



Weatherford®

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

Company: Anadarko
Well: Griffiths 35N-20HZ
Field: Wattenberg
Rig: H&P 307
County: Weld

COMPANY Anadarko
WELL Griffiths 35N-20HZ
FIELD Wattenberg
RIG H&P 307
COUNTY Weld **STATE** Colorado
API # 05-123-36635

Location	
Latitude: 40.057105° N	X = 1,264,176.37 ft
Longitude: 104.921823° W	Y = 3,161,841.59 ft
Mag Decl: 8.56°	
Mag Dip: 66.48°	

Other Services: Resistivity, Directional, and Temperature

Permanent Datum: <u>Mean Sea Level</u>	
Log Measured From: <u>Drill Floor</u>	Elev: <u>5095.0 ft</u> above perm. datum
Depth Reference: <u>Drillers Tally</u>	Total Depth: <u>17370 ft</u>
Depth Logged: 7990 ft	Runs: 4
Date Logged: 7-Jul-13	Spud Date: 2-Jul-13

Elevation	
K.B.	Top Drive
G.L.	5070.0 ft
D.F.	5095.0 ft
W.D.	Land

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
8.750 in.	Surface	7990 ft	9.625 in.	57.0 lb/ft	Surface	7990 ft
6.125 in.	7990 ft	17370 ft	7.000 in.	26.0 lb/ft	Surface	17370 ft

Borehole Deviation Record			Mud Record			
Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From	To
8.750 in.	0.51°	87.90°	WBM	8.50 - 10.10 ppg	Surface	7990 ft
6.125 in.	85.99°	92.59°	OBM	10.20 - 10.30 ppg	7990 ft	17370 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	6.125	6.125	6.125		
Bit Type		PDC	PDC	PDC	PDC		
Bit TFA	sq.in.	2.262	0.752	0.980	0.910		
Bit Start Depth	ft	6772	7990	11955	16228		
Bit End Depth	ft	7990	11955	16228	17370		
Top Log Interval	ft	6772	7974	11918	16228		
Bottom Log Interval	ft	7990	11955	16228	17370		
Begin Log Time	hrs	13:27	6:11	18:47	14:39		
Begin Log Date	DD-MMM-YY	6-Jul-13	11-Jul-13	14-Jul-13	19-Jul-13		
End Log Time	hrs	10:50	18:05	5:13	12:01		
End Log Date	DD-MMM-YY	7-Jul-13	13-Jul-13	18-Jul-13	20-Jul-13		
Drill or Wipe		Drill	Drill	Drill	Drill		
Flow Rate	gal/min	409	265	270	228		
Max AV / CV @ MWD	ft/min	323 / 291	342 / 301	484 / 356	373 / 354		
Min Inc @ Depth	deg @ ft	0.51 @ 6919	87.90 @ 9063	85.99 @ 14856	86.61 @ 17200		
Max Inc @ Depth	deg @ ft	84.26 @ 7926	92.59 @ 8404	90.62 @ 15985	90.37 @ 16924		
MUD DATA							
Depth	ft	7990	11955	16228	17370		
Fluid Type		WBM	OBM	OBM	OBM		
Mud Weight	ppg	9.90	10.20	10.20	10.20		
Plastic Viscosity	cP	9	15	15	16		
Solids / Sand	%	6.80 / 0.20	13.00 / 0.30	11.40 / 0.03	14.20 / 0.30		
NaCl Equiv. Chlorides	ppm	11550	91740	92070	74250		
pH		8.9	OBM	OBM	OBM		
Oil:Water Ratio	% Vol	0.0 : 100.0	70.0 : 30.0	70.0 : 30.0	70.0 : 30.0		
Rm @ Temperature	ohm-m @ deg F	OBM	OBM	OBM	OBM		
Rmc @ Temperature	ohm-m @ deg F	OBM	OBM	OBM	OBM		
Rmf @ Temperature	ohm-m @ deg F	OBM	OBM	OBM	OBM		
KCl	% Vol	0	0	0	0		
Client Representative		P. Cain	P. Cain	P. Cain	P. Cain		
WeatherfordLWD Engineer		J. Witherspoon	N. Aaron	N. Aaron	N. Aaron		

EQUIPMENT SUMMARY

M/LWD Run Number	1	2	3	4	
BTR / CDS Serial Number	44708 / 44792	NA	NA	NA	
Battery Serial Number	403467636	NA	NA	NA	
Gamma Ray Serial Number	44786	NA	NA	NA	
CMS Serial Number	2040	NA	NA	NA	
Pulser Serial Number	7651	NA	NA	NA	
SAGR Serial Number	NA	NW131663JB4.75	NW131663JB4.75	NW131663JB4.75	
HEL Serial Number	NA	NW131662PDBBI4.75	NW131662PDBBI4.75	NW131662PDBBI4.75-M1	
MFR Serial Number	NA	NW131107RBBK4.75-M2	NW131107RBBK4.75-M2	NW131107RBBK4.75-M2	
Sensor to Bit Offsets / Acquisition Rates					
Spectral Gamma Ray	ft / sec	NA	36.55 / 5	36.55 / 5	36.68 / 5
Directional	ft / sec	62.32 / RT	51.20 / RT	51.20 / RT	51.33 / RT
Gamma Ray	ft / sec	48.11 / 16	70.01 / 10	70.01 / 10	70.14 / 10
Resistivity	ft / sec	NA	79.58 / 5	79.58 / 5	79.71 / 5
Other Information					
Total BHA Length	ft	105.83	141.38	141.38	141.51
BHA Assembly Type		Steerable	Steerable	Steerable	Steerable
Stabilizer Location	ft	NA	25.43	25.43	25.56
Stabilizer Location	ft	NA	94.37	94.37	94.50
Run Circulating Time	hr	23.85	46.85	73.71	23.47
Run Drilling Time	hr	11.54	29.31	41.98	13.19

MUD SUMMARY

Date and Time	Run	Bit Depth	Mud Weight	% K	Rm @ Temp	Rmf @ Temp	Rmc @ Temp	BHCT
07 July 13 @ 10:50	01	7990 ft	9.90 ppg	0	OBM	OBM	OBM	177 F
07 July 13 @ 18:05	02	11955 ft	10.20 ppg	0	OBM	OBM	OBM	231 F
18 July 18 @ 05:13	03	16228 ft	10.20 ppg	0	OBM	OBM	OBM	250 F
20 July 13 @ 12:01	04	17370 ft	10.20 ppg	0	OBM	OBM	OBM	256 F

M/LWD RUN REMARKS			
Run Number: 1 :: 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:	10.0 ppg	Collar O.D.:	6.750 in.
K1 Factor:	3.23	Collar I.D.:	3.250 in.
Run Number: 2 :: RECORDED DATA LOG			
WFT Services Provided:			
Recorded and Real Time Logging: Spectral Gamma Ray, Resistivity 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.	
Mud Weight:	9.9 ppg	Resistivities: Corrected for borehole temperature, hole size, drilling fluid resistivity	
Borehole Temperature:	200° F	and dielectric correction.	
Drilling Fluid Resistivity:	OBM (500 ohm-m)		
KCl Concentration:	0%		
Run Number: 3 :: RECORDED DATA LOG			
WFT Services Provided:			
Recorded and Real Time Logging: Spectral Gamma Ray, Resistivity 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.	
Mud Weight:	10.2 ppg	Resistivities: Corrected for borehole temperature, hole size, drilling fluid resistivity	
Borehole Temperature:	230° F	and dielectric correction.	
Drilling Fluid Resistivity:	OBM (500 ohm-m)		
KCl Concentration:	0%		
Run Number: 4 :: RECORDED DATA LOG			
WFT Services Provided:			
Recorded and Real Time Logging: Spectral Gamma Ray, Resistivity 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.	
Mud Weight:	10.2 ppg	Resistivities: Corrected for borehole temperature, hole size, drilling fluid resistivity	
Borehole Temperature:	250° F	and dielectric correction.	
Drilling Fluid Resistivity:	OBM (500 ohm-m)		
KCl Concentration:	0%		

M/LWD LOG COMMENTS

Comment No. 1-1

RECORDED DATA LOG

Start of MWD Drilling Run 01

Weatherford International provided 6 3/4 in. Directional, Gamma Ray and Temperature for Run 03.

Run 01 started formation drilling July 6, 2013 at 13:27 at 6772 MD / 6702 TVD. Weatherford International logged the 8.750 in. borehole.

The WBM at the start of drilling was 9.90 ppg.

Comment No. 1-2

End of MWD Drilling Run 01

Run 01 ended drilling formation July 7, 2013 at 10:50 at 7990 MD / 7503 TVD.

The WBM at the end of drilling was 9.90 ppg.

Comment No. 2-1

RECORDED DATA LOG

Start of LWD Drilling Run 02

Weatherford International provided 4 3/4 in. Directional, Resistivity, Spectral Azimuthal Gamma Ray, and Temperature for Run 02.

Run 02 started formation drilling July 11, 2013 at 6:11 at 7990 MD / 11955 TVD. Weatherford International logged the 6.125 in. borehole.

The OBM at the start of drilling was 9.90 ppg. Detection issue with missing data from 8140 ft MD to 8189 ft MD.

Comment No. 2-2

End of LWD Drilling Run 02

Run 02 ended drilling formation July 13, 2013 at 18:05 at 11955 MD / 7537 TVD.

The OBM at the end of drilling was 10.20 ppg.

Comment No. 3-1

RECORDED DATA LOG

Start of LWD Drilling Run 03

Weatherford International provided 4 3/4 in. Directional, Resistivity, Spectral Azimuthal Gamma Ray, and Temperature for Run 03.

Run 03 started formation drilling July 14, 2013 at 18:47 at 11955 MD / 7537 TVD. Weatherford International logged the 6.125 in. borehole.

The OBM at the start of drilling was 10.20 ppg.

Comment No. 3-2

End of LWD Drilling Run 03

Run 04 ended drilling formation July 18, 2013 at 5:13 at 16228 MD / 7584 TVD.

The OBM at the end of drilling was 10.20 ppg.

Comment No. 4-1

RECORDED DATA LOG

Start of LWD Drilling Run 04

Weatherford International provided 4 3/4 in. Directional, Resistivity, Spectral Azimuthal Gamma Ray, and Temperature for Run 03.

Run 04 started formation drilling July 19, 2013 at 14:39 at 16228 MD / 7537 TVD. Weatherford International logged the 6.125 in. borehole.

The OBM at the start of drilling was 10.20 ppg.

Comment No. 4-2

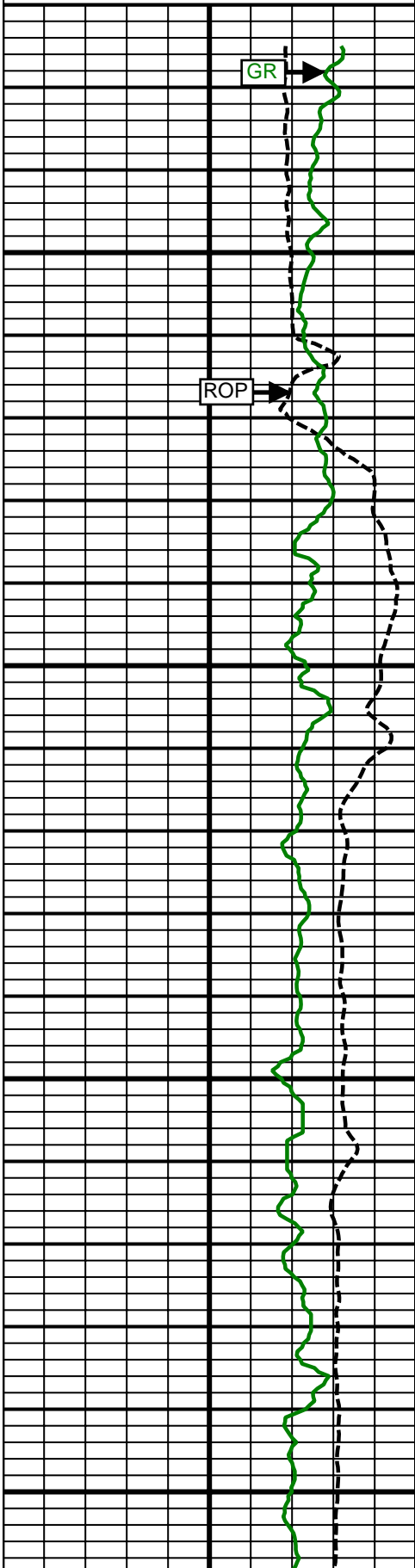
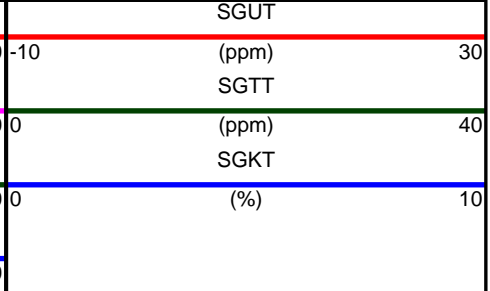
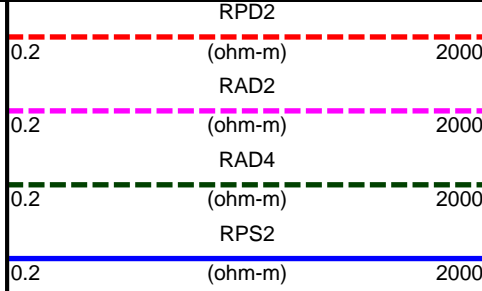
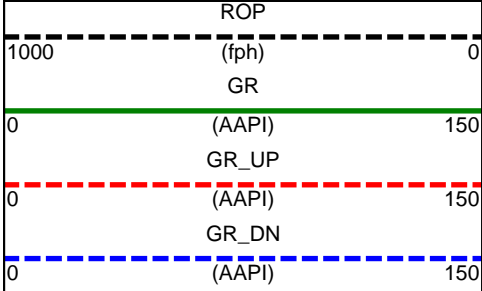
End of LWD Drilling Run 04

Run 04 ended drilling formation July 20, 2013 at 12:01 at 17370 MD / 7617 TVD.

The OBM at the end of drilling was 10.20 ppg.

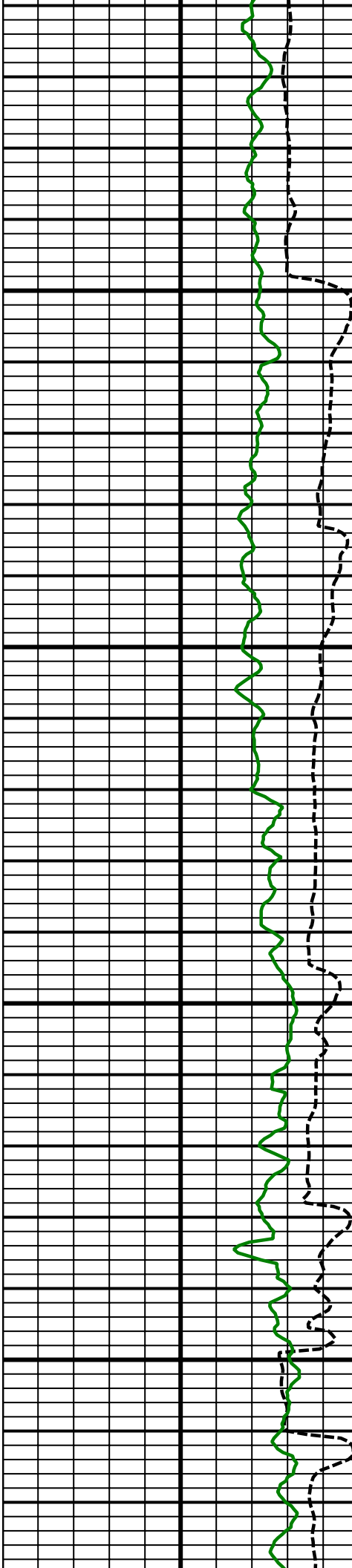
CURVE SPECIFICATIONS				
CURVE TYPE	MNEMONIC	UNITS	COMMENTS	CORRECTIONS
Rate of Penetration	ROP	fph	Rate of Penetration 3.0 ft window 0.5 ft Exponential Smoothing	None
Gamma Ray	GR	AAPI	Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	See LWD Run Remarks
Gamma Ray Up	GR UP	ohm-m	Azimuthal Gamma Ray 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	
Deep Phase Resistivity	RPD2	ohm-m	2 MHz Deep Phase Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Deep Attenuation Resistivity	RAD2	ohm-m	2 MHz Deep Attenuation Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Deep Attenuation Resistivity	RAD4	mmho/m	400 kHz Deep Attenuation Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Shallow Phase Resistivity	RPS2	ohm-m	2 MHz Shallow Phase Resistivity 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 m Exponential Smoothing	None
Potassium Total	SGKT	%	Potassium Concentration No Smoothing	None

5 Inch - Measured Depth



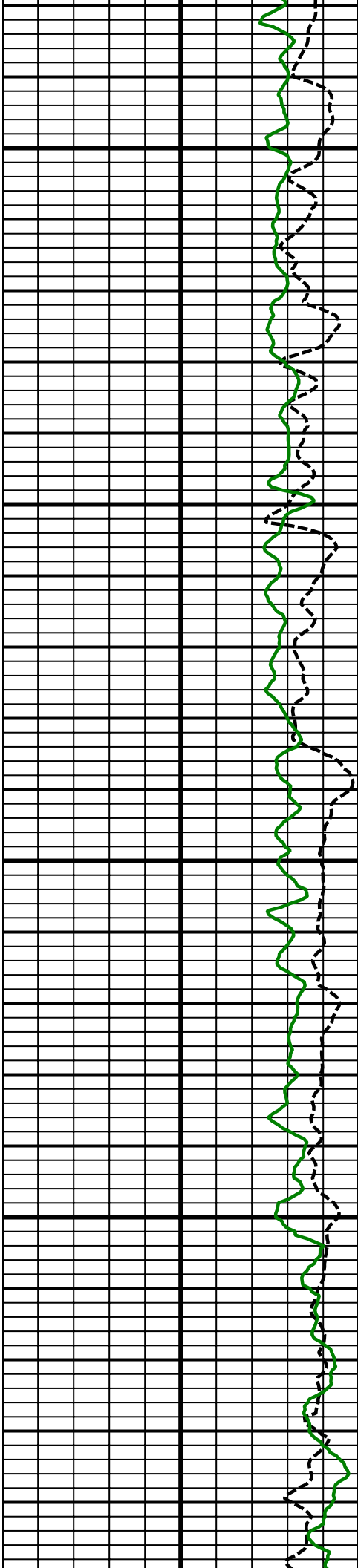
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6900 MD



