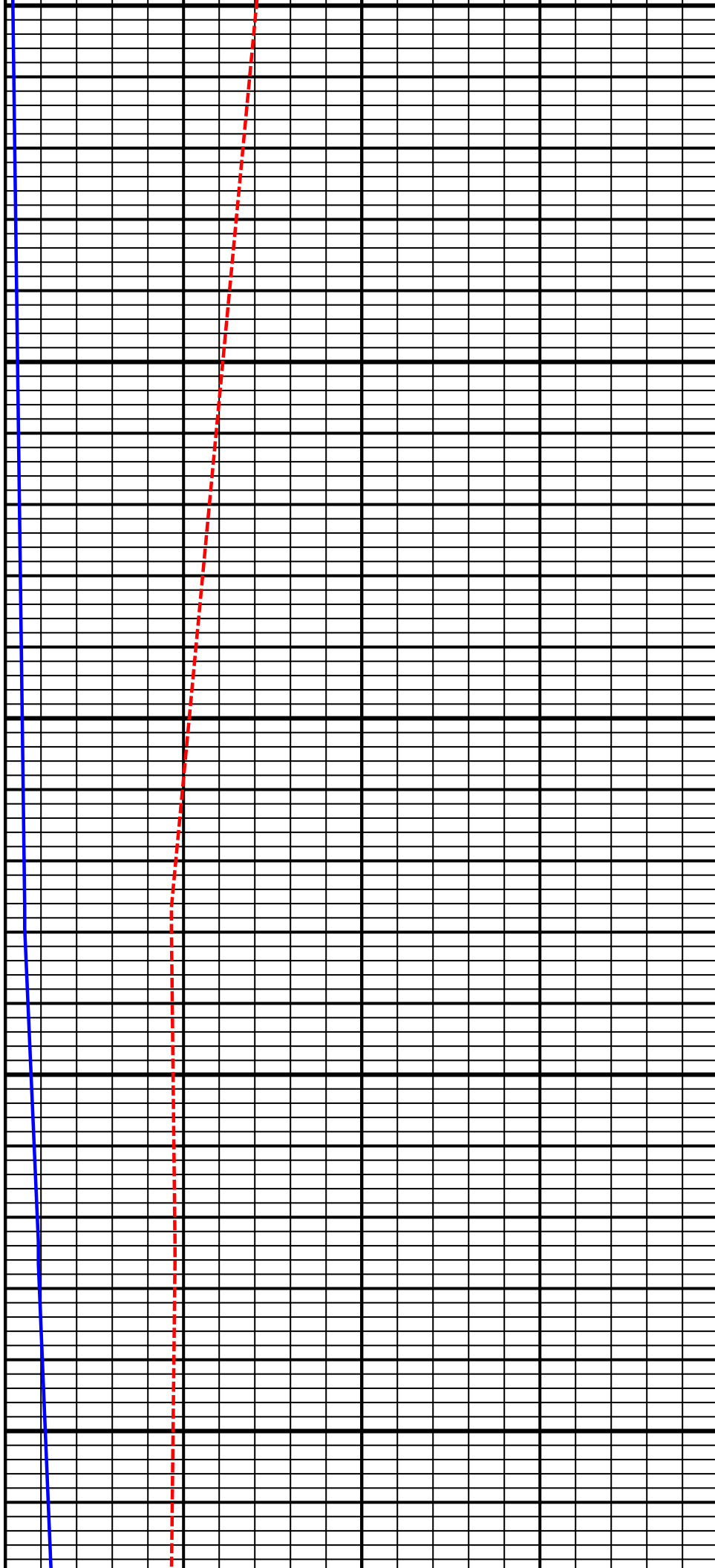
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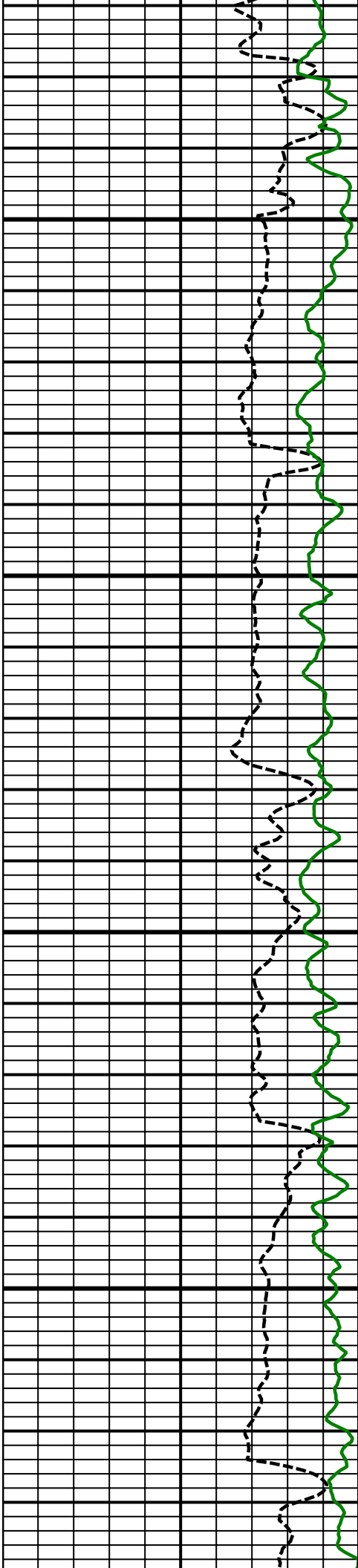




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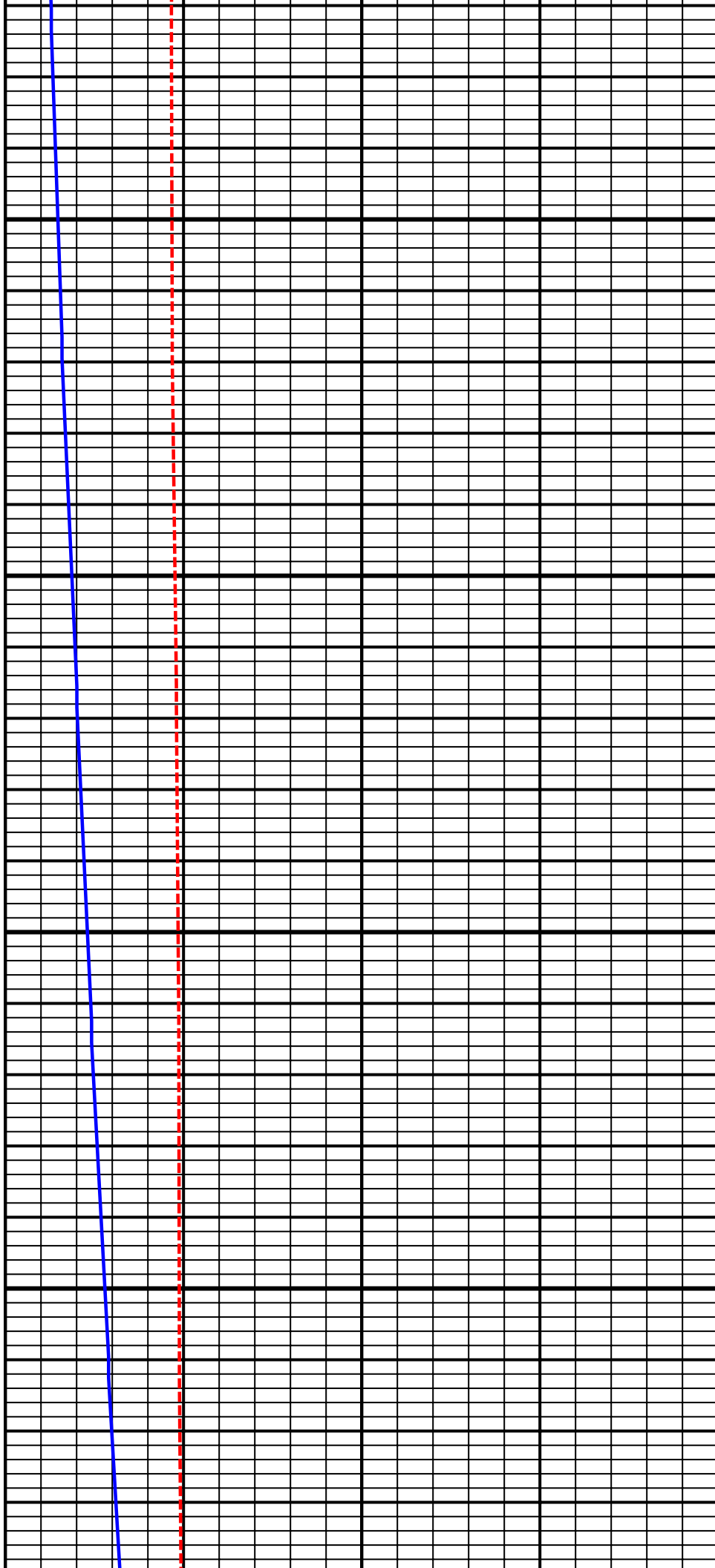
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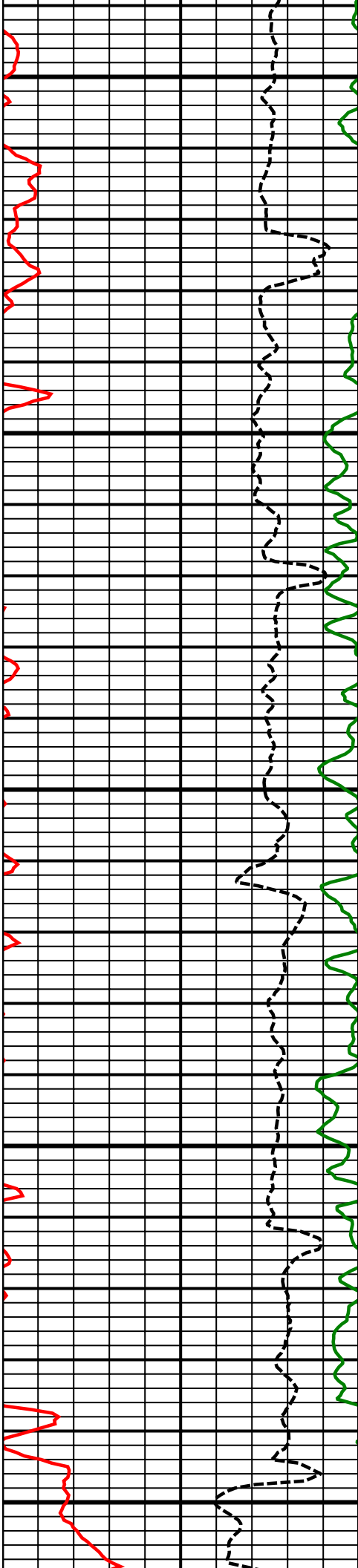




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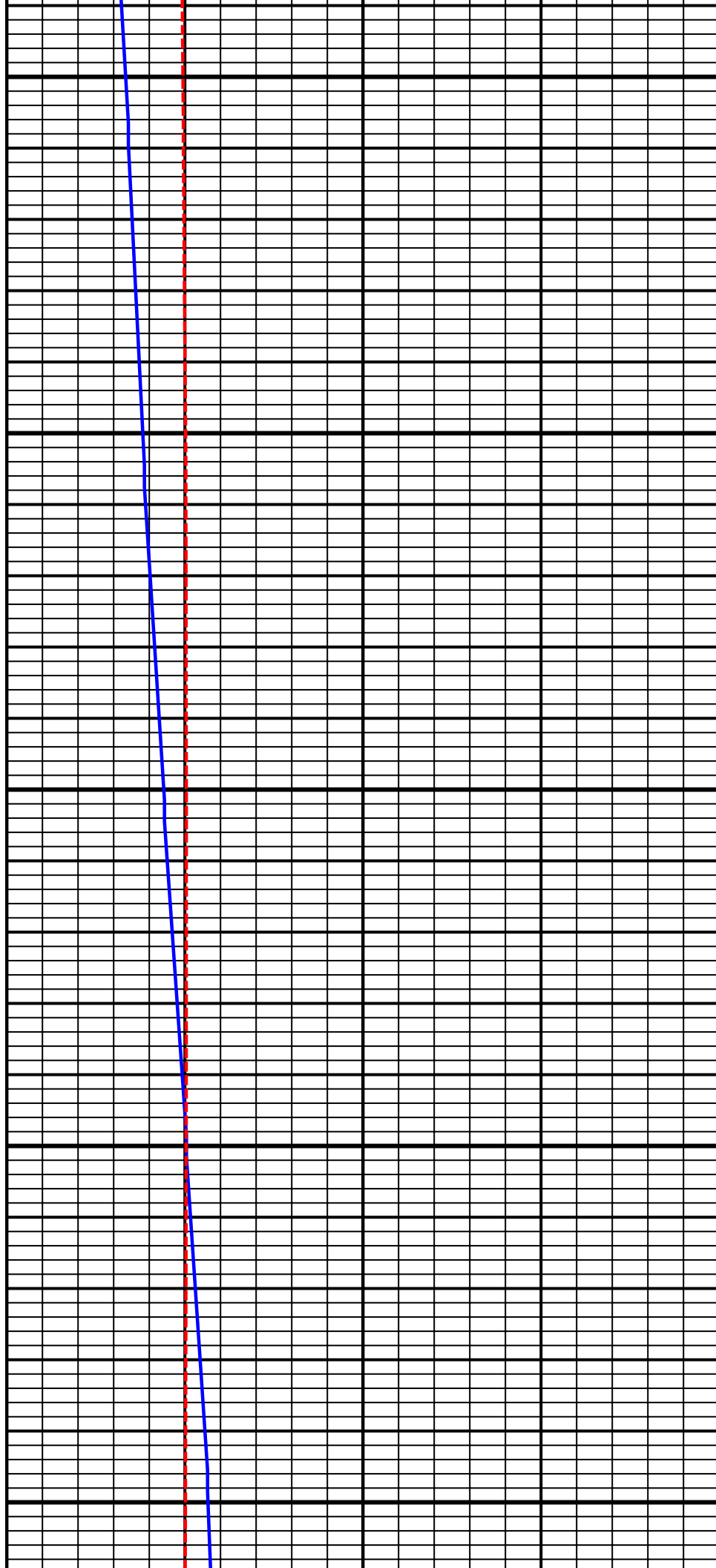


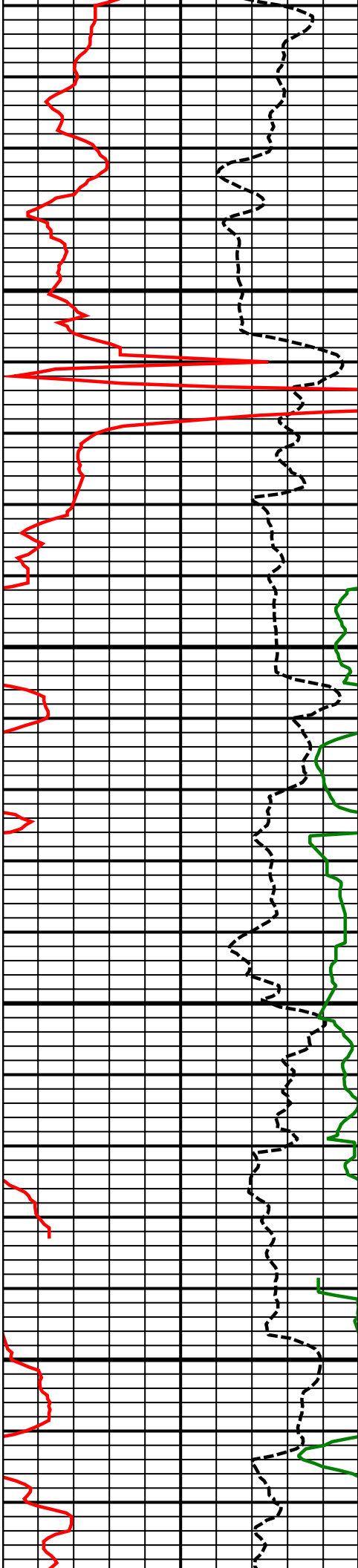


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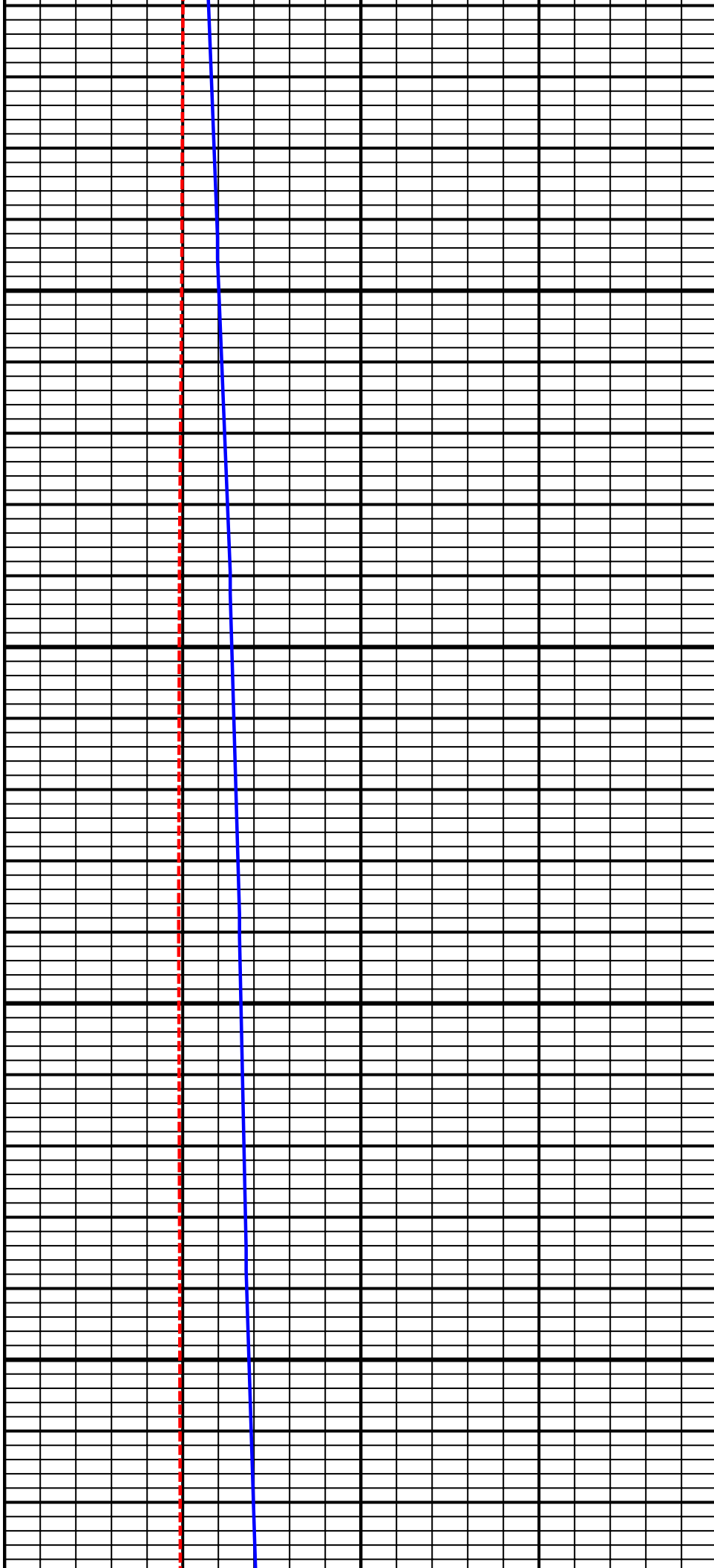
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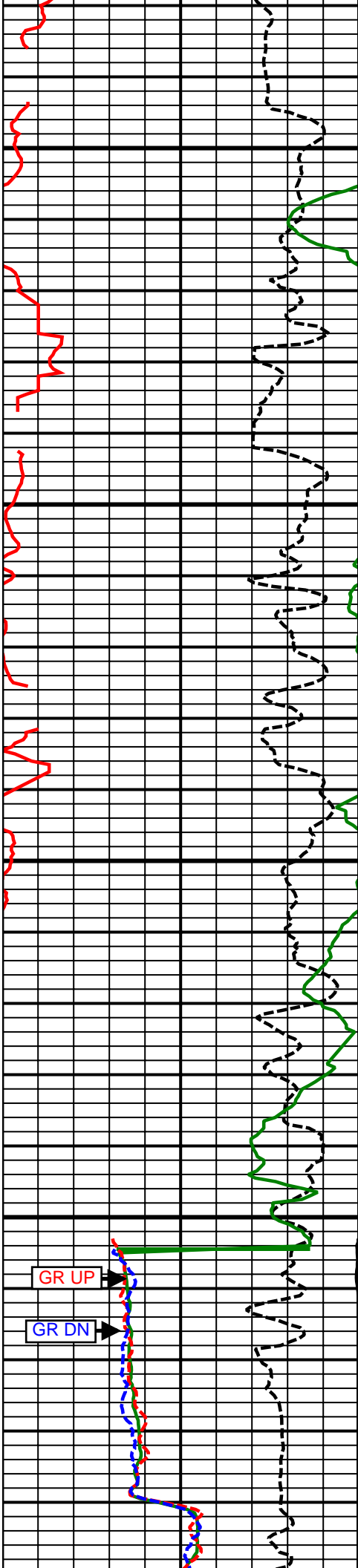




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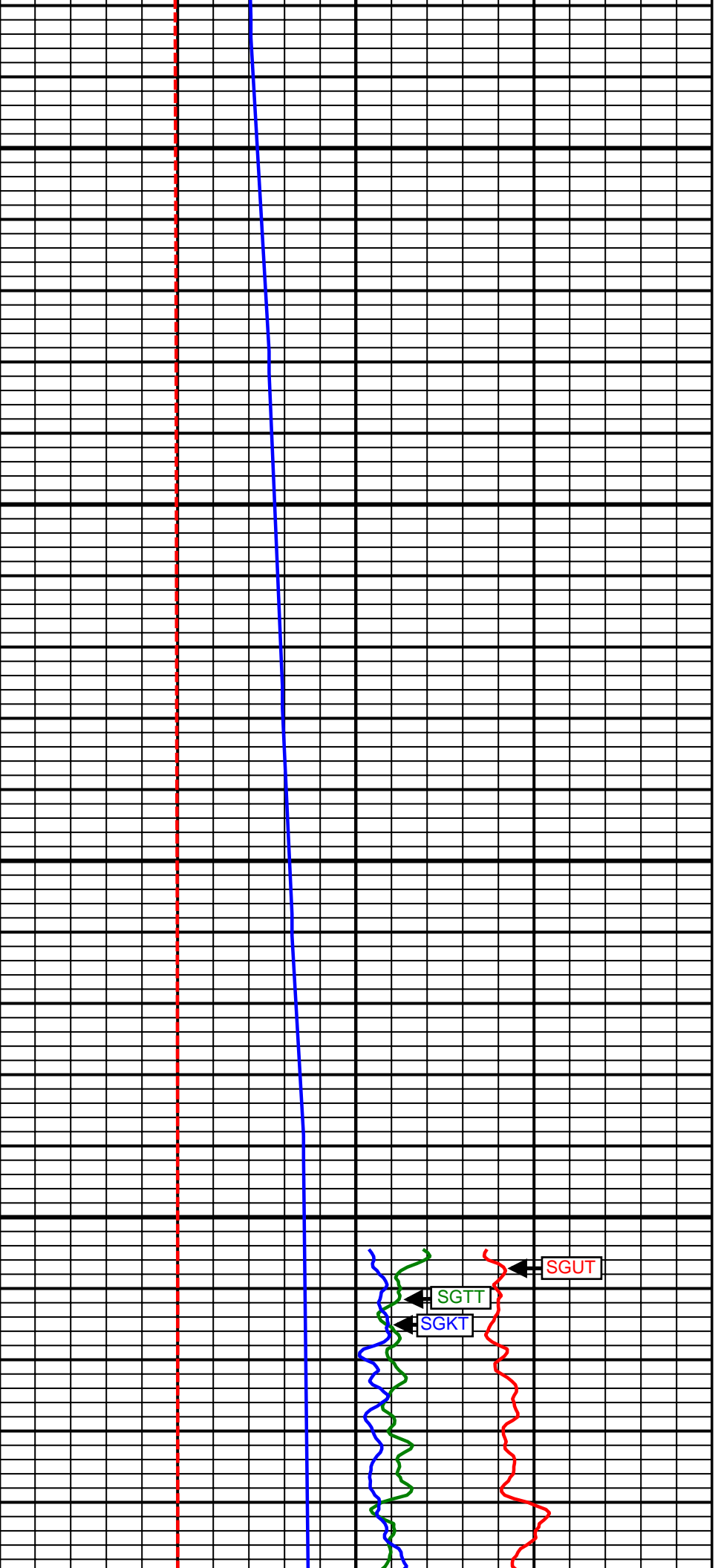
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GR DN

Comment
1-2

Comment
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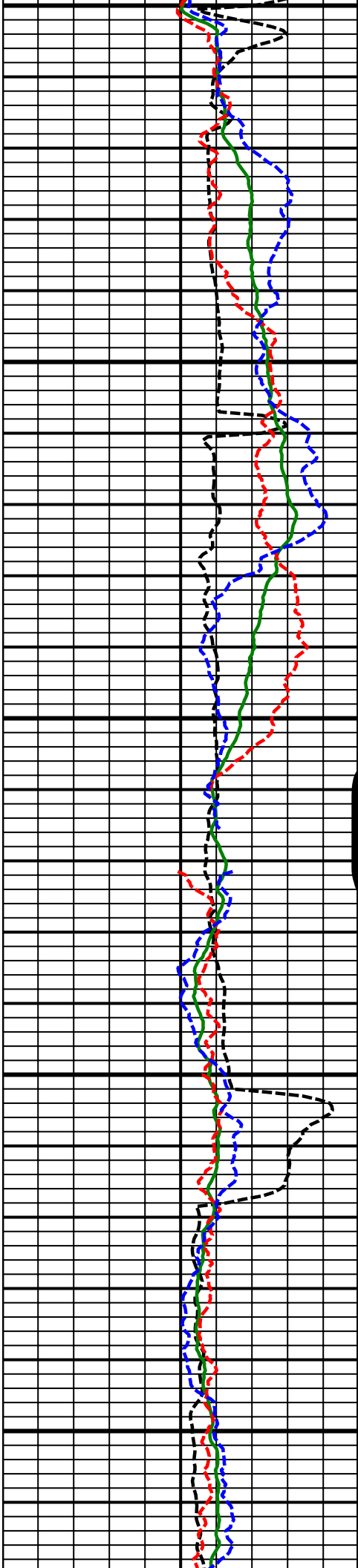
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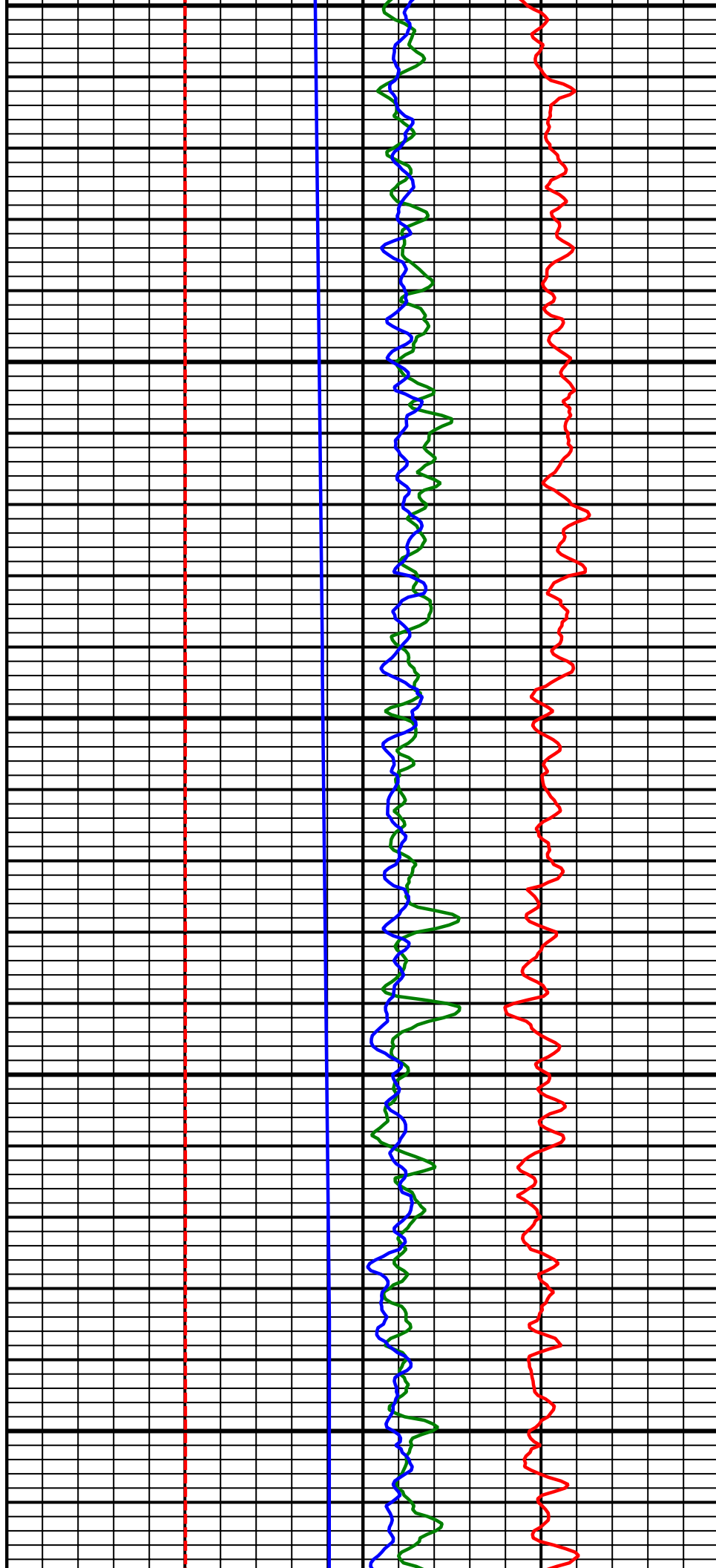
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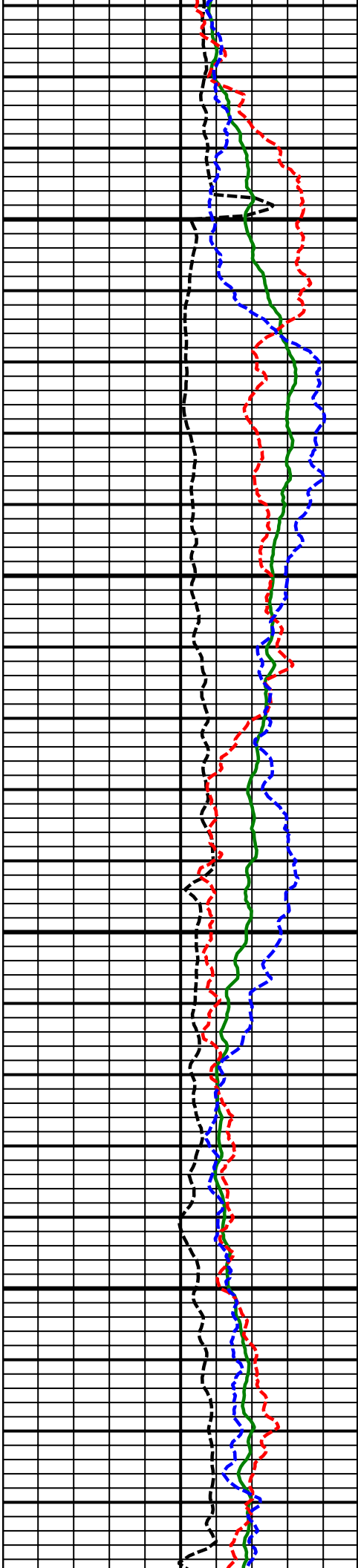
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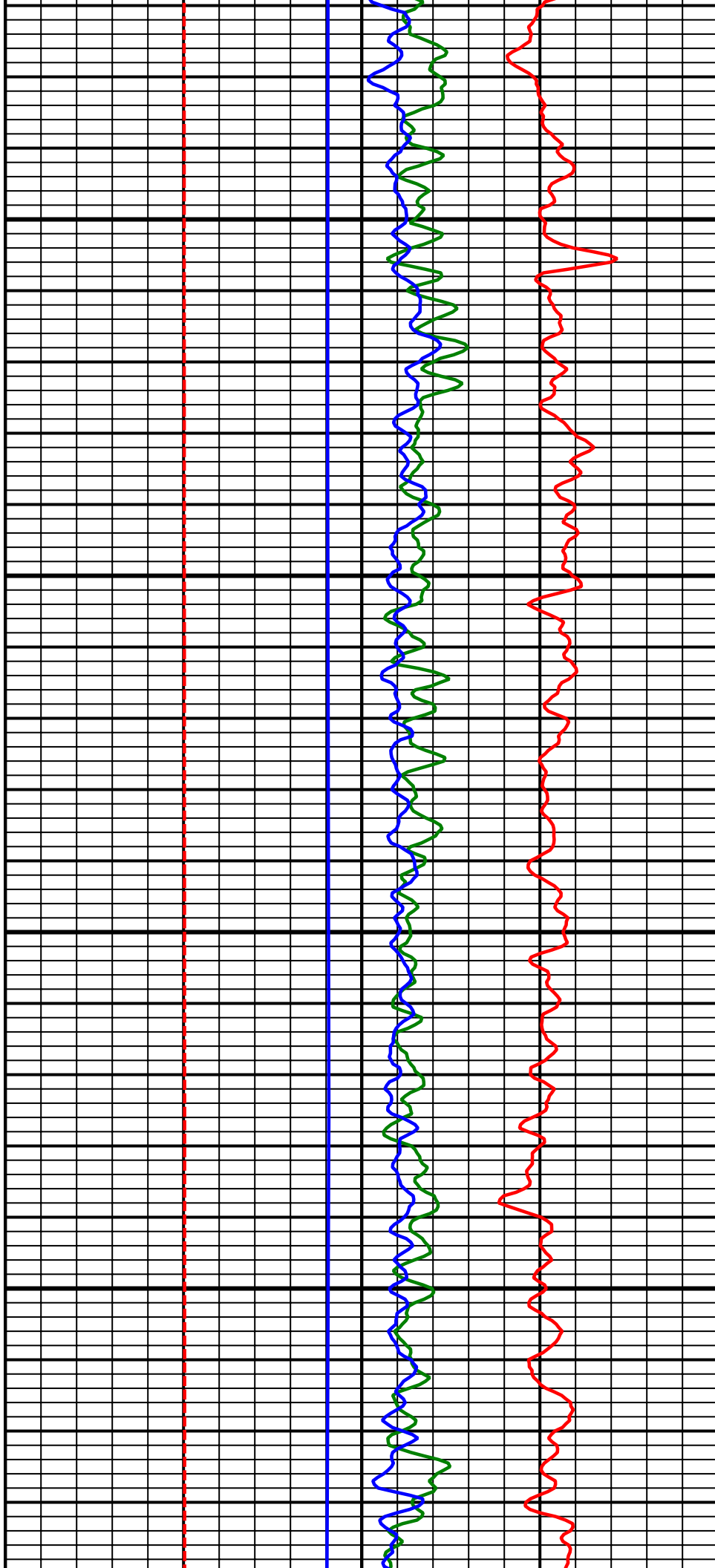
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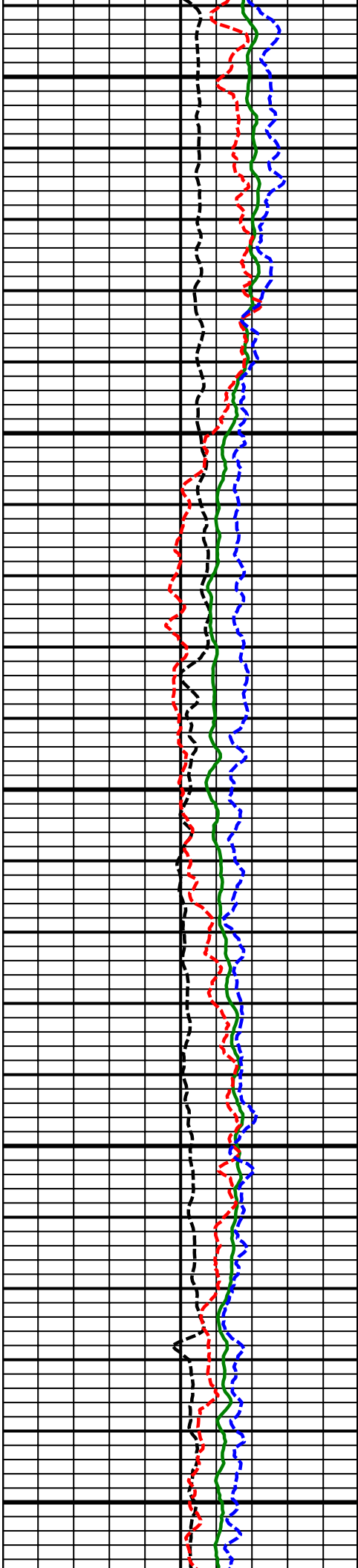