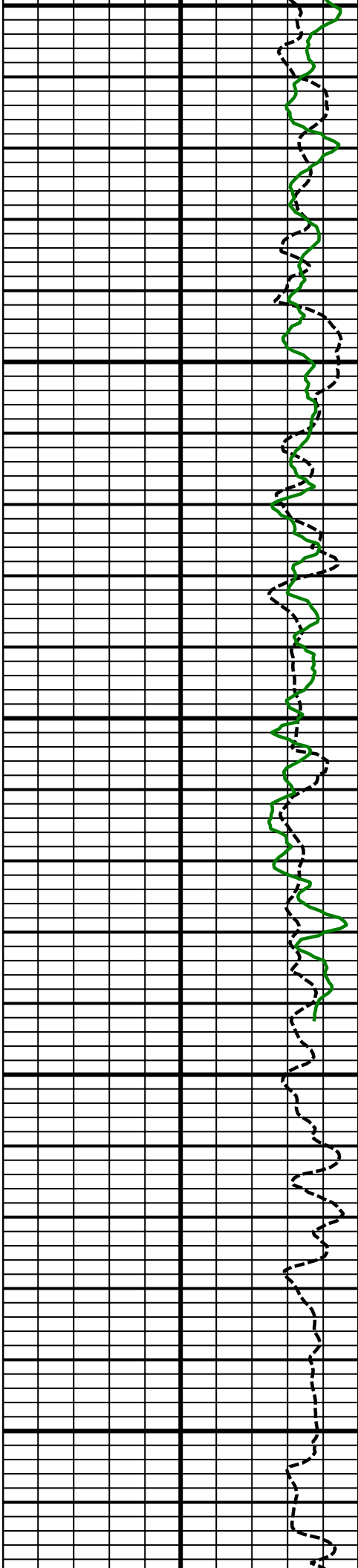
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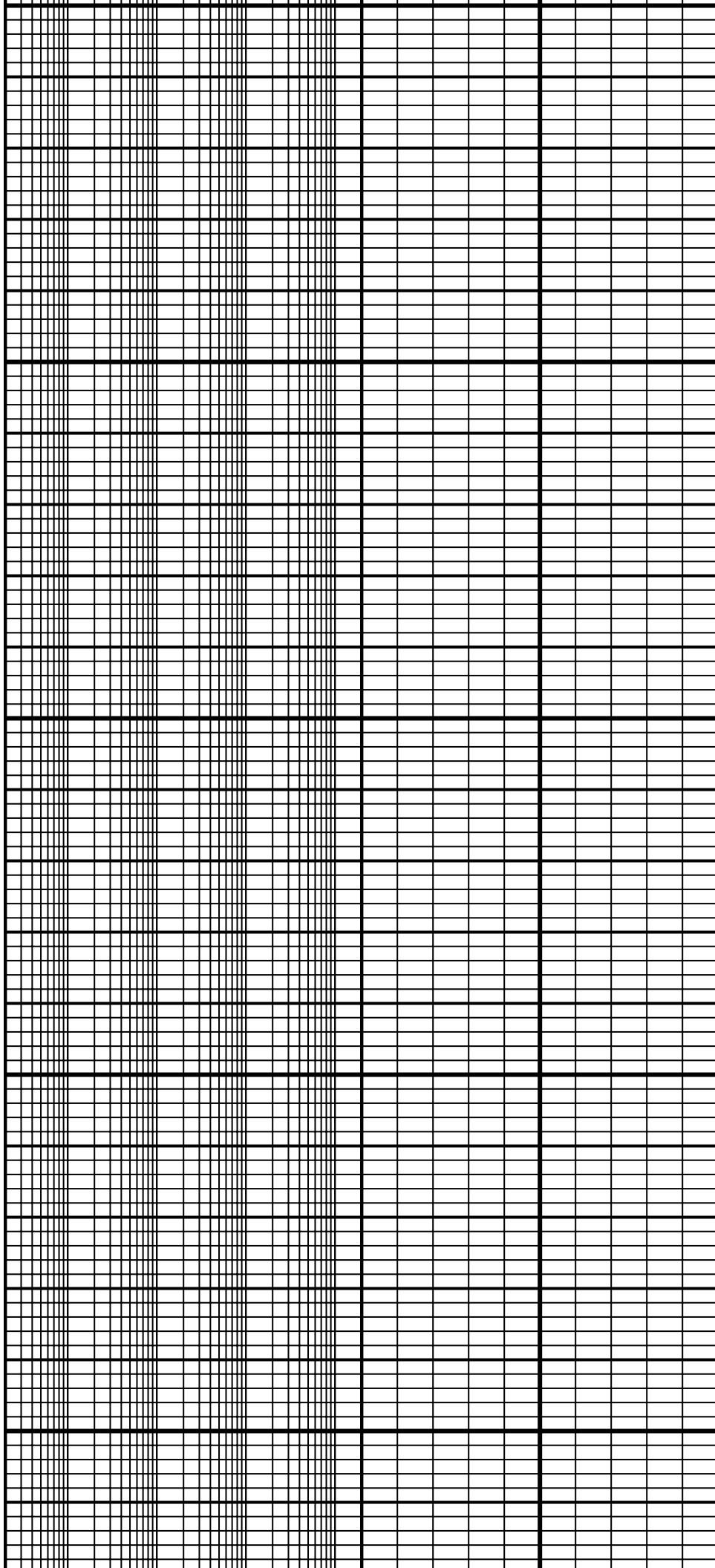
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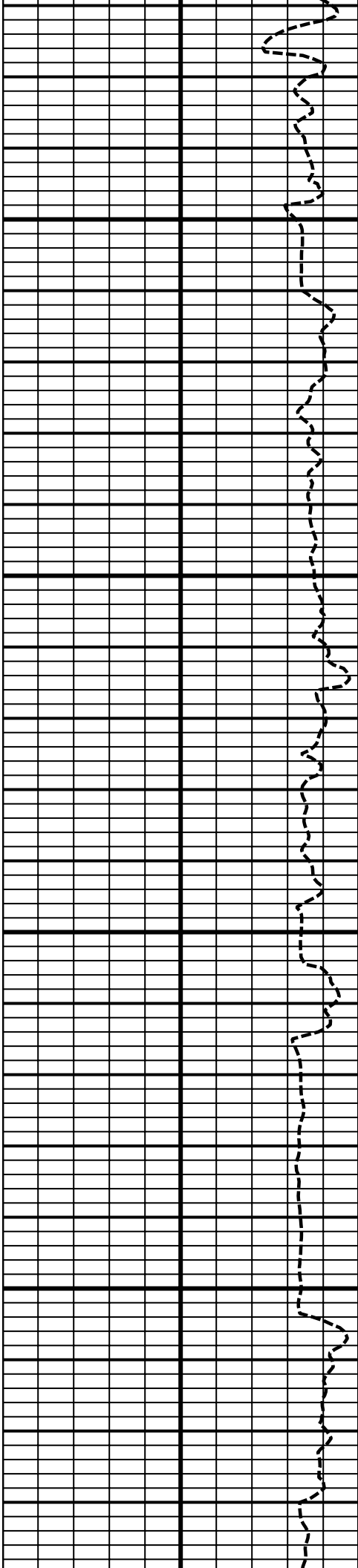
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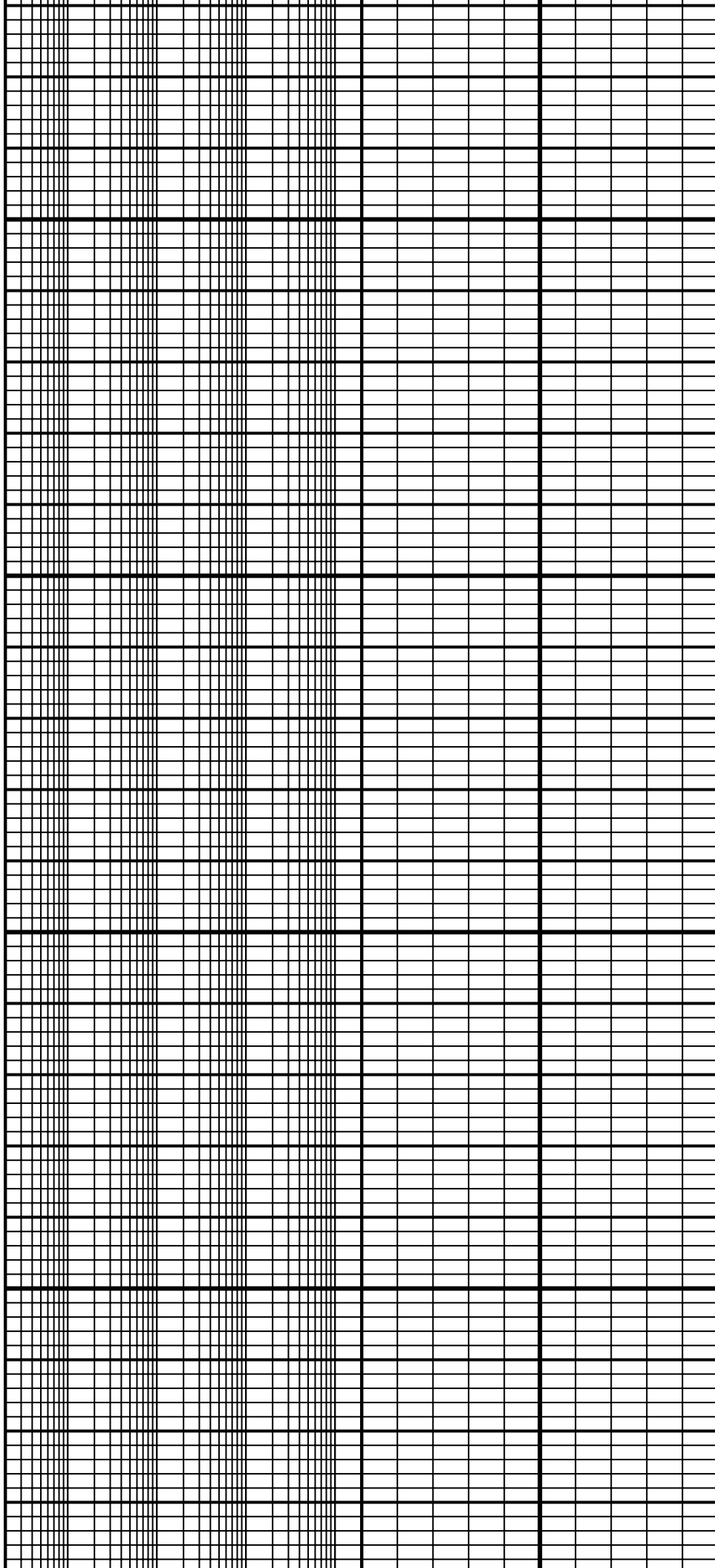
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Casing

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GR_DN

GR_UP

RAD2

RAD4

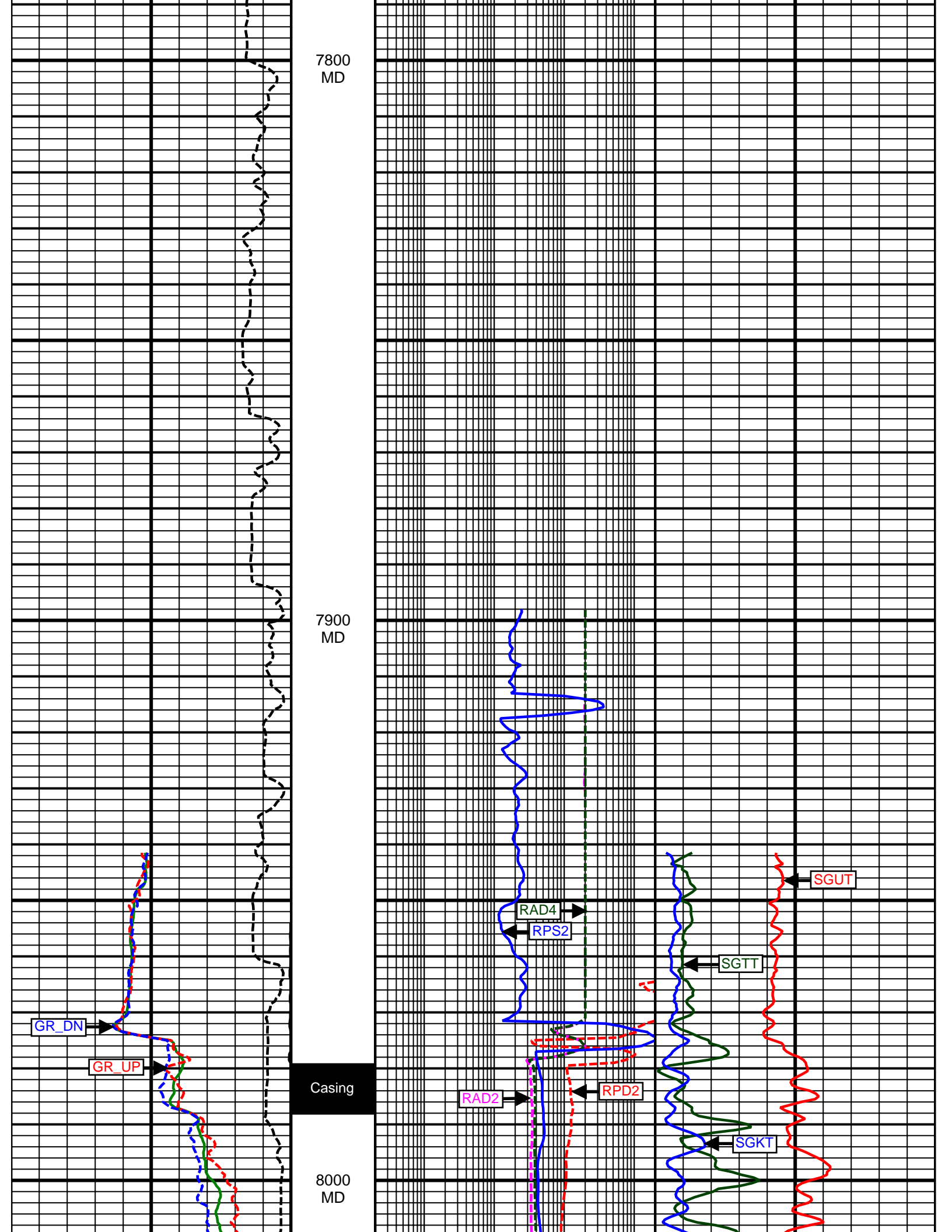
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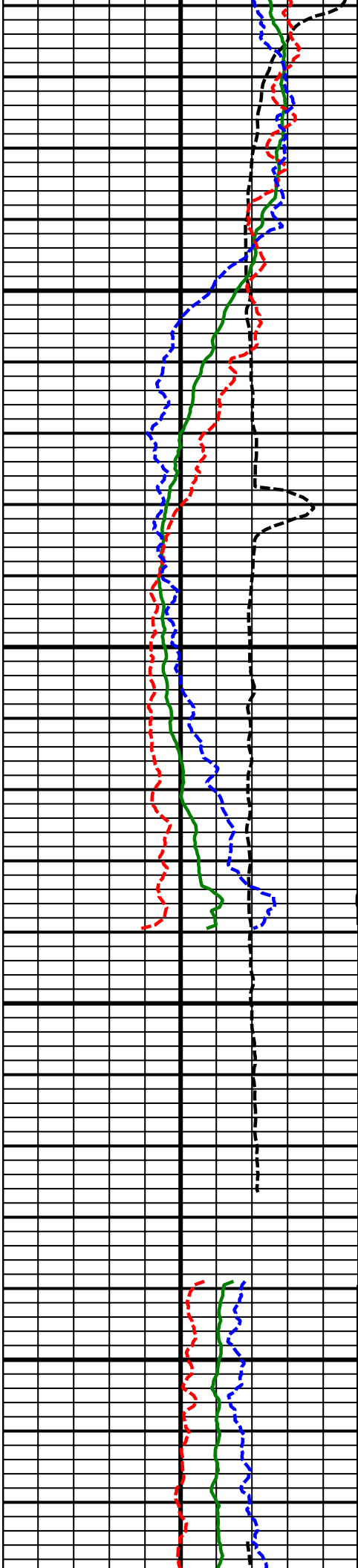
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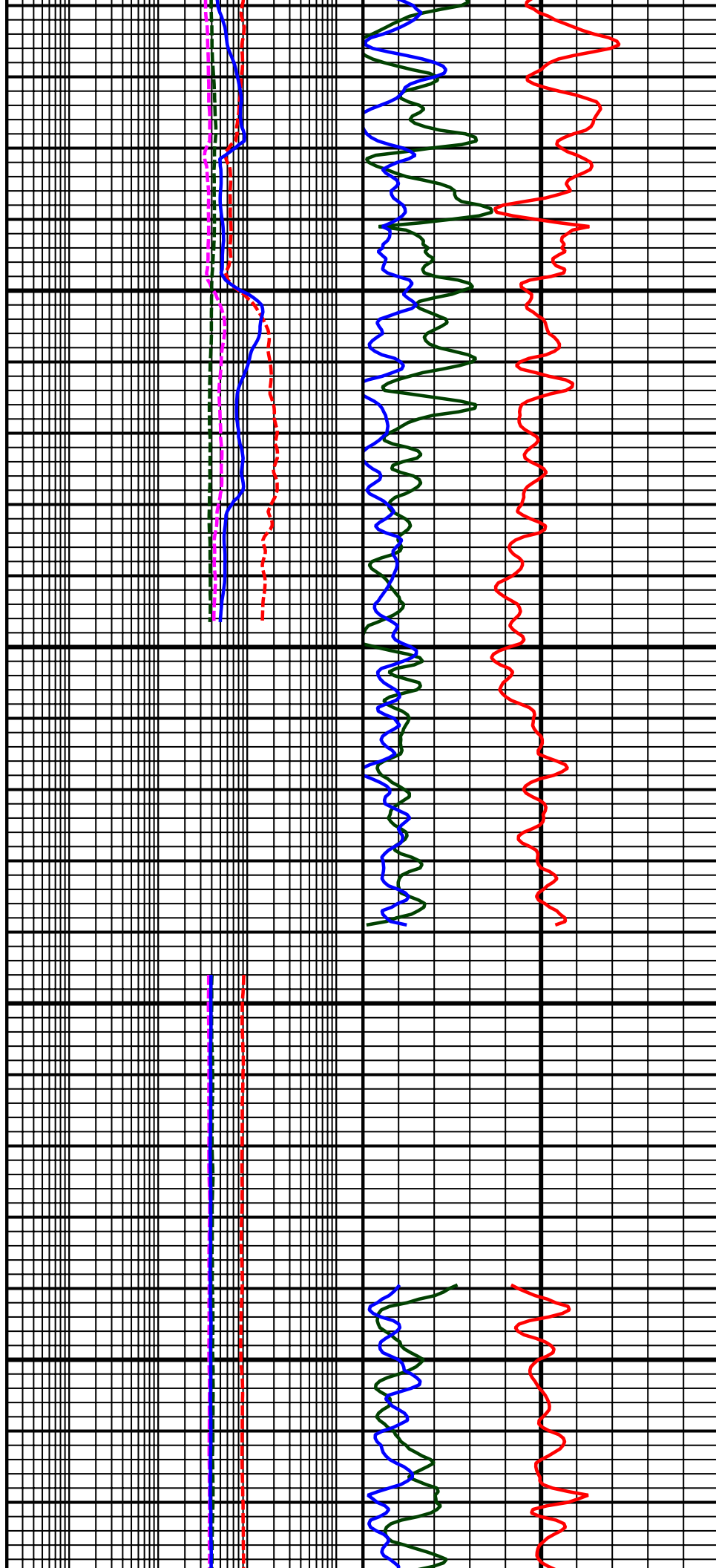
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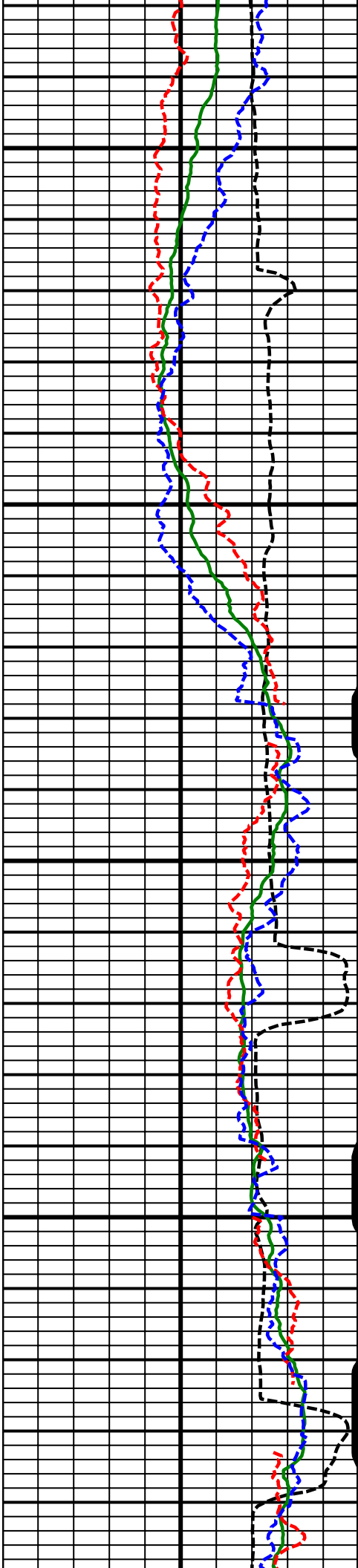




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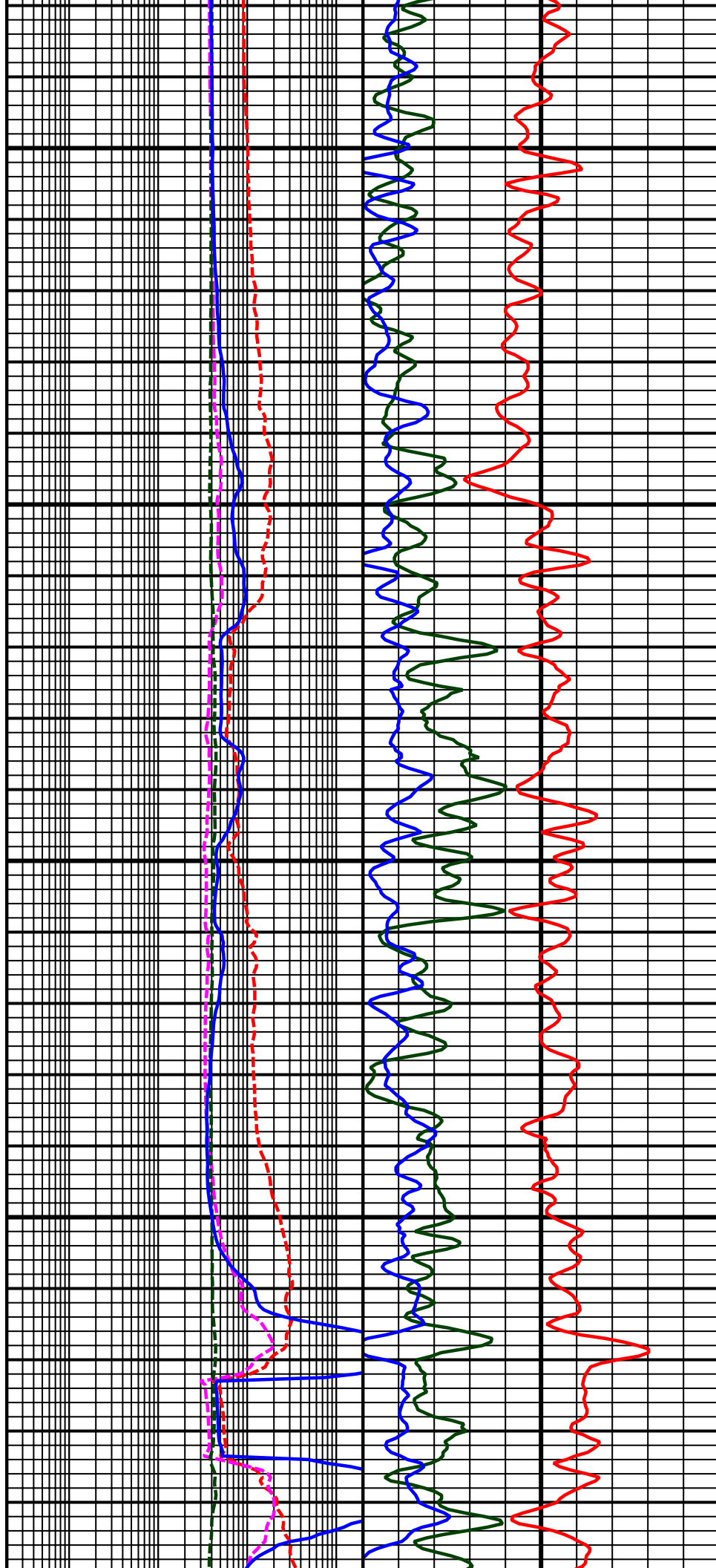
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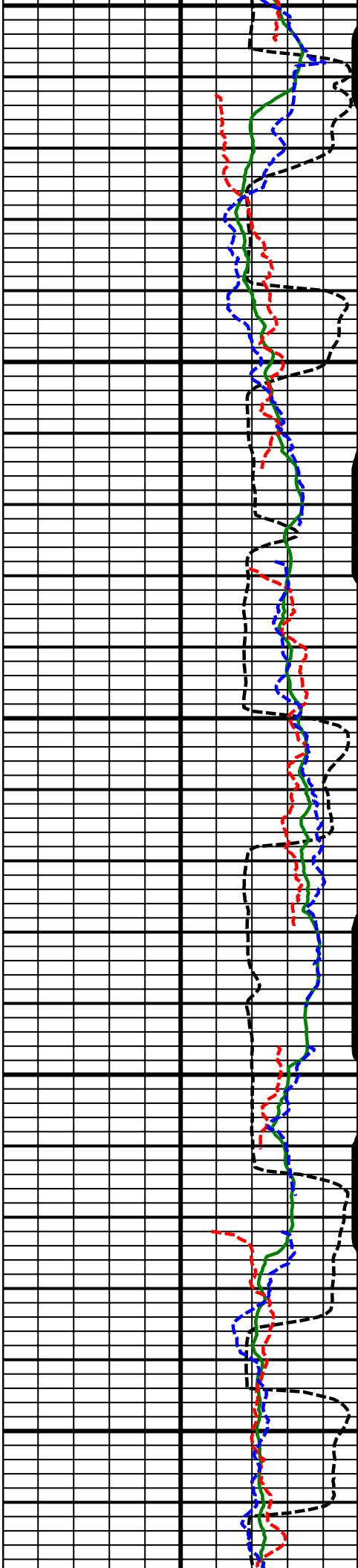