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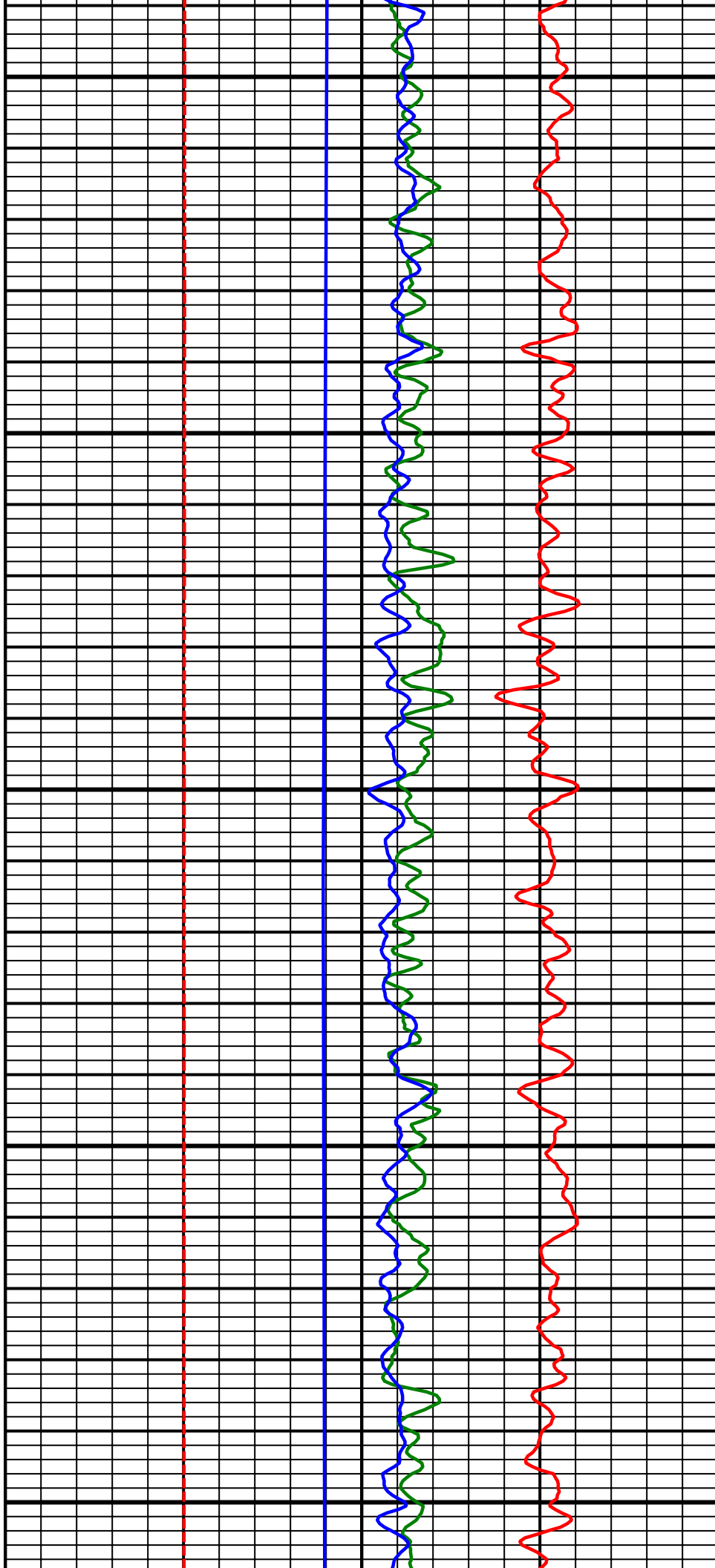


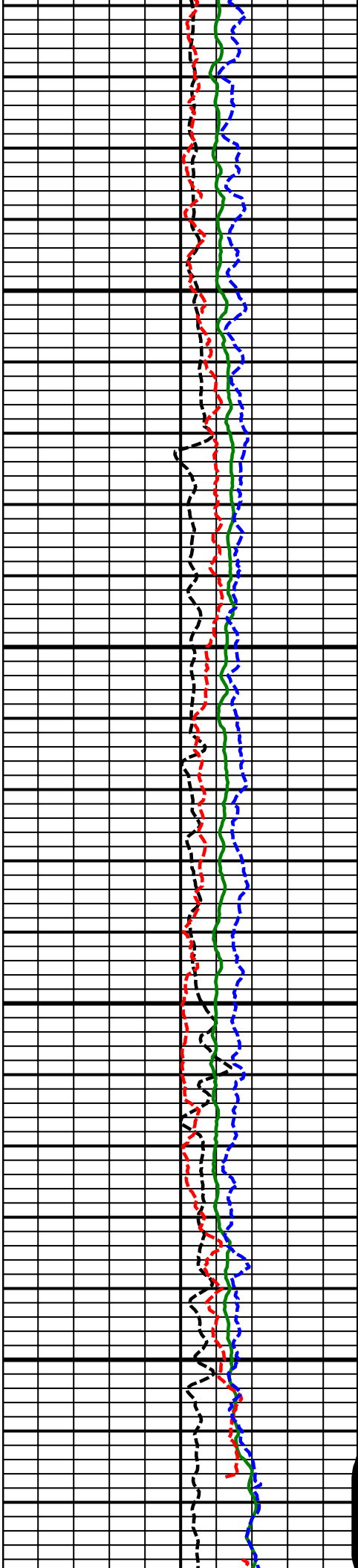


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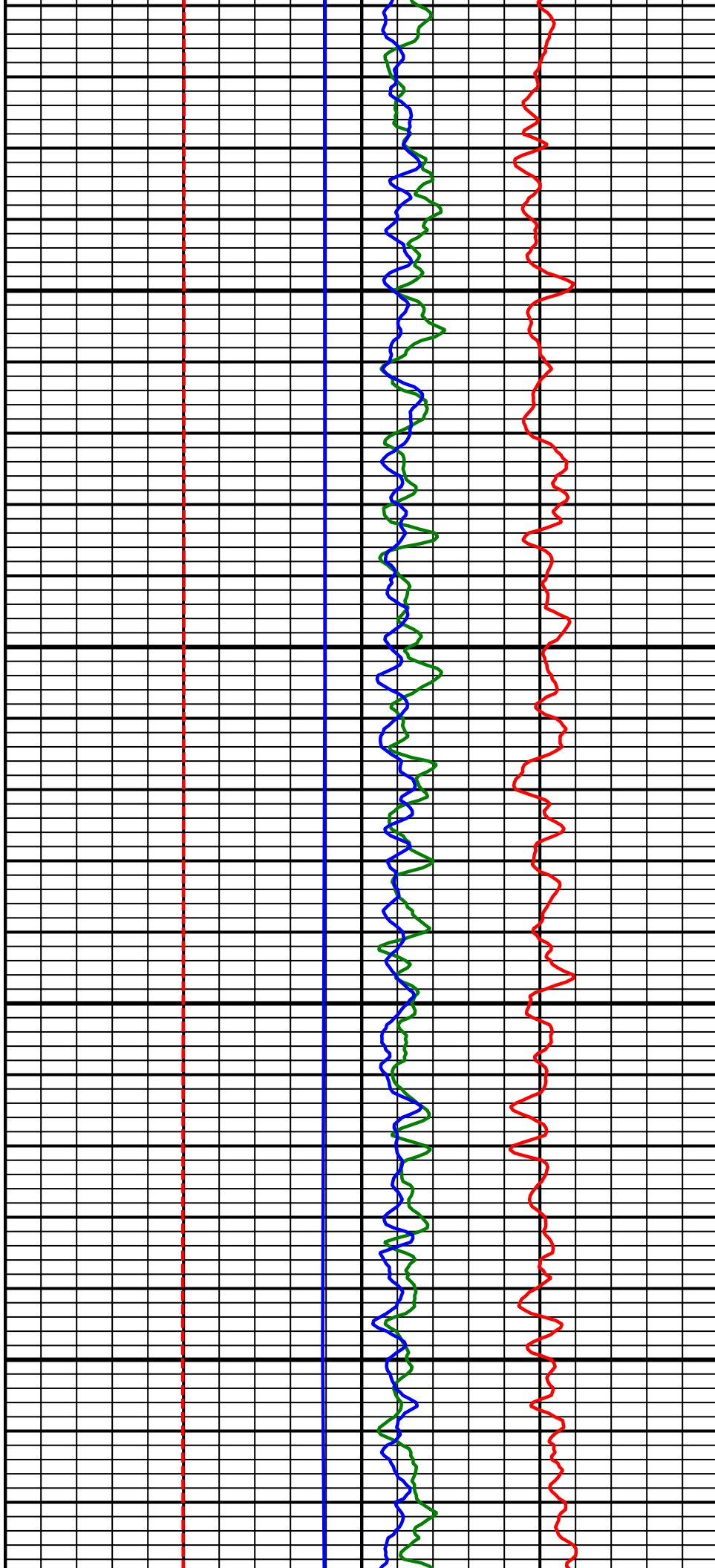
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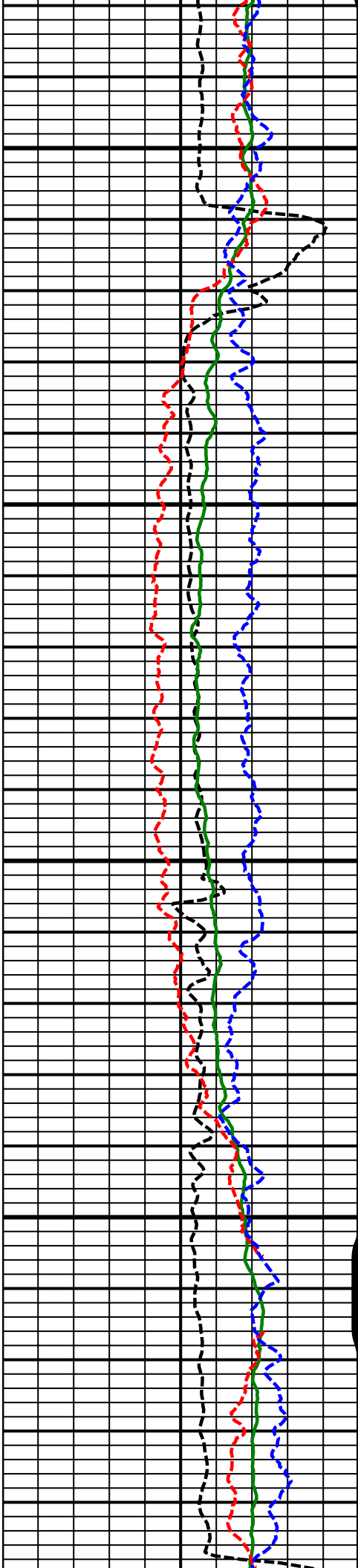




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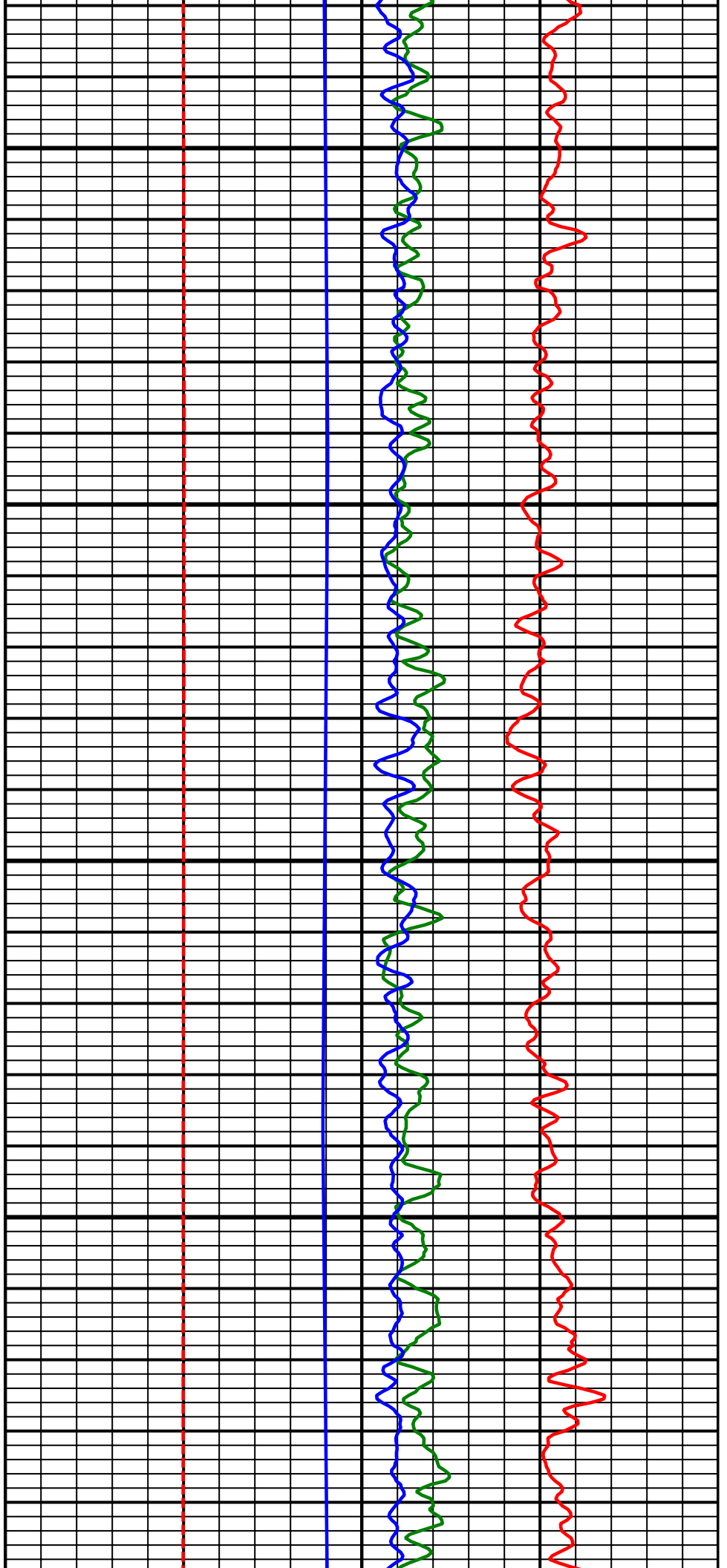
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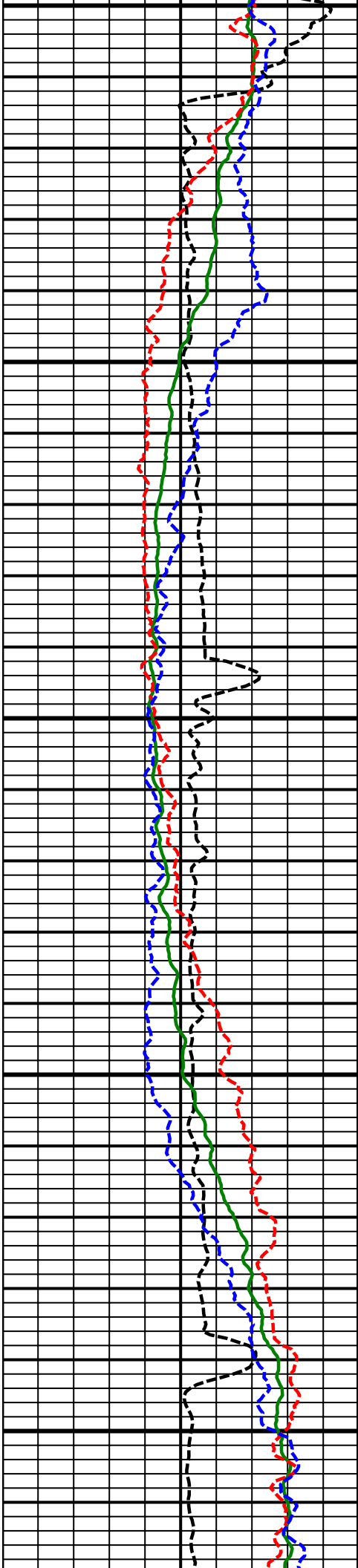




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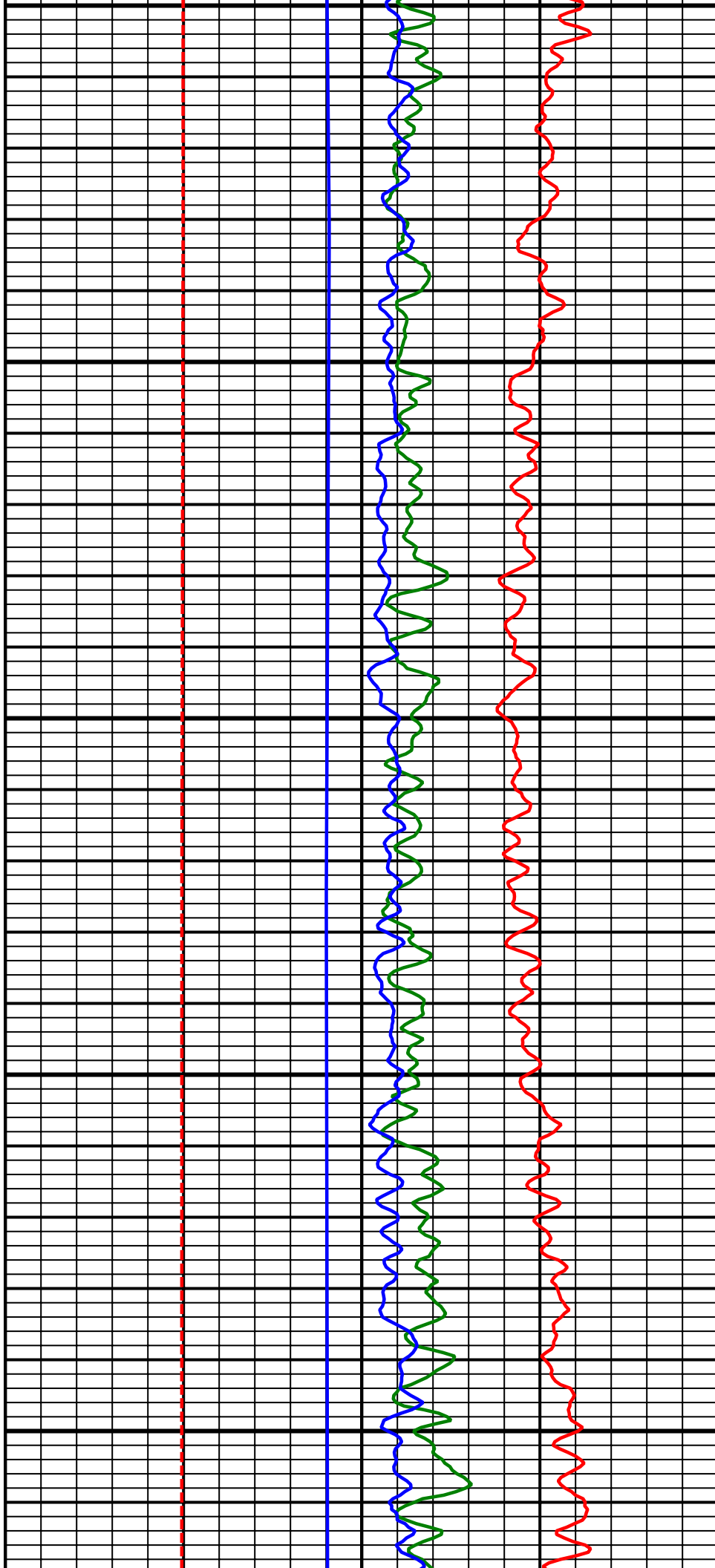
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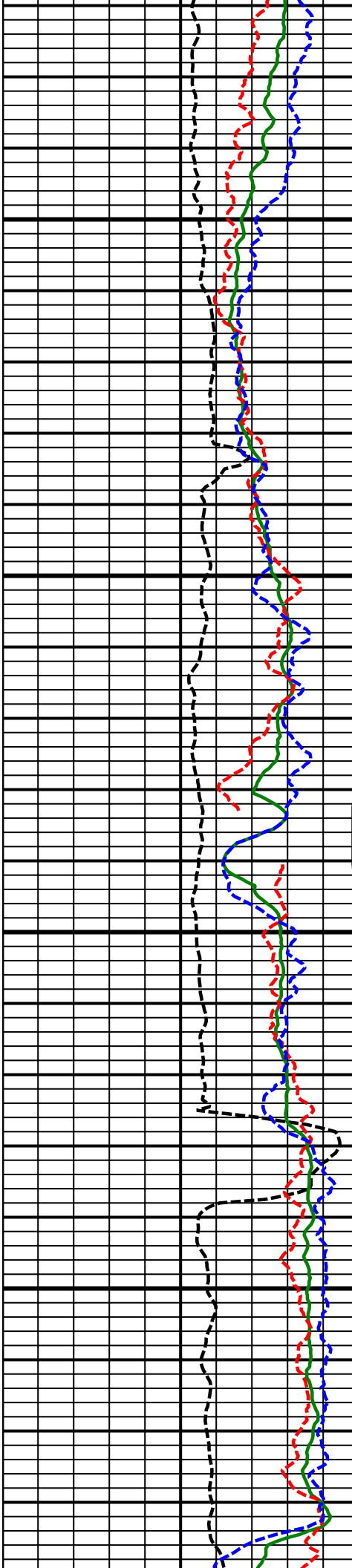




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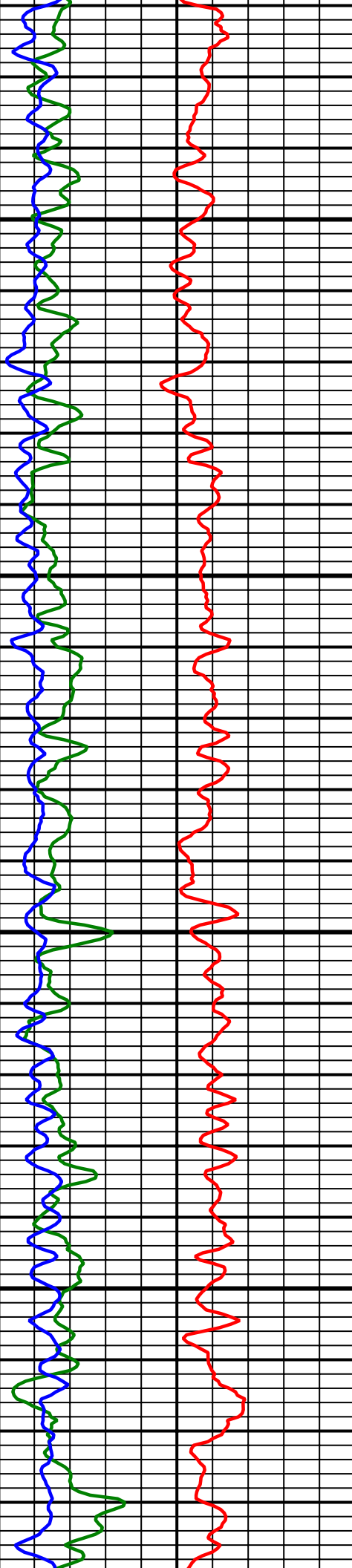
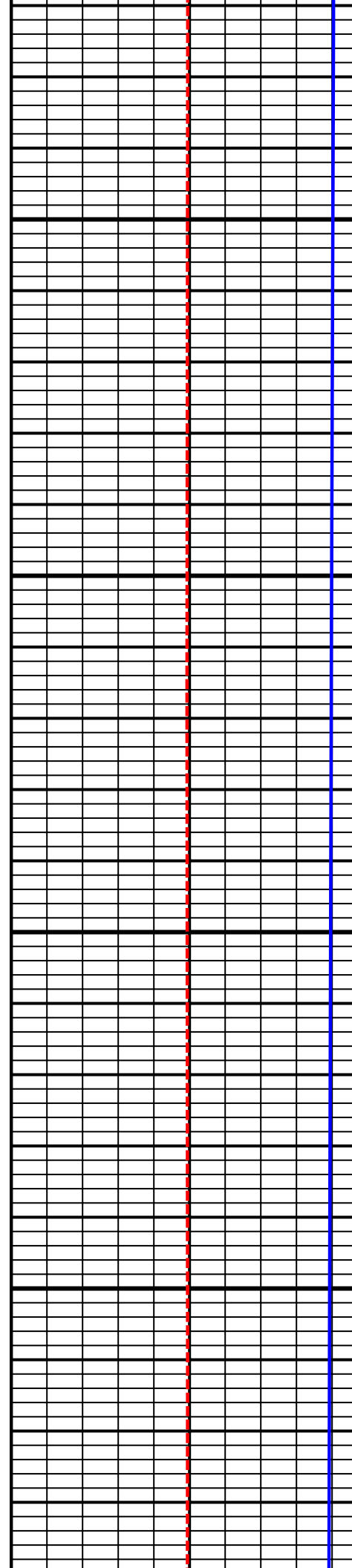
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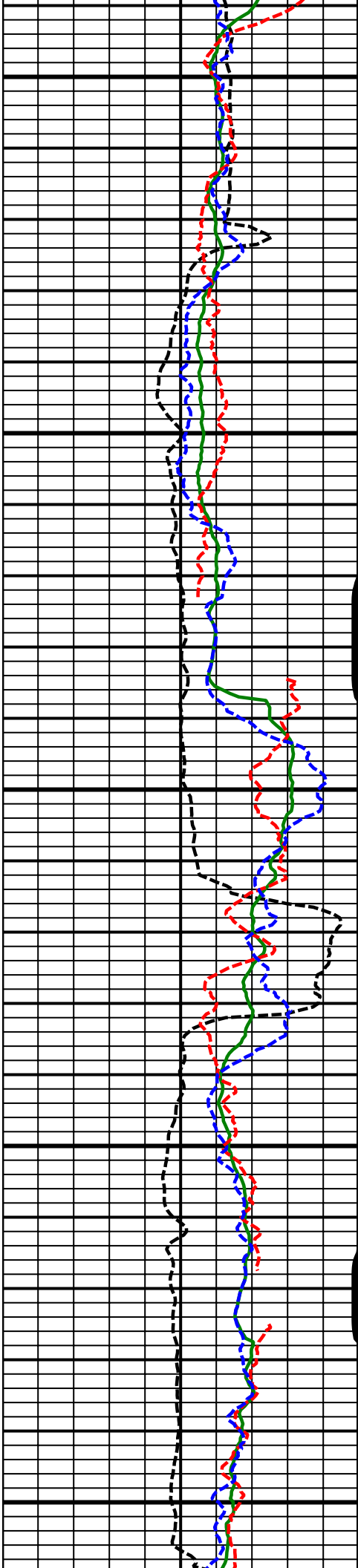




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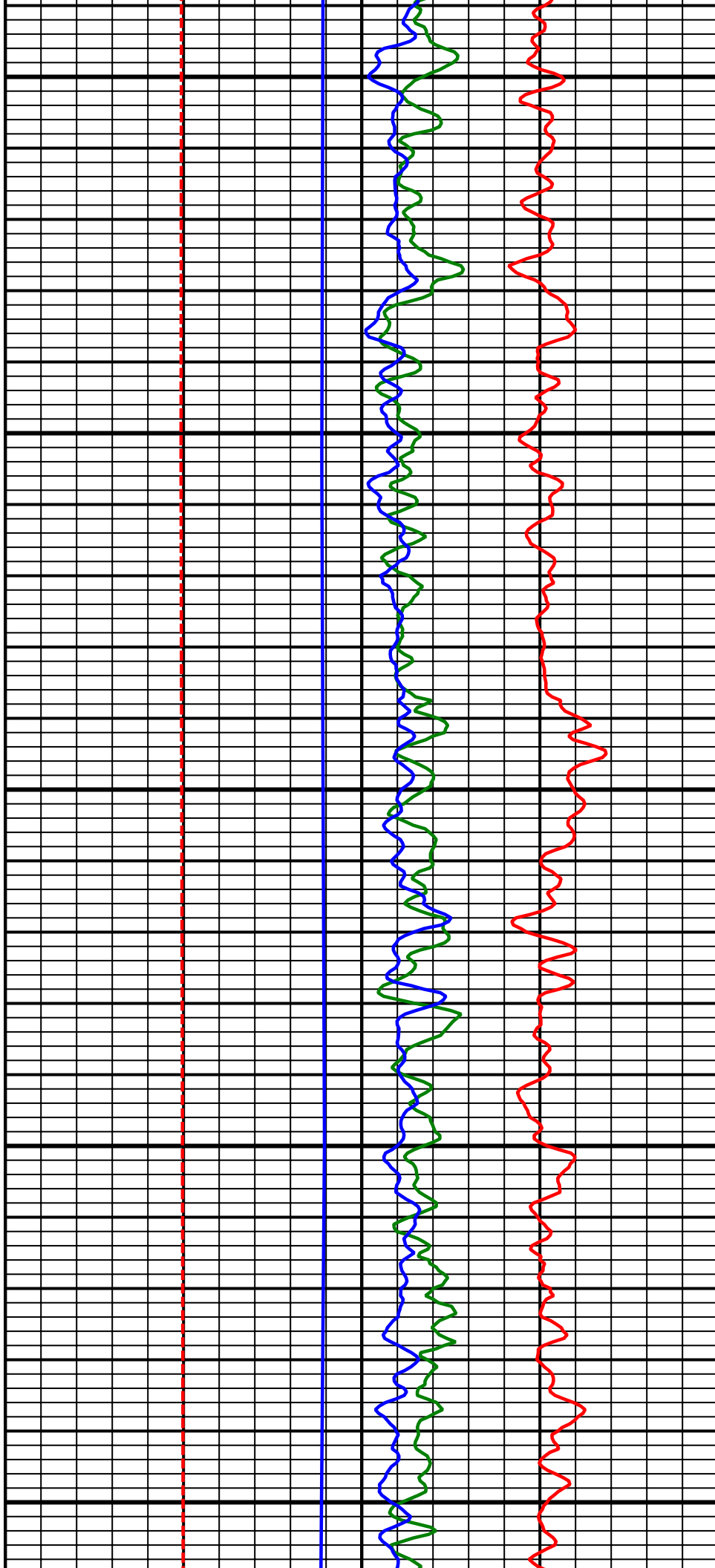