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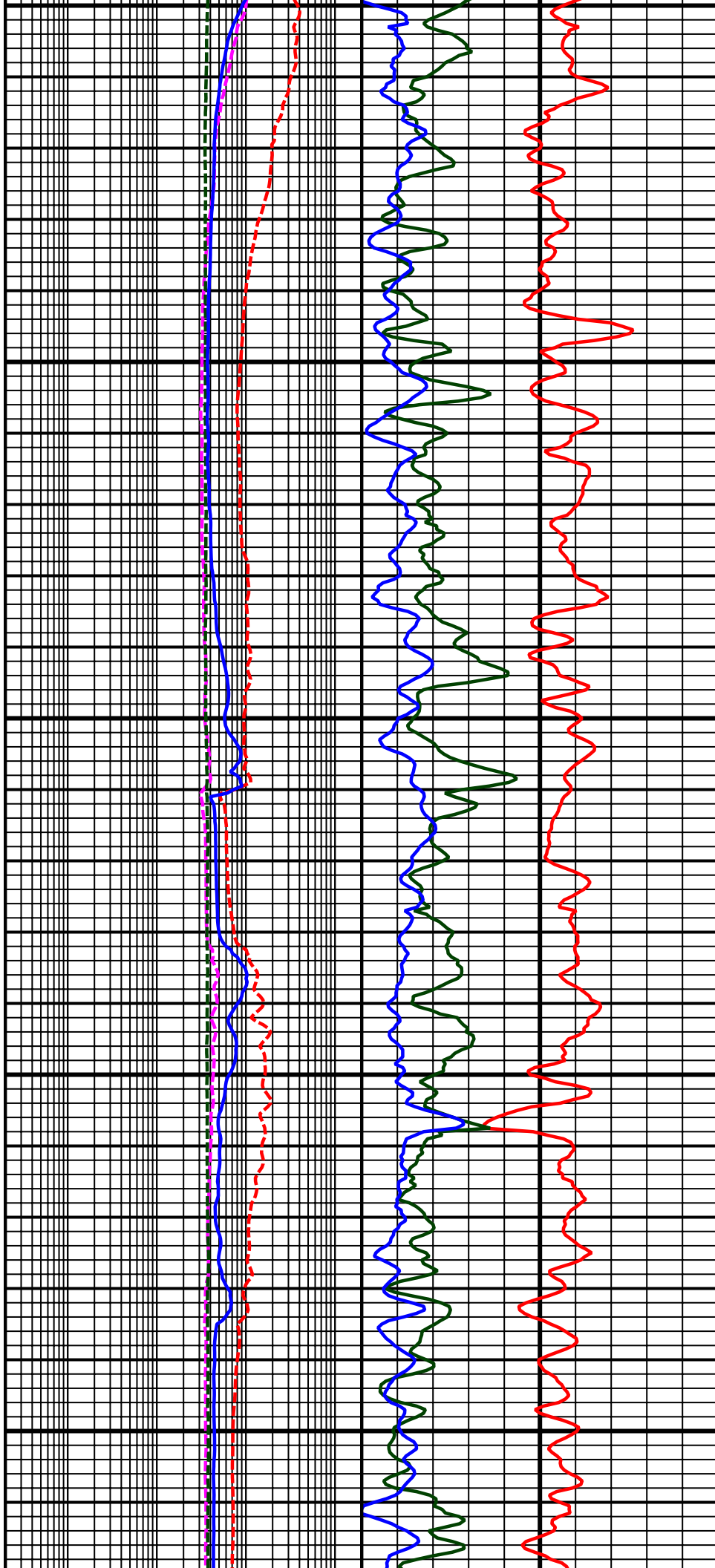
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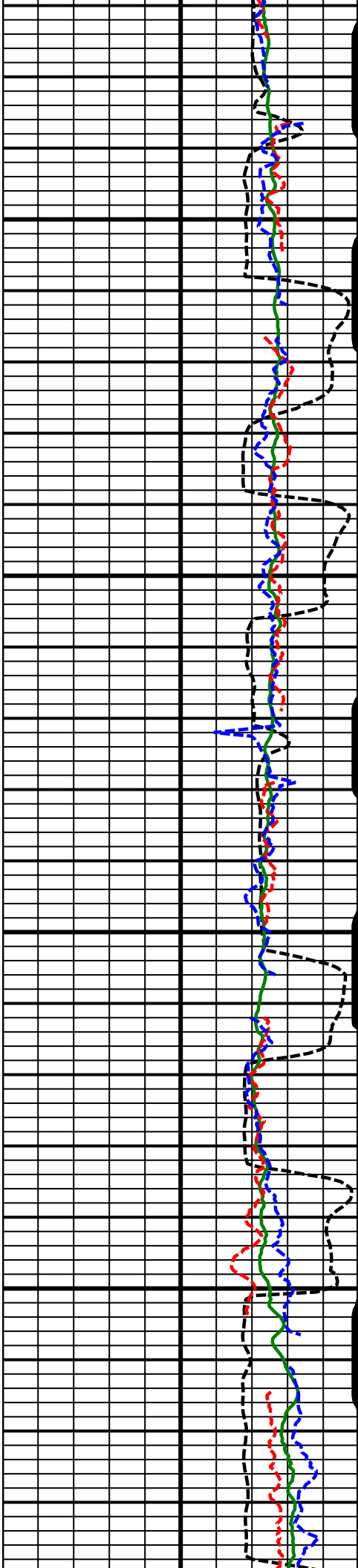




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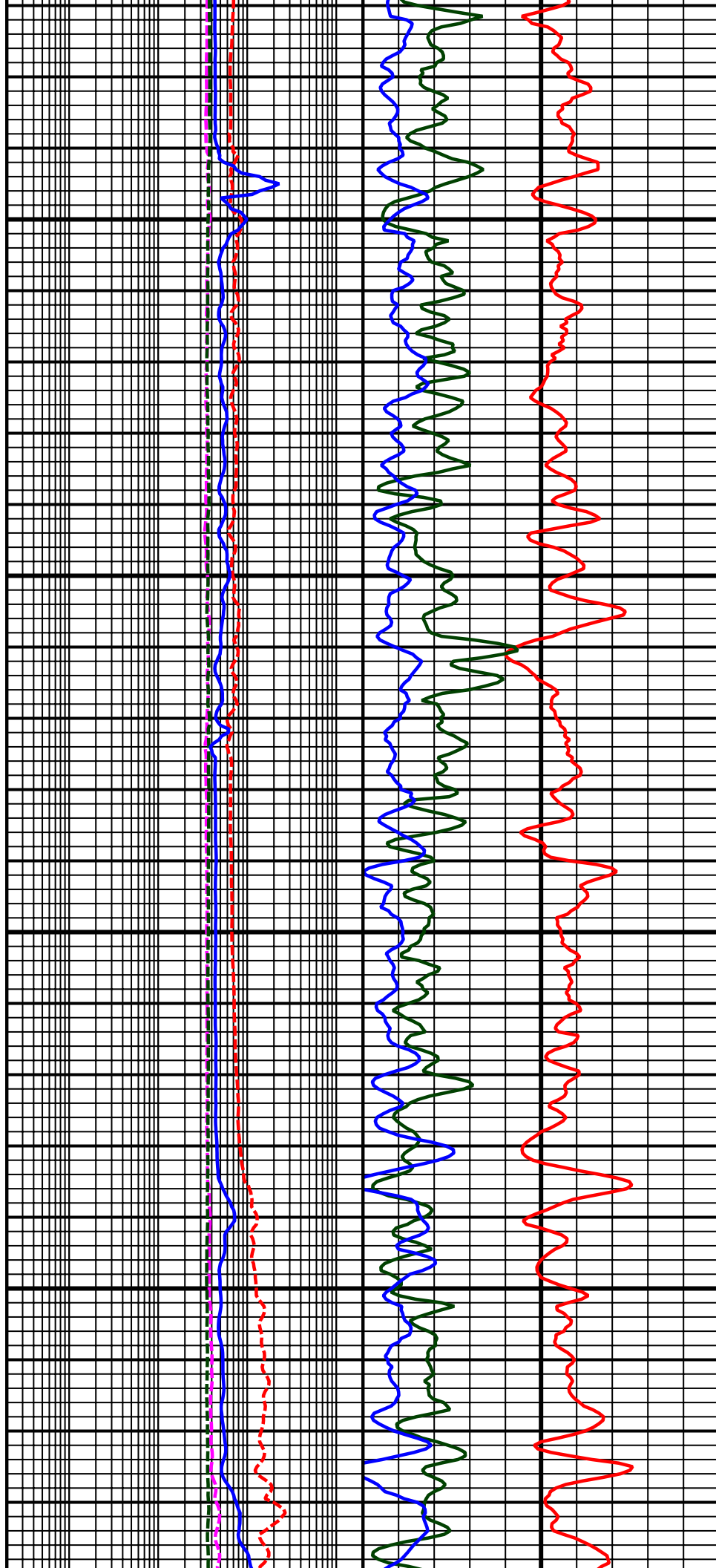
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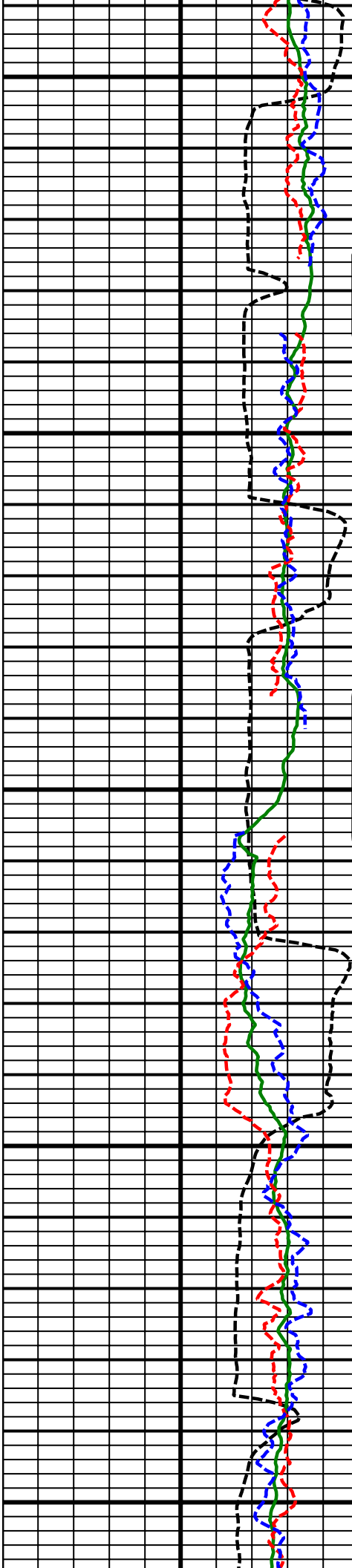




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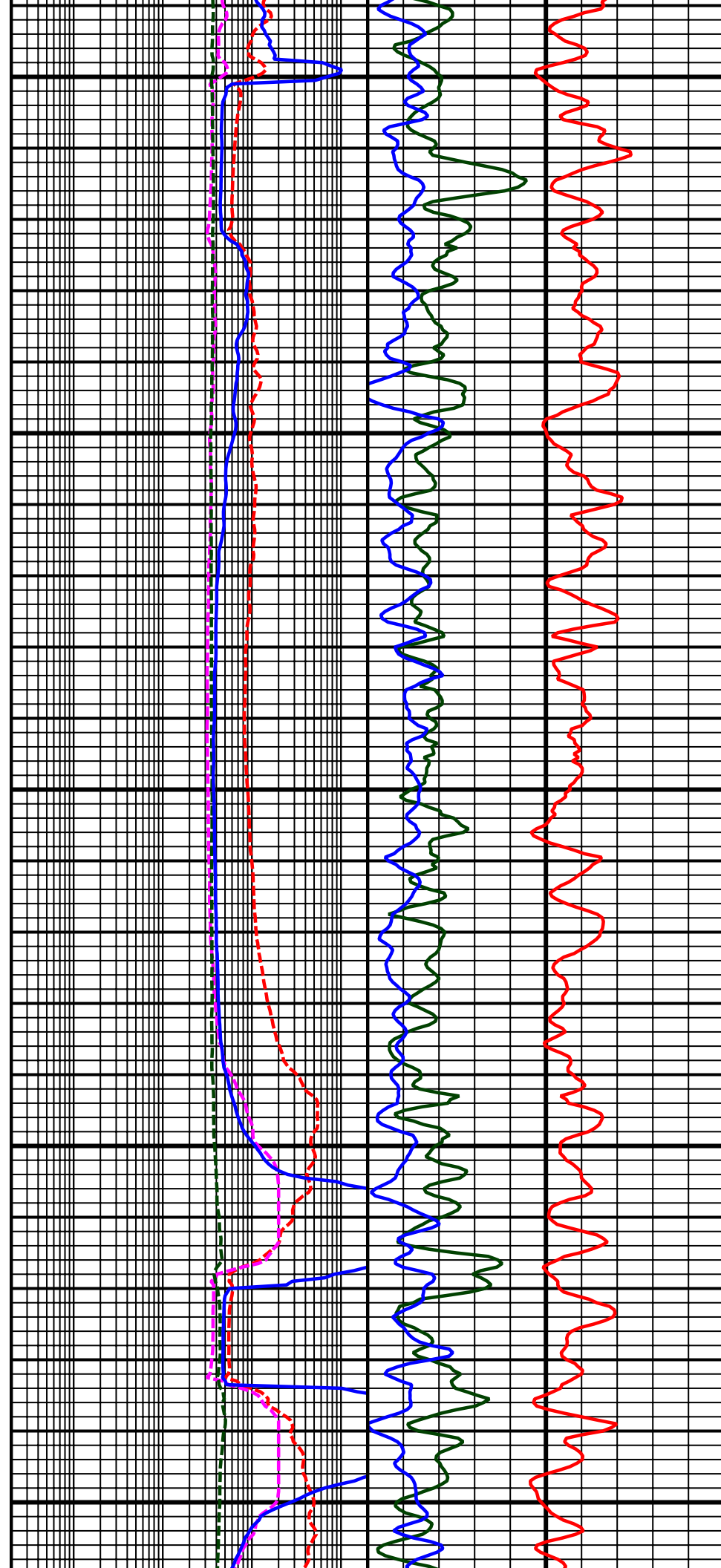


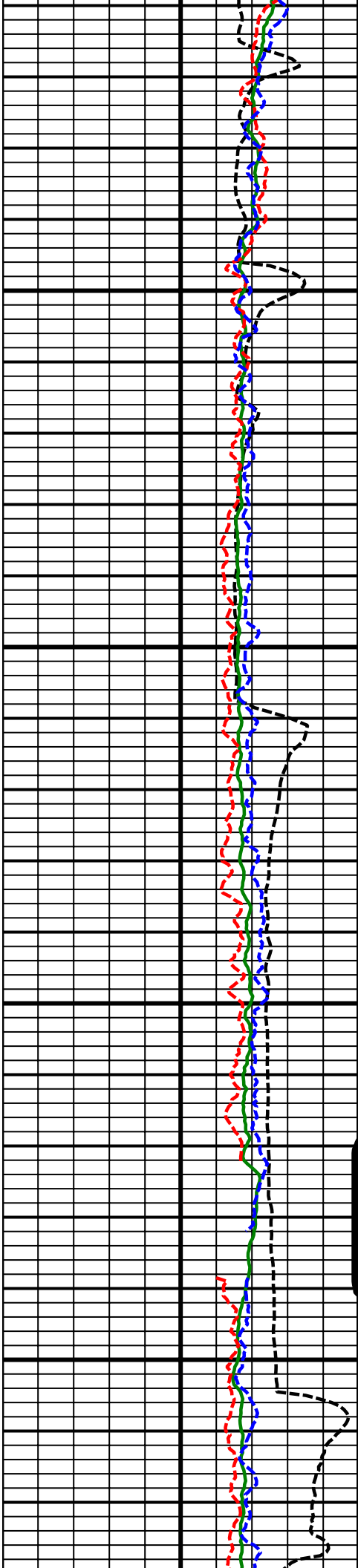


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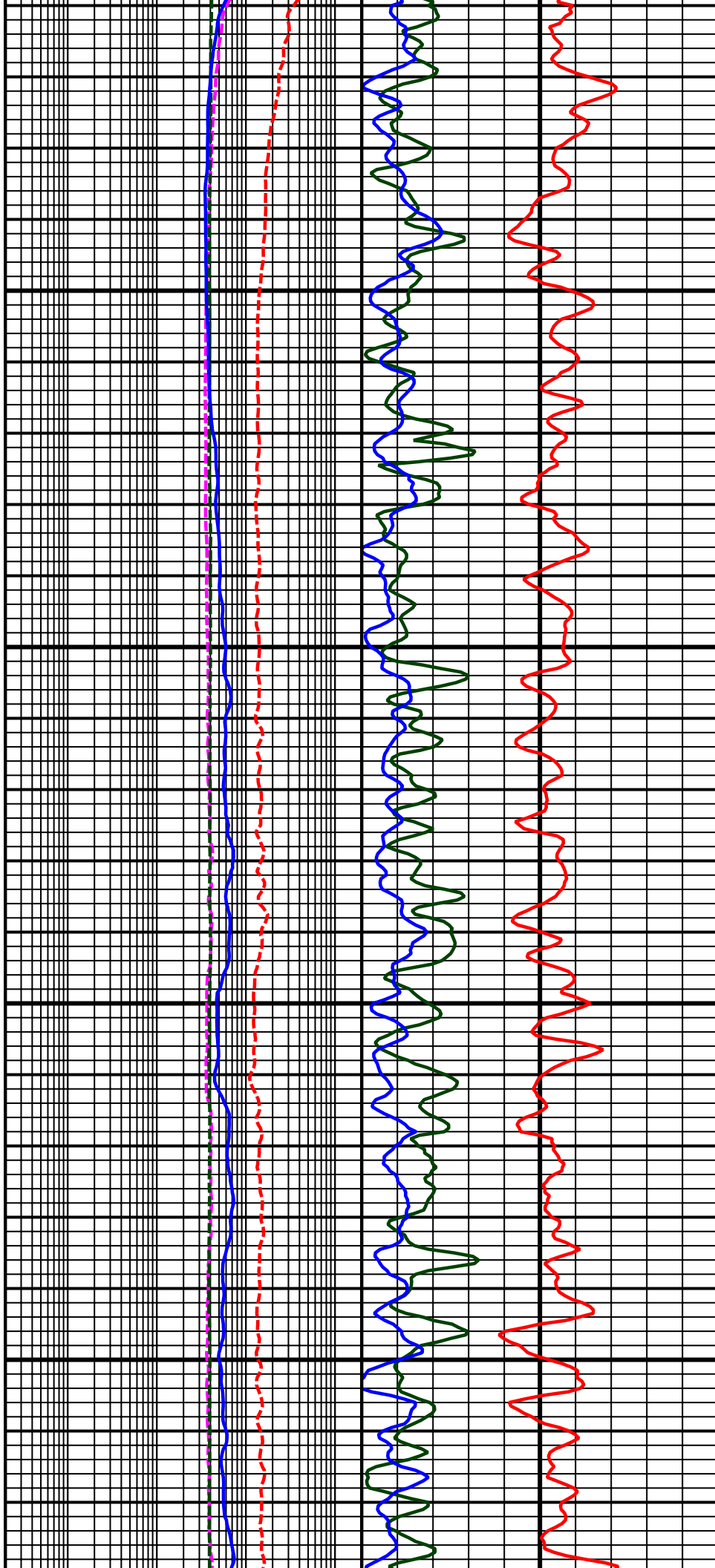
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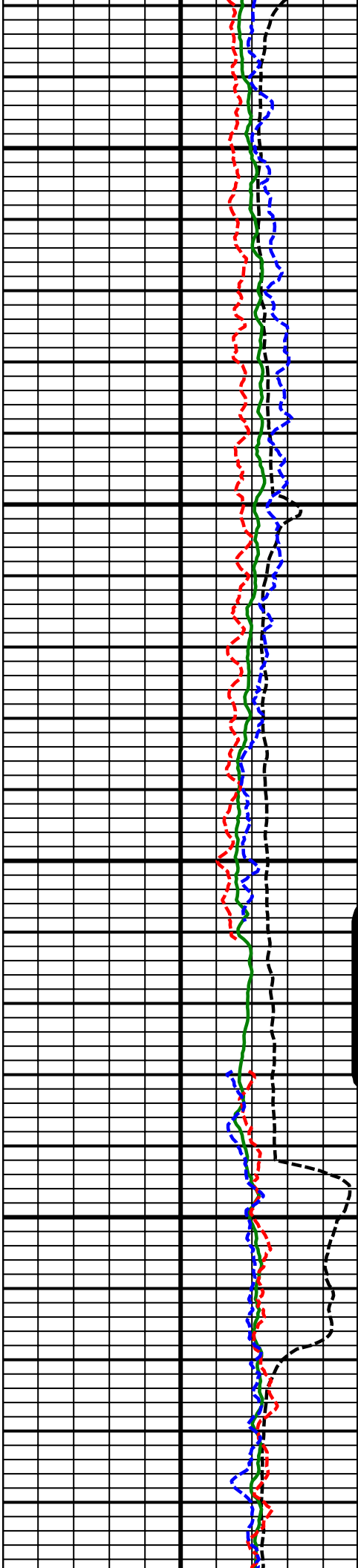




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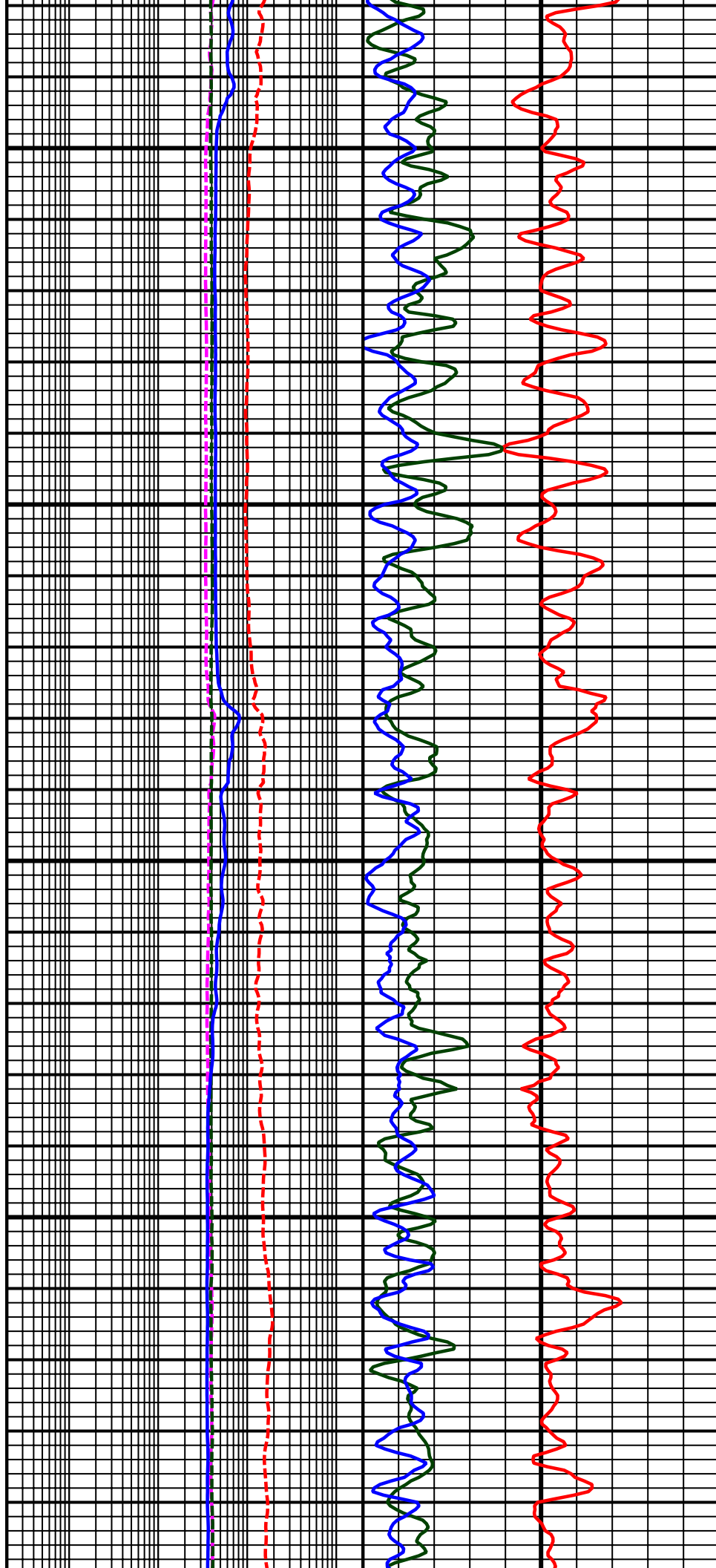
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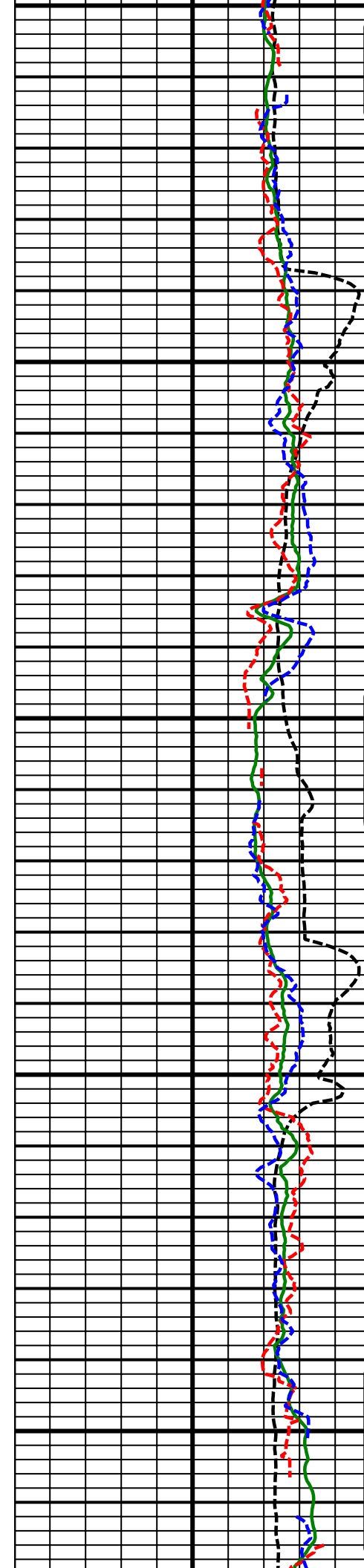




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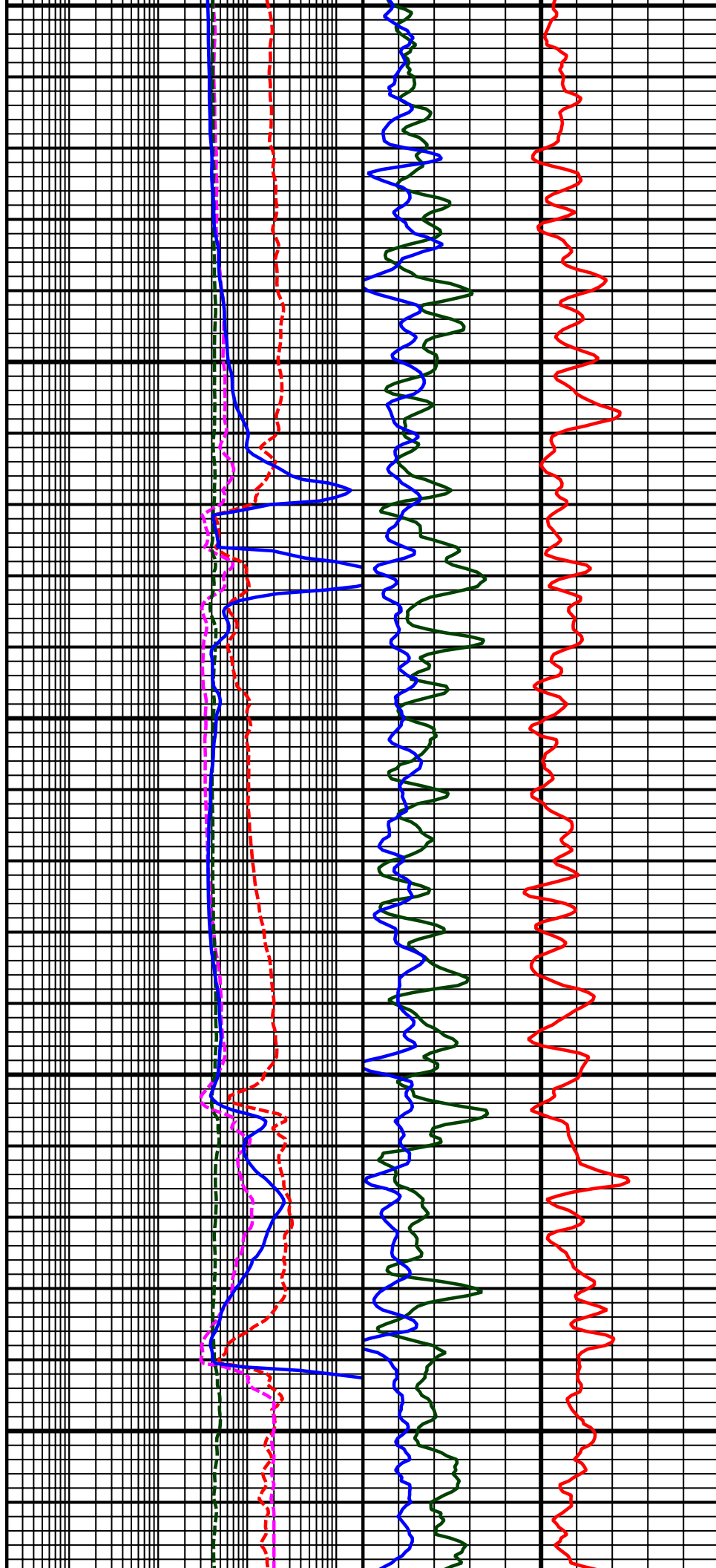
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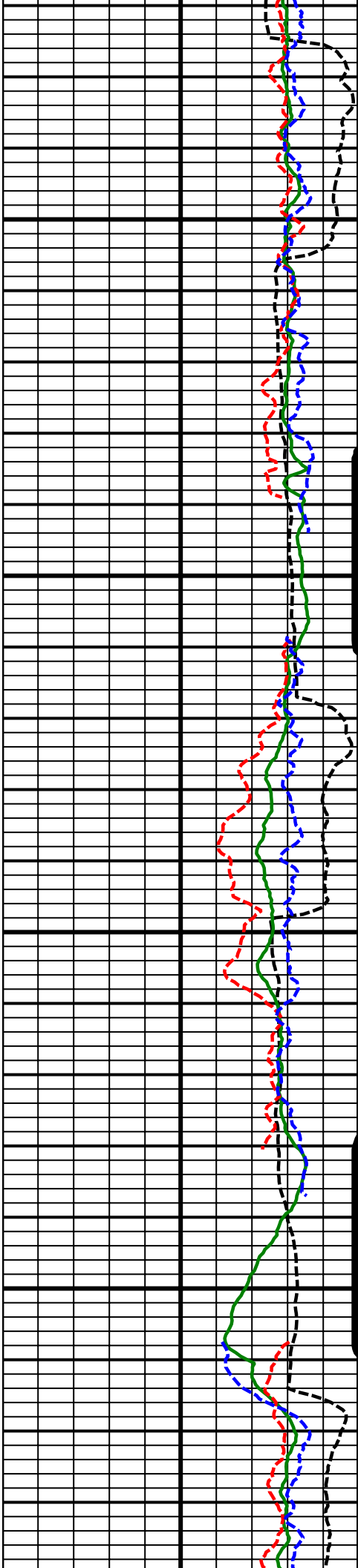




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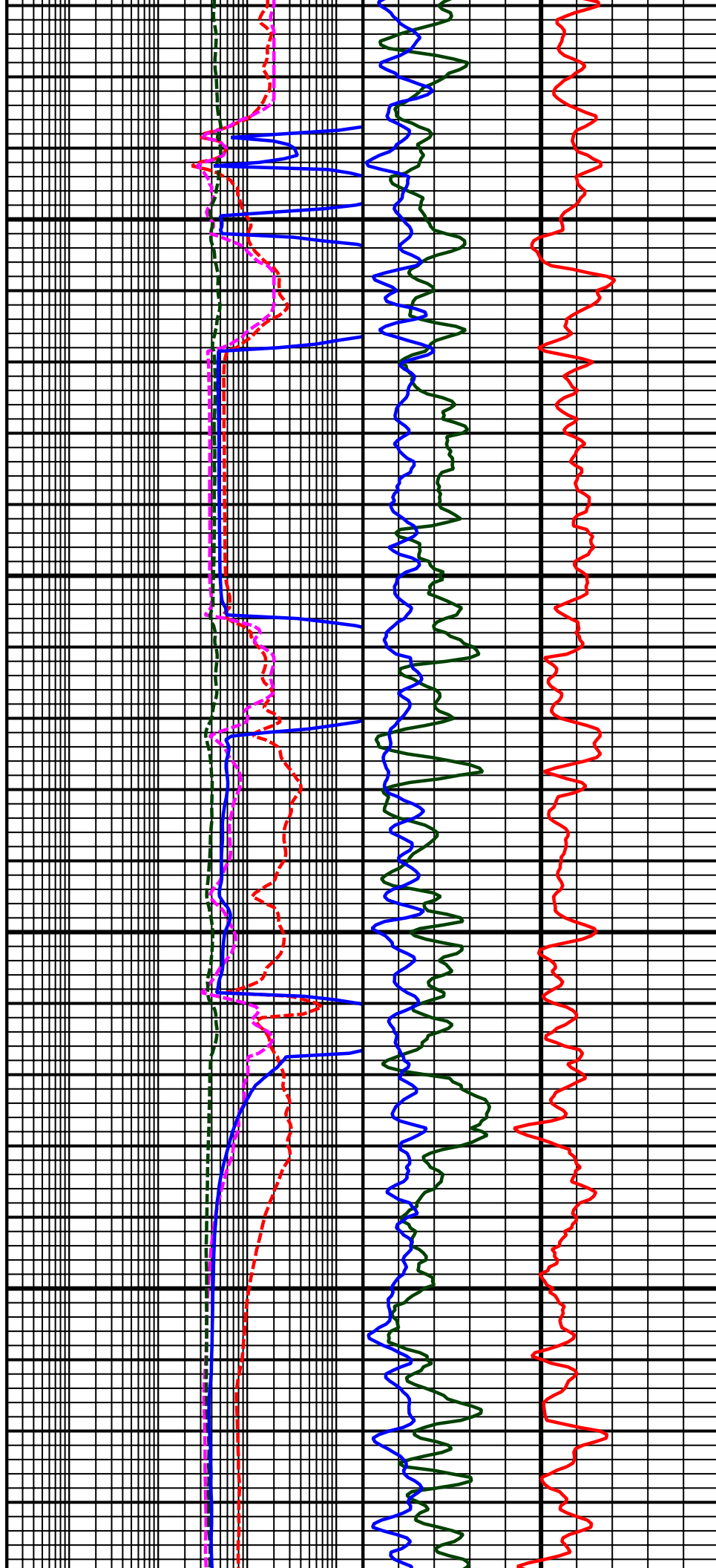
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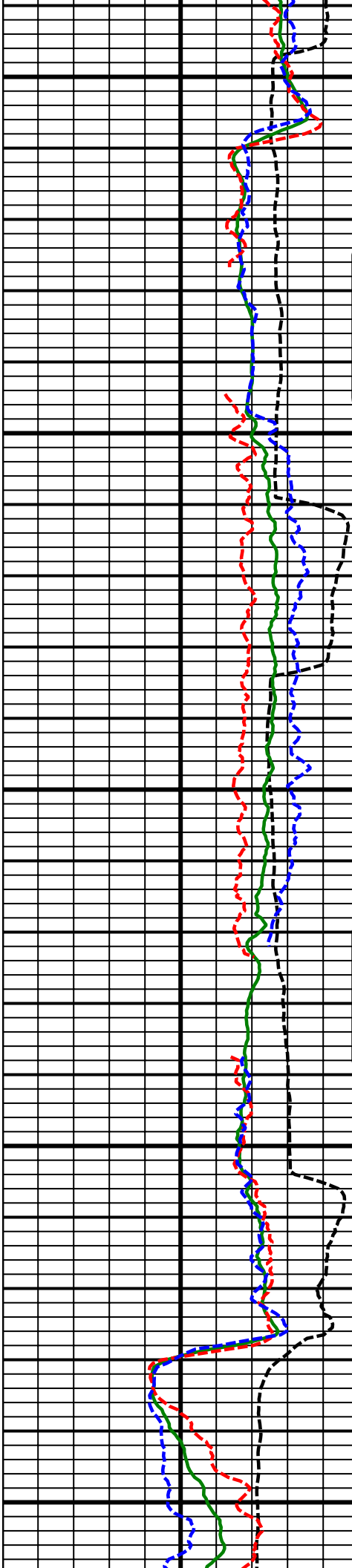




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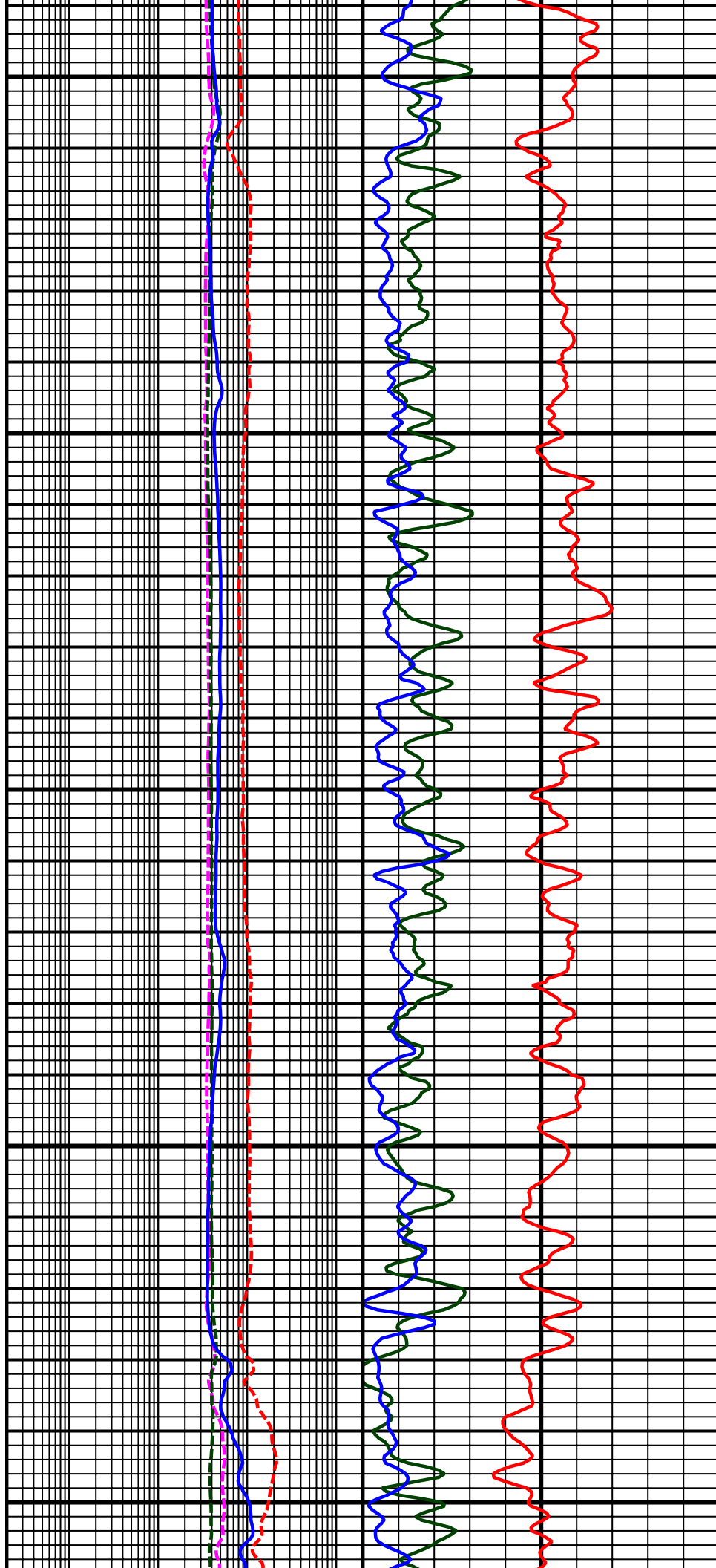