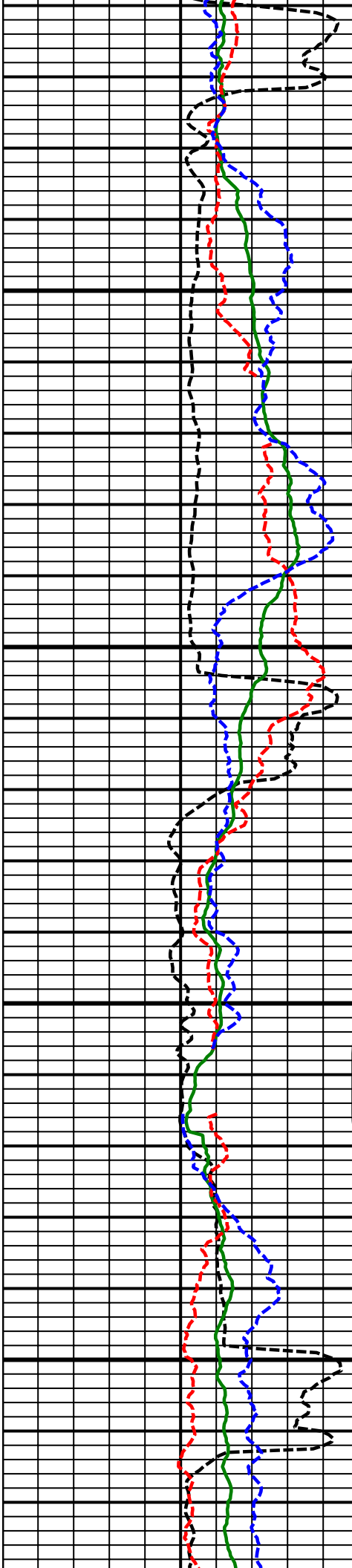


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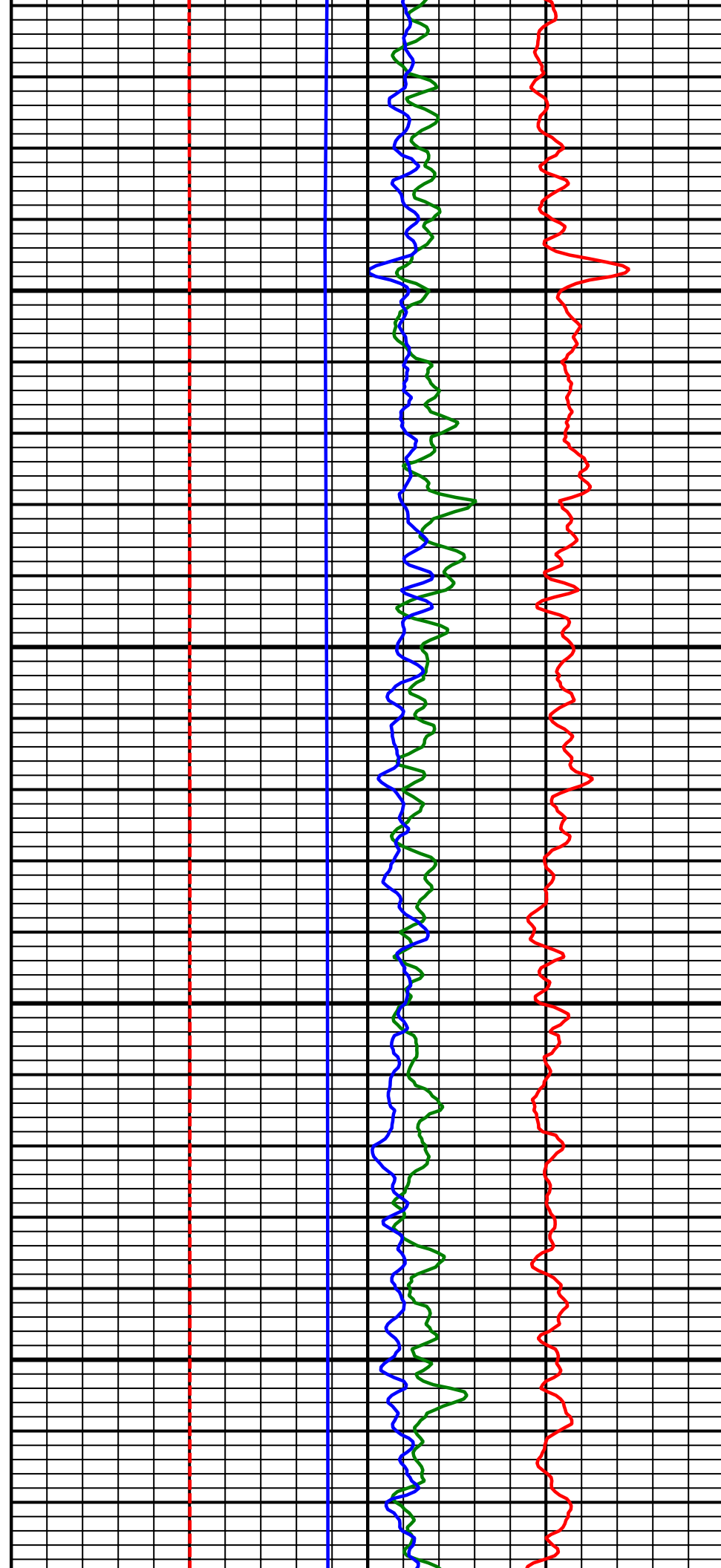
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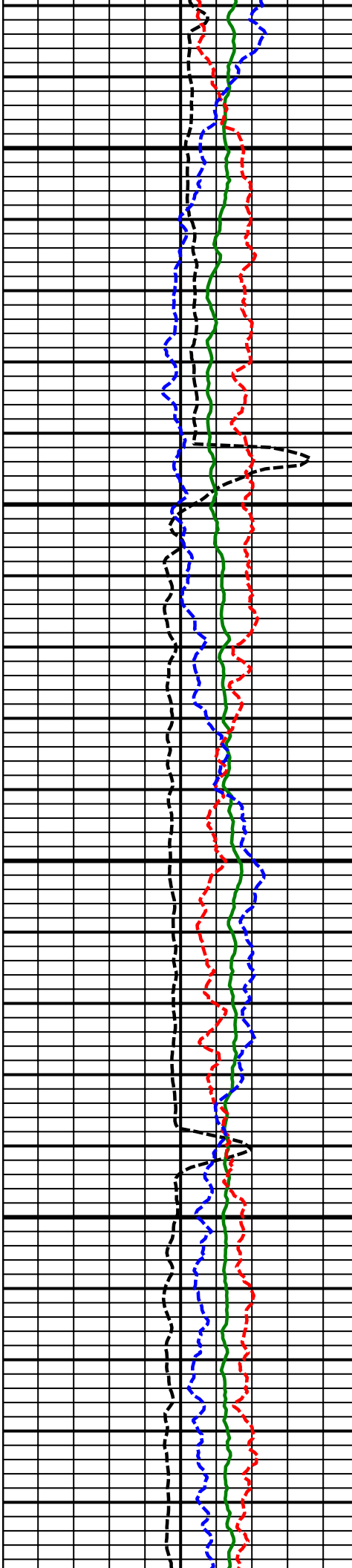




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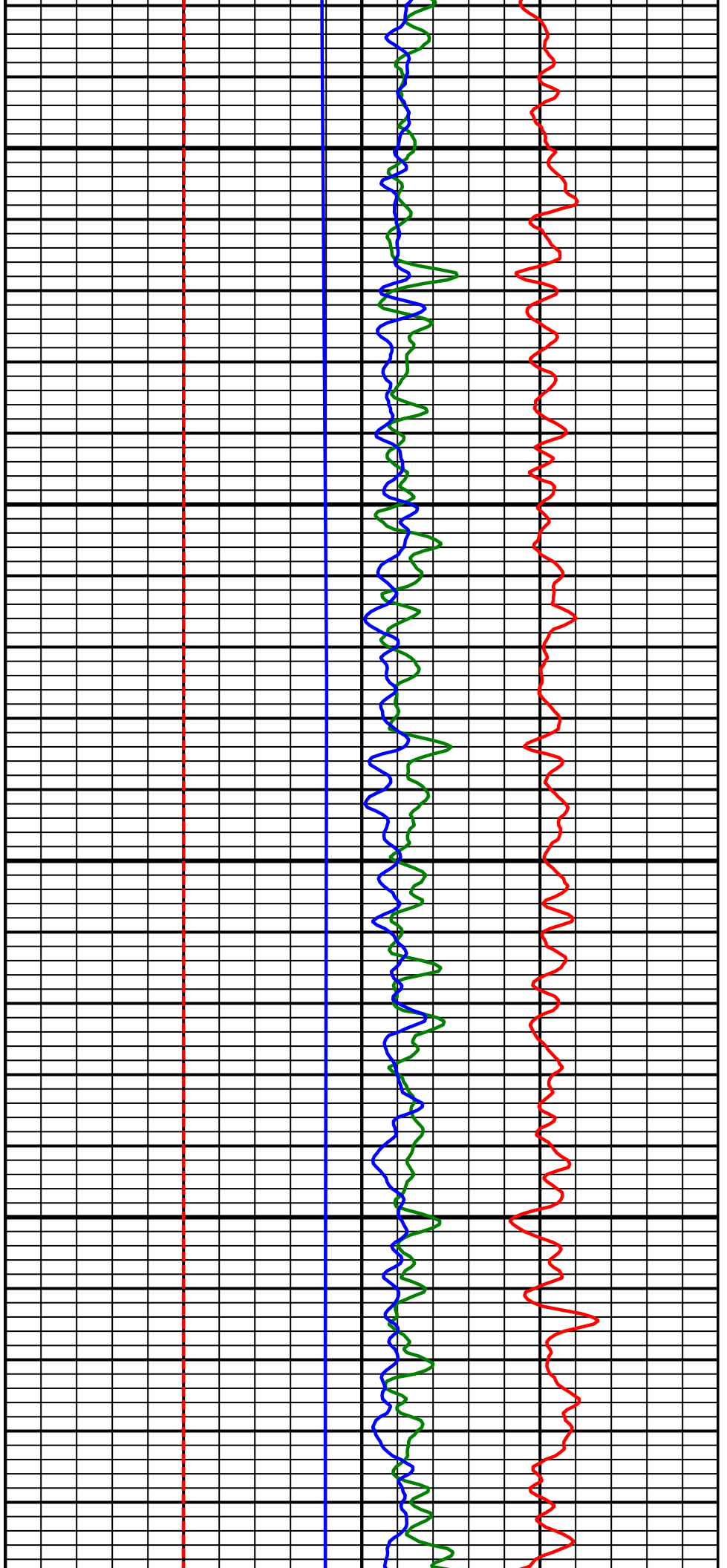
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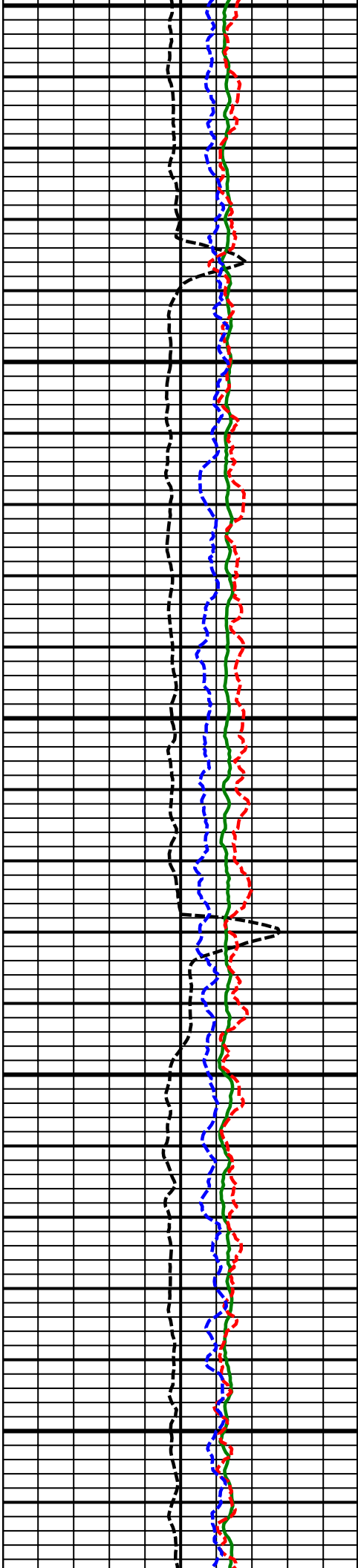




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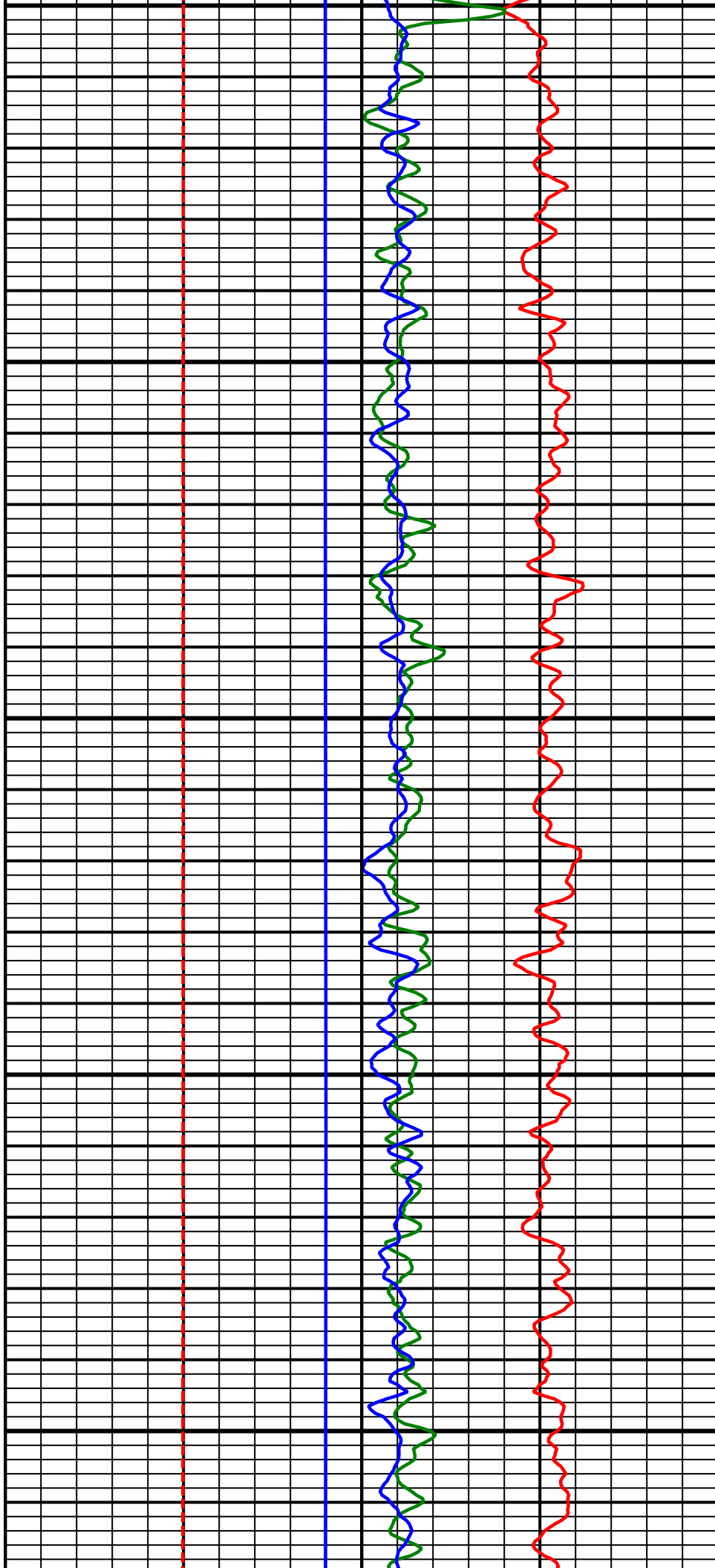
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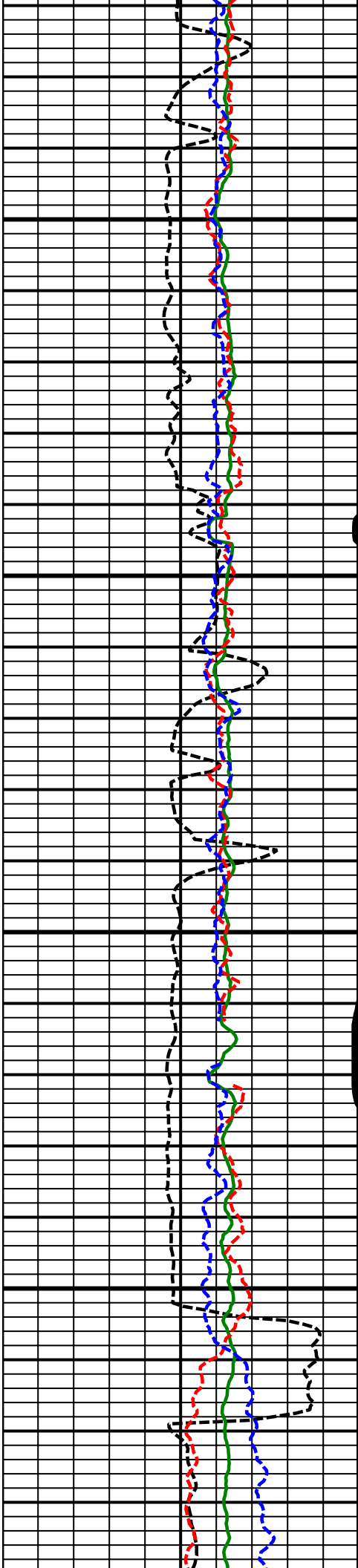




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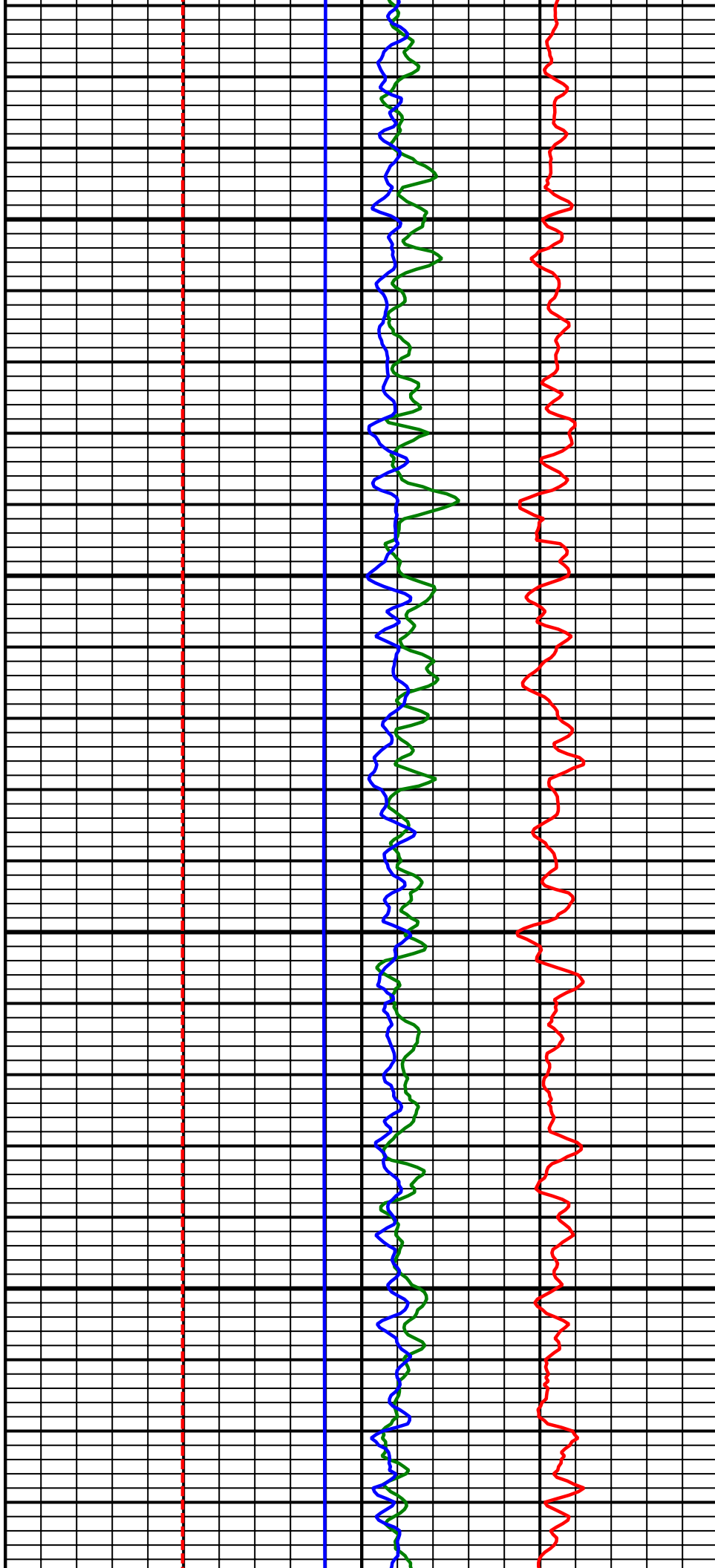
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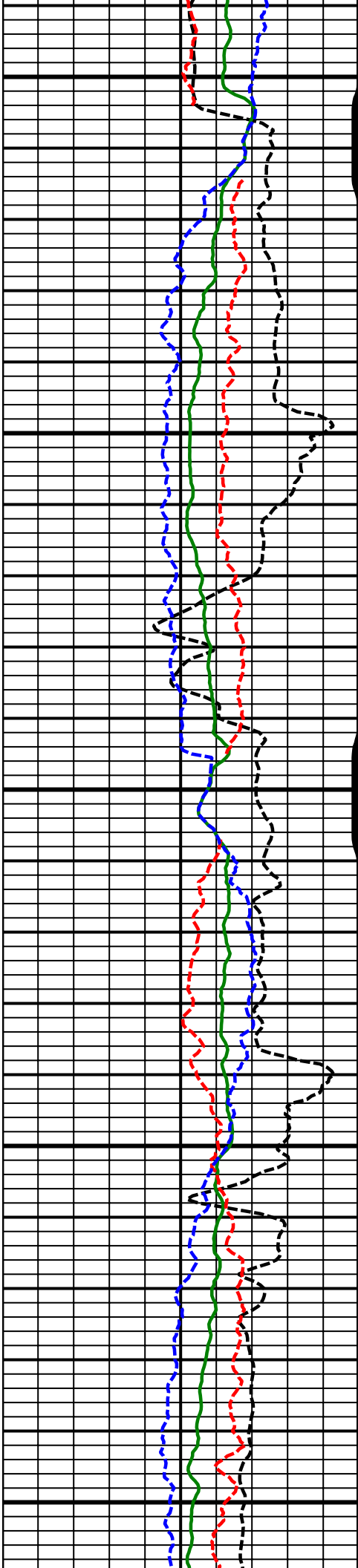




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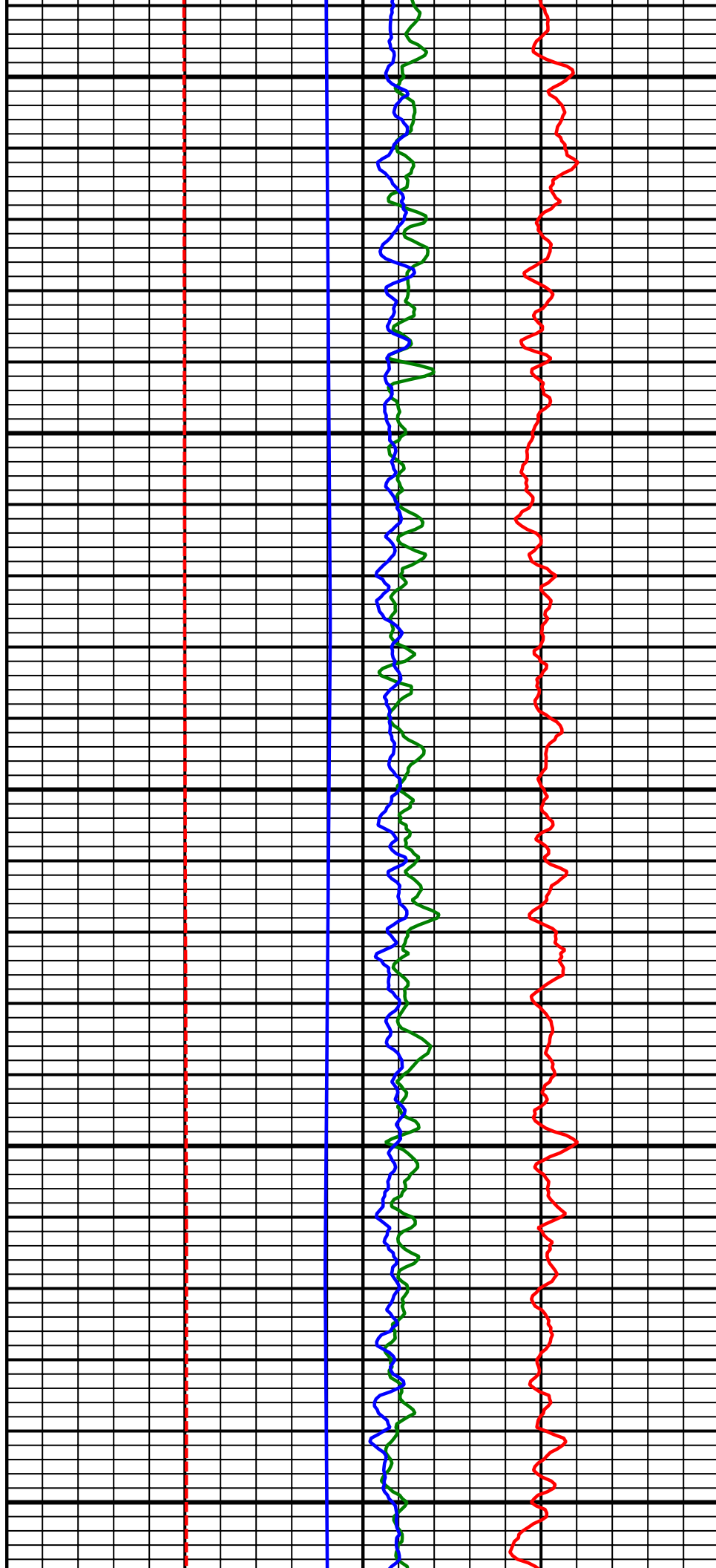


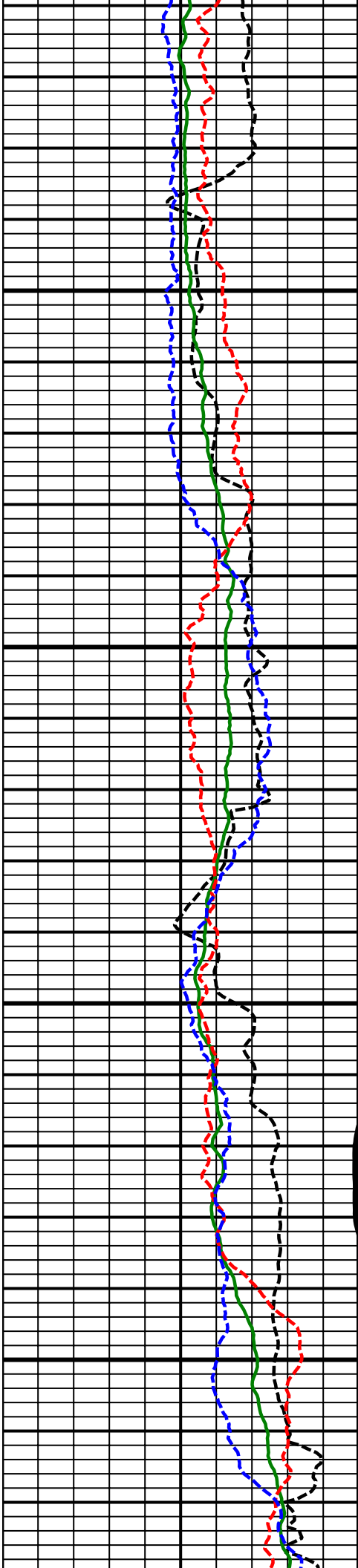


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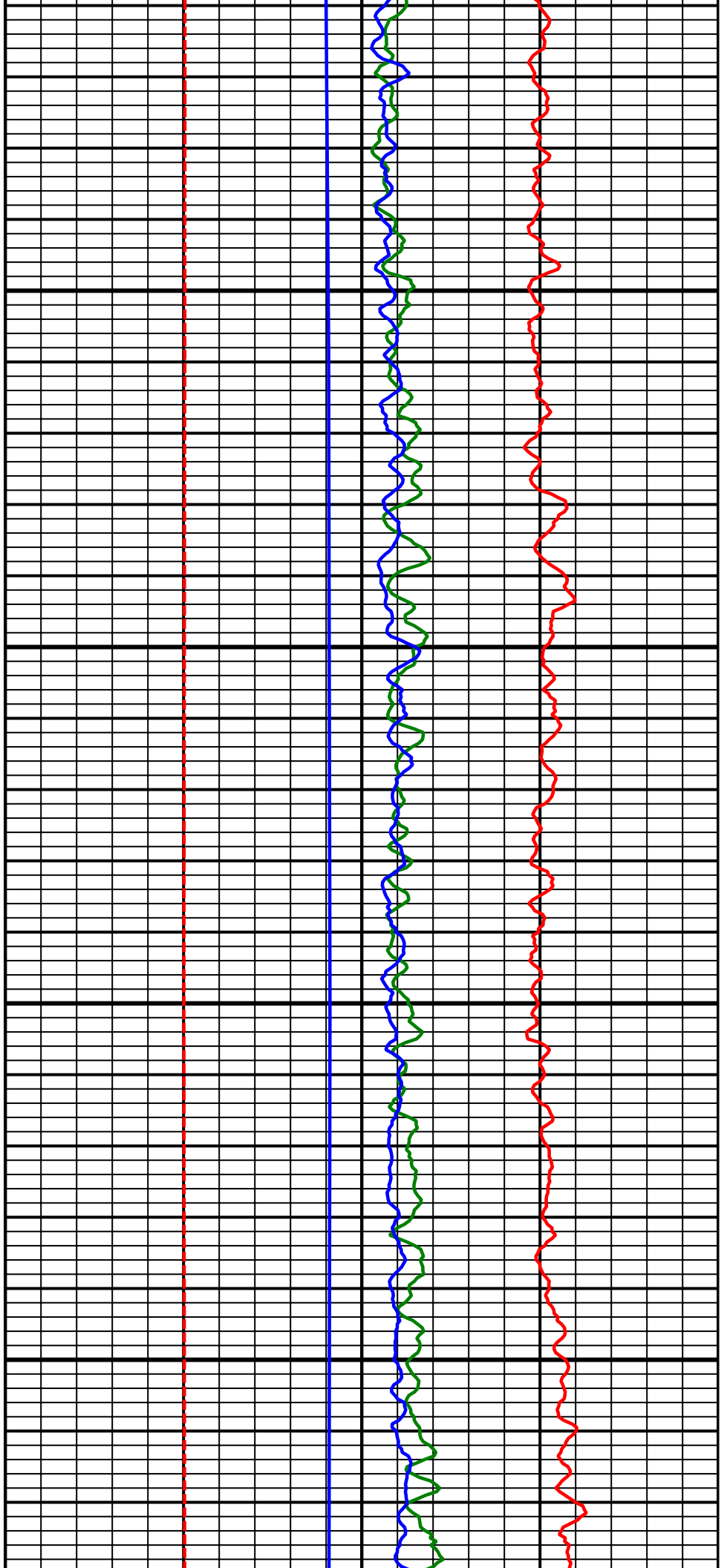
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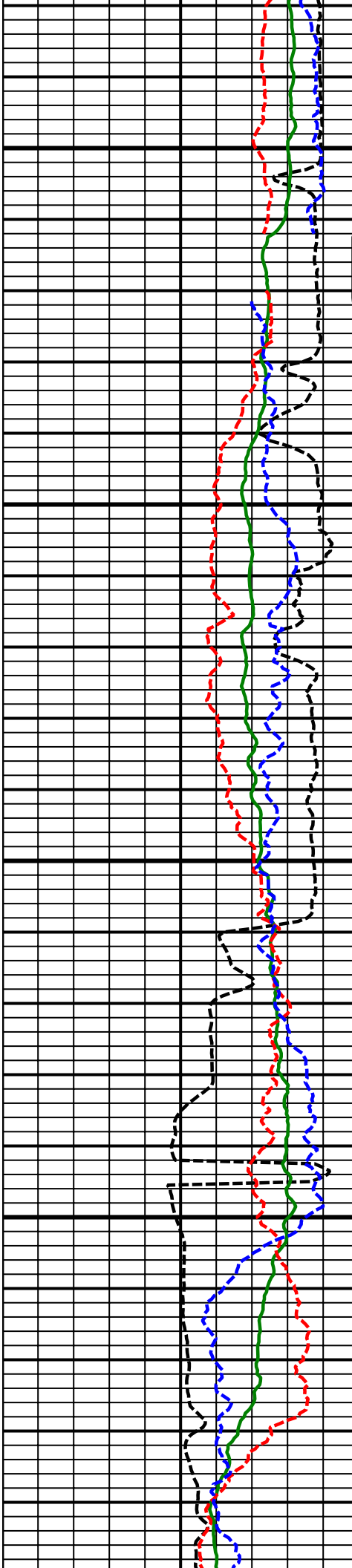