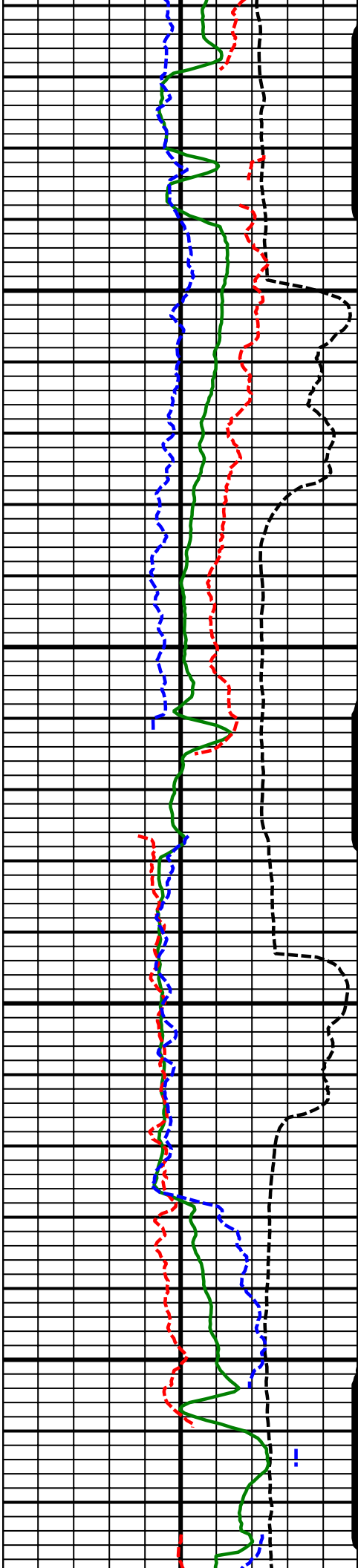


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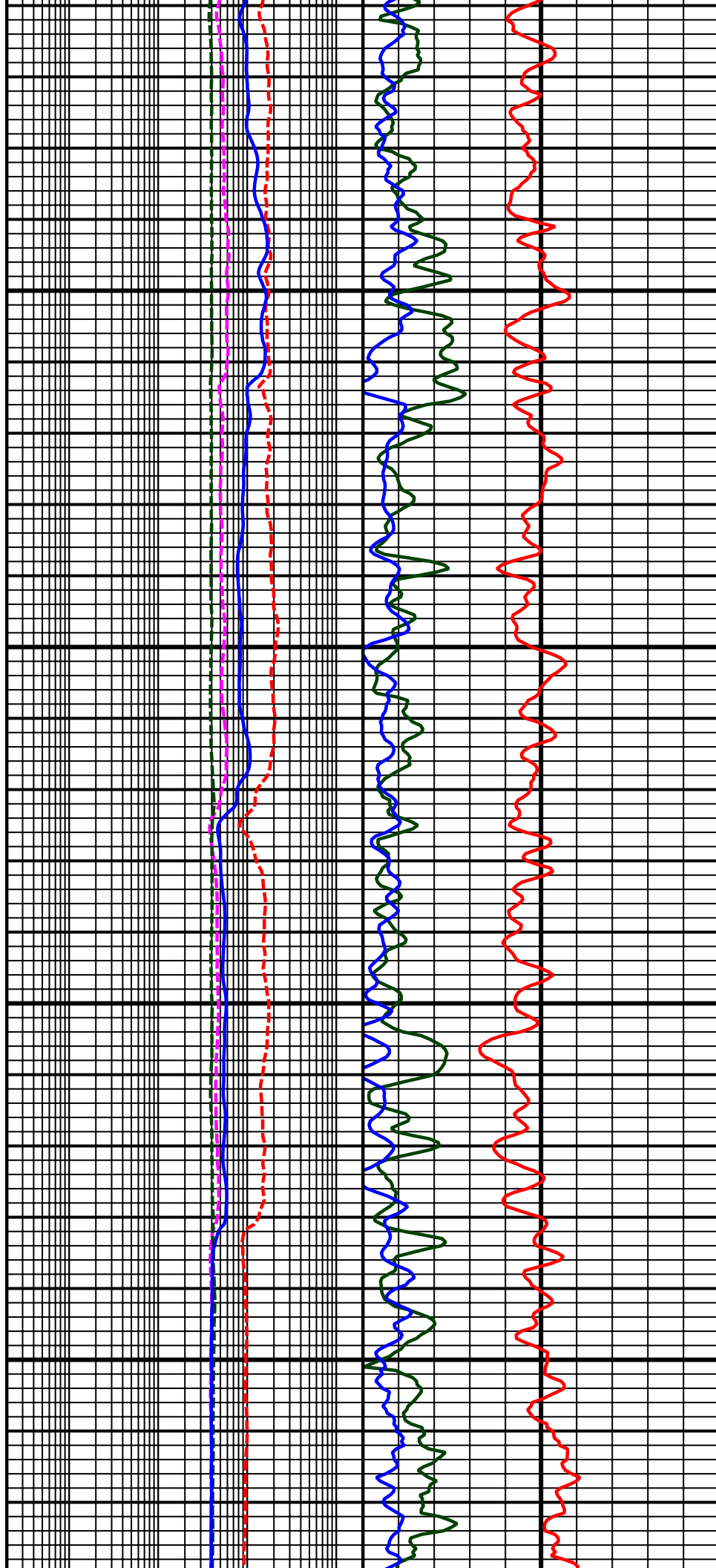
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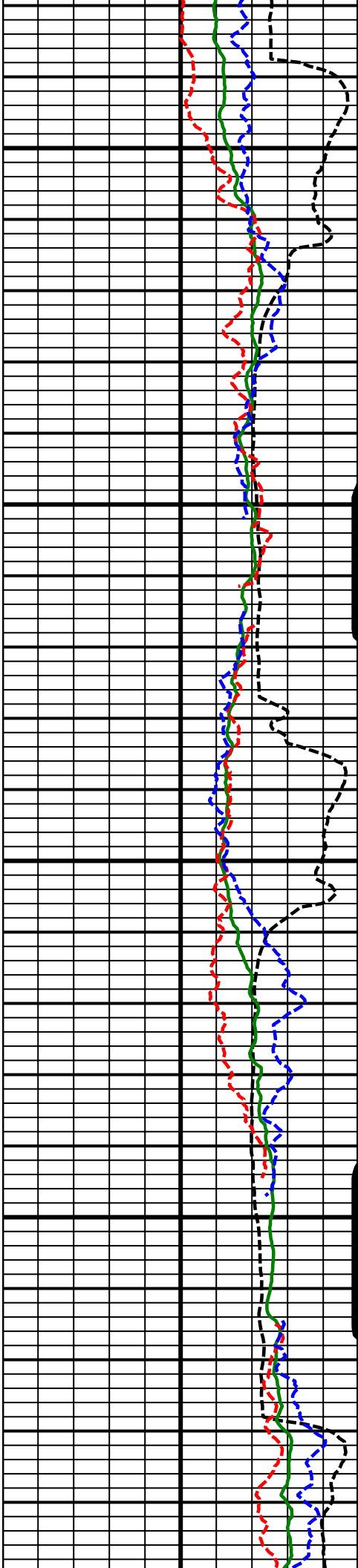




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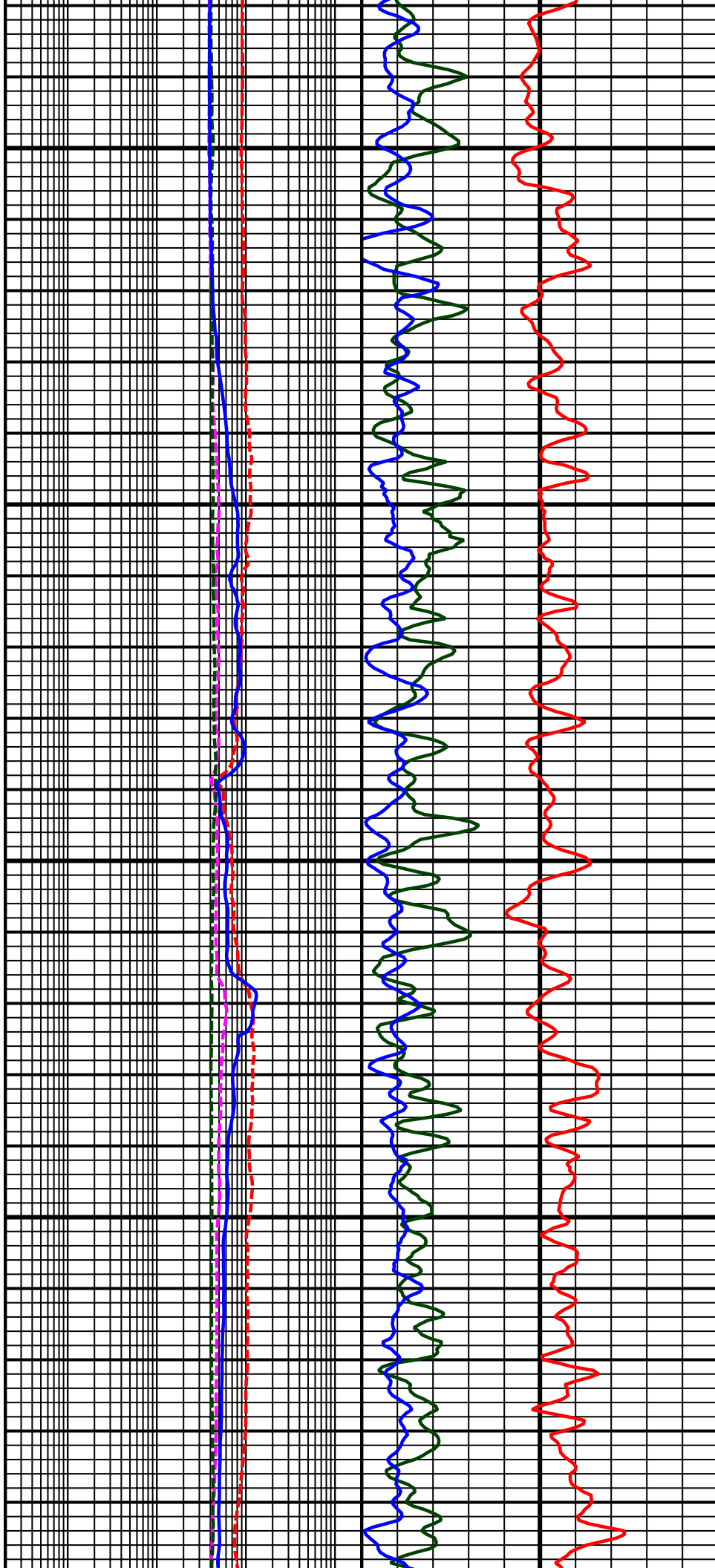
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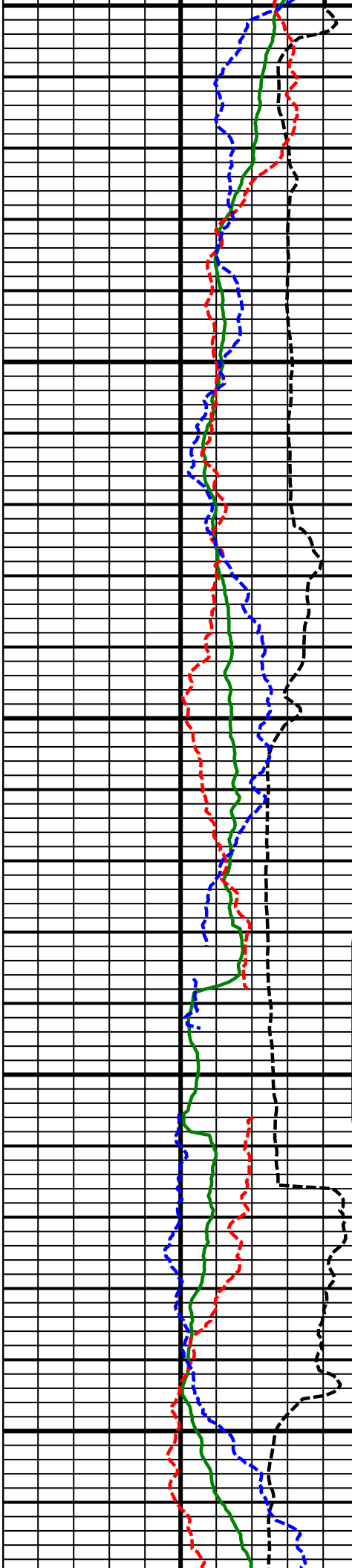




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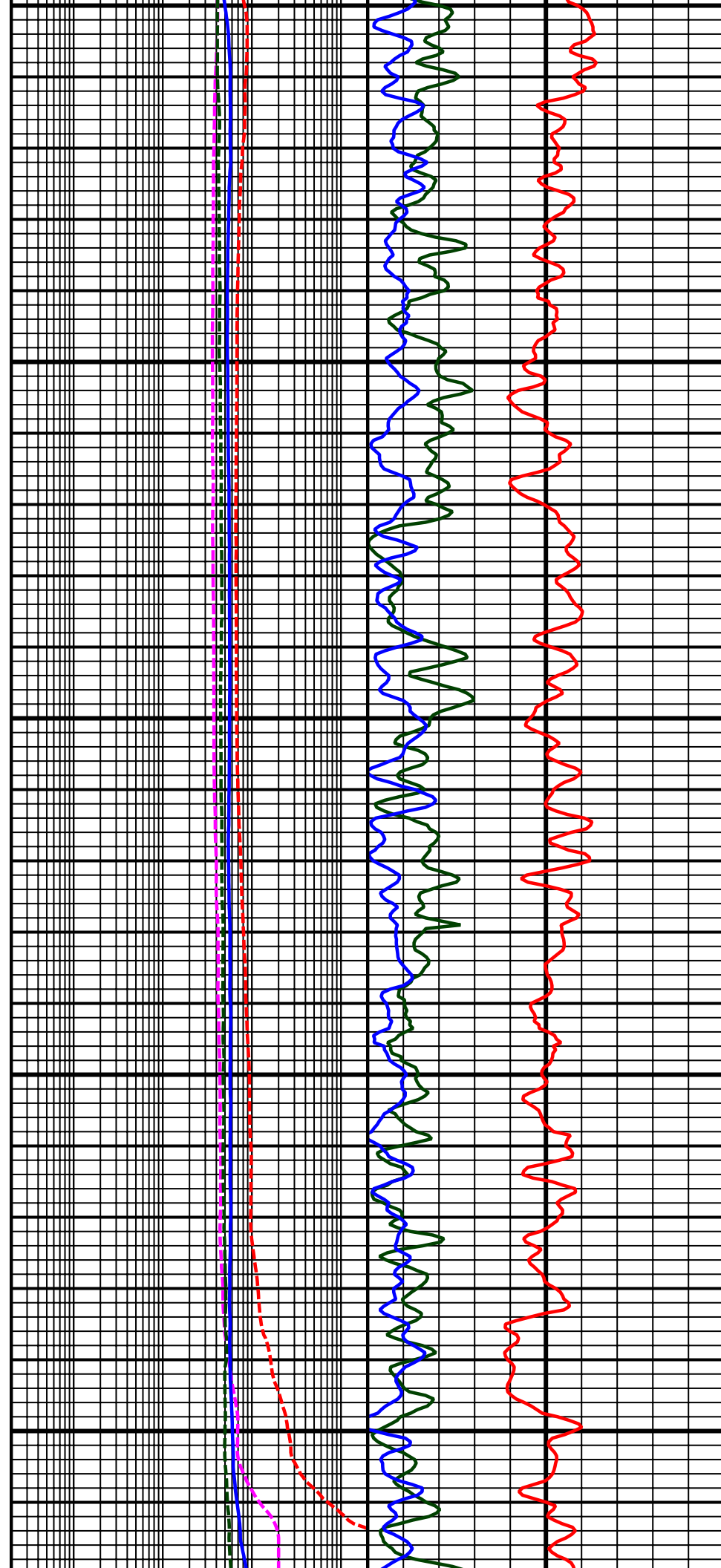
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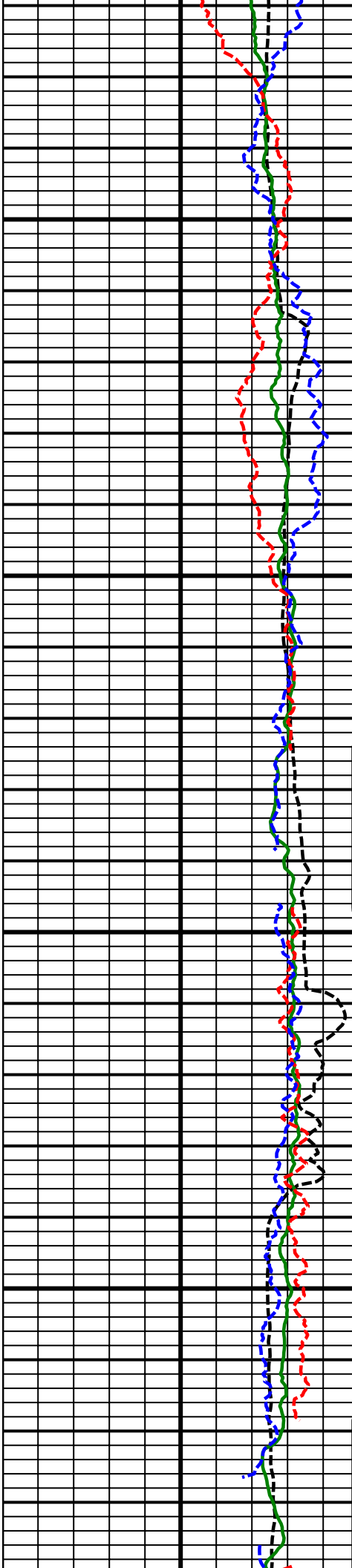




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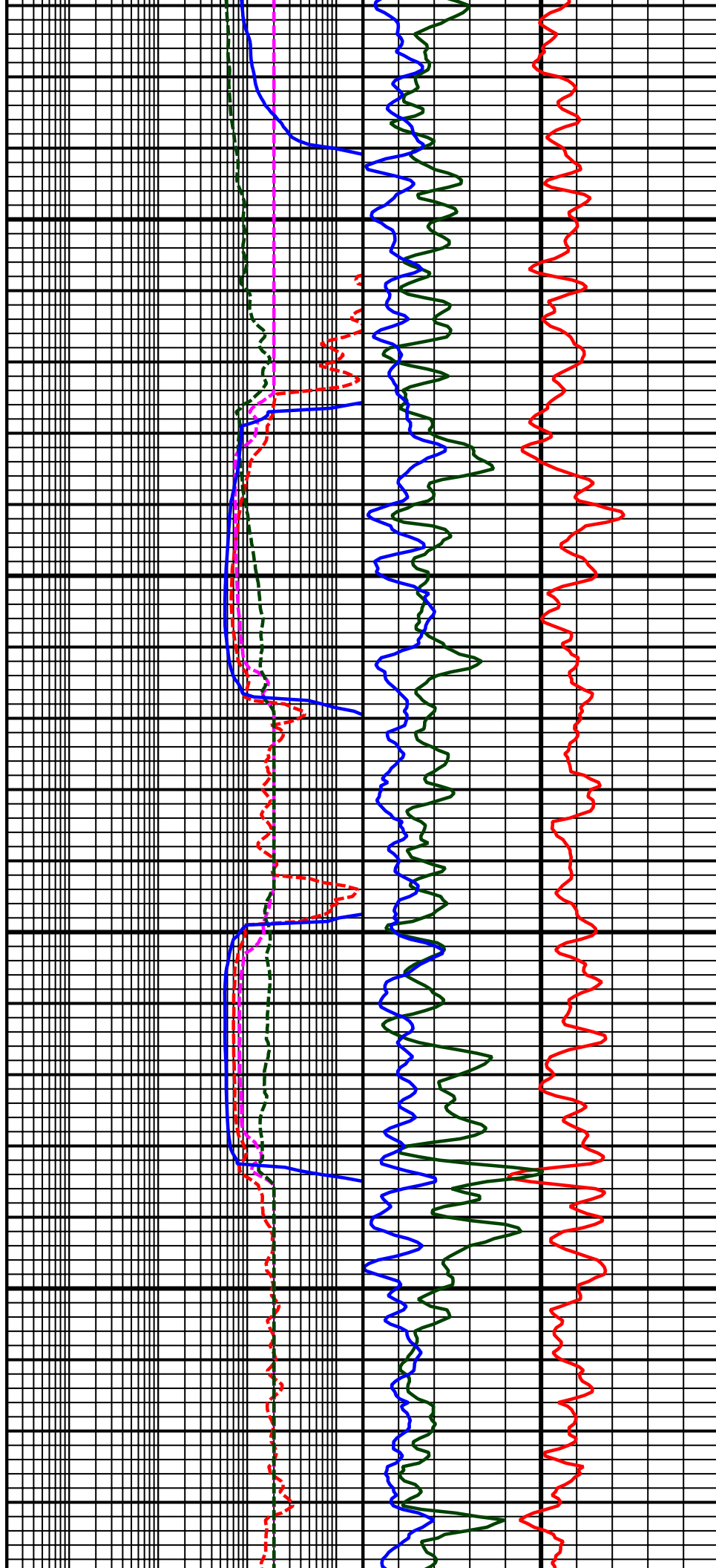
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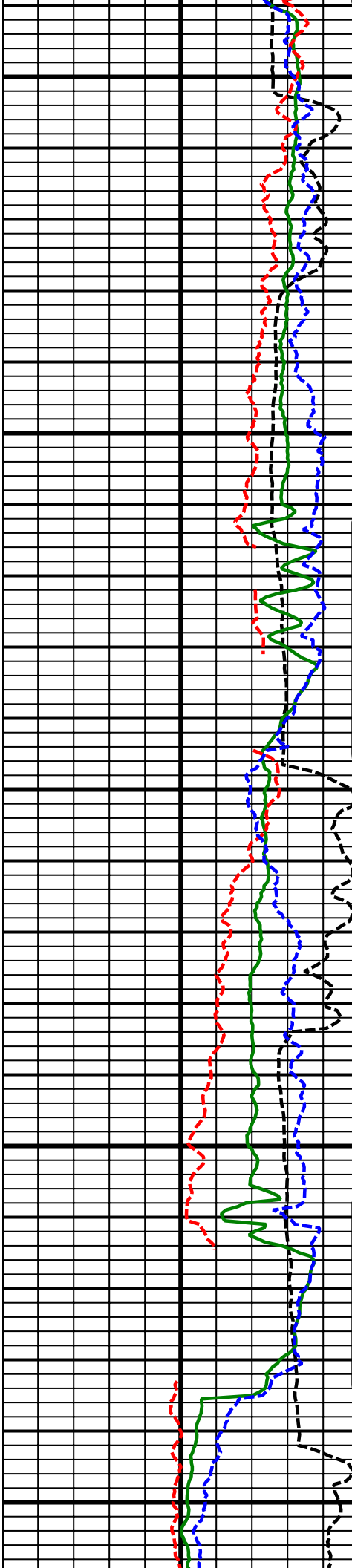




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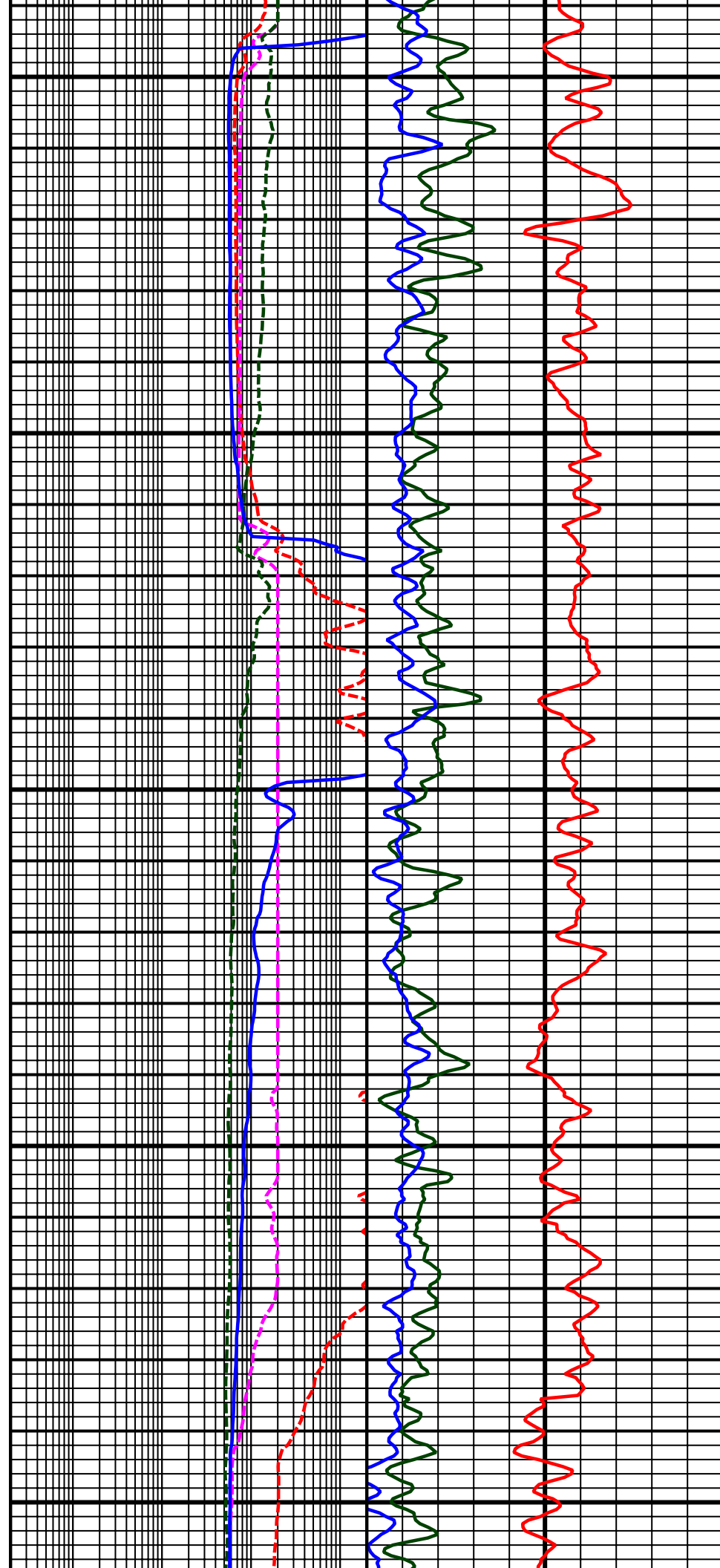