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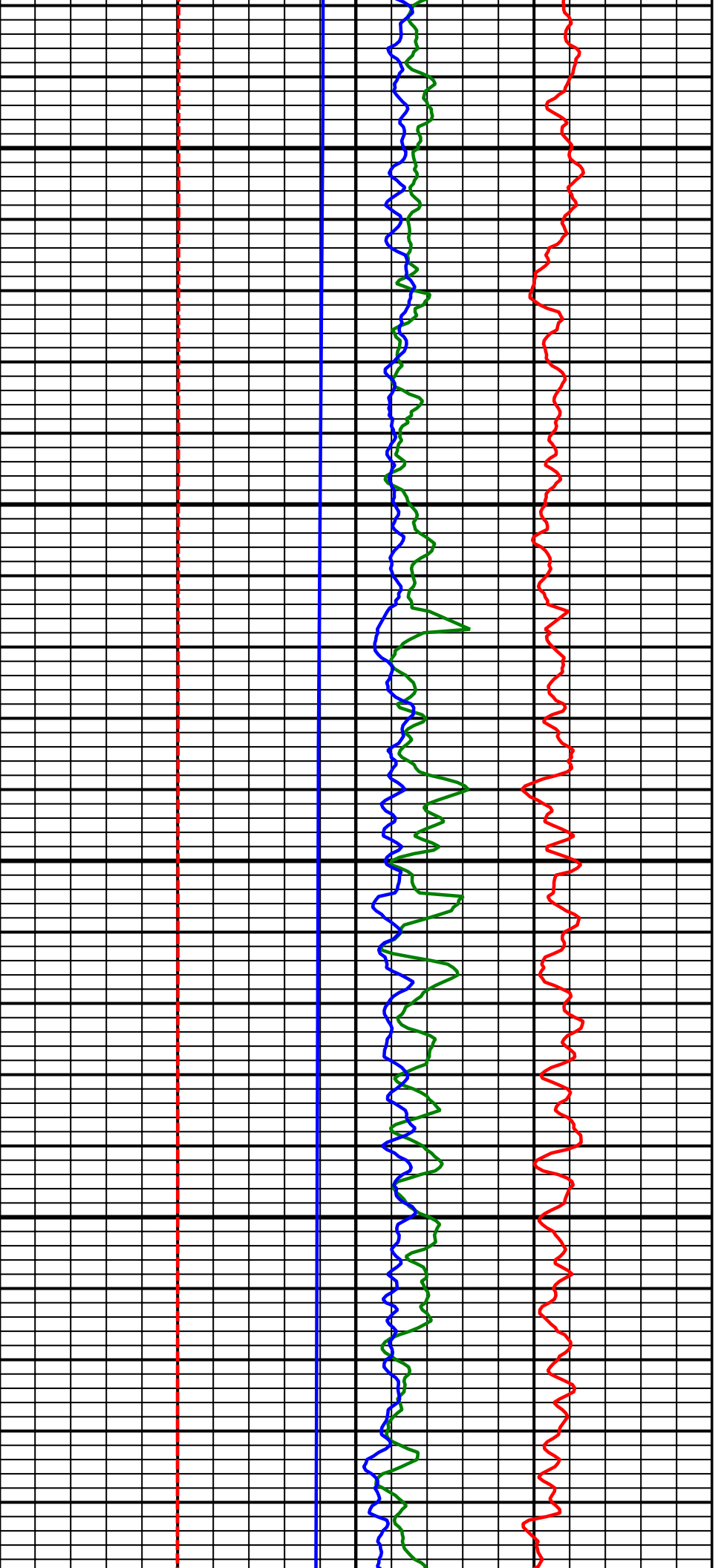


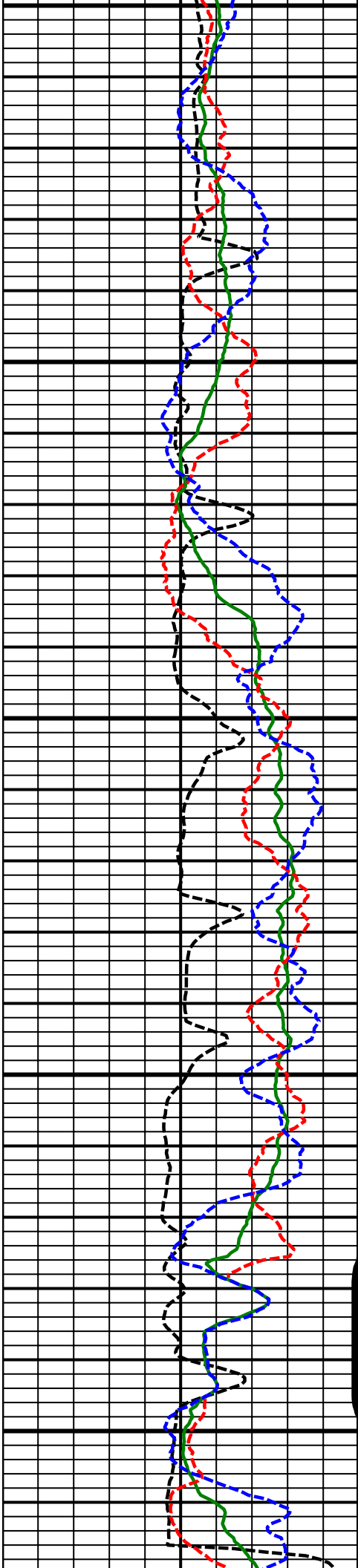
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Comment
2-2

Comment
3-1

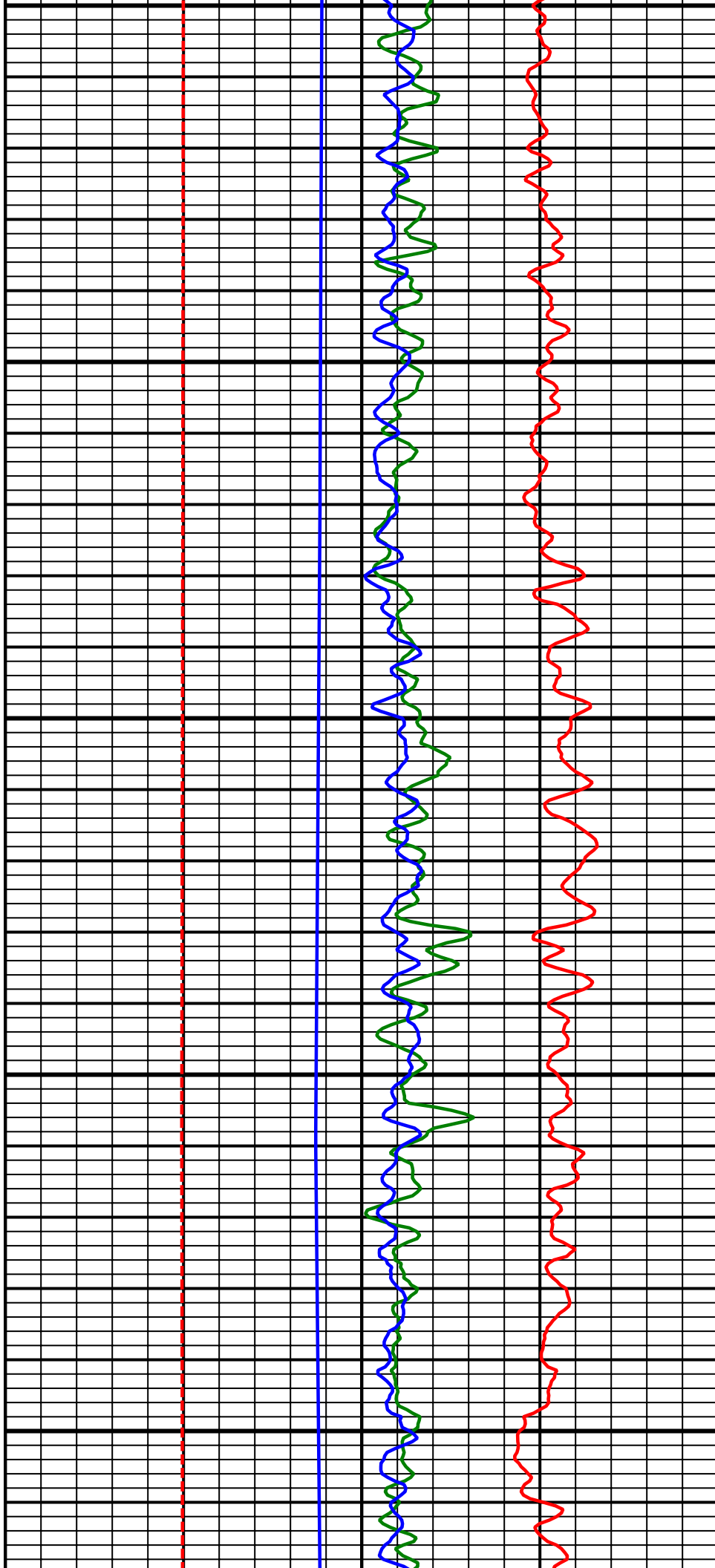
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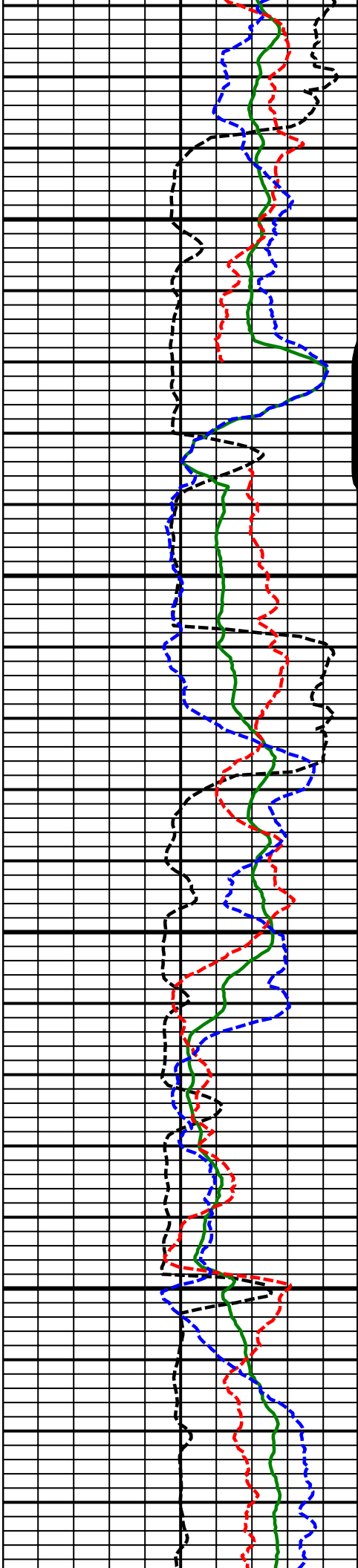




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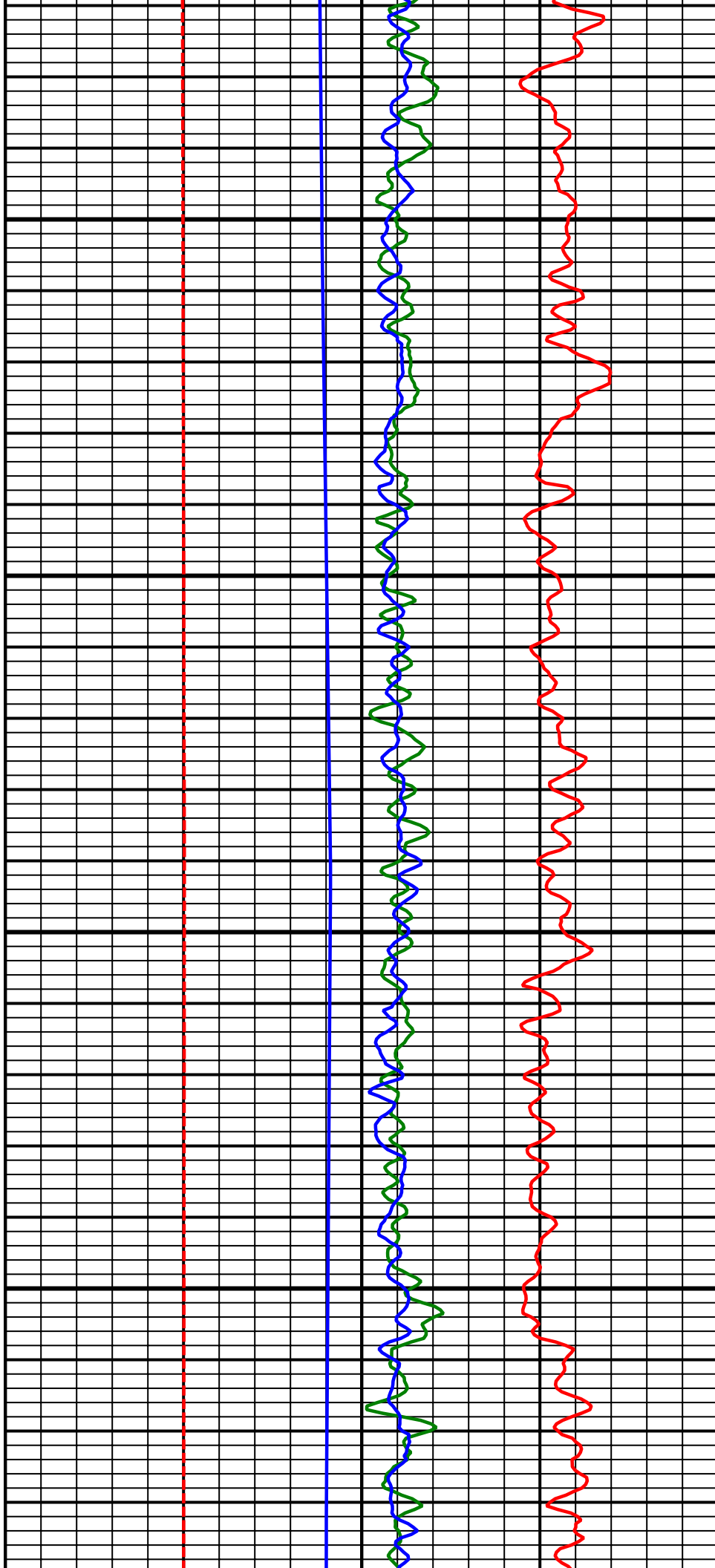
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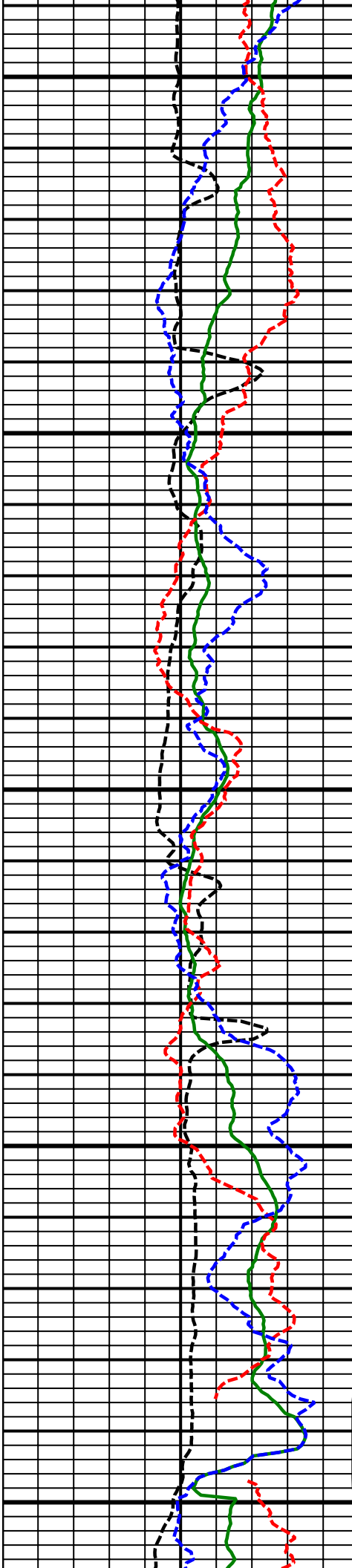




11500
MD

11600
MD

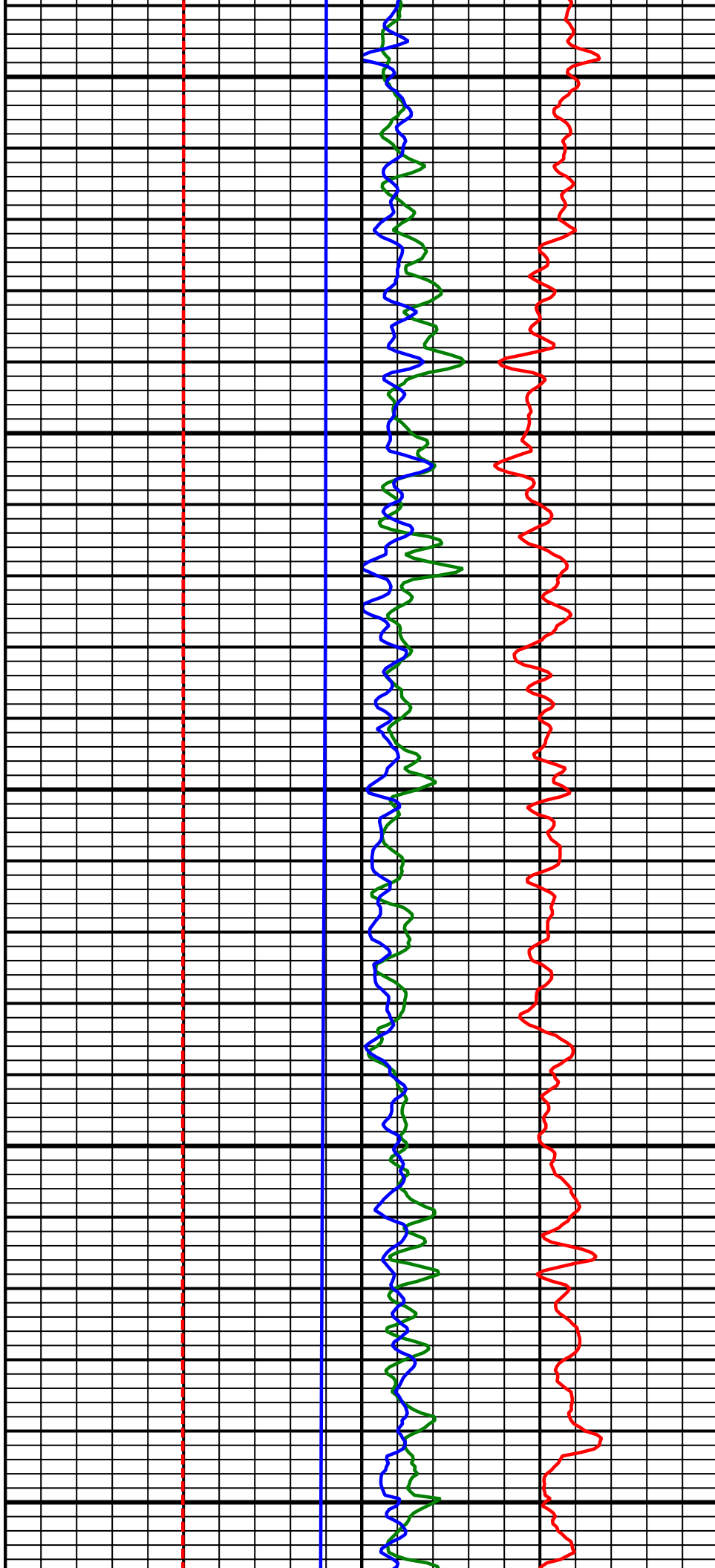


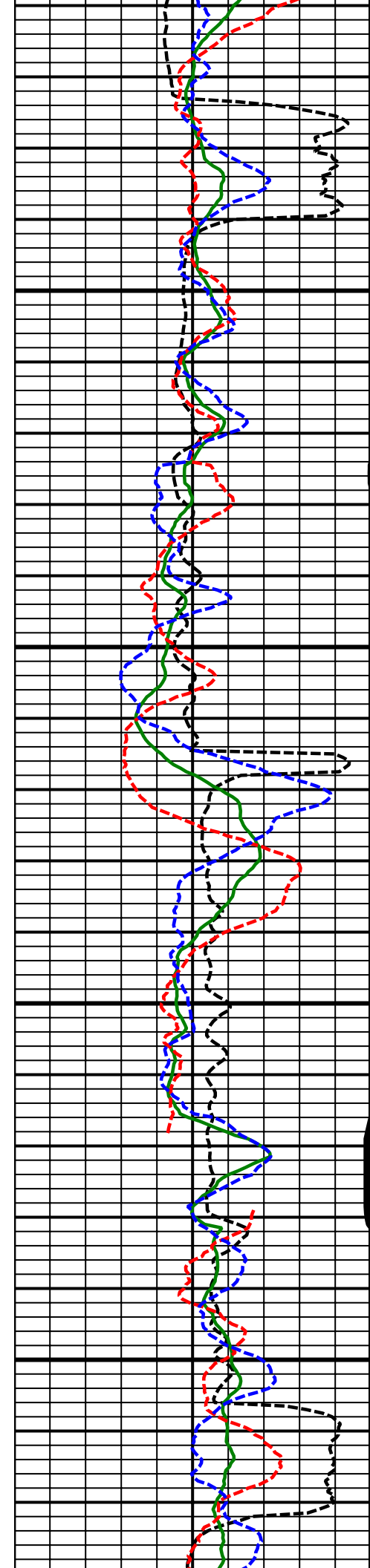


11700
MD

11800
MD

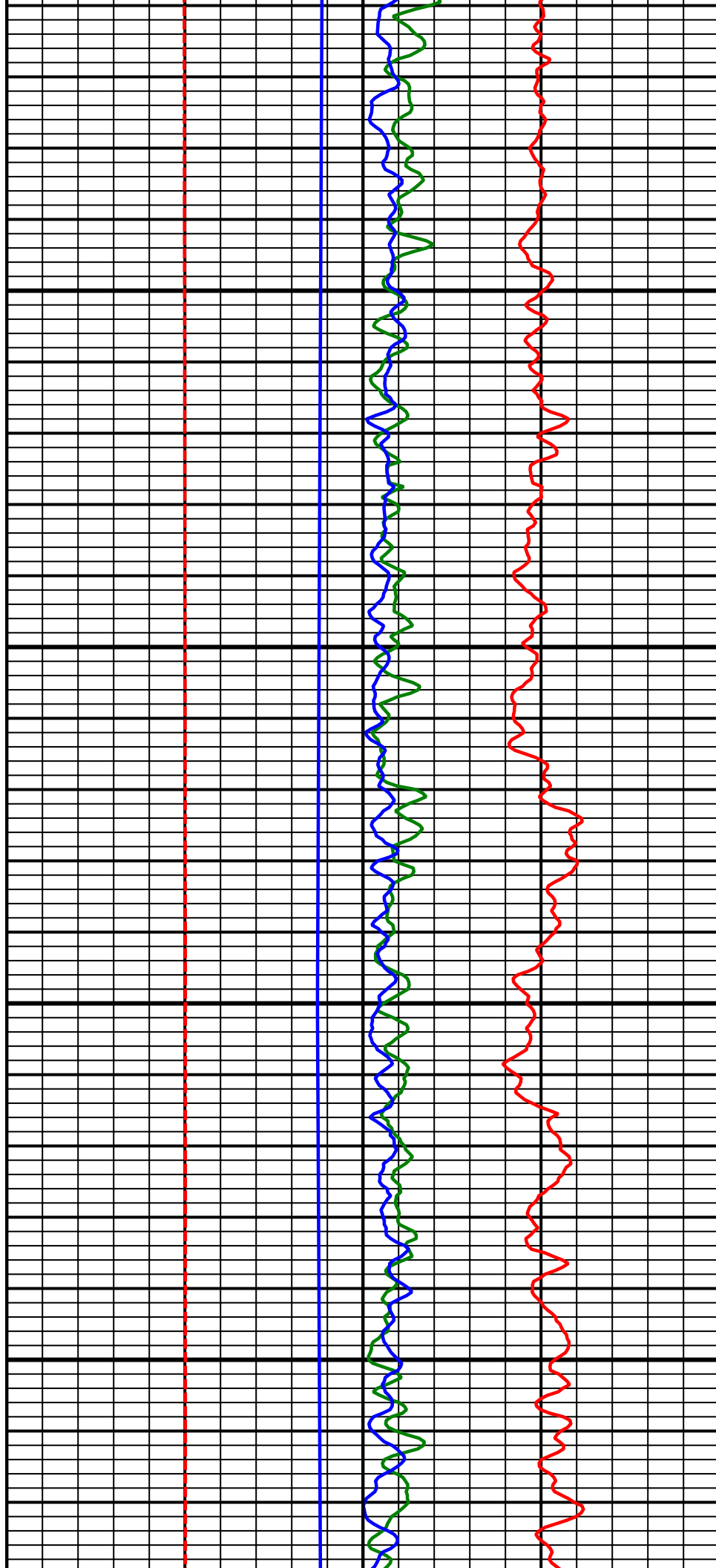
11900
MD

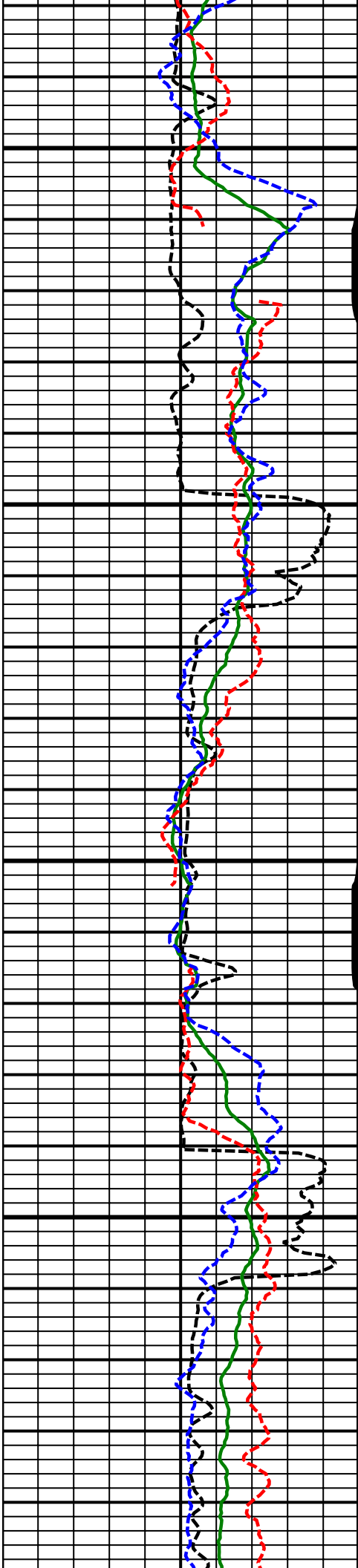




12000
MD

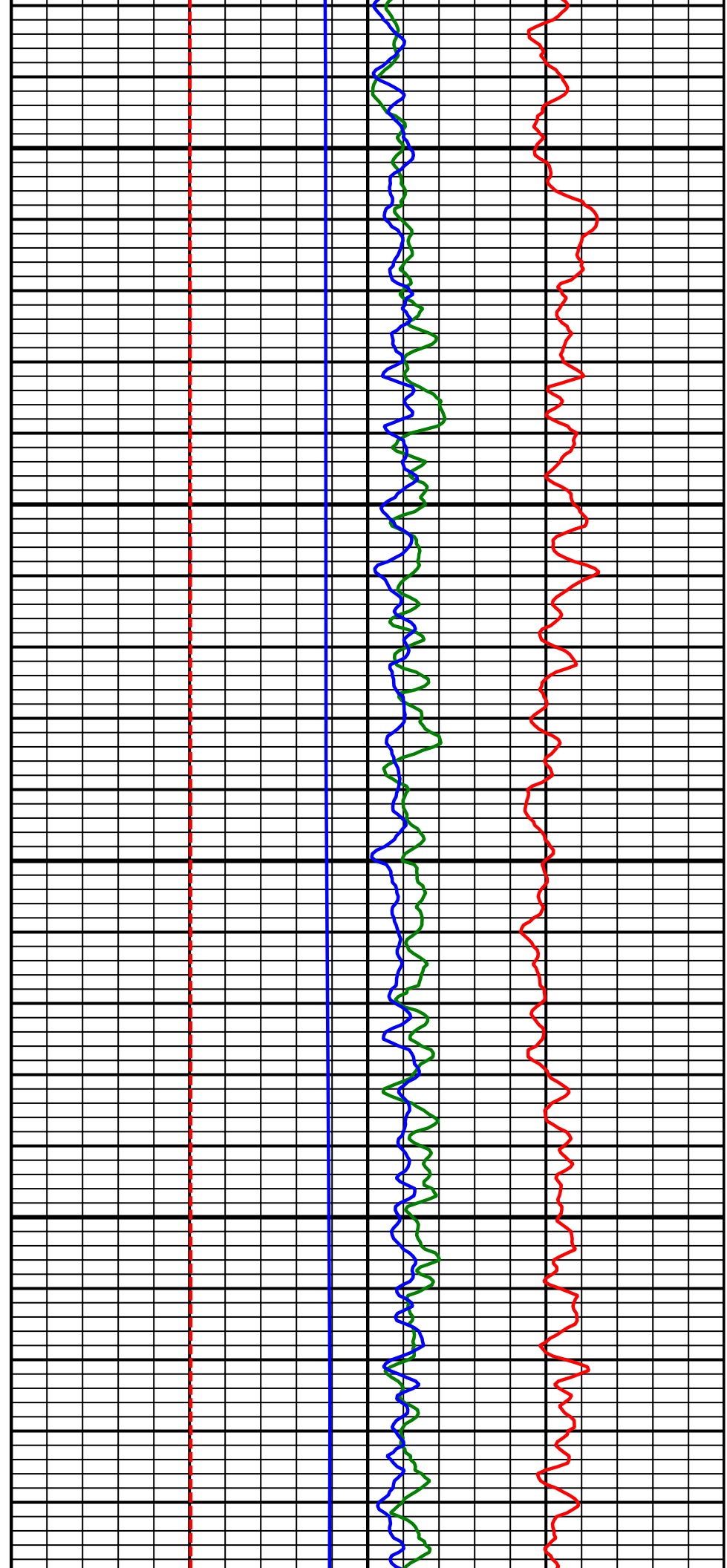
12100
MD

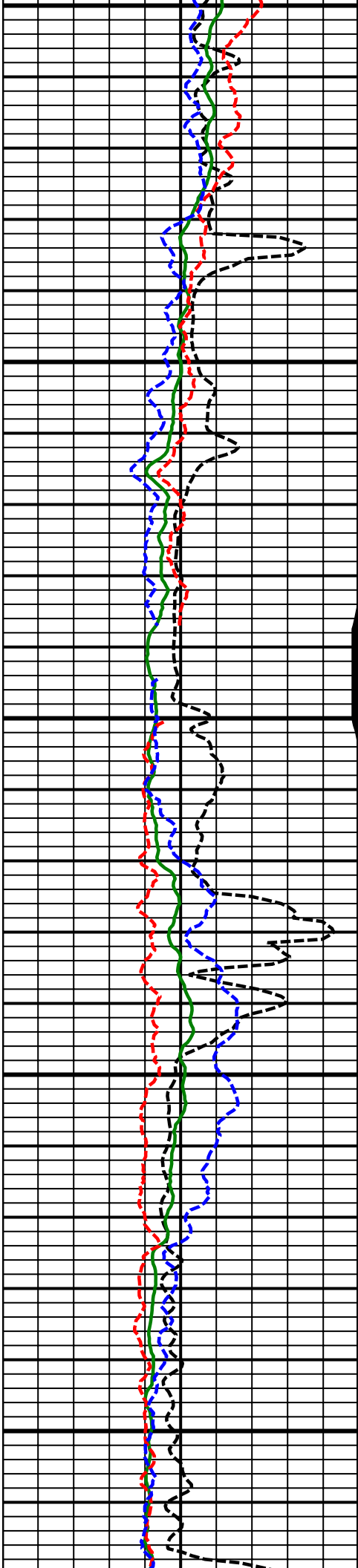




12200
MD

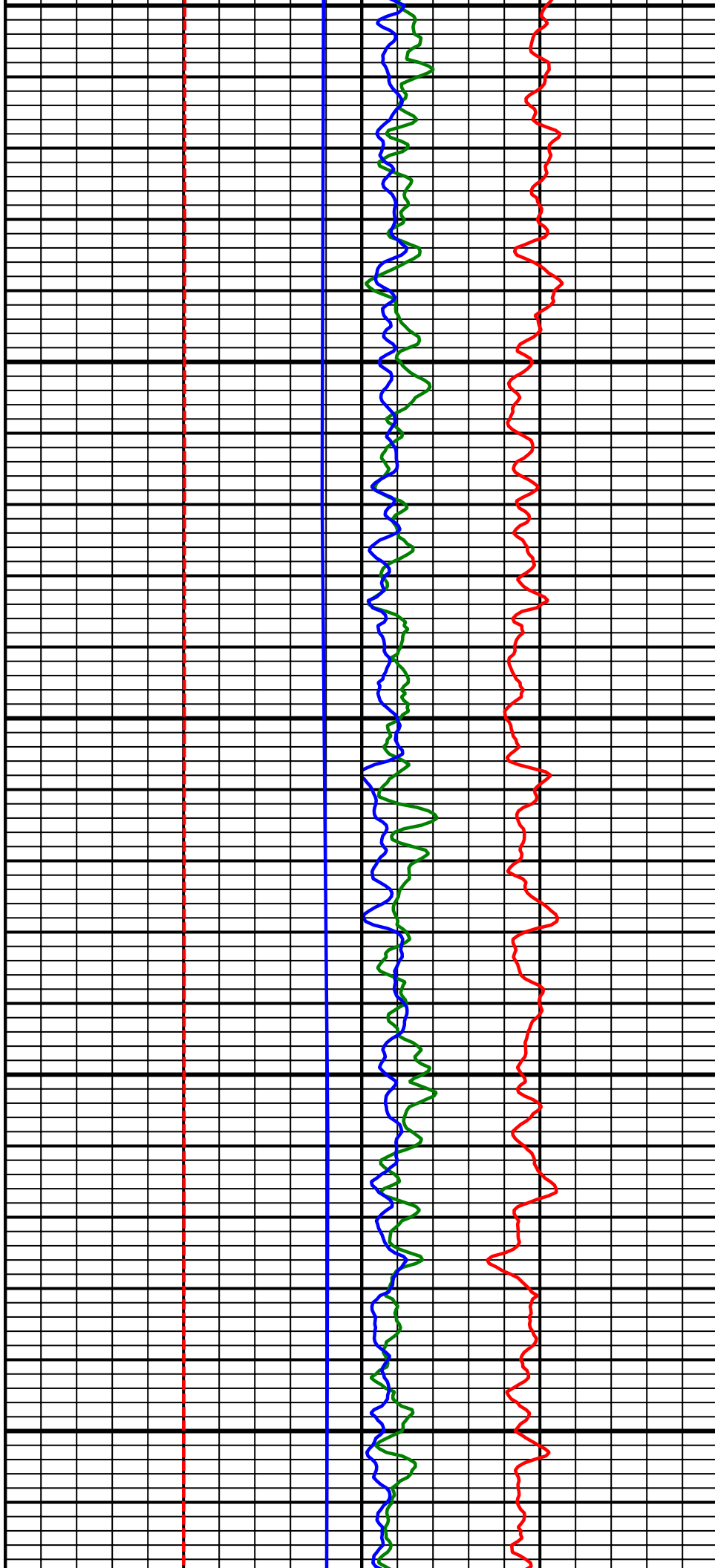
12300
MD

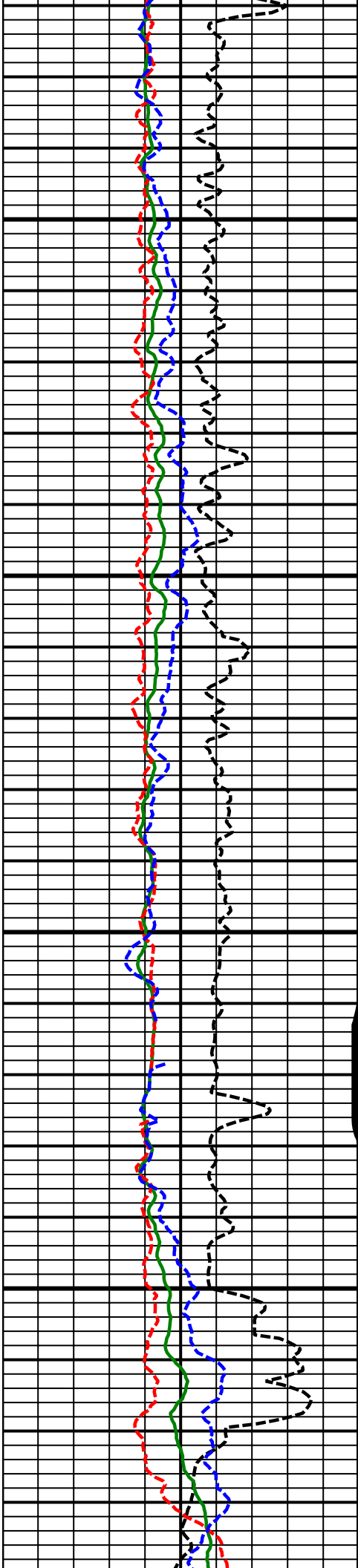




12400
MD

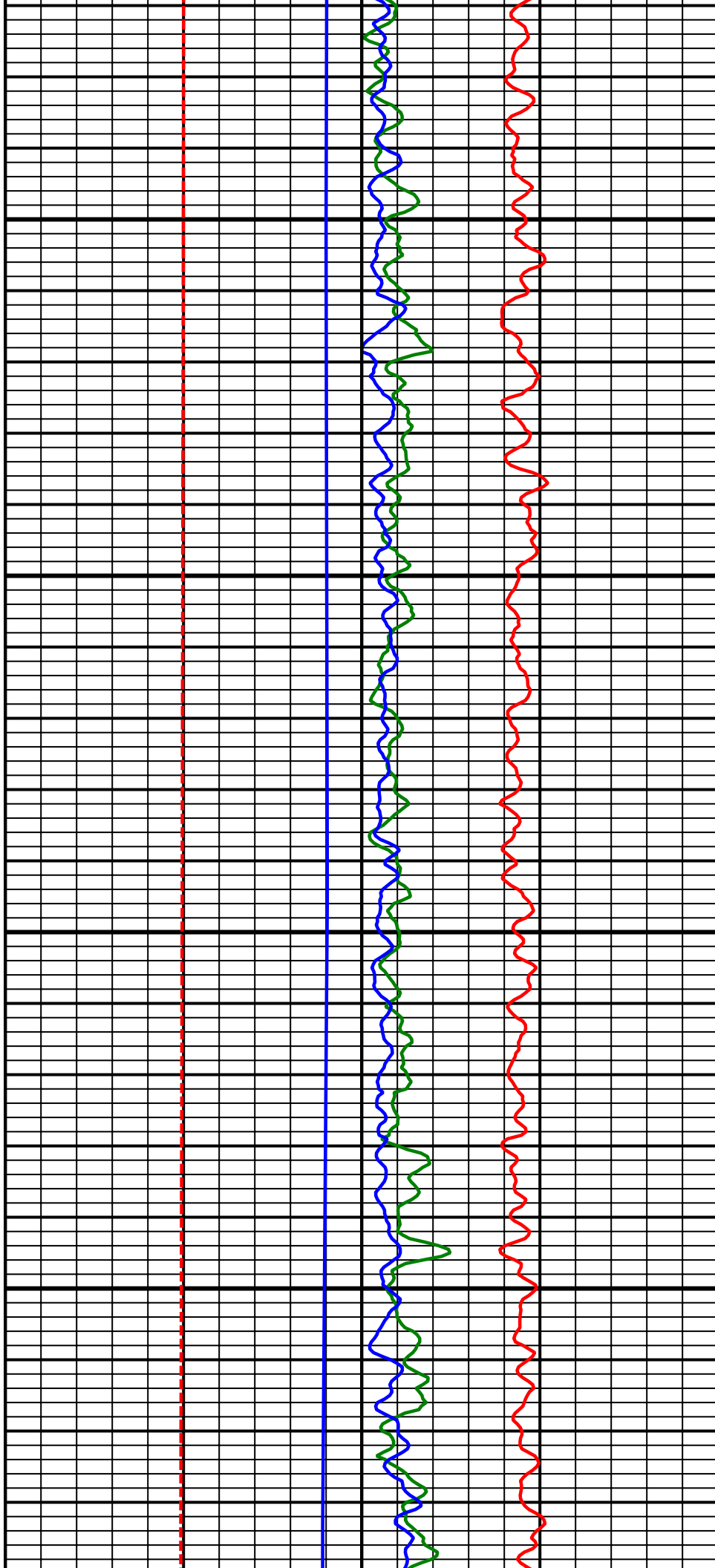
12500
MD

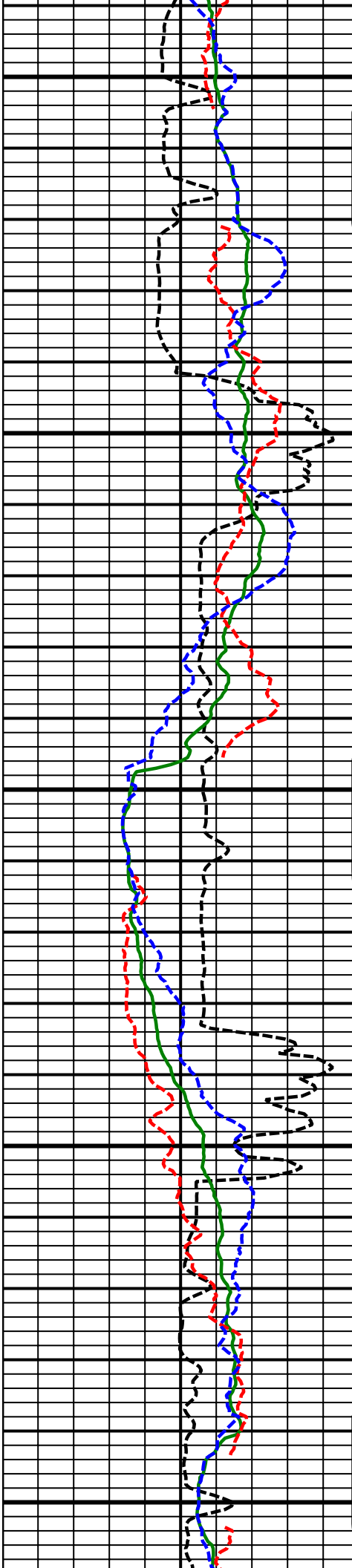




12600
MD

12700
MD

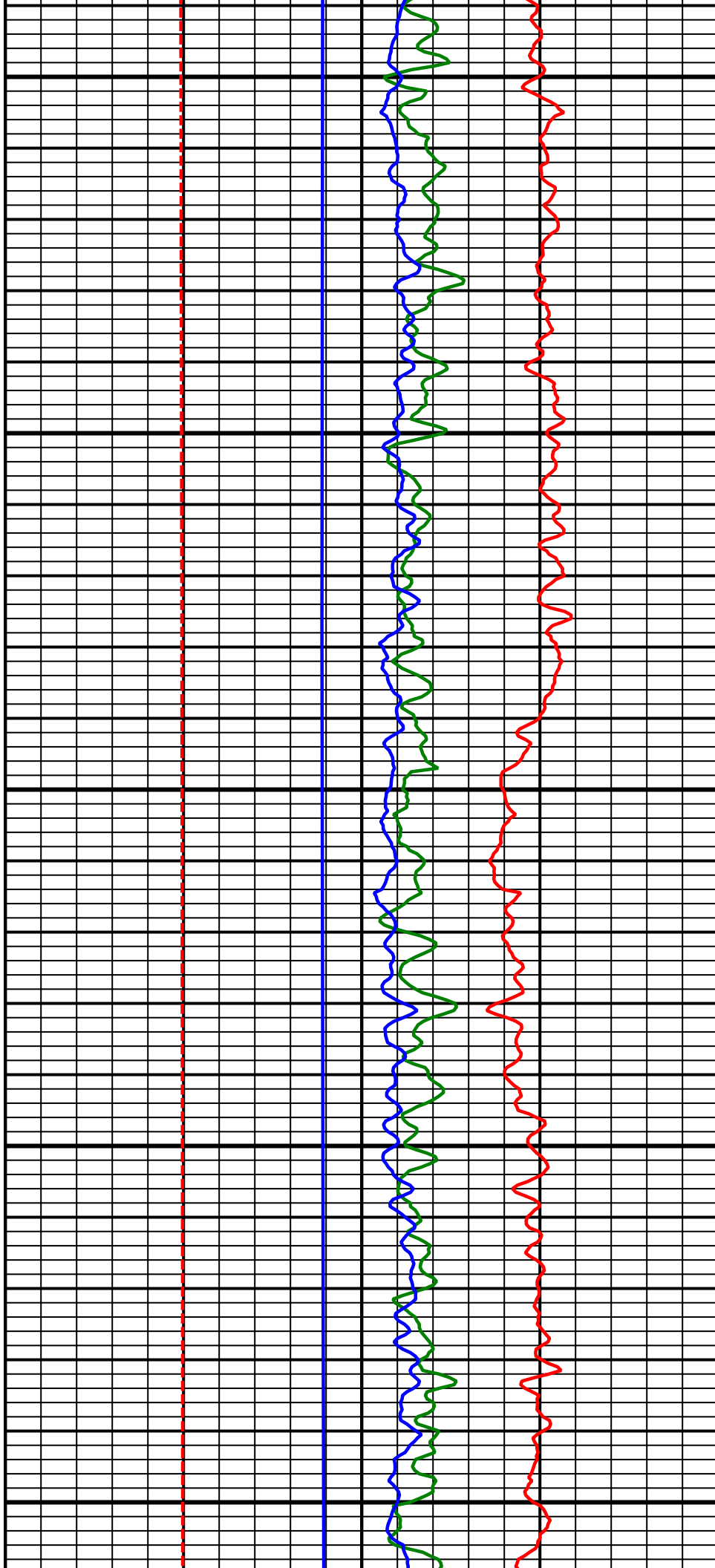


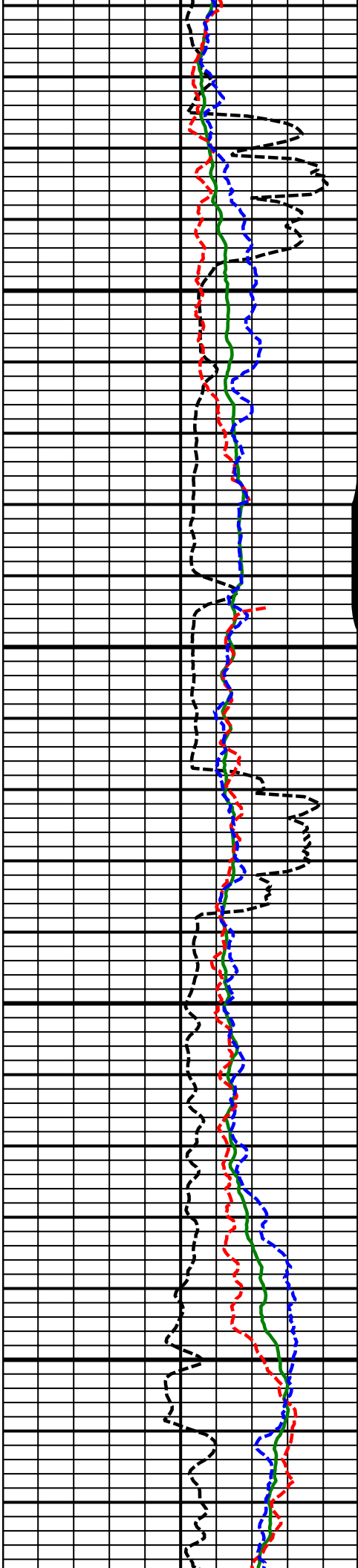


12800
MD

12900
MD

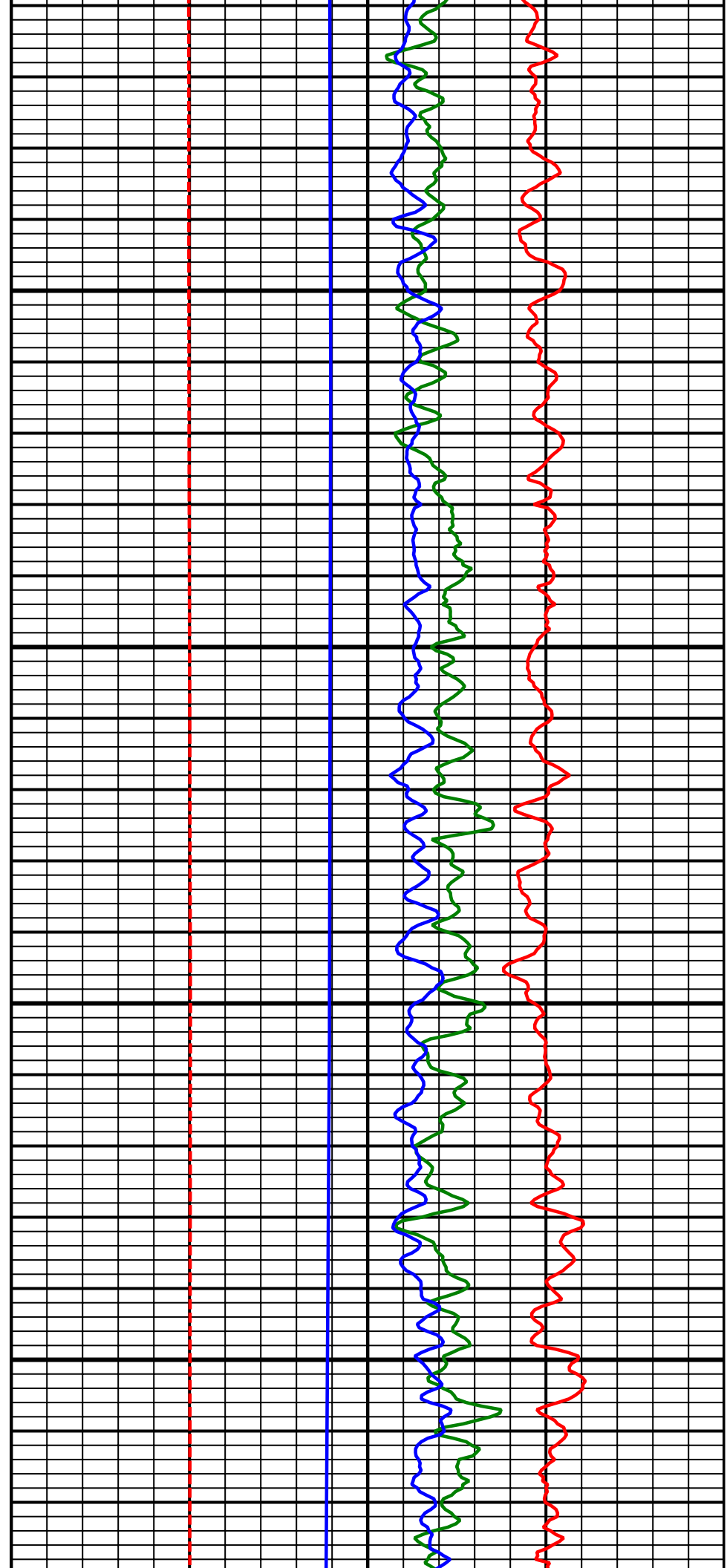
13000
MD

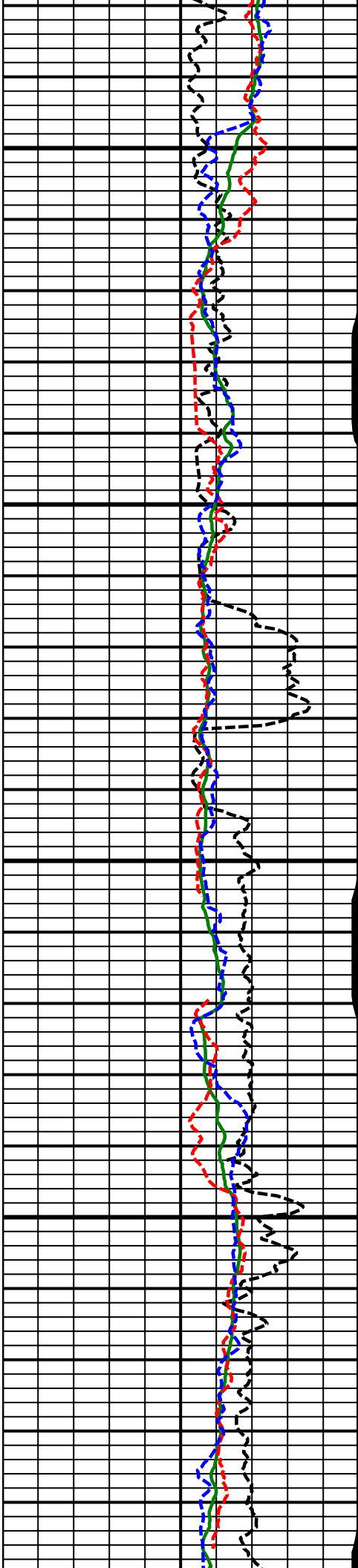




13100
MD

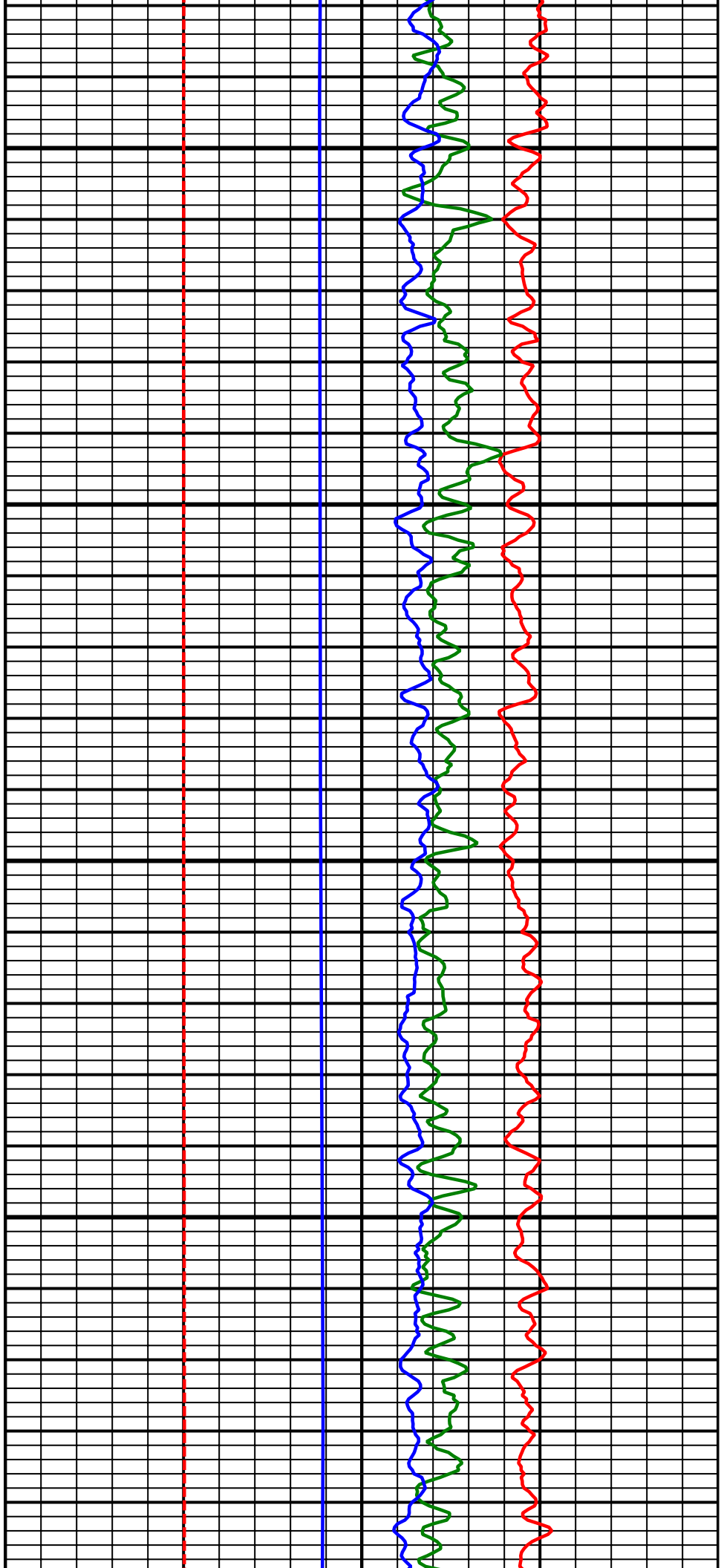
13200
MD

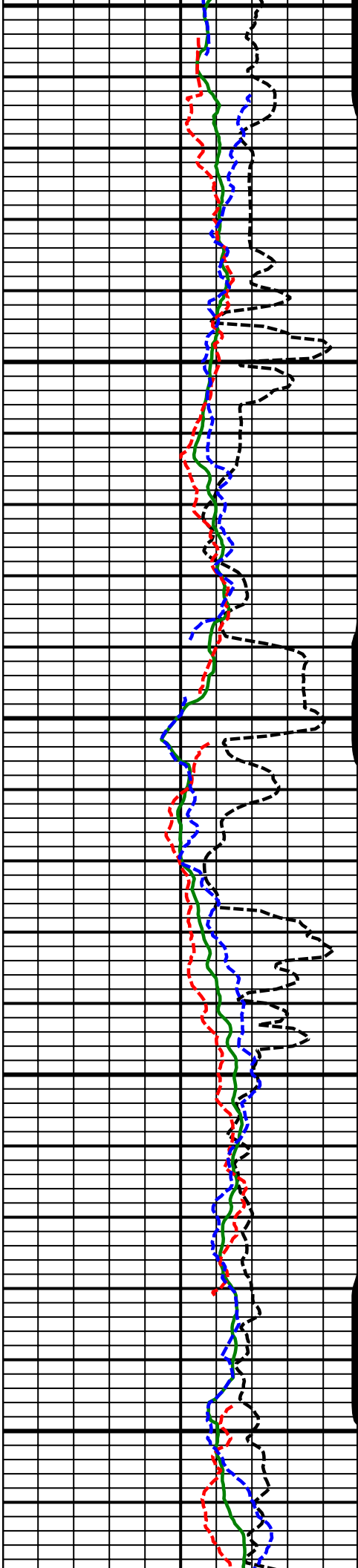




13300
MD

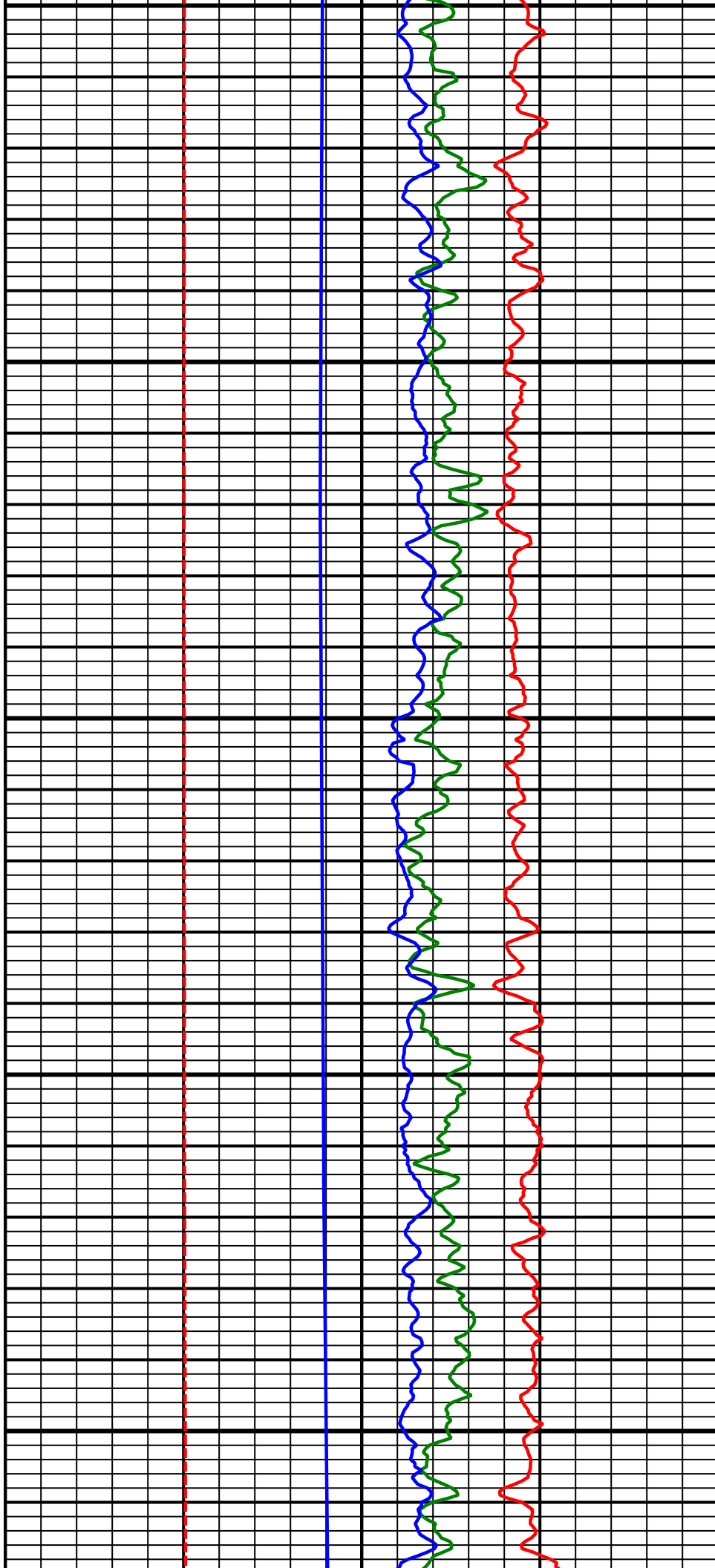
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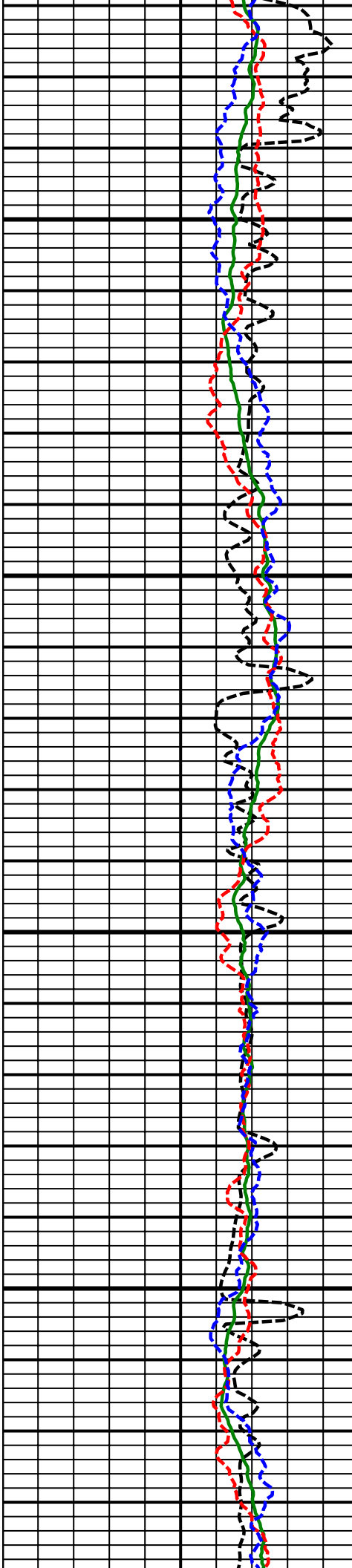




13500
MD

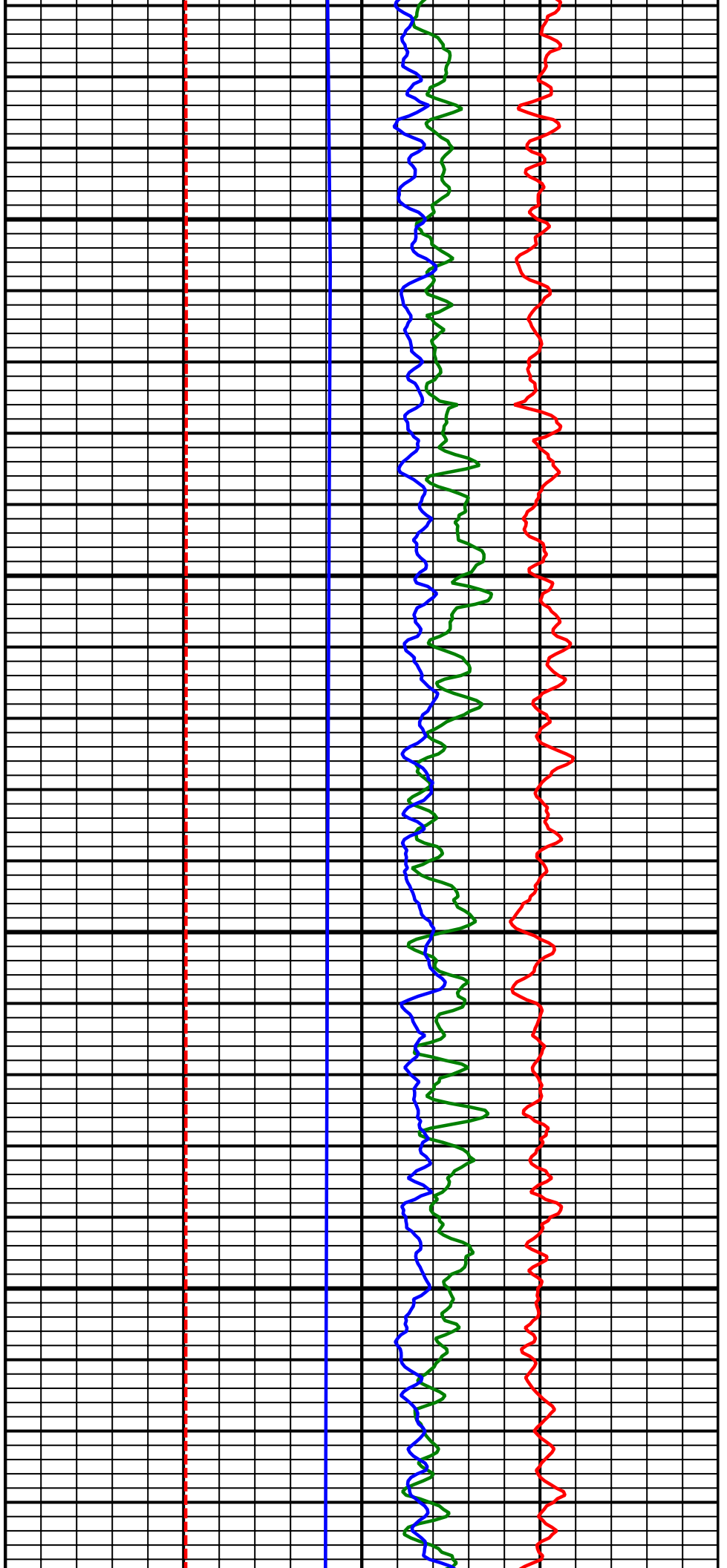
13600
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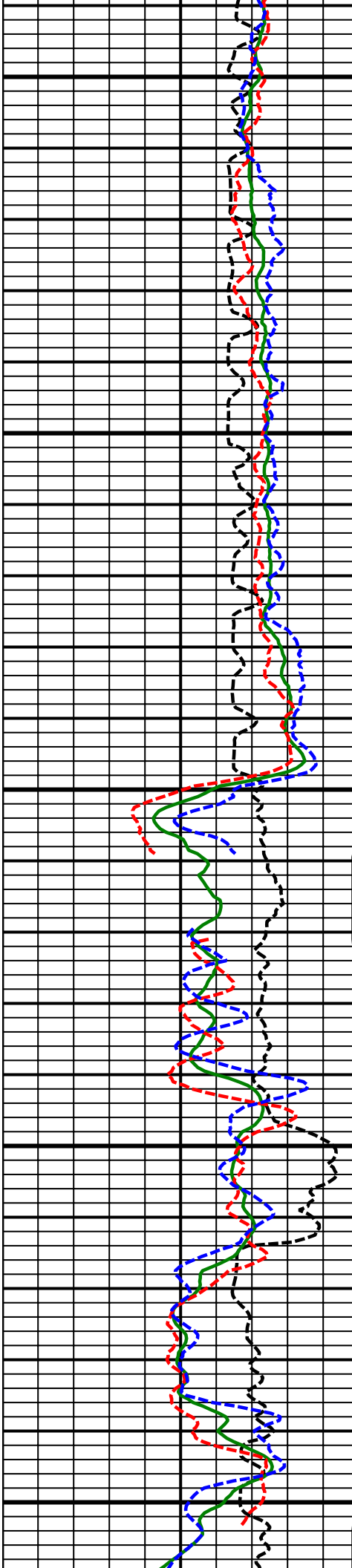