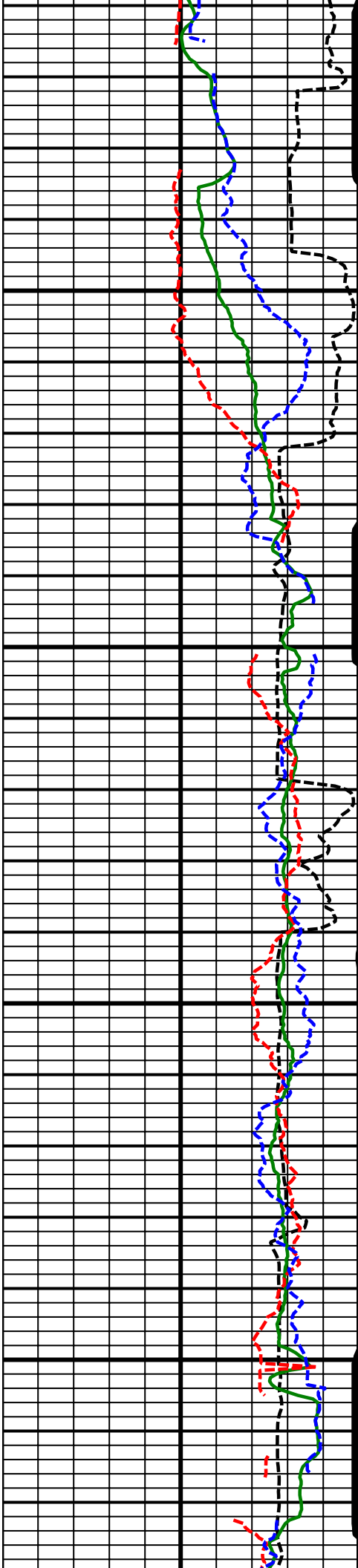


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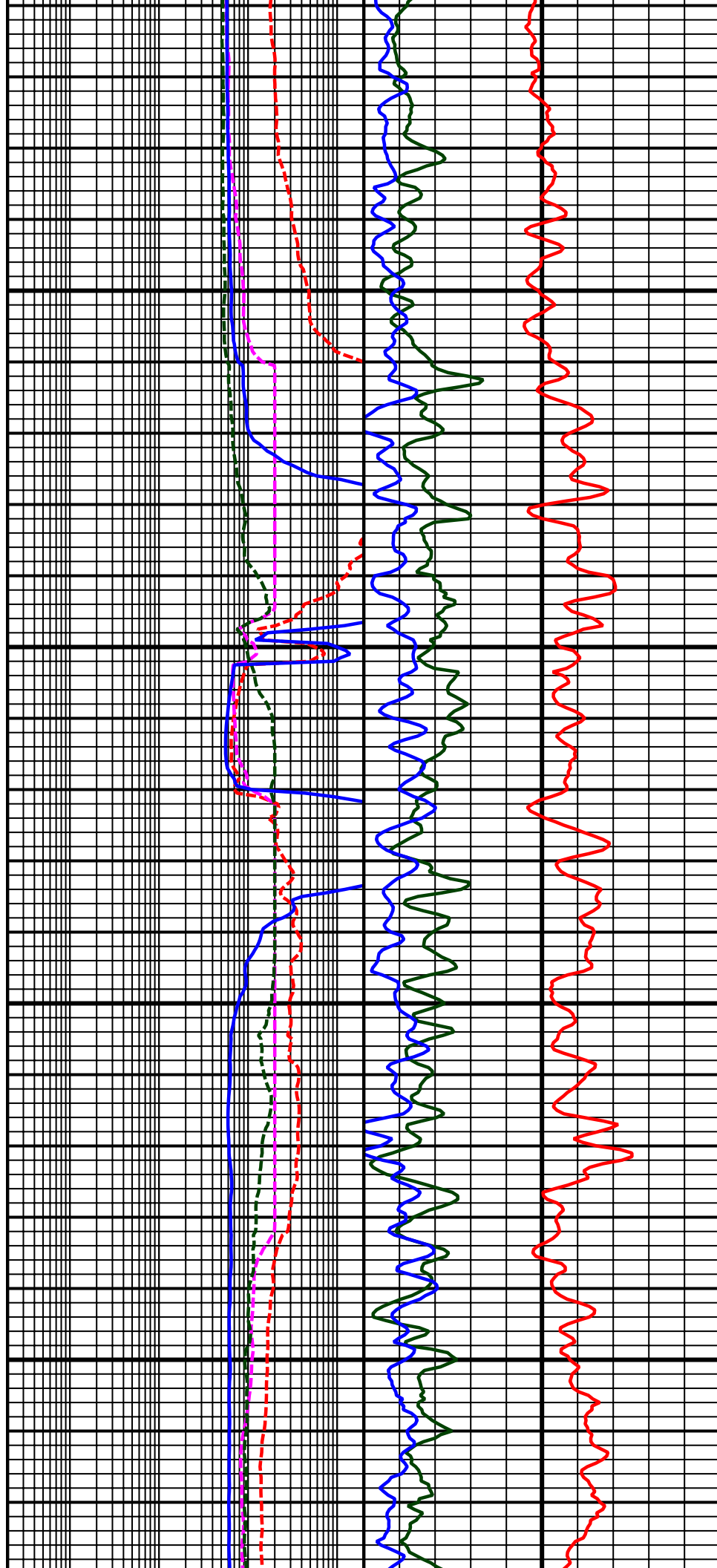
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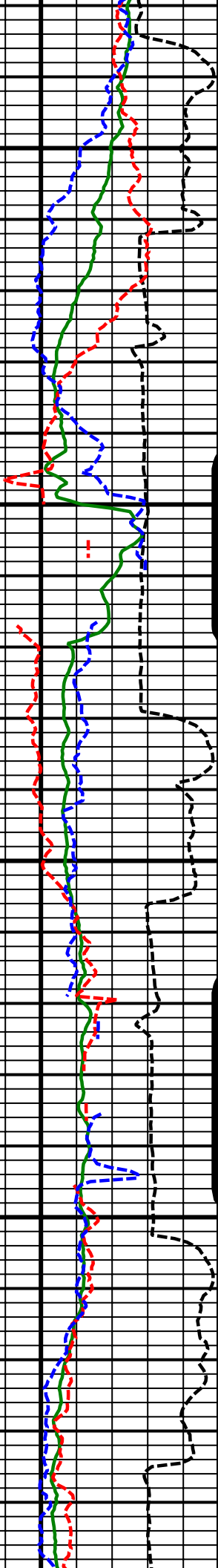




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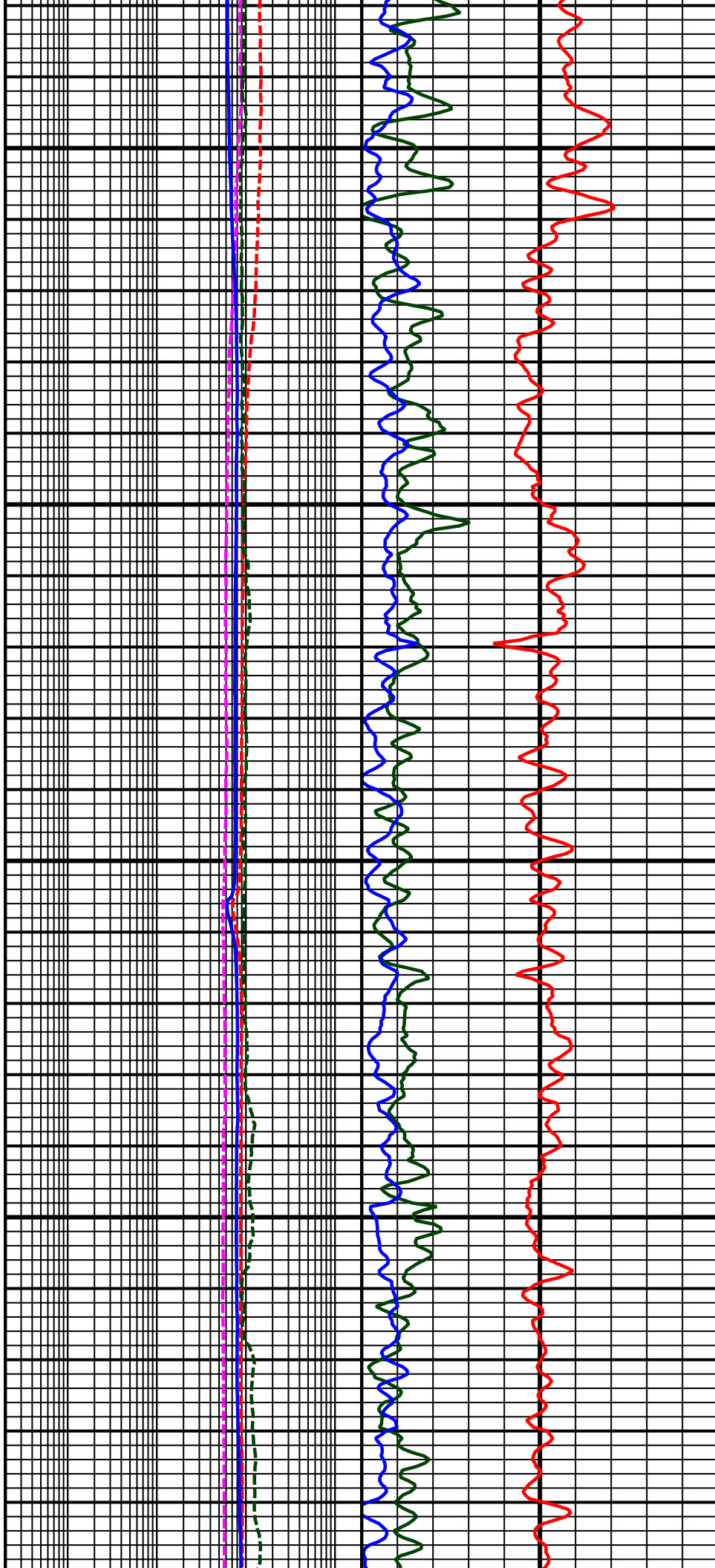
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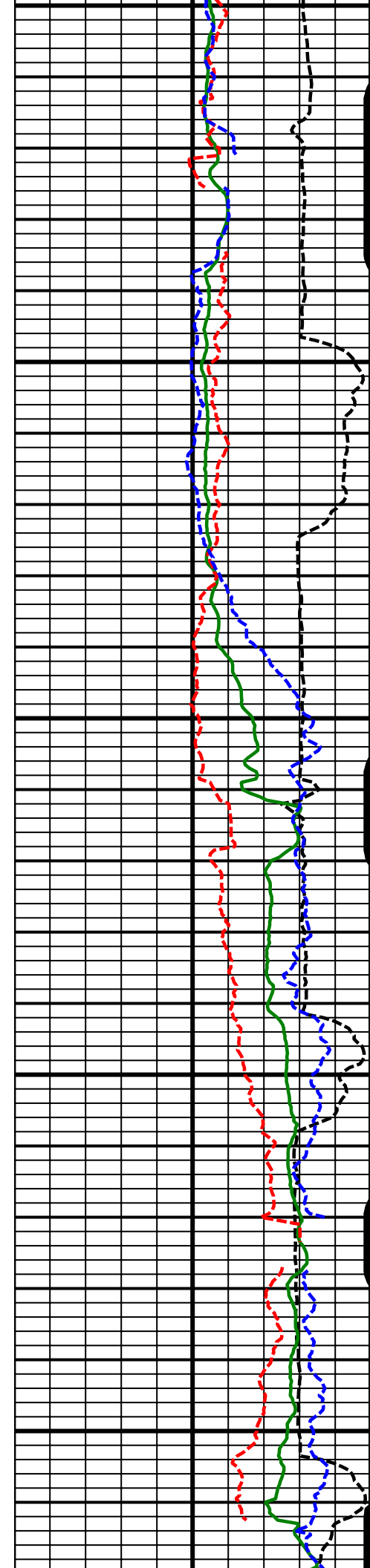