13700
MD

13800
MD

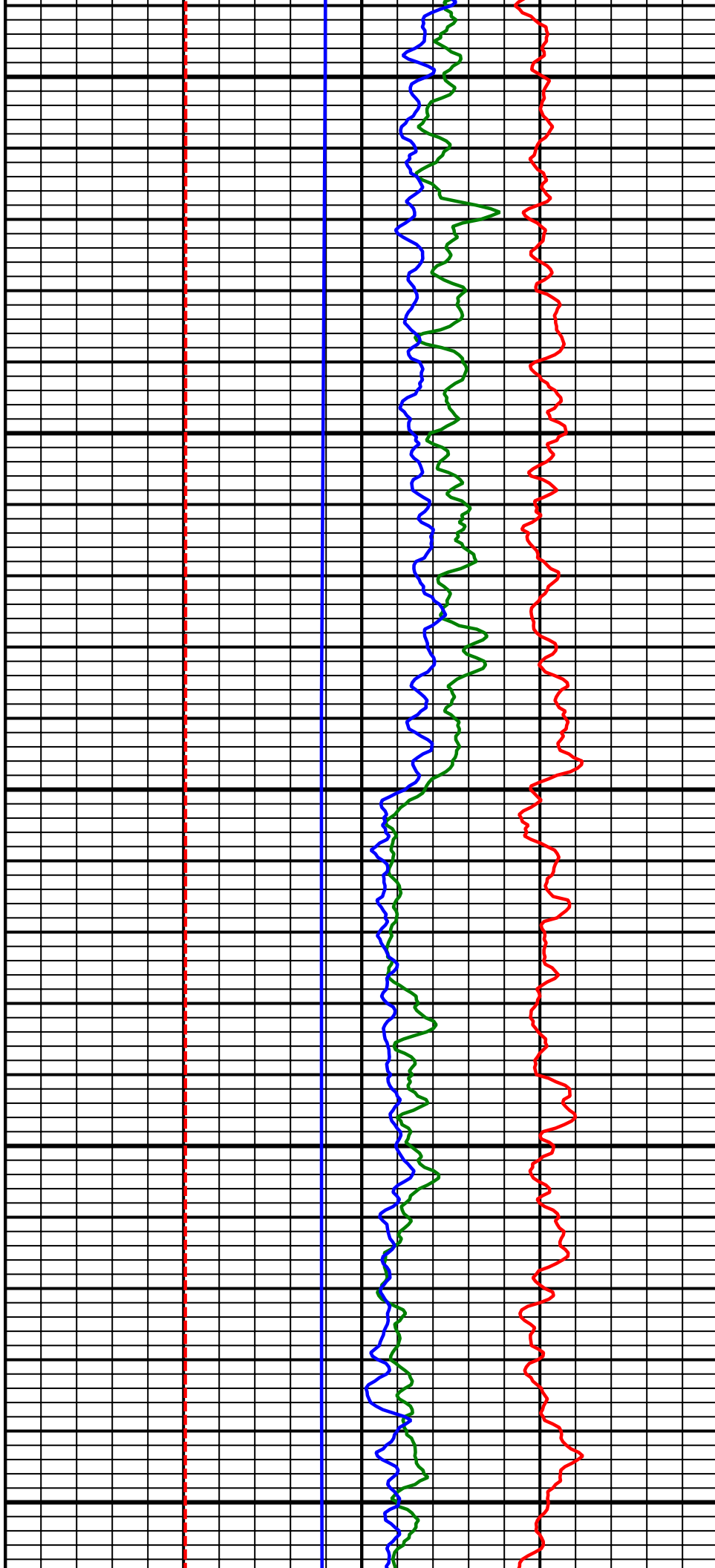


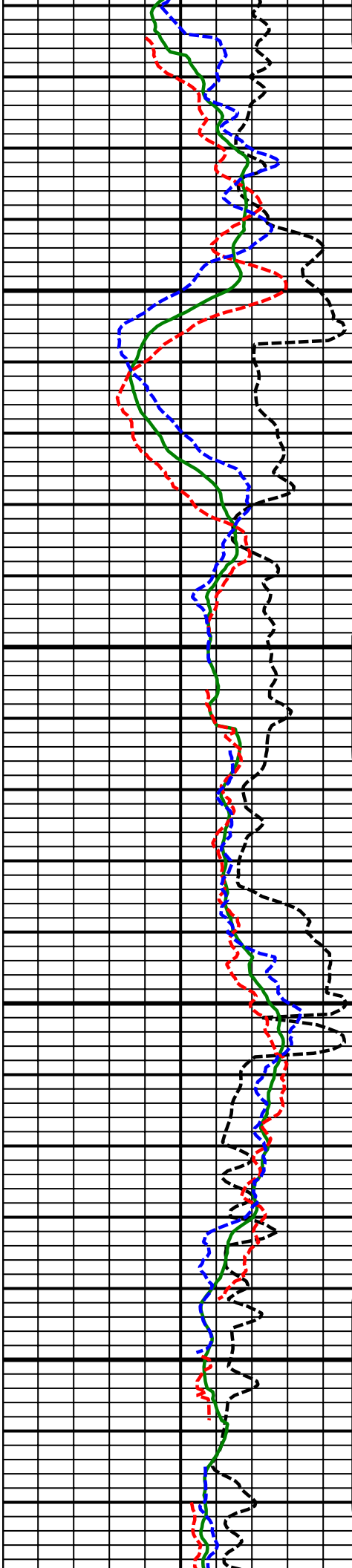


13900
MD

14000
MD

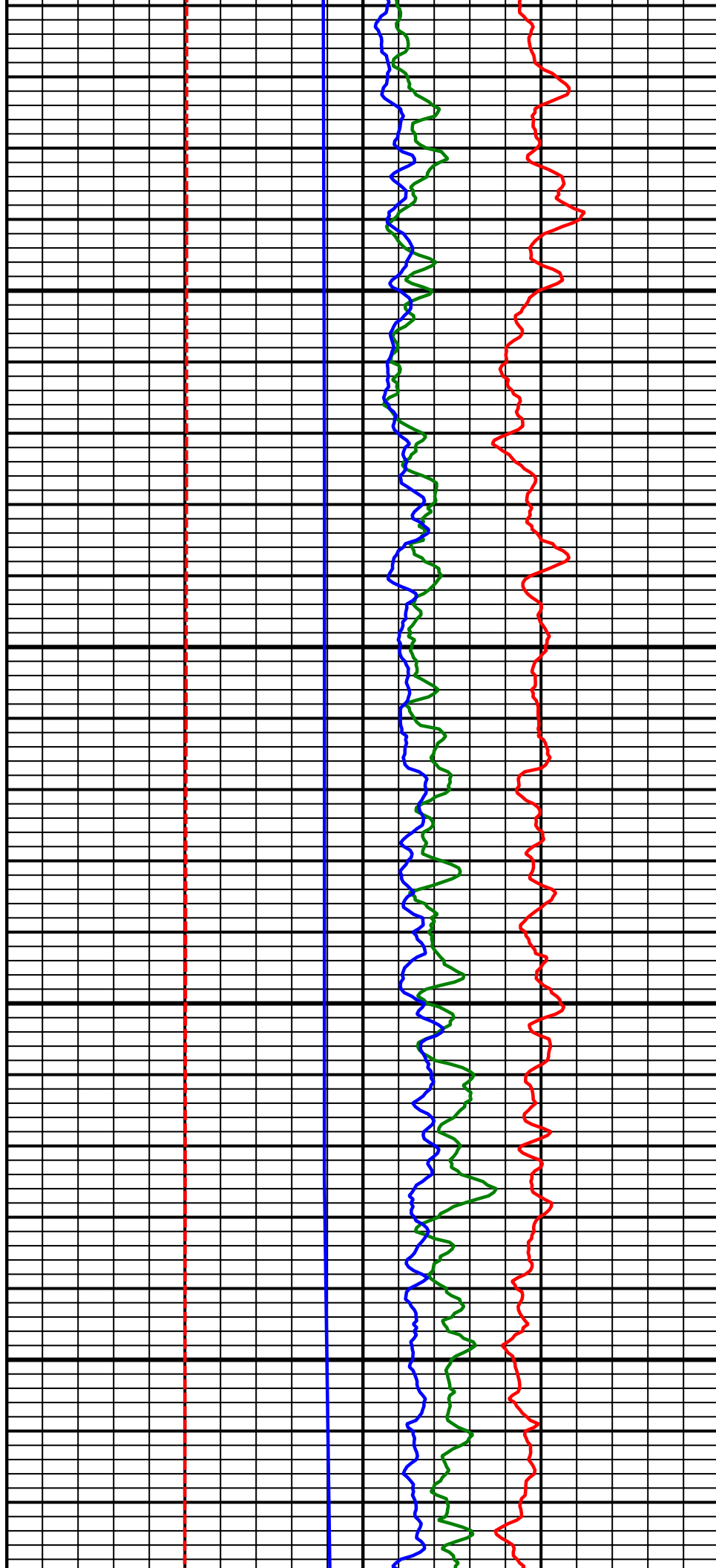
14100
MD

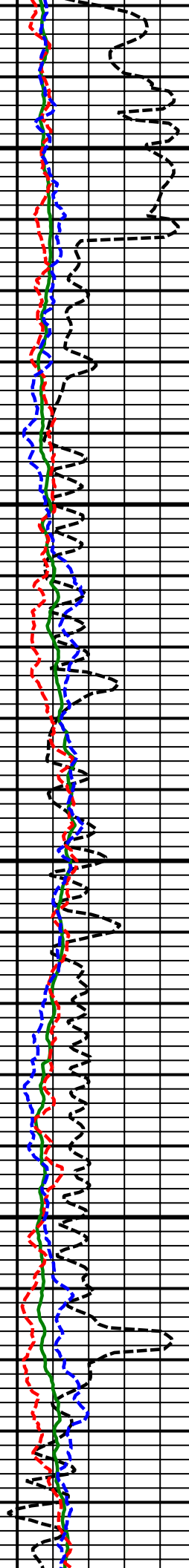




14200
MD

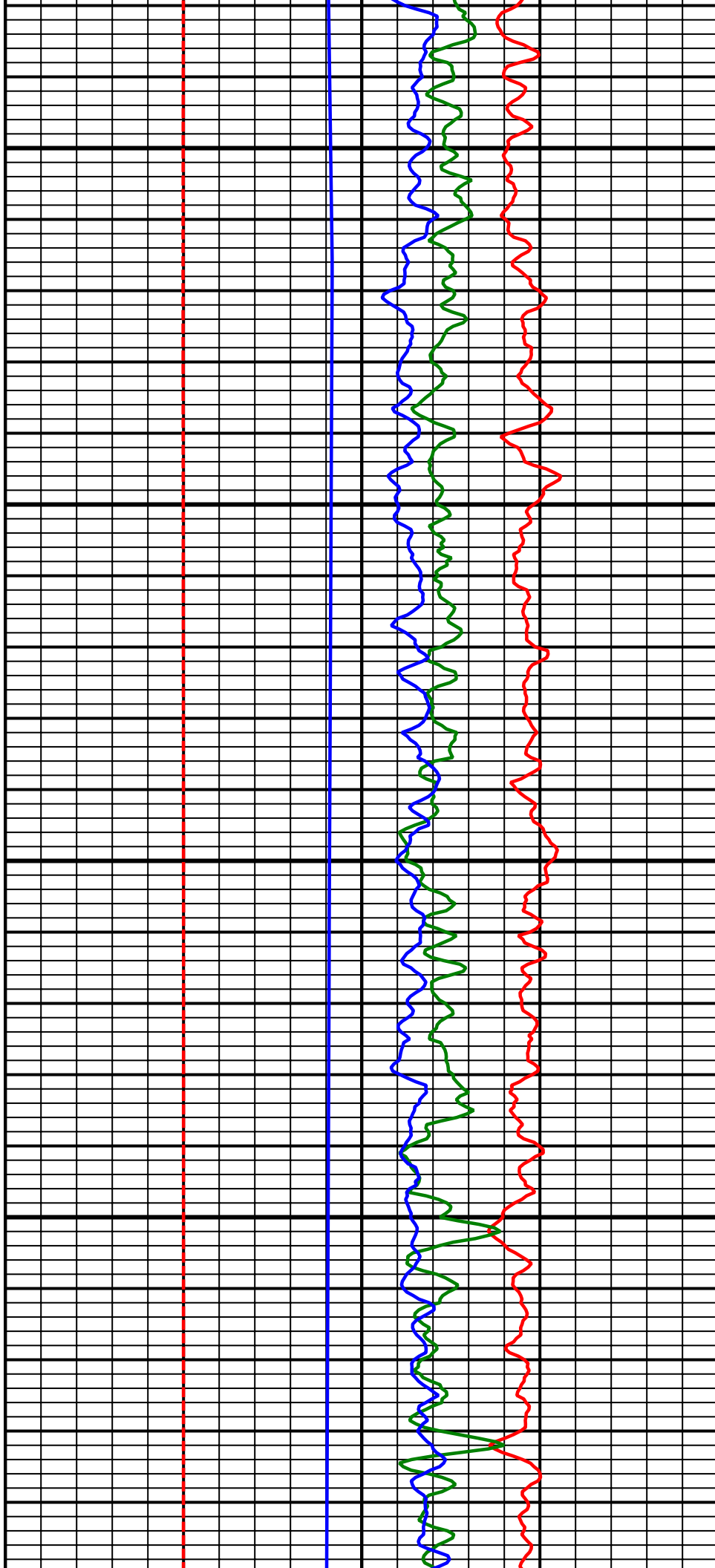
14300
MD

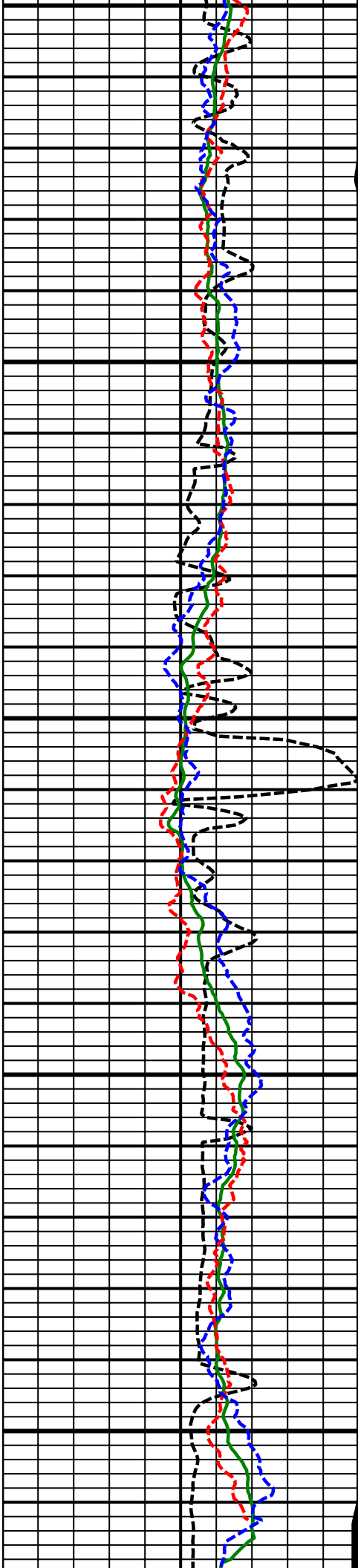




14400
MD

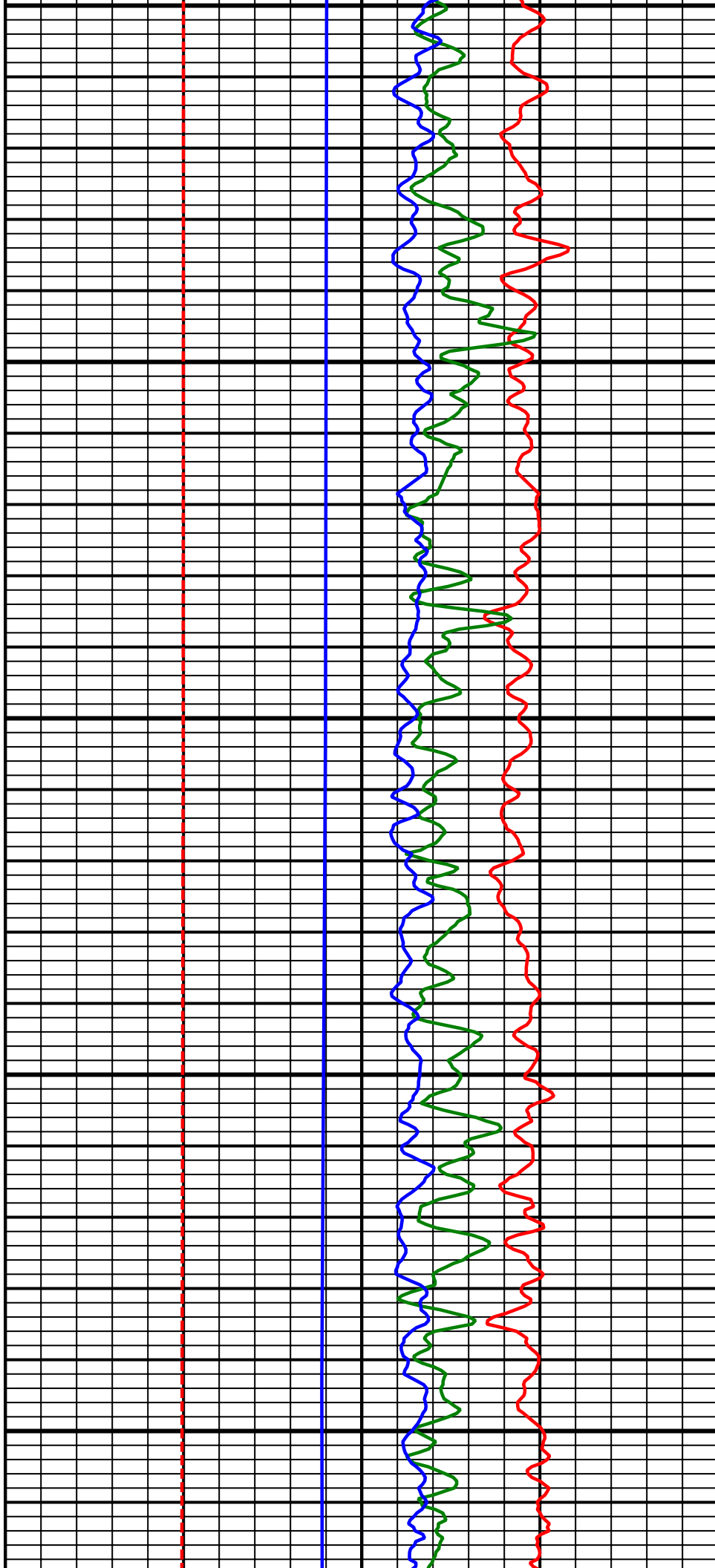
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MD

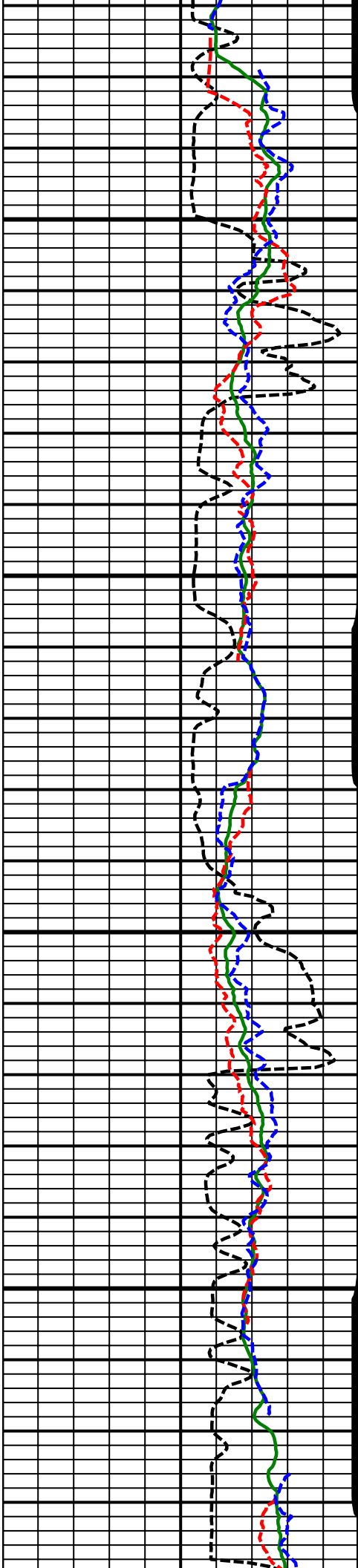




14600
MD

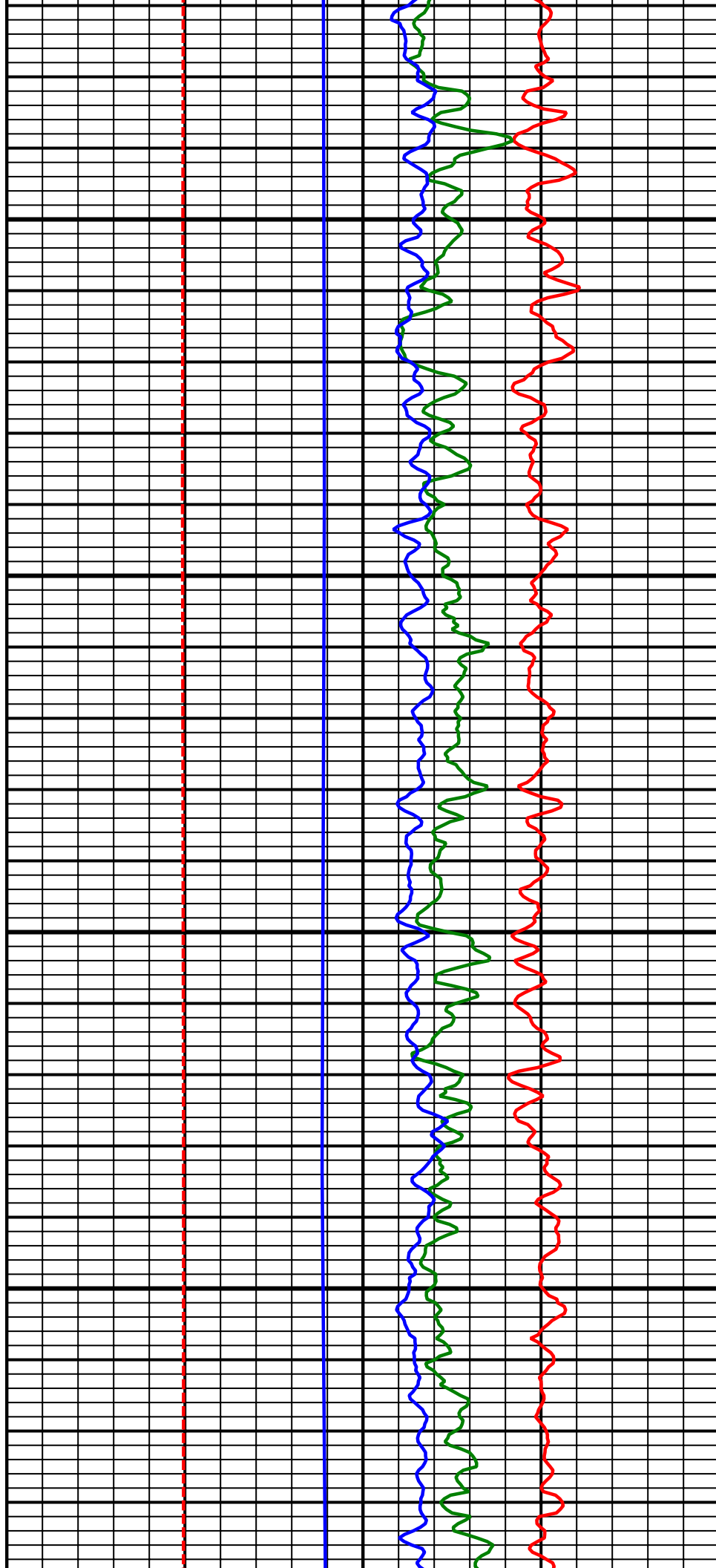
14700
MD

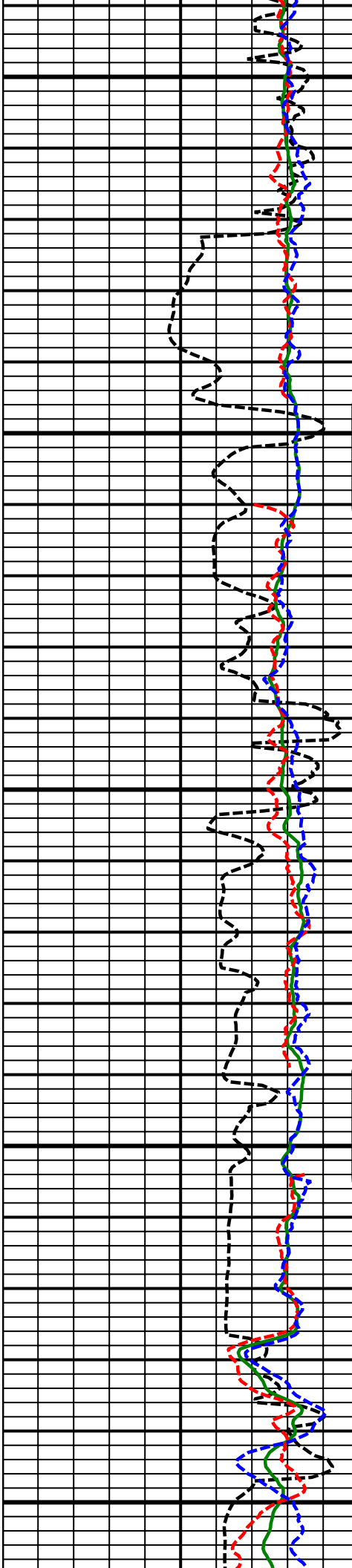




14800
MD

14900
MD

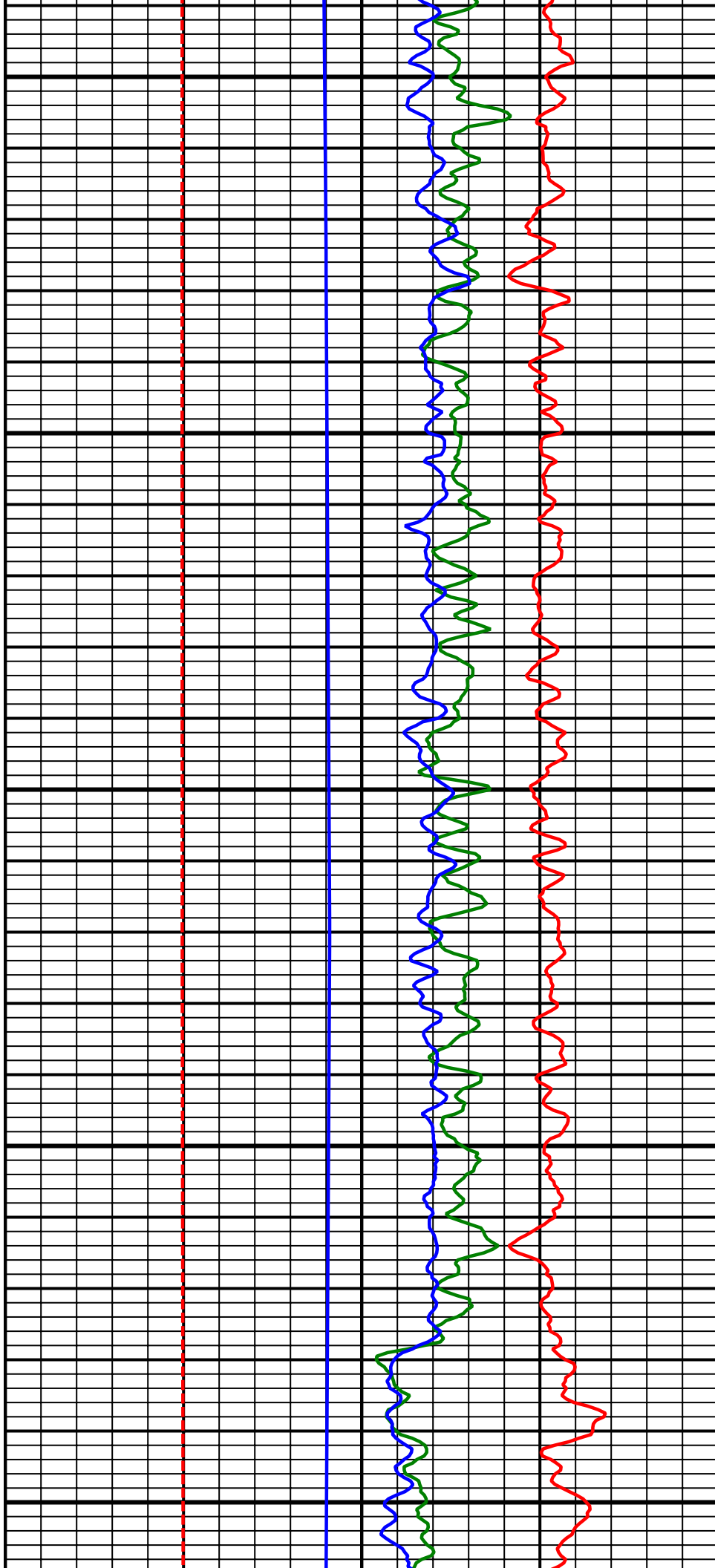


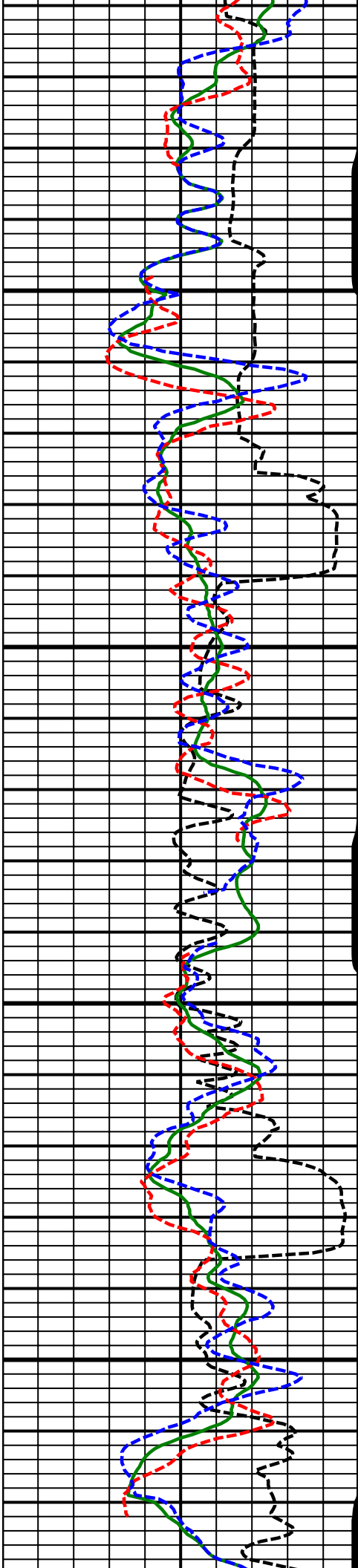


15000
MD

15100
MD

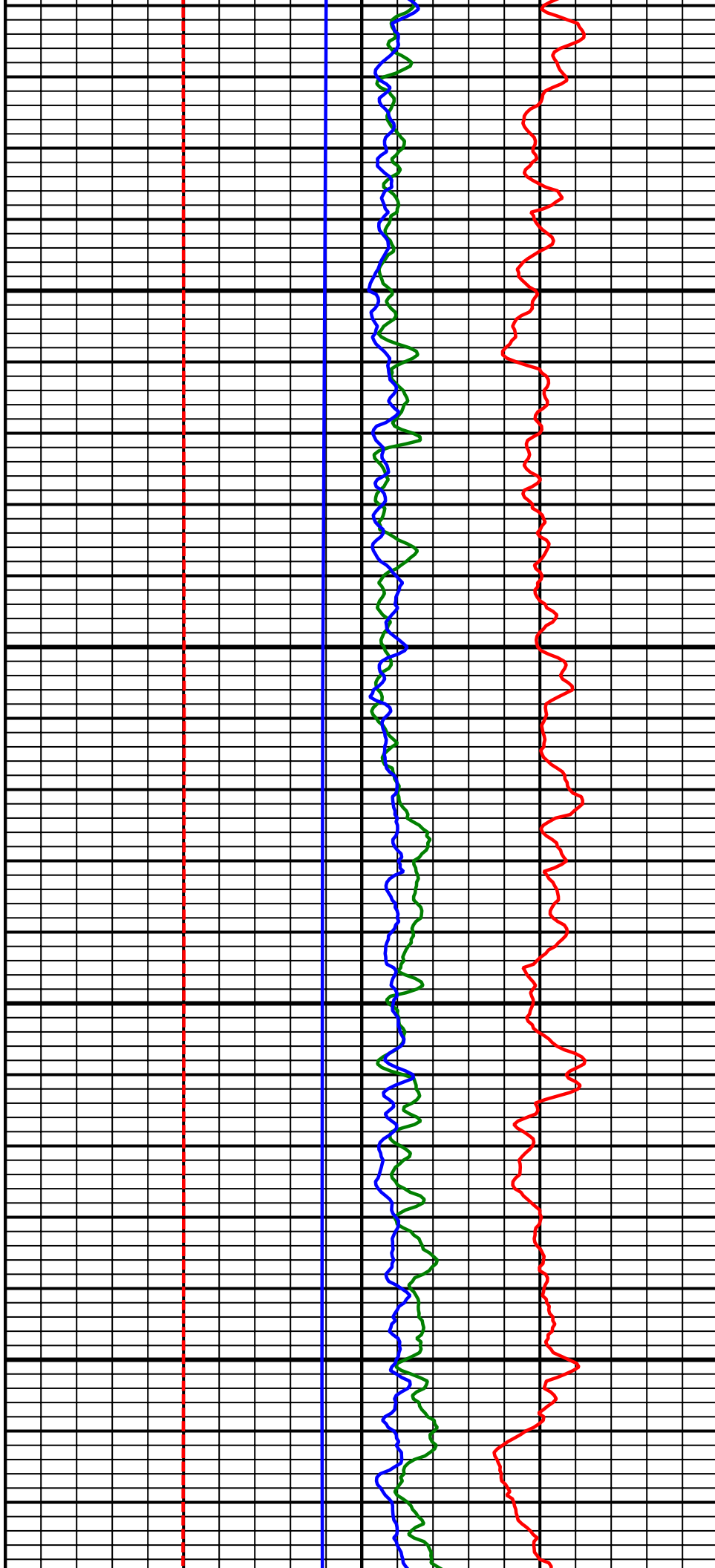
15200
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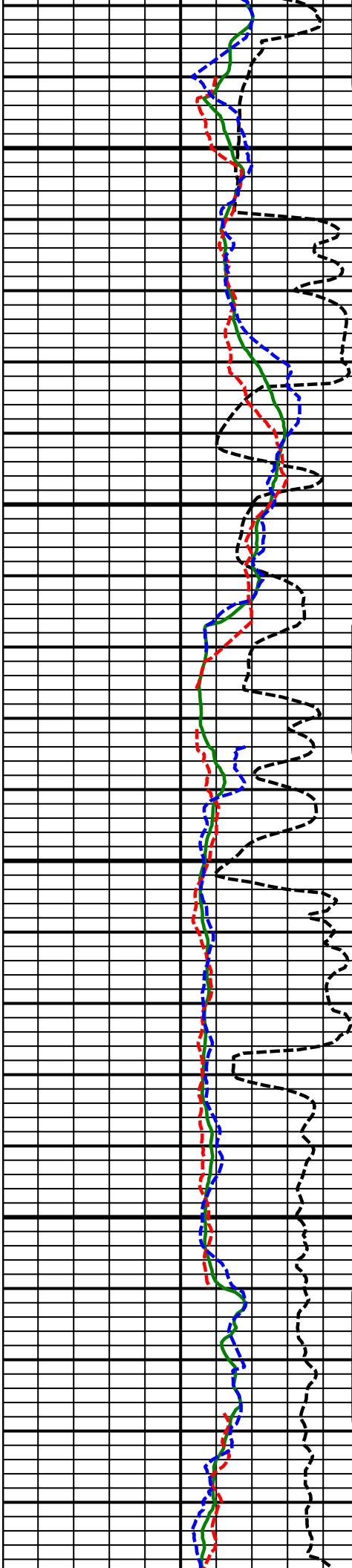




15300
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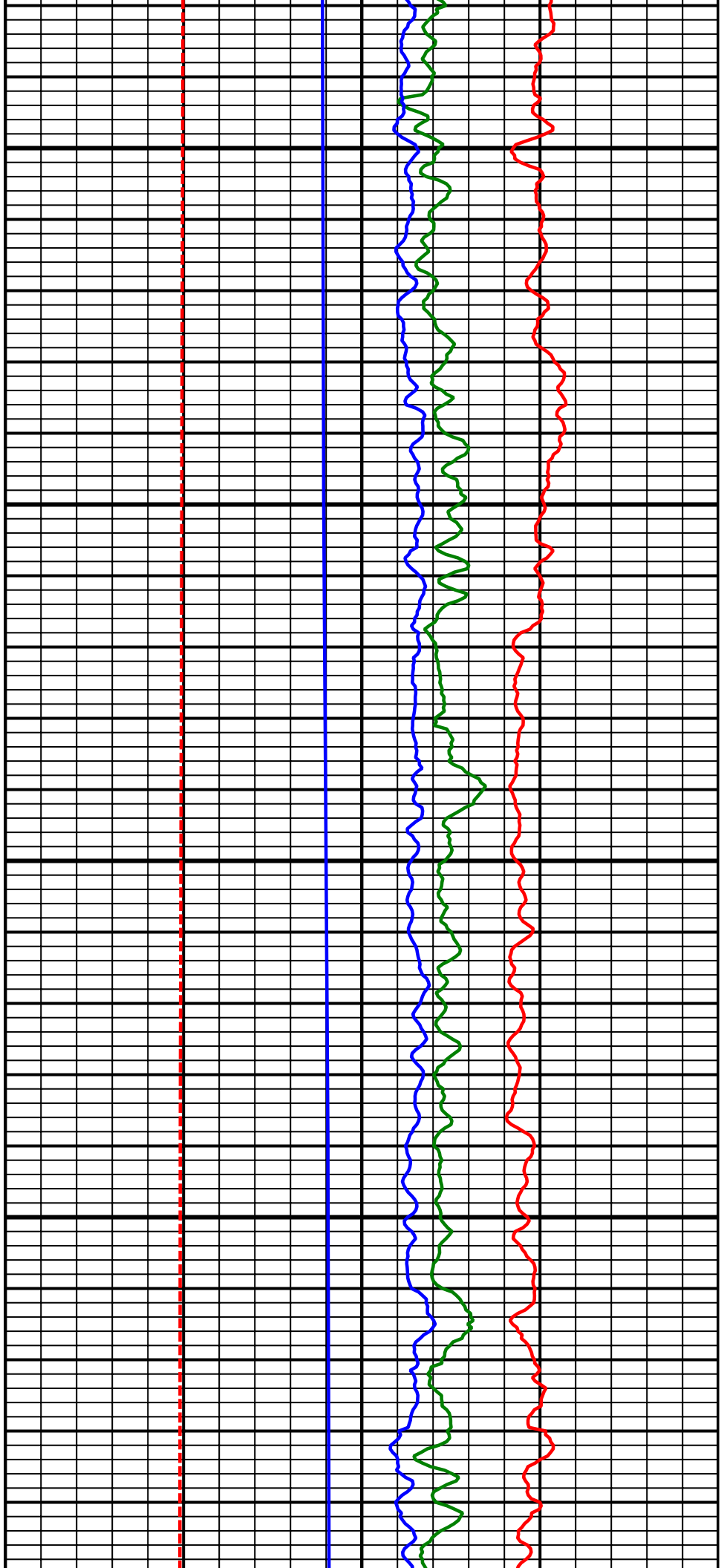
15400
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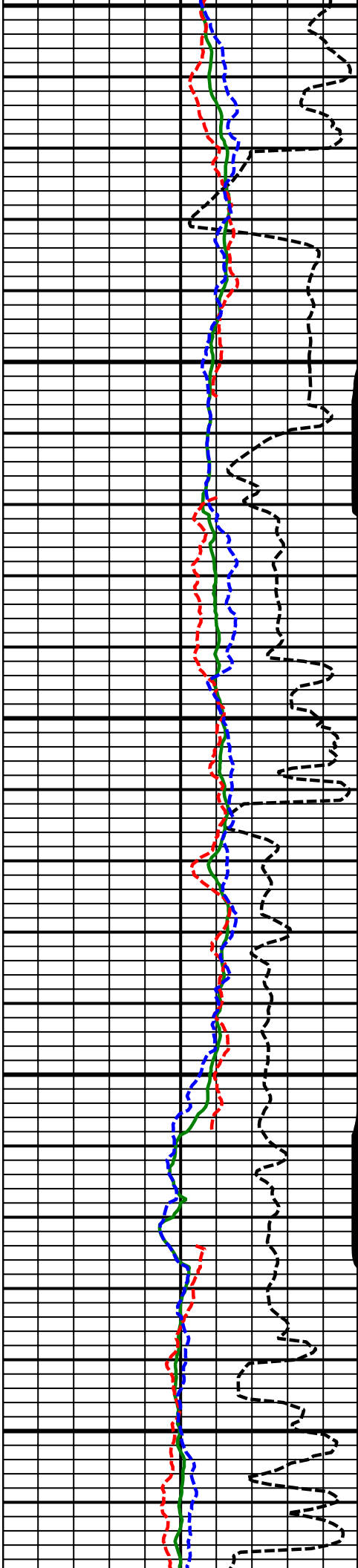




15500
MD

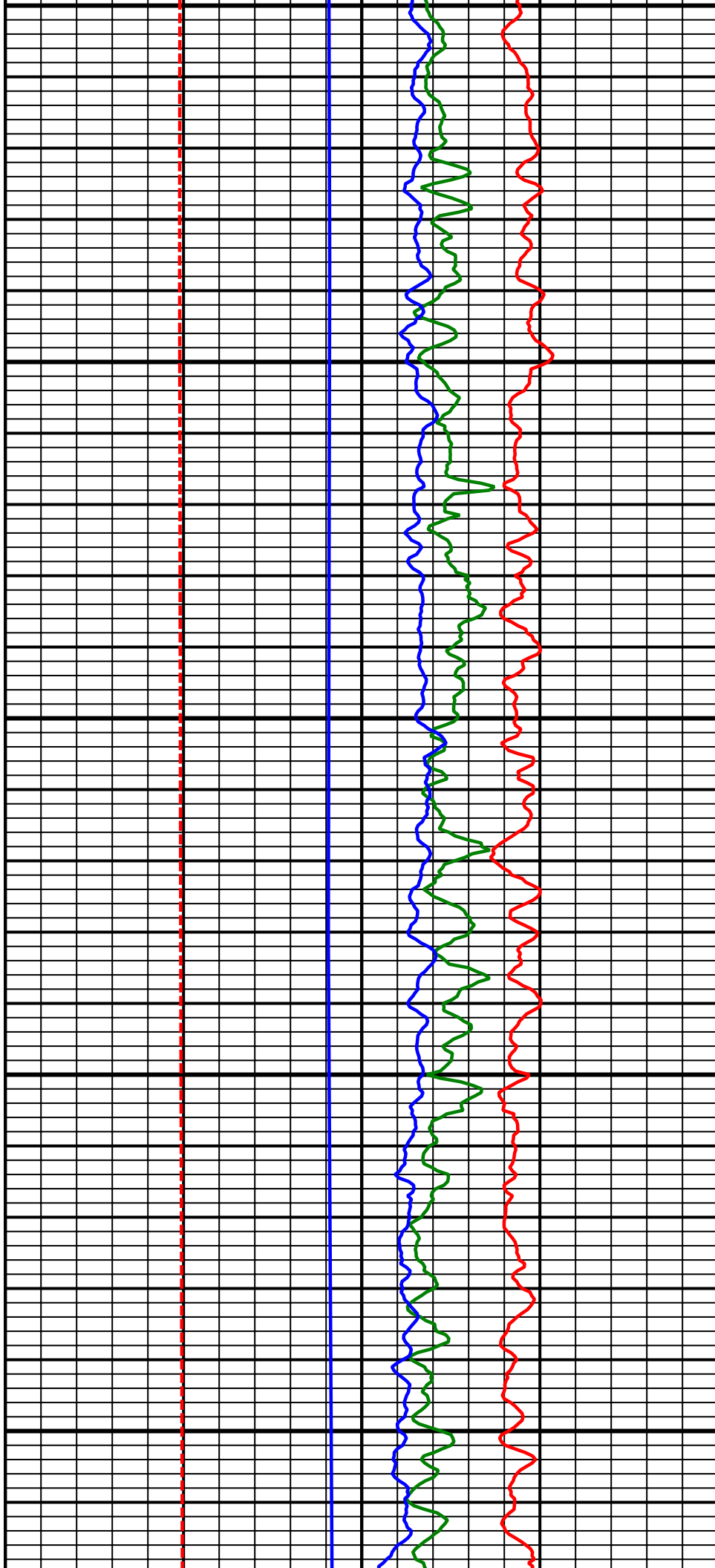
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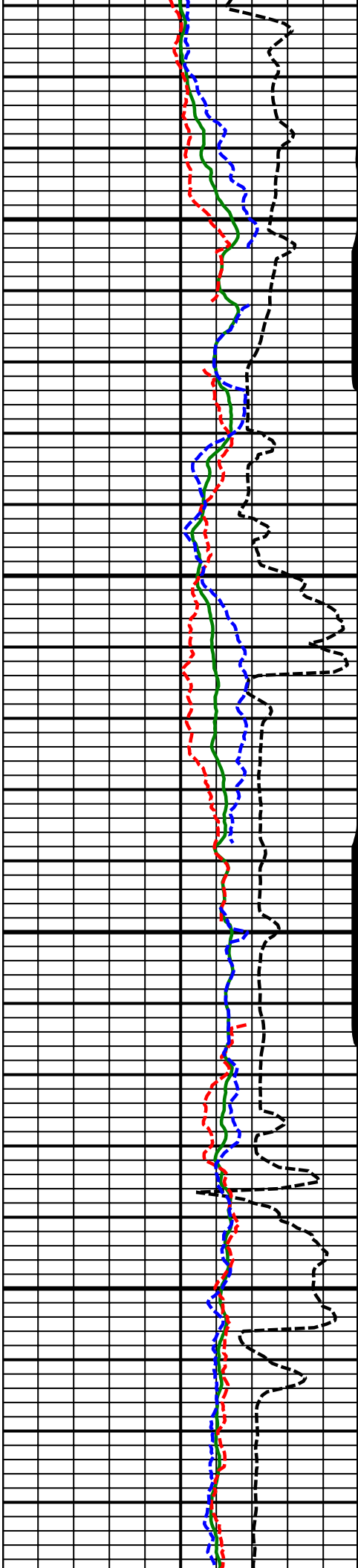




15700
MD

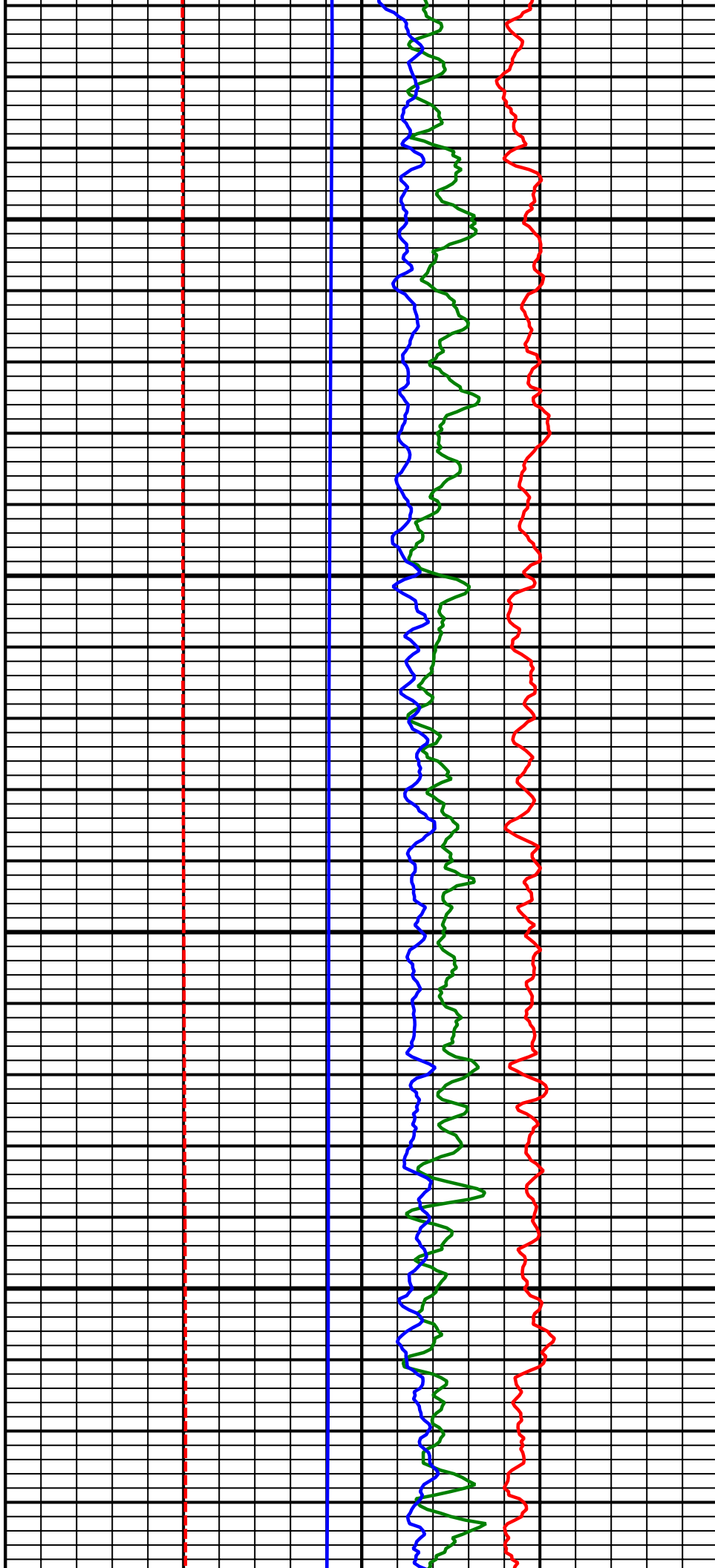
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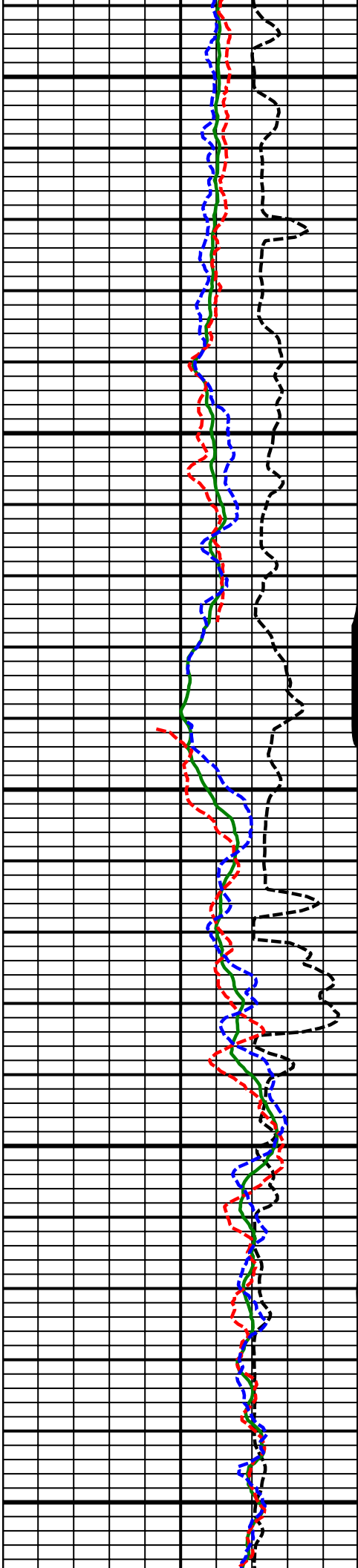




15900
MD

16000
MD

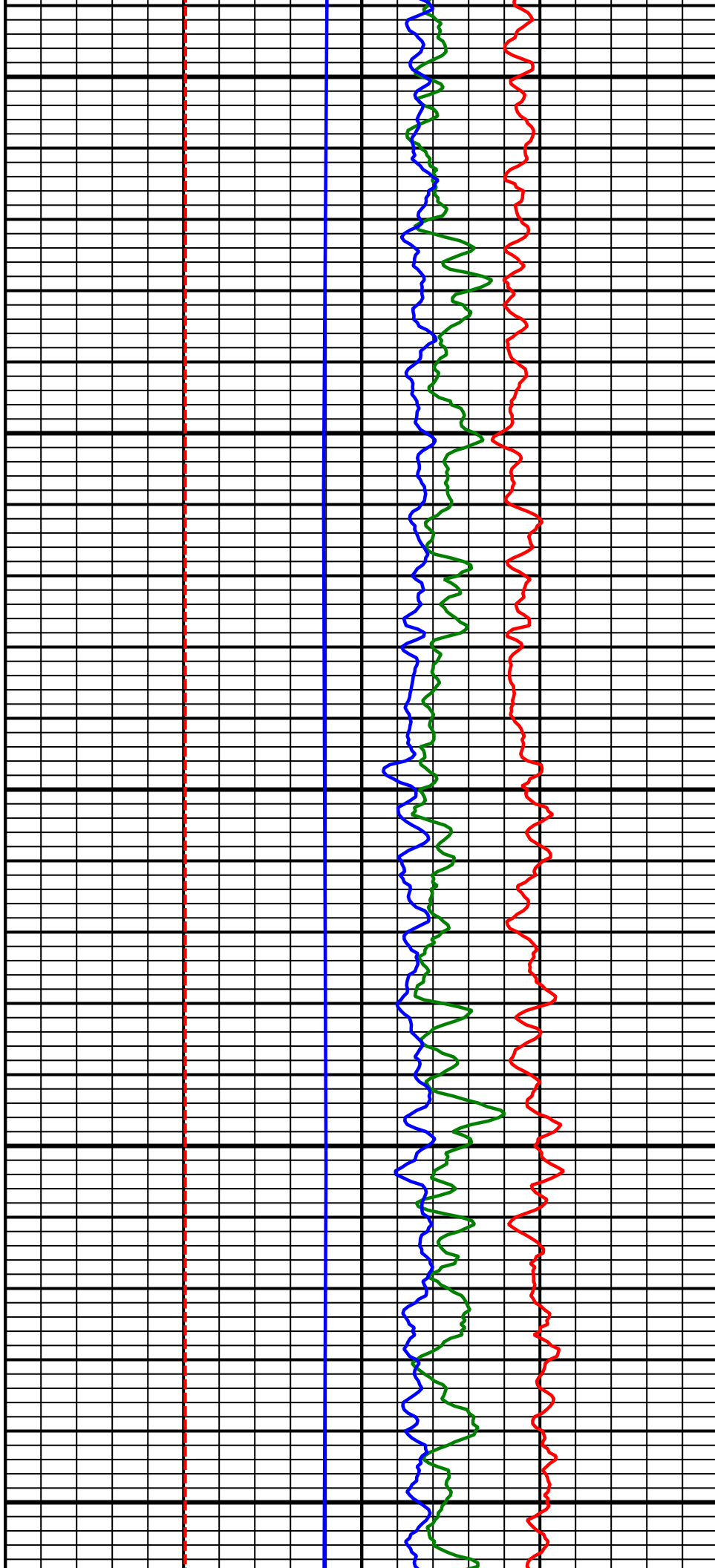


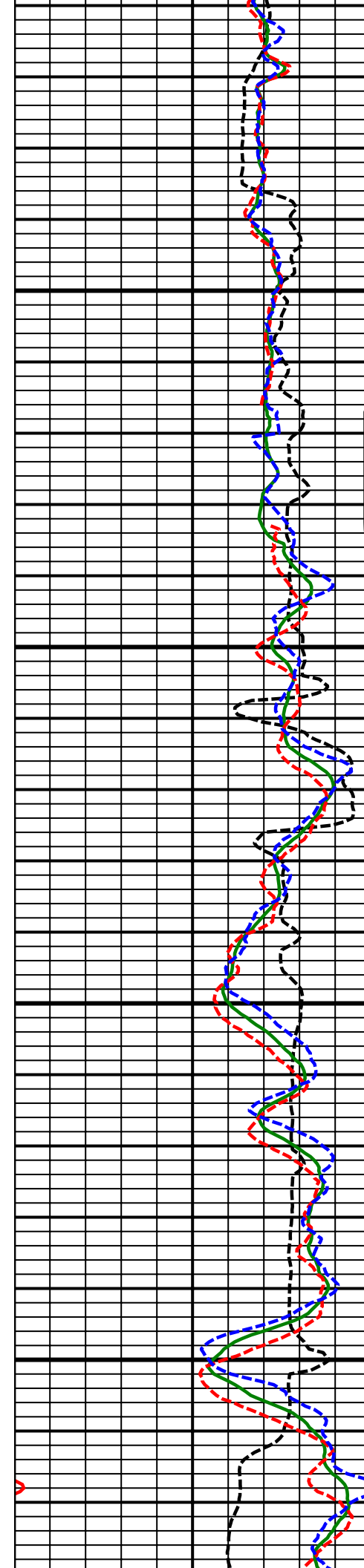


16100
MD

16200
MD

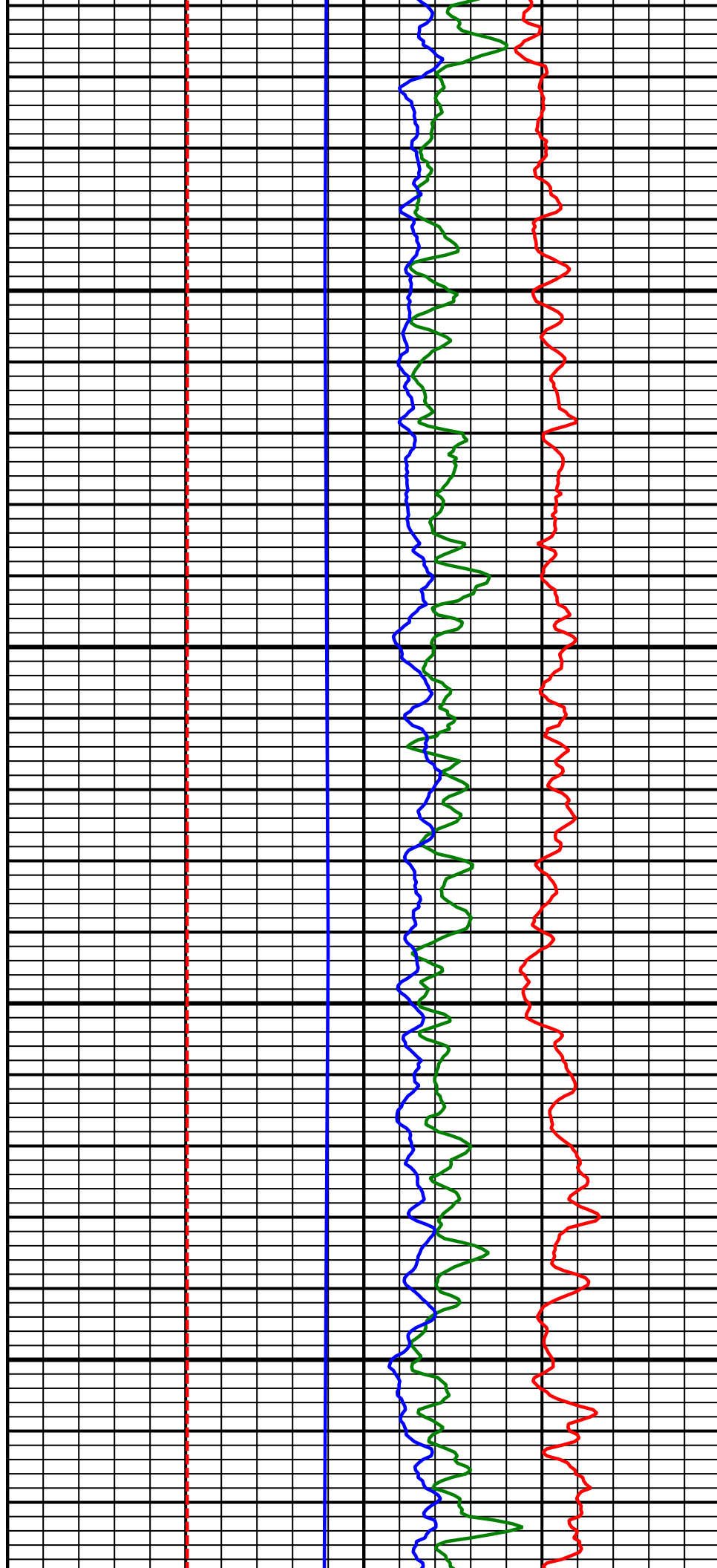
16300
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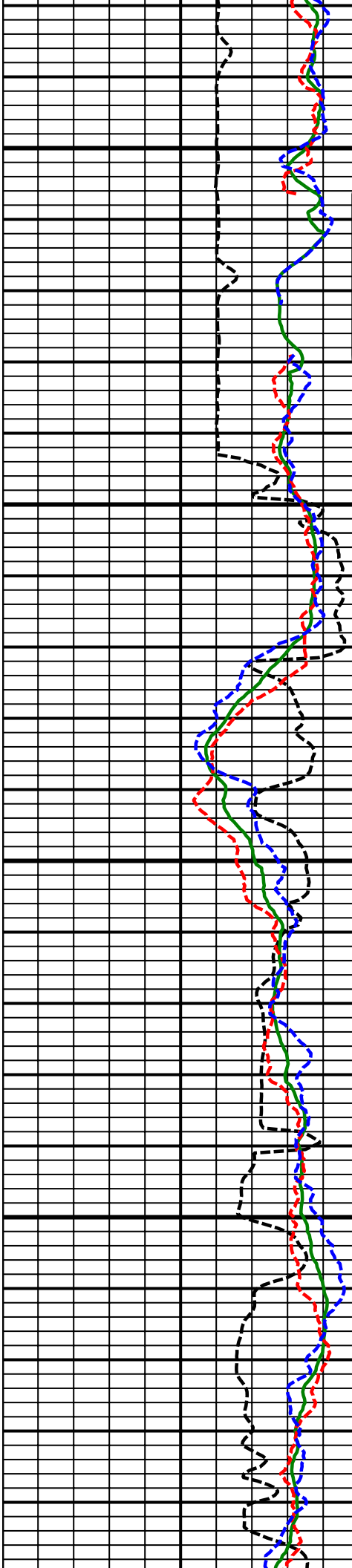




16400
MD

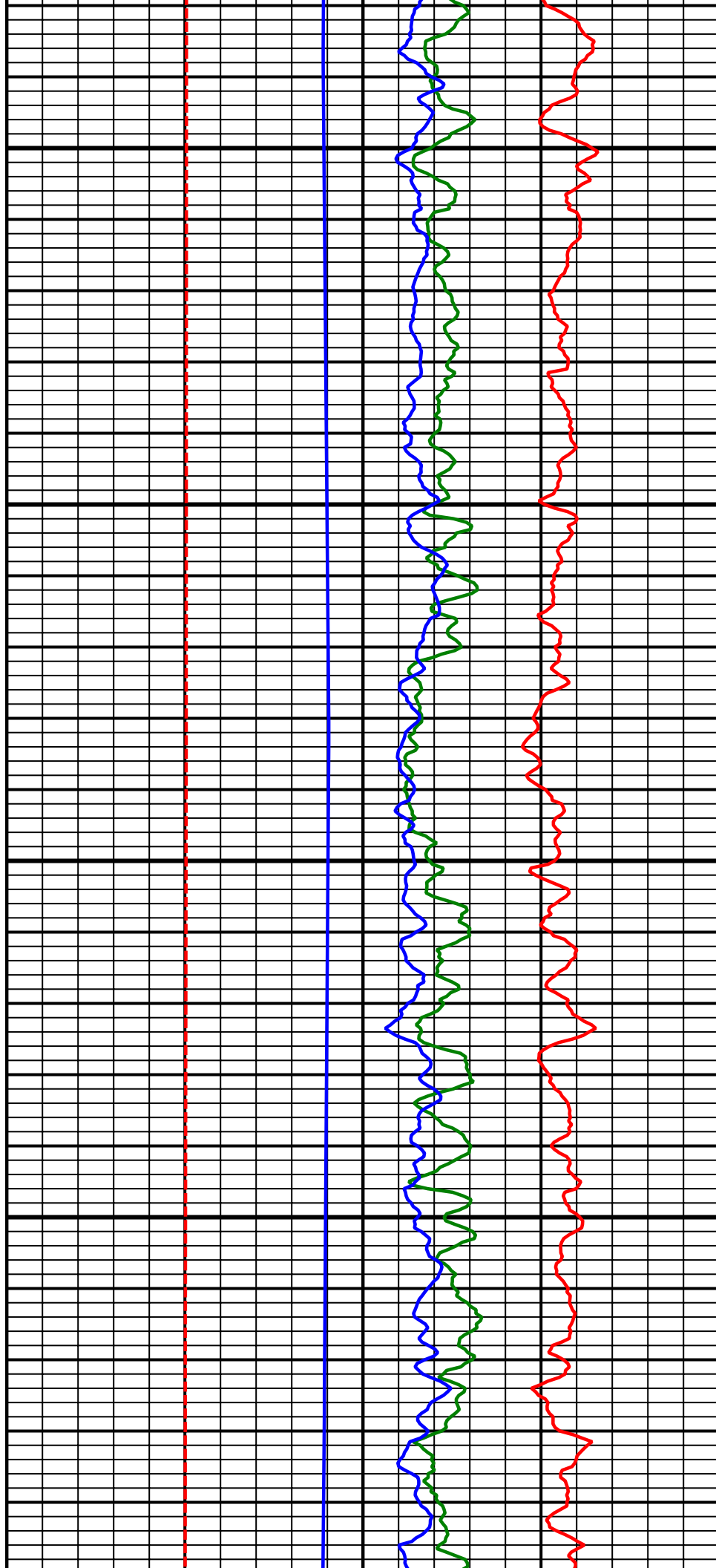
16500
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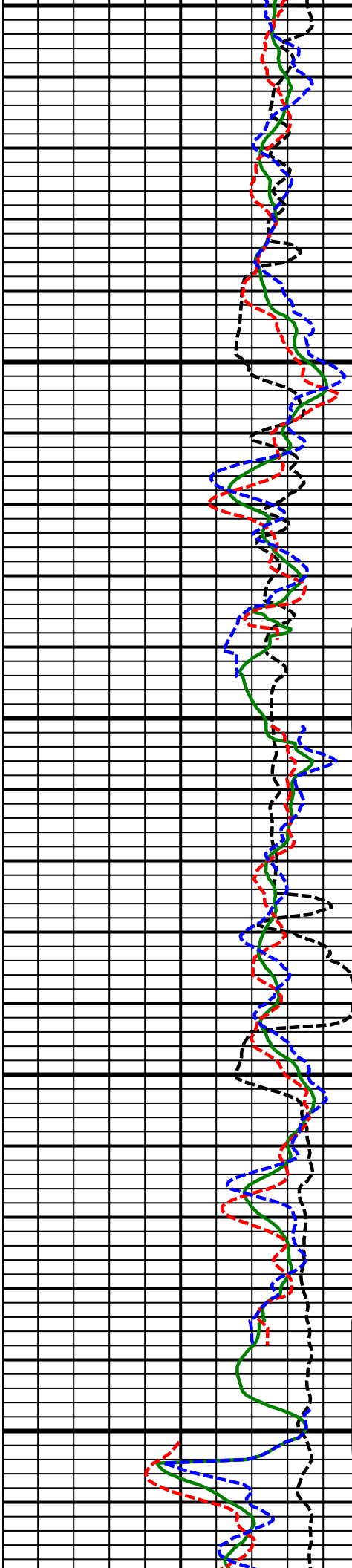