11600
MD

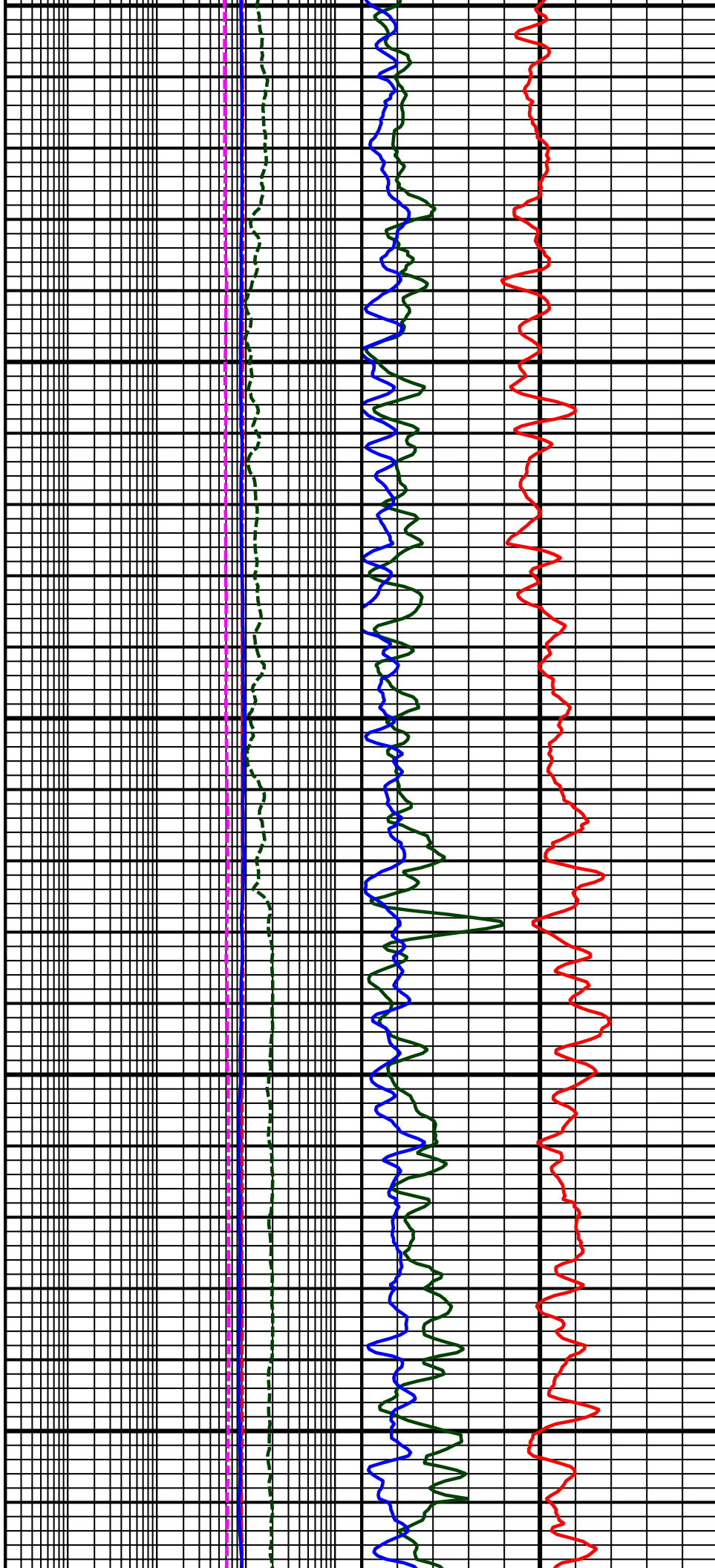
11700
MD

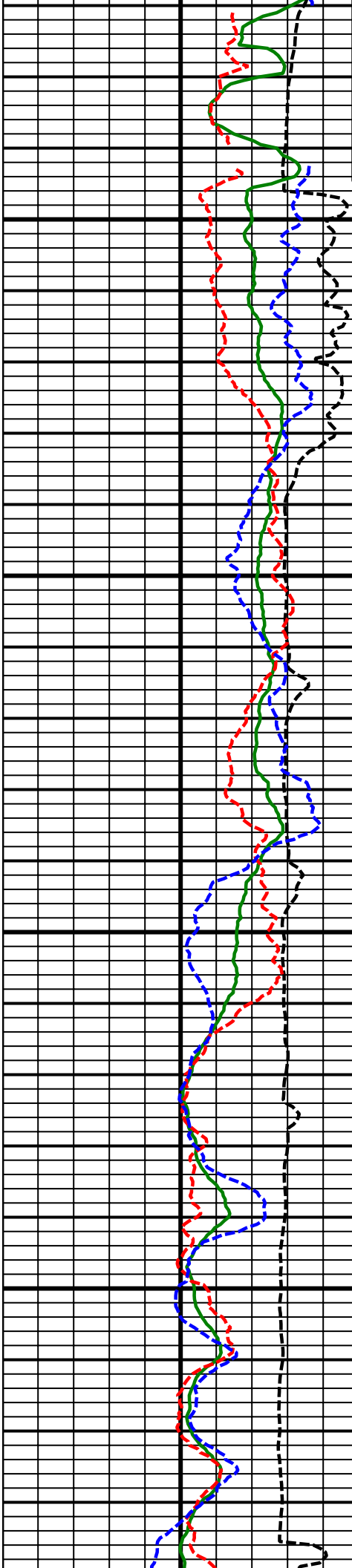




11800
MD

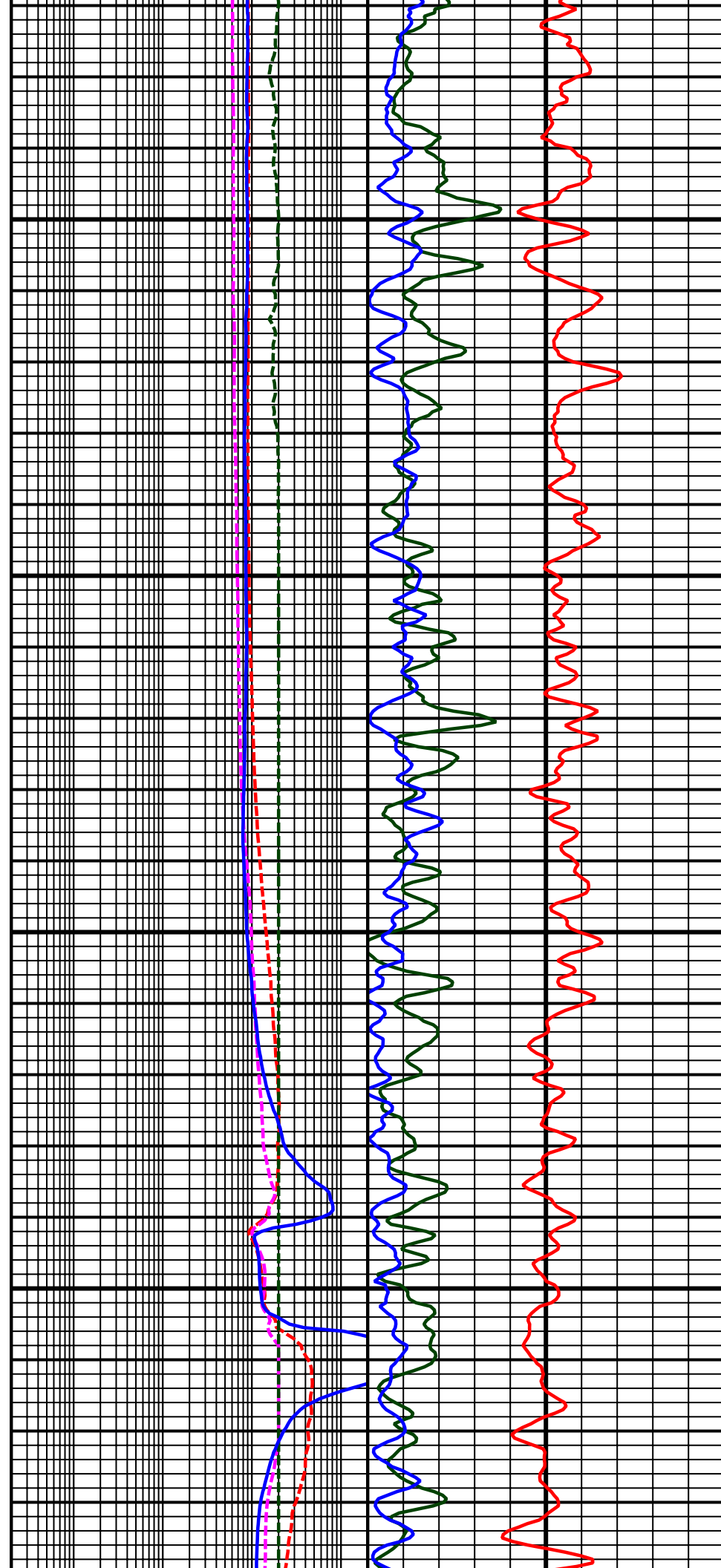
11900
MD

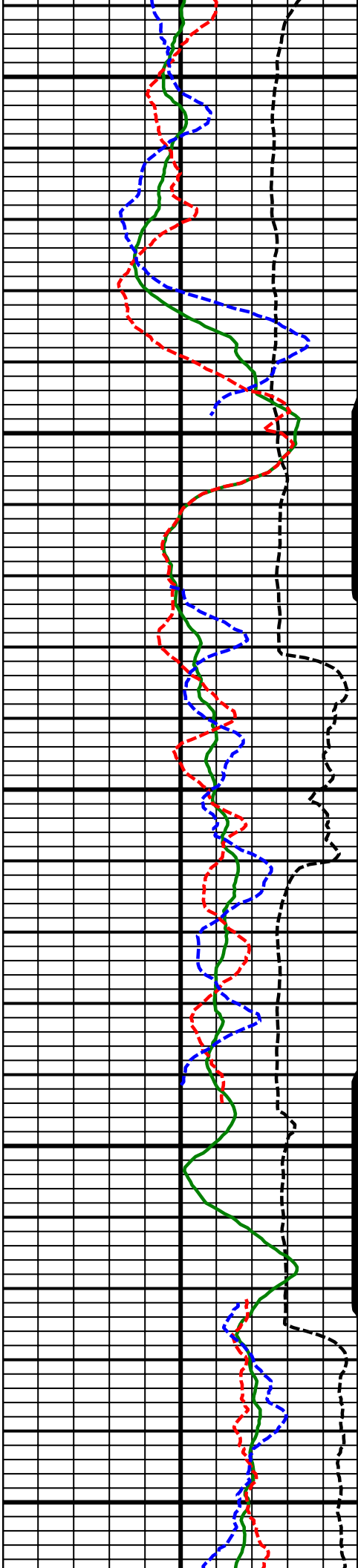




12000
MD

12100
MD

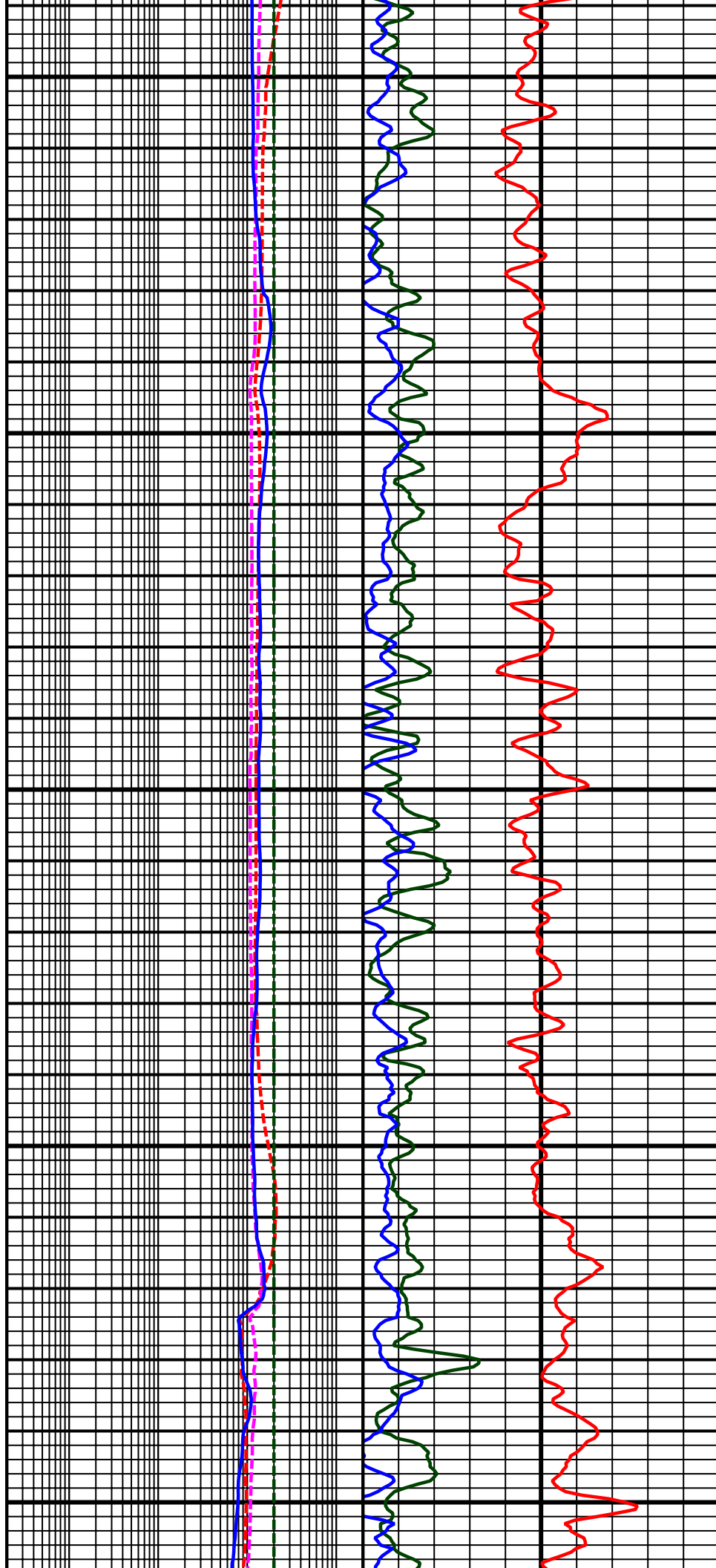


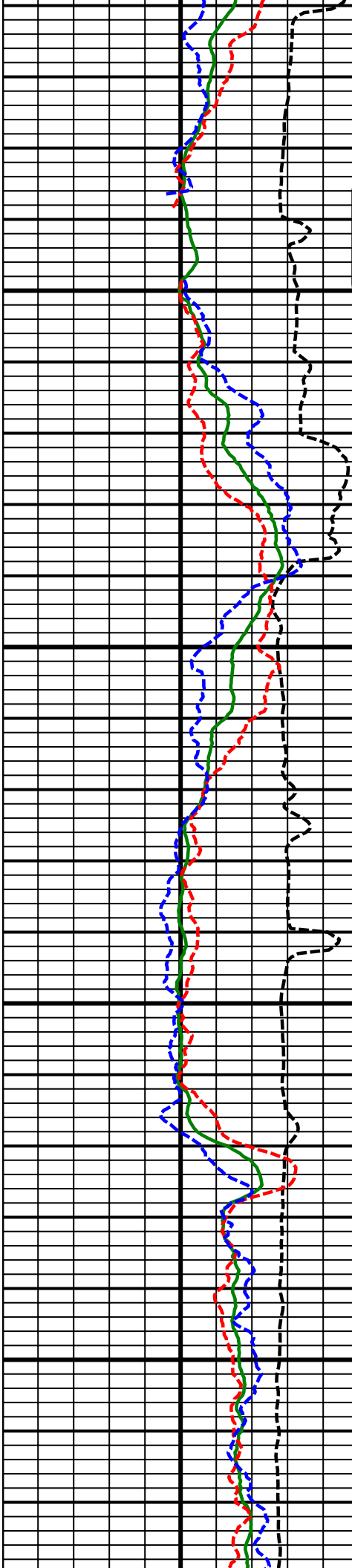


12200
MD

12300
MD

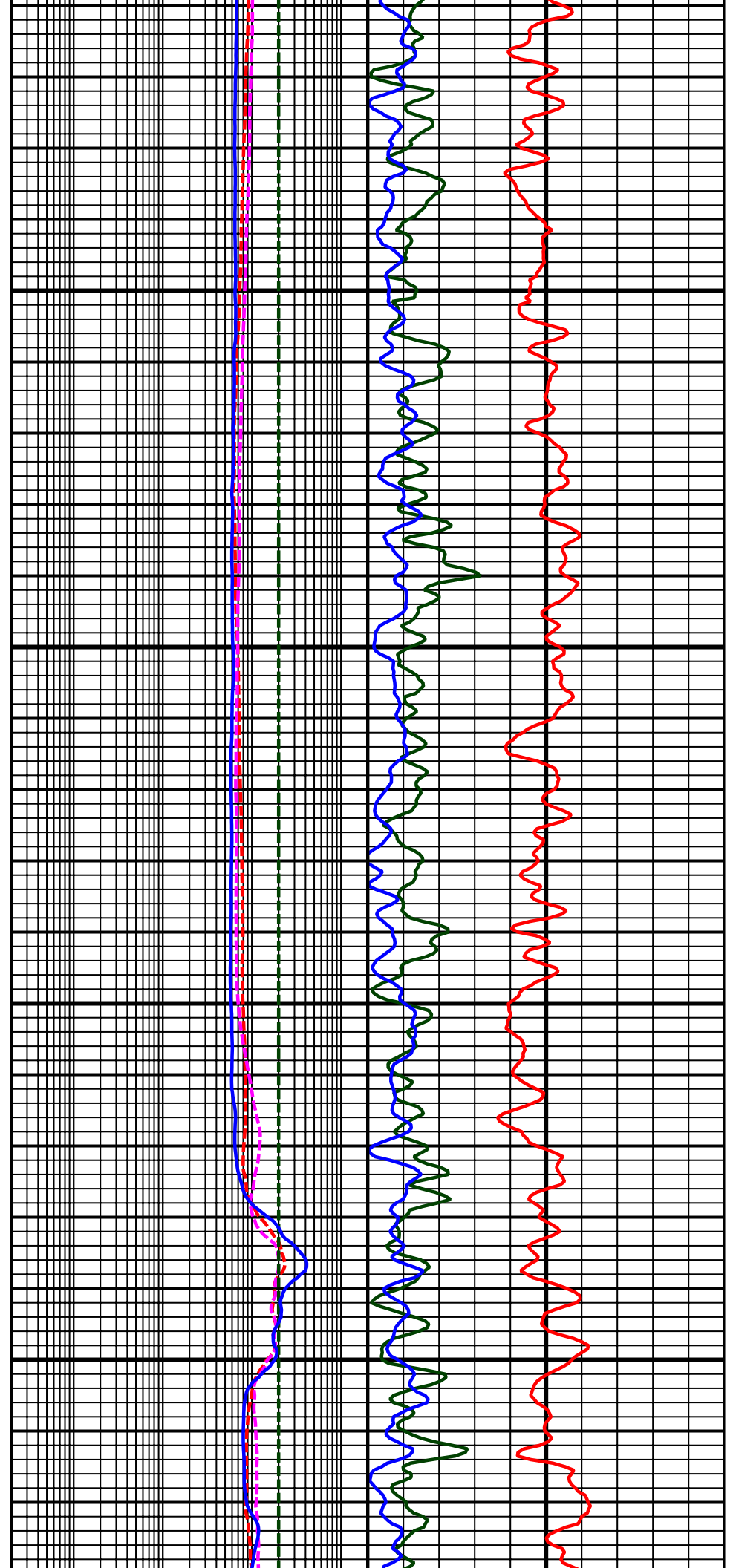
12400
MD

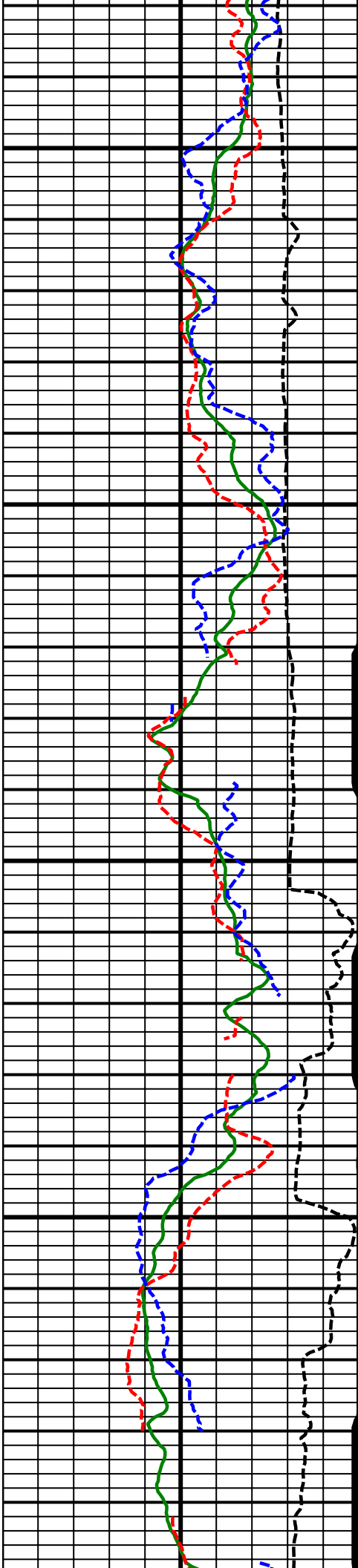




12500
MD

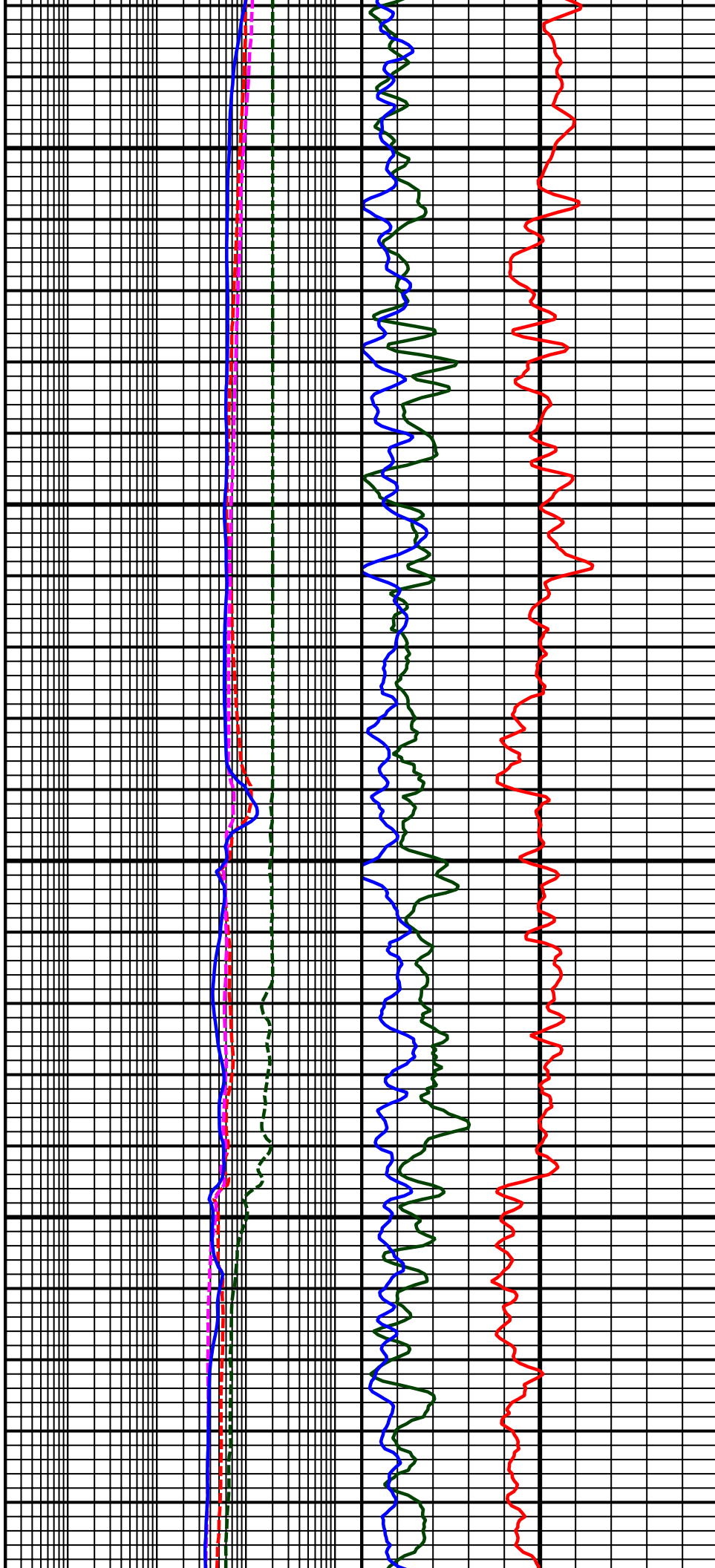
12600
MD

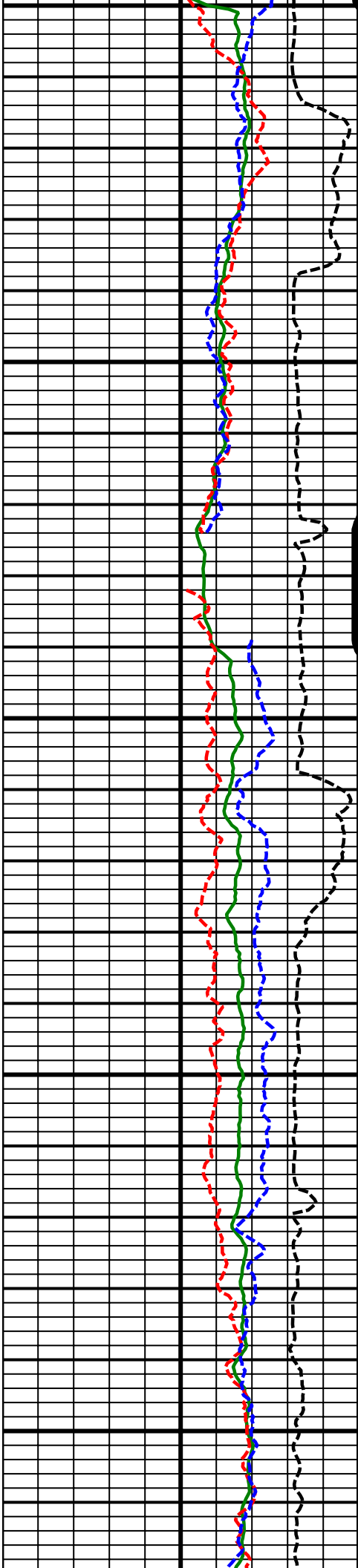




12700
MD

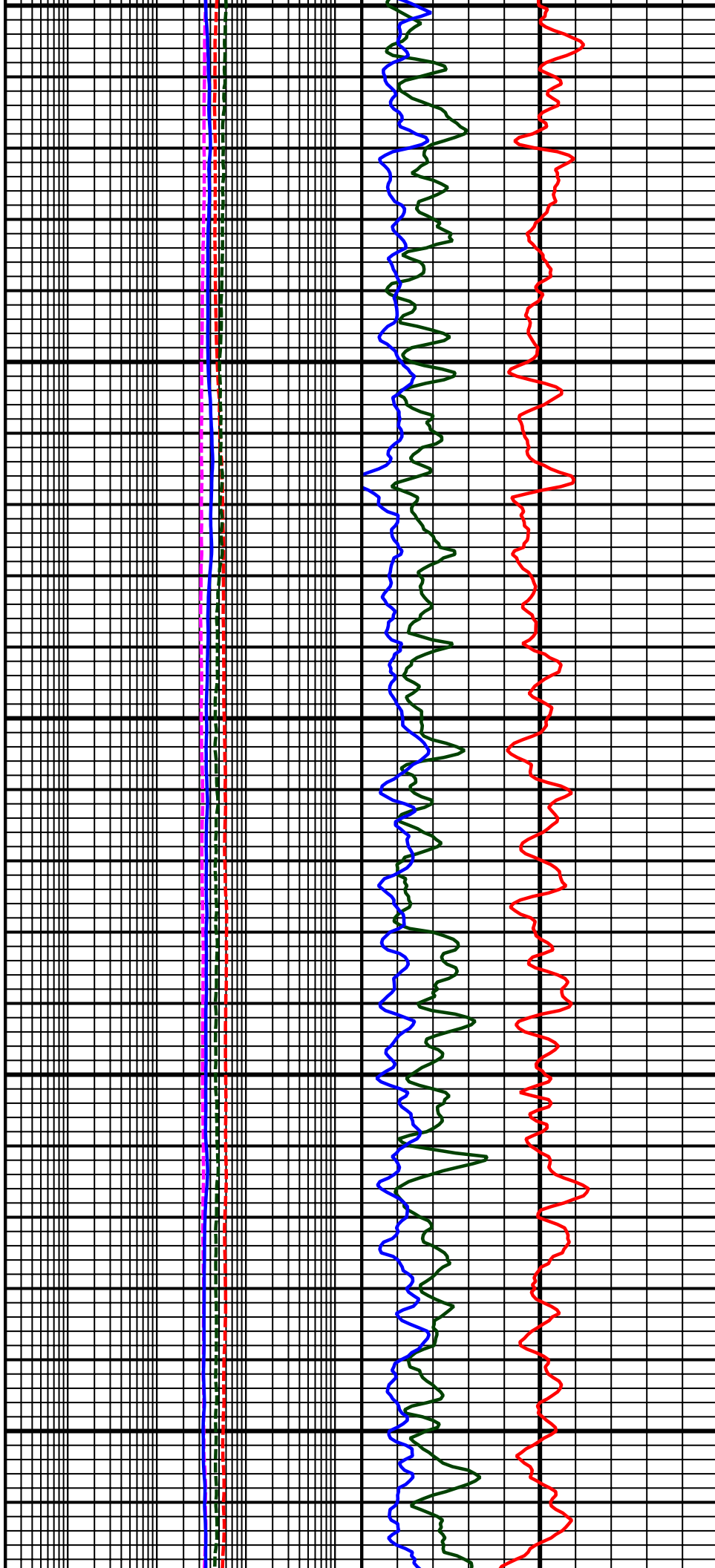