16600
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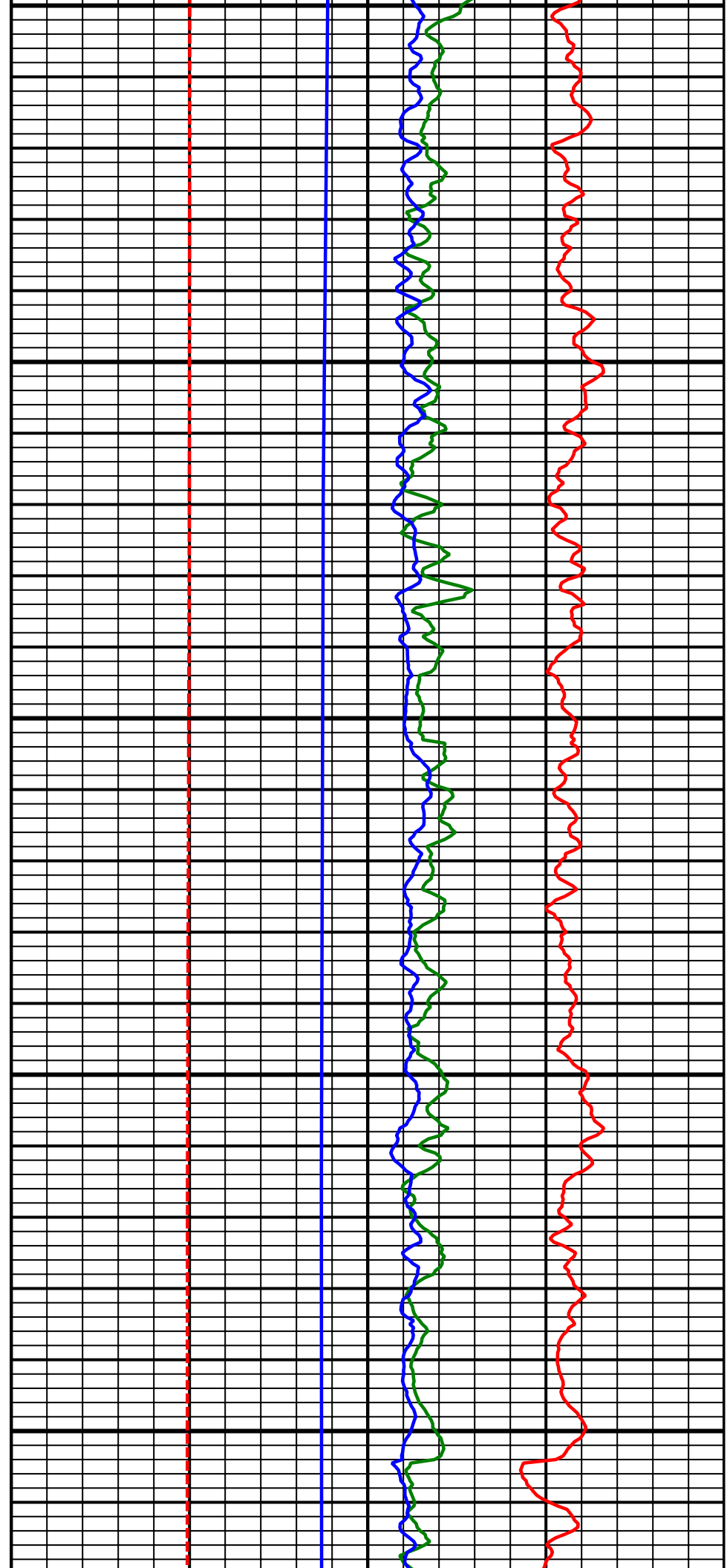
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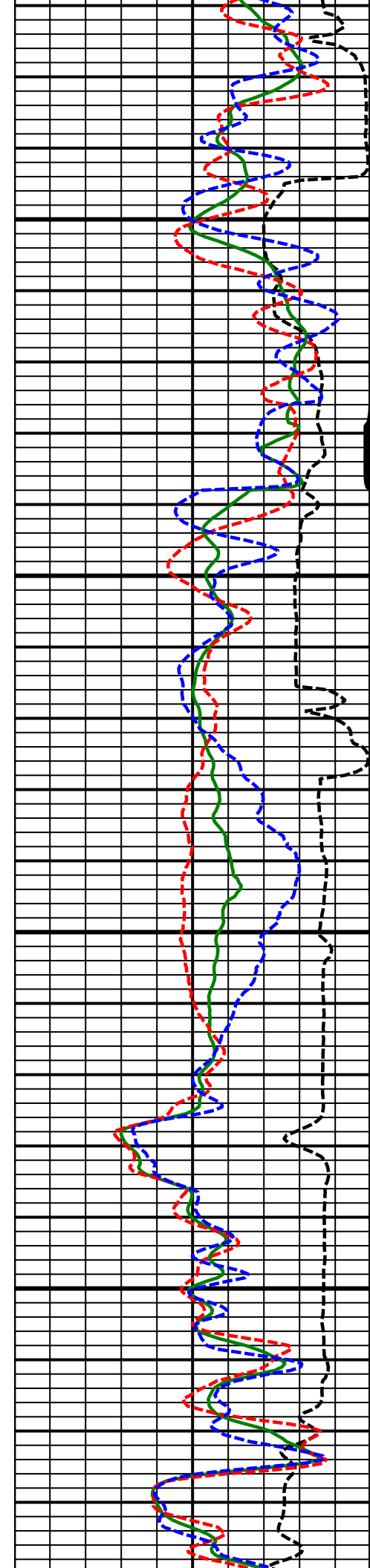




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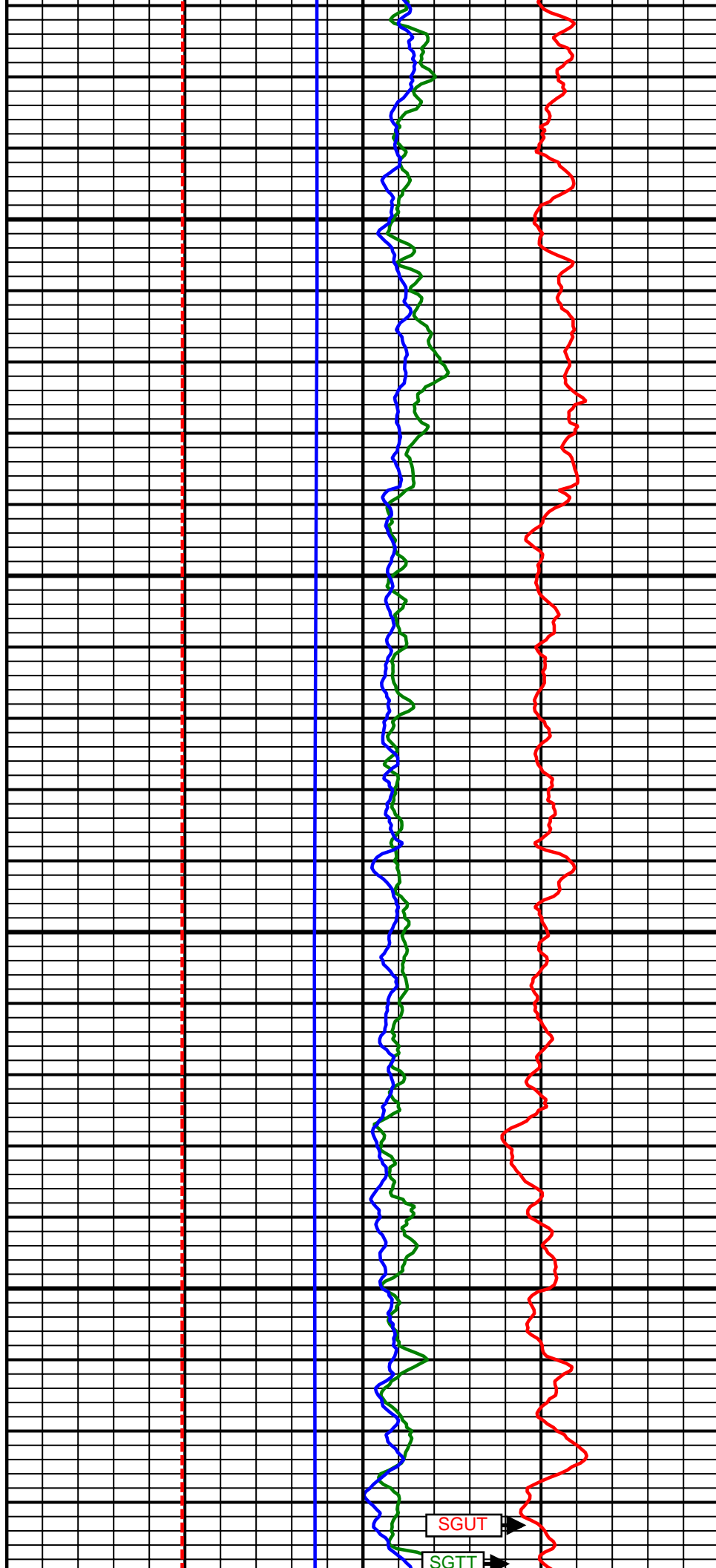
16900
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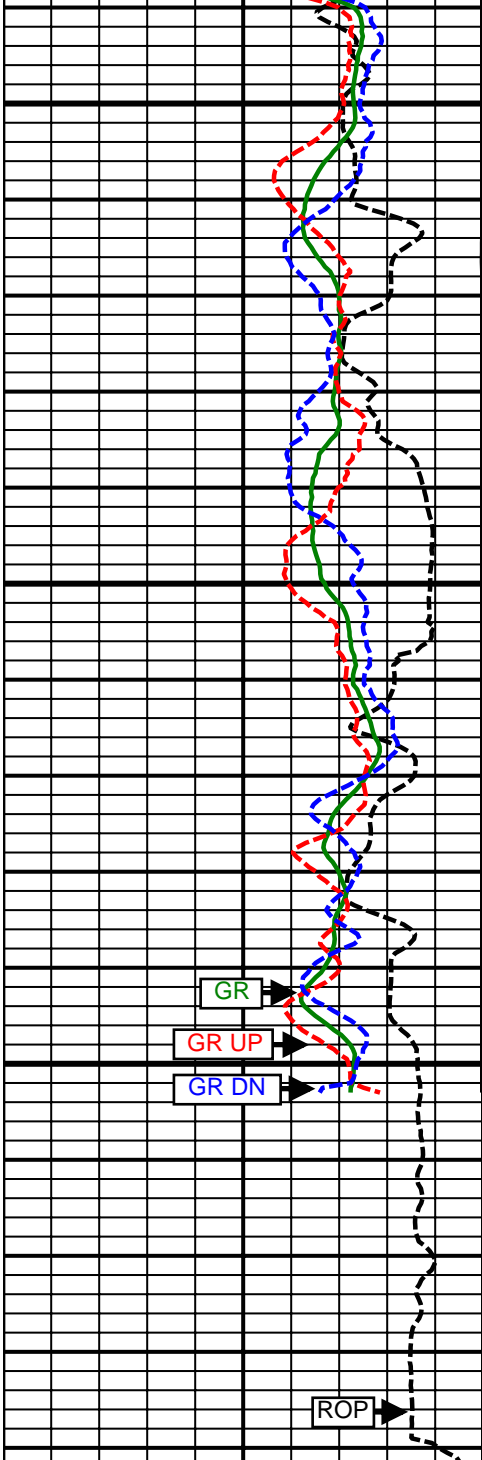
17000
MD

17100
MD



SGUT

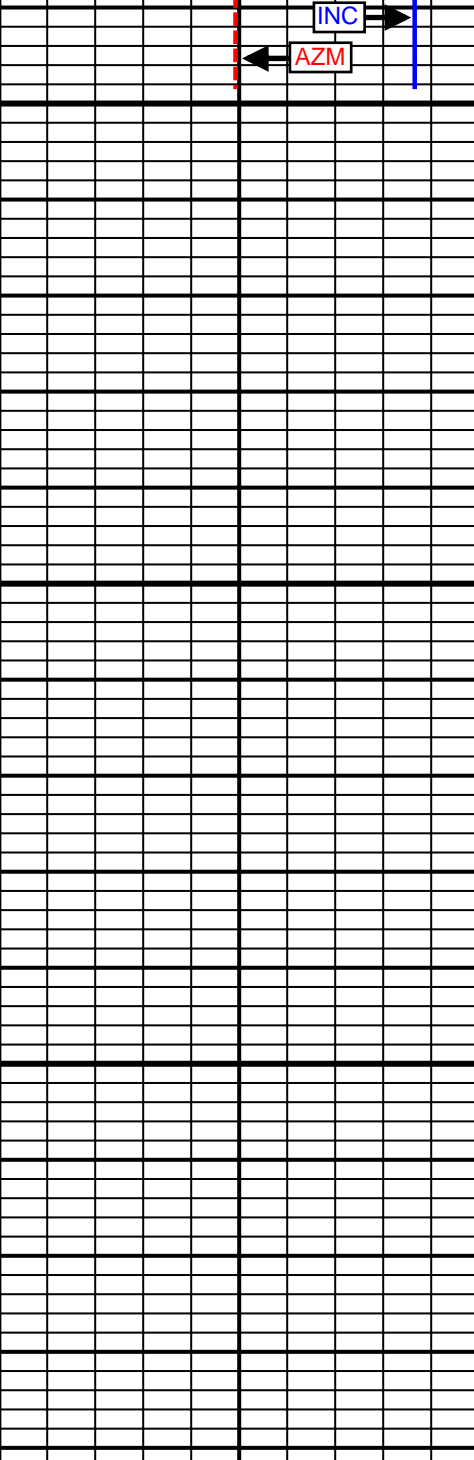
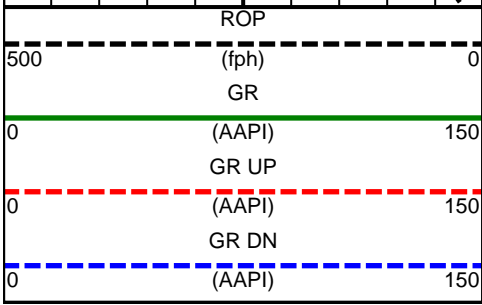
SGTT



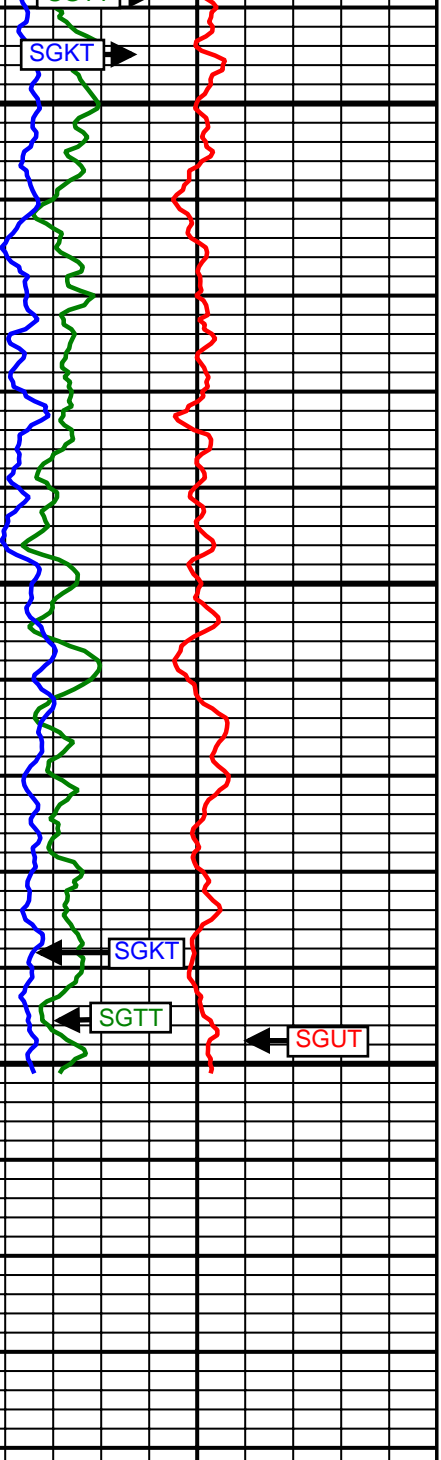
17200
MD

17300
MD

Comment
3-2



INC
AZM

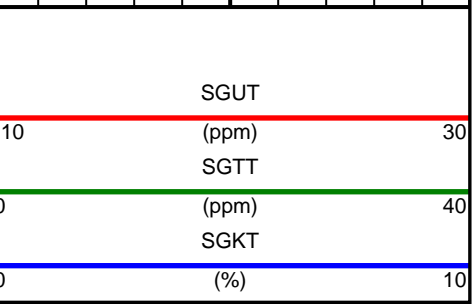
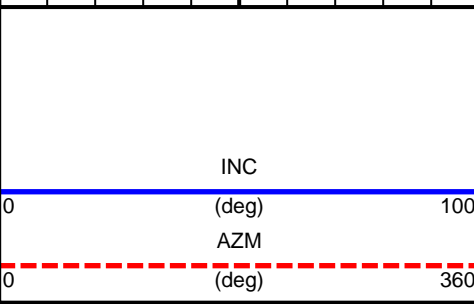


SGKT

SGKT

SGTT

SGUT



SURVEY						
Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
True North	179.77 deg	52655 nT	66.67 deg	8.68 deg	0.00 deg	8.68 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	968.00 ft	0.55 deg	162.54 deg	967.98 ft	-0.24 ft	1.97 ft

Well Head							
Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	NS (ft)	EW (ft)	VSect (ft)	Dogleg (deg/100ft)
1139.00	0.73	221.53	1138.97	-1.84	1.49	1.84	0.38
1231.00	0.64	231.14	1230.96	-2.60	0.71	2.60	0.16
1323.00	2.78	305.98	1322.92	-1.61	-1.50	1.60	2.92
1415.00	4.52	320.44	1414.74	2.50	-5.62	-2.52	2.13
1506.00	6.41	325.99	1505.32	9.47	-10.74	-9.51	2.15
1598.00	8.33	327.12	1596.55	19.33	-17.23	-19.39	2.09
1690.00	8.91	323.05	1687.52	30.62	-25.13	-30.72	0.91
1782.00	9.28	319.24	1778.36	41.93	-34.26	-42.07	0.77
1874.00	9.26	316.82	1869.16	52.95	-44.17	-53.12	0.42
1966.00	9.15	317.85	1959.97	63.77	-54.14	-63.98	0.22
2058.00	9.64	318.32	2050.74	74.94	-64.17	-75.20	0.54
2150.00	10.98	317.73	2141.25	87.18	-75.19	-87.48	1.46
2245.00	10.87	318.01	2234.53	100.53	-87.27	-100.88	0.13
2339.00	10.97	315.51	2326.83	113.50	-99.46	-113.90	0.51
2434.00	10.17	318.92	2420.22	126.27	-111.31	-126.72	1.07
2529.00	9.64	317.60	2513.80	138.47	-122.18	-138.96	0.61
2624.00	9.79	314.11	2607.44	149.96	-133.35	-150.50	0.64
2718.00	8.66	314.65	2700.22	160.50	-144.12	-161.08	1.21
2813.00	8.32	313.62	2794.18	170.27	-154.18	-170.88	0.39
2909.00	9.45	314.66	2889.03	180.60	-164.82	-181.26	1.19
3003.00	10.07	327.85	2981.68	192.98	-174.68	-193.68	2.46
3098.00	9.20	325.56	3075.34	206.28	-183.40	-207.01	1.00
3193.00	9.09	324.50	3169.13	218.65	-192.05	-219.42	0.21
3287.00	9.71	325.20	3261.87	231.20	-200.88	-232.01	0.67
3382.00	9.19	320.87	3355.58	243.67	-210.24	-244.51	0.93
3477.00	10.02	320.68	3449.25	255.95	-220.27	-256.83	0.87
3571.00	7.76	320.35	3542.11	267.16	-229.50	-268.08	2.40
3666.00	8.60	318.94	3636.14	277.45	-238.26	-278.41	0.91
3760.00	8.95	318.35	3729.04	288.22	-247.74	-289.21	0.38
3855.00	8.79	321.59	3822.91	299.43	-257.16	-300.46	0.55
3949.00	9.56	324.33	3915.70	311.40	-266.17	-312.46	0.94
4044.00	10.98	315.39	4009.19	324.25	-277.13	-325.36	2.24
4139.00	11.06	315.58	4102.43	337.20	-289.86	-338.36	0.09
4233.00	9.40	316.25	4194.94	349.18	-301.48	-350.39	1.77
4328.00	10.49	318.55	4288.51	361.27	-312.57	-362.52	1.22
4423.00	12.67	321.27	4381.57	375.88	-324.81	-377.18	2.36
4517.00	9.95	313.90	4473.74	389.56	-337.12	-390.91	3.27
4612.00	5.45	316.95	4567.86	398.55	-346.11	-399.94	4.75
4706.00	3.64	317.80	4661.56	404.02	-351.17	-405.43	1.93
4801.00	2.95	317.35	4756.40	408.05	-354.85	-409.48	0.73
4896.00	1.78	320.10	4851.32	410.98	-357.45	-412.42	1.24
4990.00	1.32	274.44	4945.29	412.19	-359.47	-413.63	1.36

5085.00	0.41	217.38	5040.28	412.00	-360.76	-413.45	1.21
5180.00	2.53	206.89	5135.24	409.86	-361.92	-411.31	2.24
5274.00	0.72	185.35	5229.20	407.42	-362.91	-408.88	2.00
5369.00	0.77	40.90	5324.20	407.31	-362.55	-408.76	1.49
5464.00	0.45	28.99	5419.19	408.12	-361.95	-409.57	0.36
5558.00	0.50	354.88	5513.19	408.85	-361.81	-410.30	0.30
5653.00	0.45	351.26	5608.19	409.63	-361.90	-411.08	0.06
5747.00	0.47	341.94	5702.18	410.36	-362.08	-411.82	0.08
5842.00	0.25	348.83	5797.18	410.94	-362.24	-412.39	0.24
5936.00	0.38	19.00	5891.18	411.43	-362.18	-412.89	0.22
6031.00	0.38	339.13	5986.18	412.03	-362.19	-413.48	0.27
6126.00	0.38	317.96	6081.18	412.56	-362.51	-414.01	0.15
6220.00	0.50	4.71	6175.17	413.20	-362.69	-414.65	0.39
6315.00	0.79	3.86	6270.17	414.26	-362.61	-415.71	0.31
6410.00	1.11	6.94	6365.15	415.83	-362.45	-417.28	0.34
6504.00	0.74	344.92	6459.14	417.32	-362.50	-418.77	0.54
6599.00	0.60	329.50	6554.13	418.34	-362.91	-419.79	0.24
6693.00	0.25	291.50	6648.13	418.84	-363.35	-420.29	0.46
6778.00	0.26	301.44	6733.13	419.01	-363.69	-420.46	0.05
6883.00	0.16	285.85	6838.13	419.17	-364.03	-420.63	0.11
6978.00	5.43	167.72	6932.99	414.81	-363.20	-416.27	5.80
7025.00	9.24	171.29	6979.60	408.91	-362.16	-410.36	8.16
7072.00	12.88	167.74	7025.72	400.06	-360.48	-401.50	7.88
7118.00	15.87	168.49	7070.27	388.88	-358.13	-390.31	6.51
7167.00	20.06	172.73	7116.87	373.97	-355.73	-375.40	8.95
7214.00	24.18	175.12	7160.41	356.38	-353.89	-357.80	8.97
7261.00	28.95	175.72	7202.43	335.43	-352.22	-336.84	10.16
7308.00	34.13	178.33	7242.48	310.89	-350.99	-312.30	11.40
7356.00	38.63	180.90	7281.12	282.43	-350.83	-283.84	9.90
7403.00	44.24	181.34	7316.34	251.35	-351.44	-252.76	11.95
7450.00	50.43	181.31	7348.17	216.81	-352.24	-218.23	13.17
7497.00	56.36	180.51	7376.19	179.11	-352.83	-180.52	12.69
7544.00	59.74	179.12	7401.06	139.23	-352.69	-140.65	7.62
7591.00	63.31	176.58	7423.46	97.96	-351.13	-99.37	8.96
7639.00	65.93	175.81	7444.04	54.69	-348.25	-56.09	5.65
7686.00	67.77	176.85	7462.51	11.57	-345.48	-12.96	4.41
7733.00	70.55	177.49	7479.23	-32.30	-343.32	30.92	6.05
7780.00	75.66	178.54	7492.89	-77.23	-341.77	75.85	11.08
7827.00	79.38	178.93	7503.04	-123.10	-340.76	121.73	7.96
7859.00	82.07	179.58	7508.20	-154.67	-340.35	153.31	8.64
7890.00	85.31	179.95	7511.61	-185.48	-340.22	184.11	10.52
8042.00	88.58	180.33	7519.71	-337.24	-340.59	335.87	2.17
8136.00	90.55	180.39	7520.42	-431.23	-341.18	429.86	2.10
8230.00	90.43	180.67	7519.62	-525.23	-342.05	523.85	0.32
8325.00	90.74	181.02	7518.65	-620.21	-343.45	618.83	0.49
8420.00	90.00	180.98	7518.03	-715.19	-345.11	713.80	0.78
8514.00	89.20	180.56	7518.69	-809.18	-346.37	807.79	0.96
8609.00	89.57	180.48	7519.71	-904.17	-347.23	902.77	0.40
8703.00	89.65	180.22	7520.35	-998.17	-347.81	996.76	0.29
8798.00	89.01	179.15	7521.46	-1093.16	-347.29	1091.76	1.31
8893.00	90.43	180.69	7521.92	-1188.15	-347.15	1186.75	2.20
8987.00	89.08	179.56	7522.33	-1282.15	-347.36	1280.74	1.87
9082.00	90.86	179.43	7522.38	-1377.14	-346.52	1375.74	1.88
9176.00	90.06	178.29	7521.62	-1471.12	-344.65	1469.72	1.48
9271.00	90.37	178.09	7521.26	-1566.07	-341.65	1564.68	0.39
9366.00	89.75	177.41	7521.16	-1660.99	-337.92	1659.62	0.97
9460.00	89.26	178.01	7521.98	-1754.91	-334.17	1753.56	0.82
9554.00	88.77	177.45	7523.59	-1848.83	-330.44	1847.48	0.79
9649.00	89.51	178.85	7525.02	-1943.76	-327.38	1942.43	1.67
9743.00	88.02	179.95	7527.04	-2037.73	-326.39	2036.41	1.97
9837.00	88.68	180.39	7529.75	-2131.69	-326.67	2130.36	0.84

9931.00	88.83	180.32	7531.79	-2225.67	-327.25	2224.34	0.18
10026.00	90.12	179.99	7532.66	-2320.66	-327.51	2319.33	1.40
10120.00	89.75	179.80	7532.77	-2414.66	-327.34	2413.33	0.44
10214.00	89.75	179.47	7533.18	-2508.66	-326.74	2507.33	0.35
10308.00	89.94	179.41	7533.44	-2602.65	-325.82	2601.32	0.21
10402.00	89.75	179.12	7533.69	-2696.64	-324.62	2695.32	0.37
10494.00	89.32	178.82	7534.44	-2788.63	-322.96	2787.31	0.57
10585.00	89.63	179.02	7535.27	-2879.61	-321.25	2878.29	0.41
10677.00	90.80	179.74	7534.92	-2971.60	-320.25	2970.29	1.49
10768.00	89.38	181.48	7534.78	-3062.59	-321.22	3061.27	2.47
10860.00	90.68	181.10	7534.73	-3154.56	-323.29	3153.24	1.47
10951.00	91.06	180.22	7533.35	-3245.54	-324.34	3244.22	1.05
11042.00	90.74	181.10	7531.92	-3336.53	-325.39	3335.19	1.03
11136.00	89.47	180.39	7531.75	-3430.52	-326.61	3429.18	1.55
11227.00	88.95	179.81	7533.00	-3521.51	-326.77	3520.17	0.86
11318.00	88.28	179.18	7535.20	-3612.47	-325.97	3611.14	1.01
11409.00	87.10	178.18	7538.87	-3703.37	-323.87	3702.04	1.70
11500.00	88.83	179.34	7542.10	-3794.29	-321.90	3792.97	2.29
11592.00	91.23	180.76	7542.06	-3886.28	-321.99	3884.96	3.03
11684.00	90.06	180.06	7541.02	-3978.27	-322.64	3976.94	1.48
11775.00	89.81	179.62	7541.12	-4069.27	-322.39	4067.94	0.56
11867.00	88.83	179.03	7542.21	-4161.26	-321.31	4159.93	1.24
11958.00	88.21	180.79	7544.57	-4252.22	-321.16	4250.90	2.05
12050.00	87.22	180.37	7548.23	-4344.14	-322.09	4342.81	1.17
12142.00	88.15	180.37	7551.95	-4436.06	-322.69	4434.73	1.01
12234.00	88.28	180.99	7554.82	-4528.01	-323.78	4526.68	0.69
12326.00	89.38	181.28	7556.69	-4619.97	-325.60	4618.63	1.24
12418.00	88.89	180.94	7558.08	-4711.95	-327.38	4710.59	0.65
12510.00	90.44	180.39	7558.62	-4803.93	-328.45	4802.58	1.79
12602.00	90.00	179.65	7558.27	-4895.93	-328.48	4894.57	0.94
12694.00	90.31	178.63	7558.02	-4987.92	-327.10	4986.57	1.16
12785.00	89.01	177.23	7558.56	-5078.86	-323.81	5077.51	2.10
12877.00	88.83	178.30	7560.29	-5170.77	-320.23	5169.44	1.18
12969.00	89.14	178.99	7561.92	-5262.73	-318.05	5261.41	0.82
13061.00	89.57	179.32	7562.96	-5354.71	-316.70	5353.40	0.59
13153.00	89.26	180.92	7563.90	-5446.70	-316.89	5445.39	1.77
13244.00	88.15	180.06	7565.95	-5537.67	-317.67	5536.35	1.54
13336.00	88.40	180.08	7568.72	-5629.63	-317.78	5628.31	0.27
13428.00	89.12	180.75	7570.71	-5721.61	-318.44	5720.28	1.07
13520.00	88.34	180.47	7572.75	-5813.58	-319.42	5812.25	0.90
13613.00	89.32	180.89	7574.65	-5906.55	-320.53	5905.22	1.15
13707.00	91.11	182.66	7574.30	-6000.50	-323.44	5999.15	2.68
13801.00	90.31	182.39	7573.13	-6094.40	-327.58	6093.03	0.90
13896.00	89.75	182.13	7573.09	-6189.32	-331.33	6187.94	0.65
13990.00	88.70	181.93	7574.36	-6283.25	-334.66	6281.86	1.14
14084.00	88.71	181.80	7576.48	-6377.18	-337.71	6375.77	0.14
14178.00	89.20	181.51	7578.20	-6471.13	-340.43	6469.71	0.61
14273.00	89.14	180.19	7579.57	-6566.10	-341.84	6564.68	1.39
14367.00	91.67	179.51	7578.91	-6660.09	-341.59	6658.67	2.79
14461.00	90.86	179.96	7576.83	-6754.07	-341.16	6752.64	0.99
14555.00	90.12	179.81	7576.03	-6848.06	-340.97	6846.64	0.80
14650.00	89.81	179.59	7576.09	-6943.06	-340.47	6941.64	0.40
14744.00	88.77	178.51	7577.25	-7037.04	-338.91	7035.62	1.59
14838.00	89.14	177.54	7578.97	-7130.97	-335.67	7129.56	1.10
14932.00	88.52	178.68	7580.88	-7224.89	-332.57	7223.50	1.38
15026.00	90.00	178.48	7582.10	-7318.85	-330.24	7317.47	1.59
15120.00	90.99	178.67	7581.29	-7412.82	-327.91	7411.44	1.07
15215.00	89.94	179.59	7580.52	-7507.80	-326.46	7506.43	1.47
15309.00	89.03	180.57	7581.36	-7601.80	-326.60	7600.43	1.42
15403.00	88.83	179.85	7583.12	-7695.78	-326.94	7694.41	0.79
15497.00	89.29	178.10	7584.66	-7789.75	-325.26	7788.38	1.92

15591.00	90.49	176.62	7584.84	-7883.64	-320.93	7882.29	2.03
15686.00	90.97	175.99	7583.63	-7978.44	-314.81	7977.11	0.83
15780.00	90.62	177.10	7582.32	-8072.26	-309.14	8070.95	1.24
15875.00	91.67	178.81	7580.43	-8167.17	-305.75	8165.88	2.11
15969.00	90.79	179.34	7578.41	-8261.14	-304.24	8259.85	1.09
16064.00	90.56	181.93	7577.29	-8356.12	-305.29	8354.82	2.74
16159.00	89.29	181.63	7577.41	-8451.07	-308.24	8449.76	1.37
16253.00	89.94	181.60	7578.04	-8545.03	-310.89	8543.71	0.69
16348.00	89.07	181.59	7578.86	-8639.99	-313.53	8638.66	0.92
16442.00	89.94	181.40	7579.68	-8733.95	-315.99	8732.61	0.95
16537.00	88.83	181.54	7580.70	-8828.91	-318.42	8827.56	1.18
16632.00	90.37	181.21	7581.36	-8923.88	-320.70	8922.52	1.66
16726.00	89.14	180.30	7581.76	-9017.87	-321.94	9016.50	1.63
16821.00	87.47	179.75	7584.57	-9112.82	-321.98	9111.46	1.85
16915.00	86.98	177.92	7589.12	-9206.69	-320.07	9205.33	2.01
17009.00	87.09	177.57	7593.99	-9300.49	-316.38	9299.15	0.39
17104.00	86.36	177.22	7599.41	-9395.24	-312.07	9393.91	0.85
17198.00	86.54	177.13	7605.23	-9488.94	-307.45	9487.63	0.21
17284.00	85.59	176.52	7611.13	-9574.61	-302.69	9573.31	1.31
Projected to Total Depth:							
17341.00	85.59	176.52	7615.67	-9633.31	-299.12	9632.03	0.00

Weatherford Surveys from 1139 ft MD to 17284 ft MD.

TD at 17341 ft MD.

The total correction is 8.68 deg relative to True North.



Weatherford®

Final Print

COMPANY	<u>Anadarko</u>
WELL	<u>Griffiths 34N-20HZ</u>
FIELD	<u>Wattenberg</u>
RIG	<u>H&P 307</u>
LOC.	<u>Colorado</u>
COUNTY	<u>Weld</u>