12800
MD

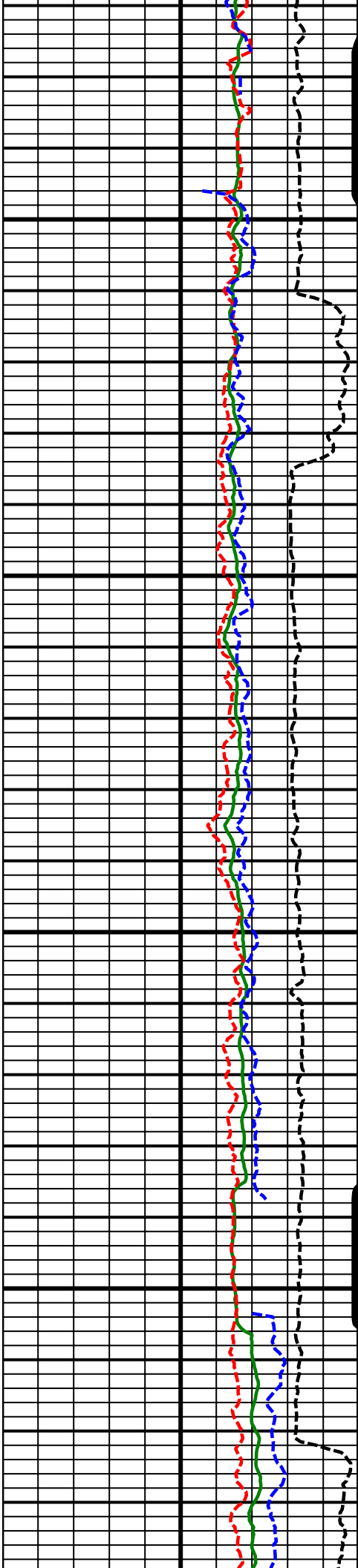




12900
MD

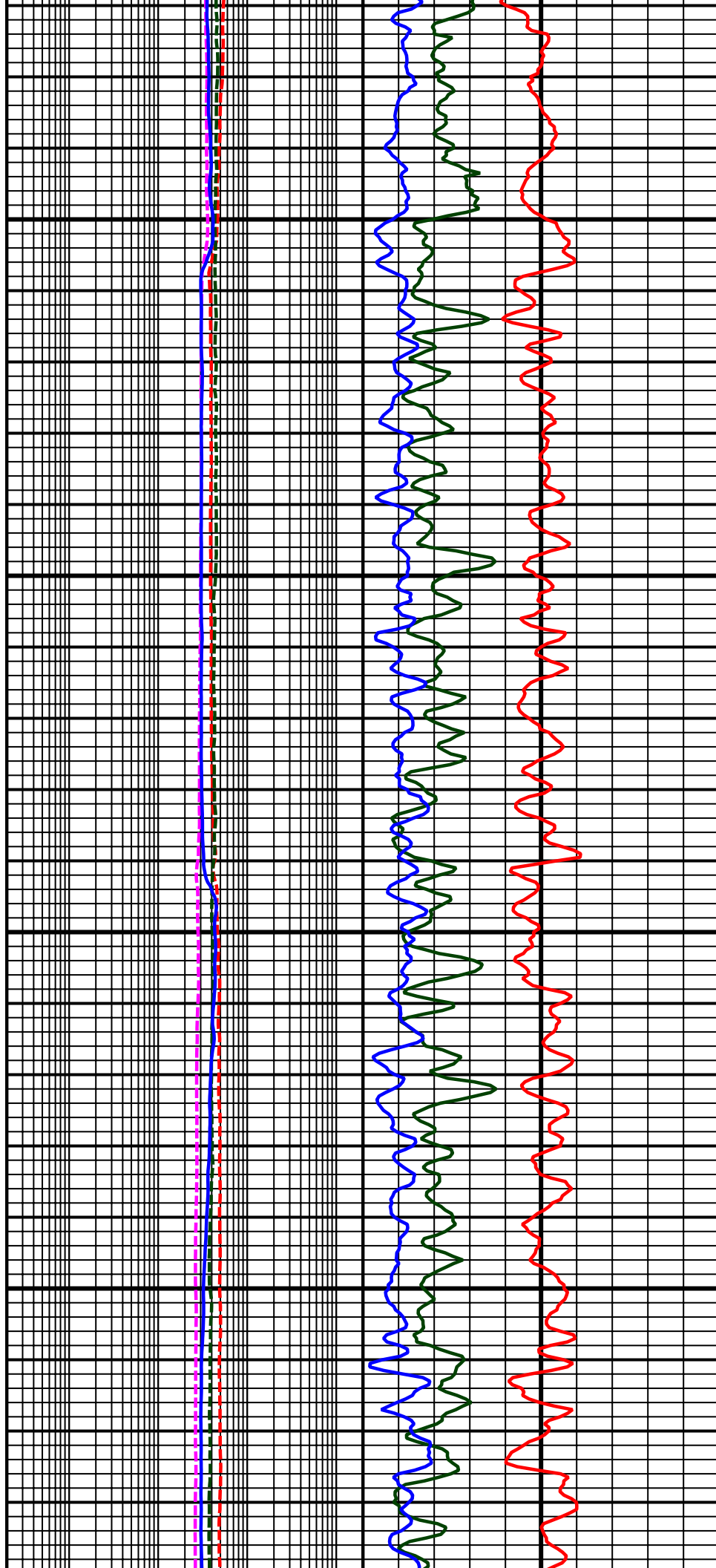
13000
MD

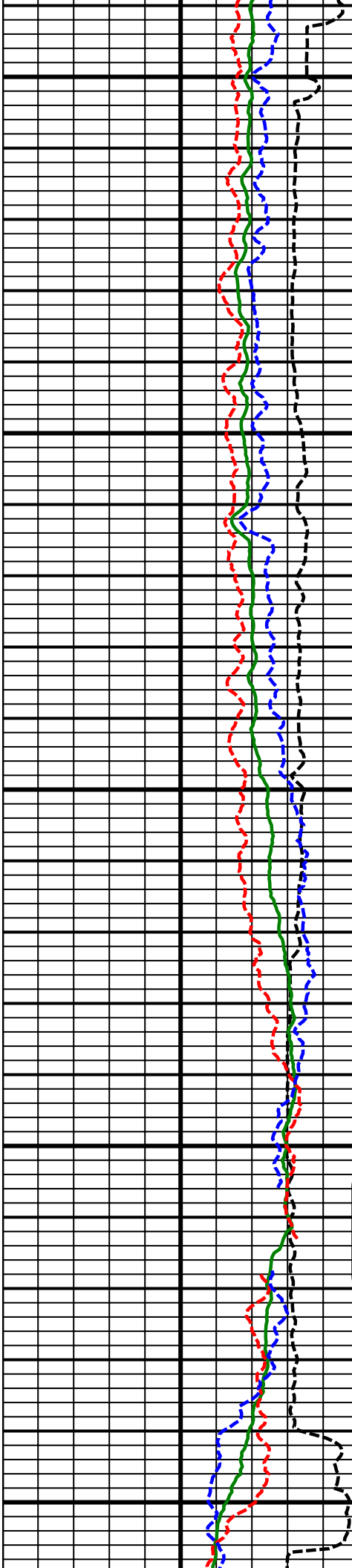




13100
MD

13200
MD

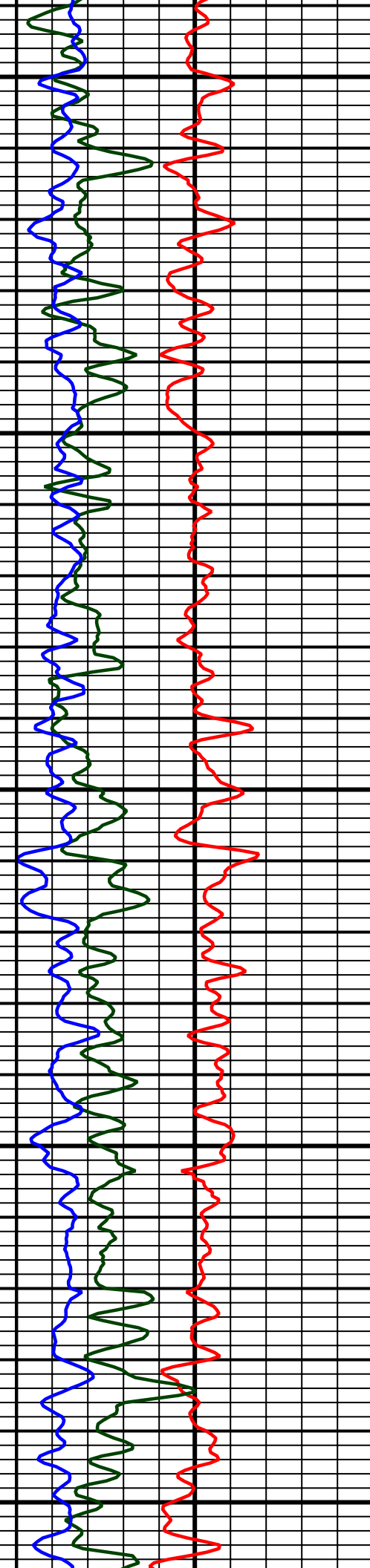
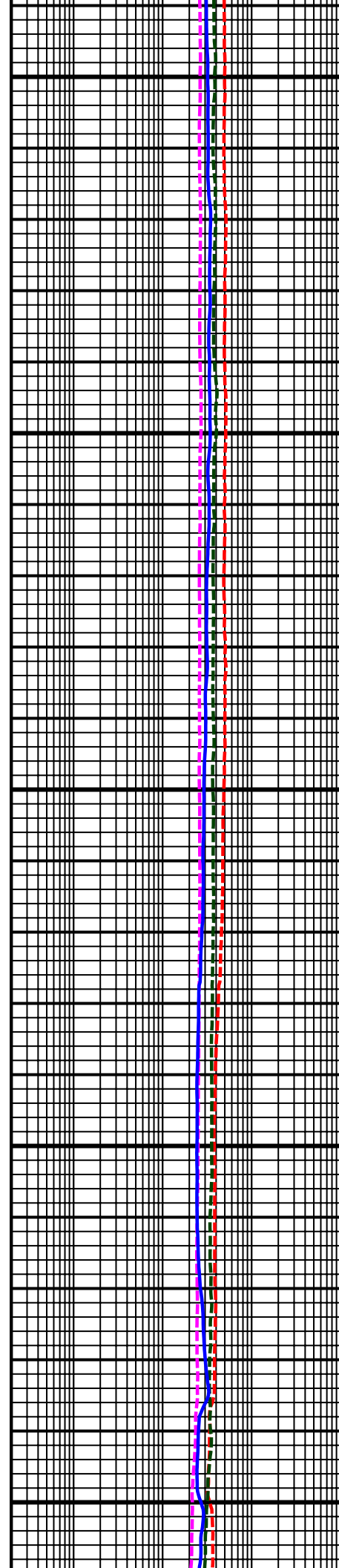


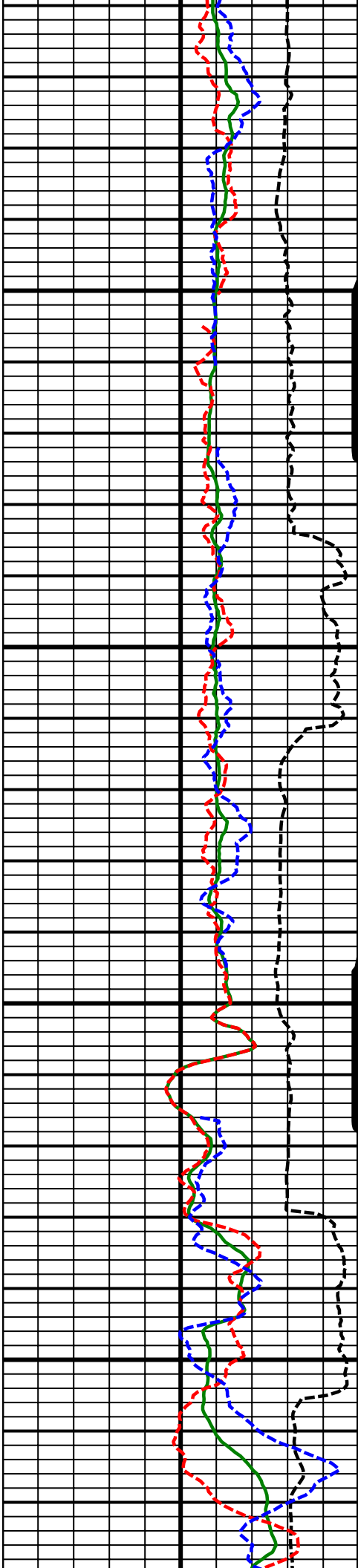


13300
MD

13400
MD

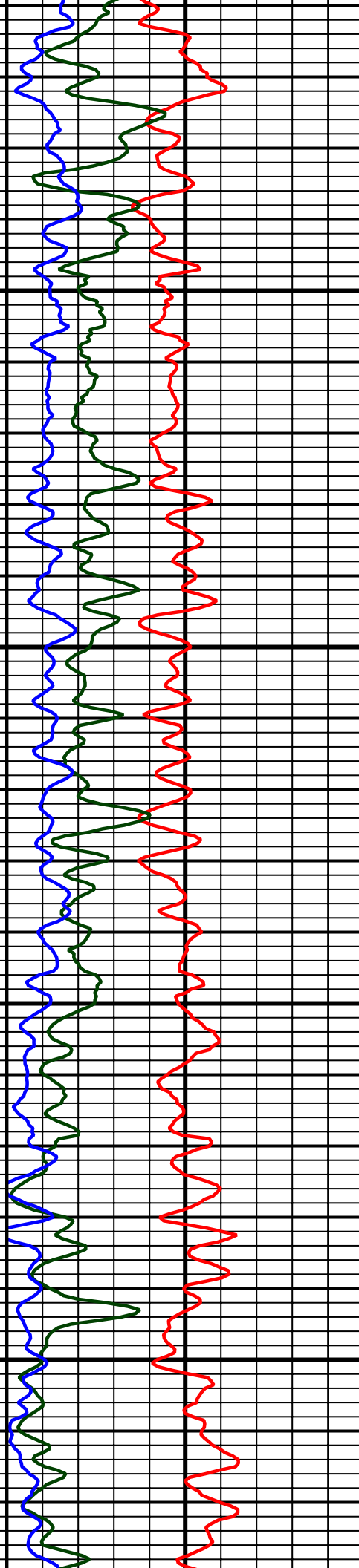
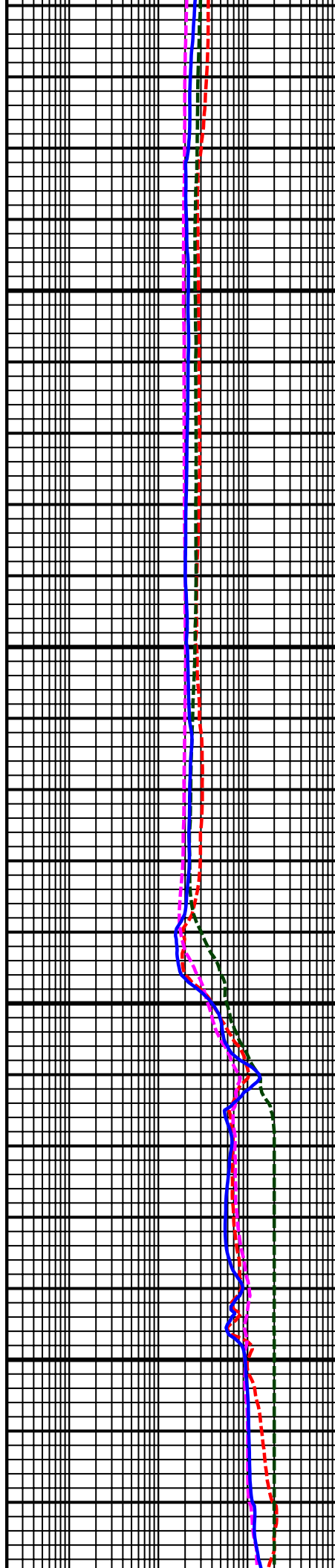
13500
MD

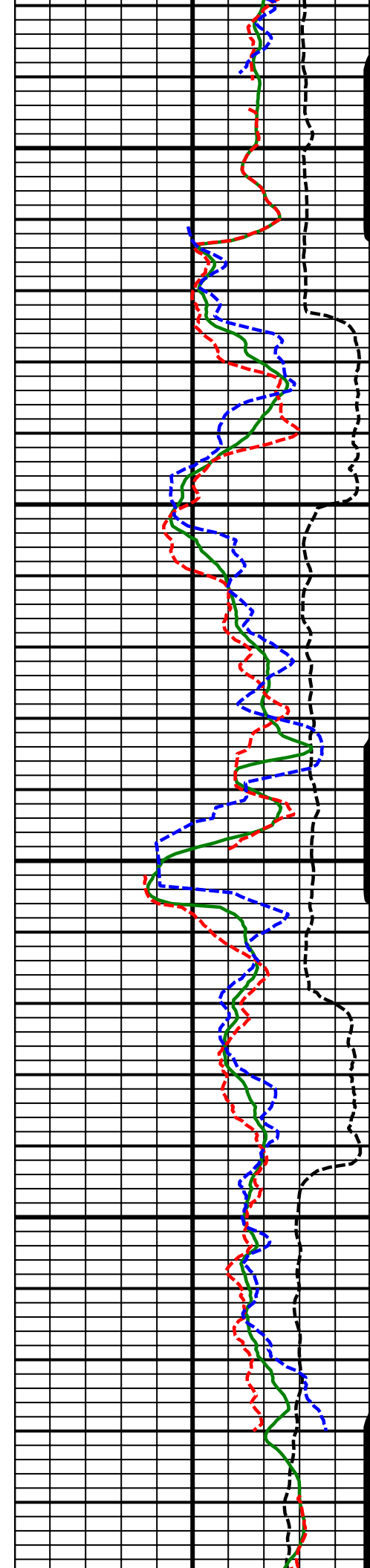




13600
MD

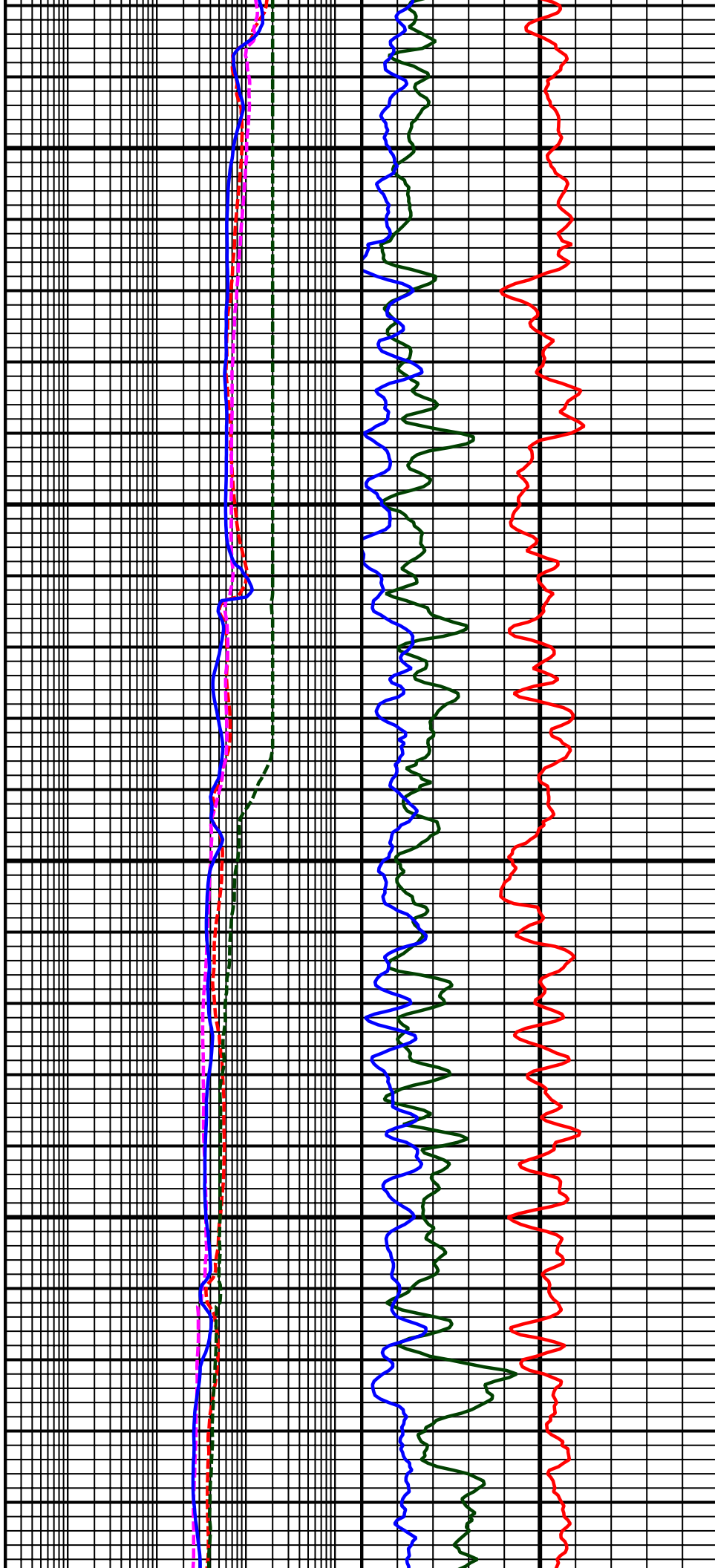
13700
MD

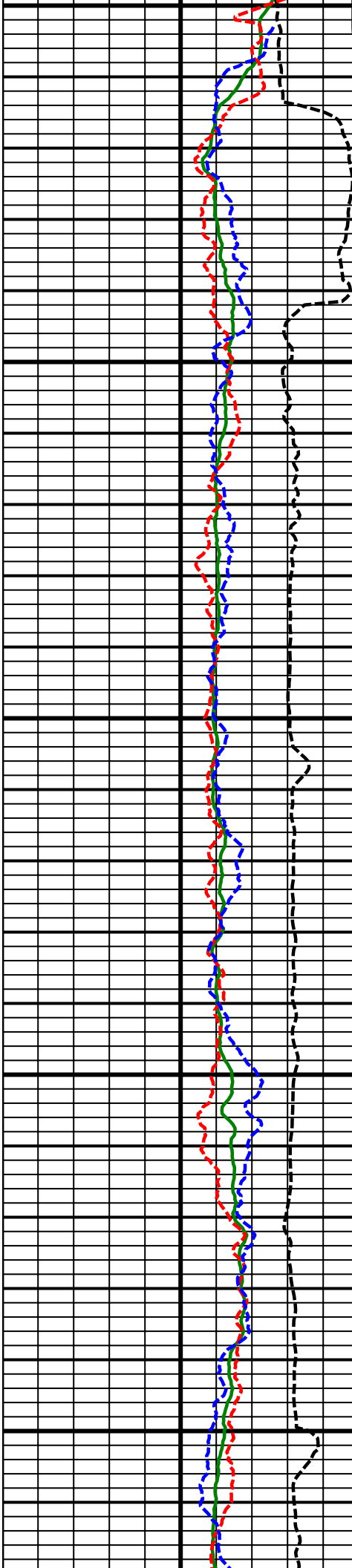




13800
MD

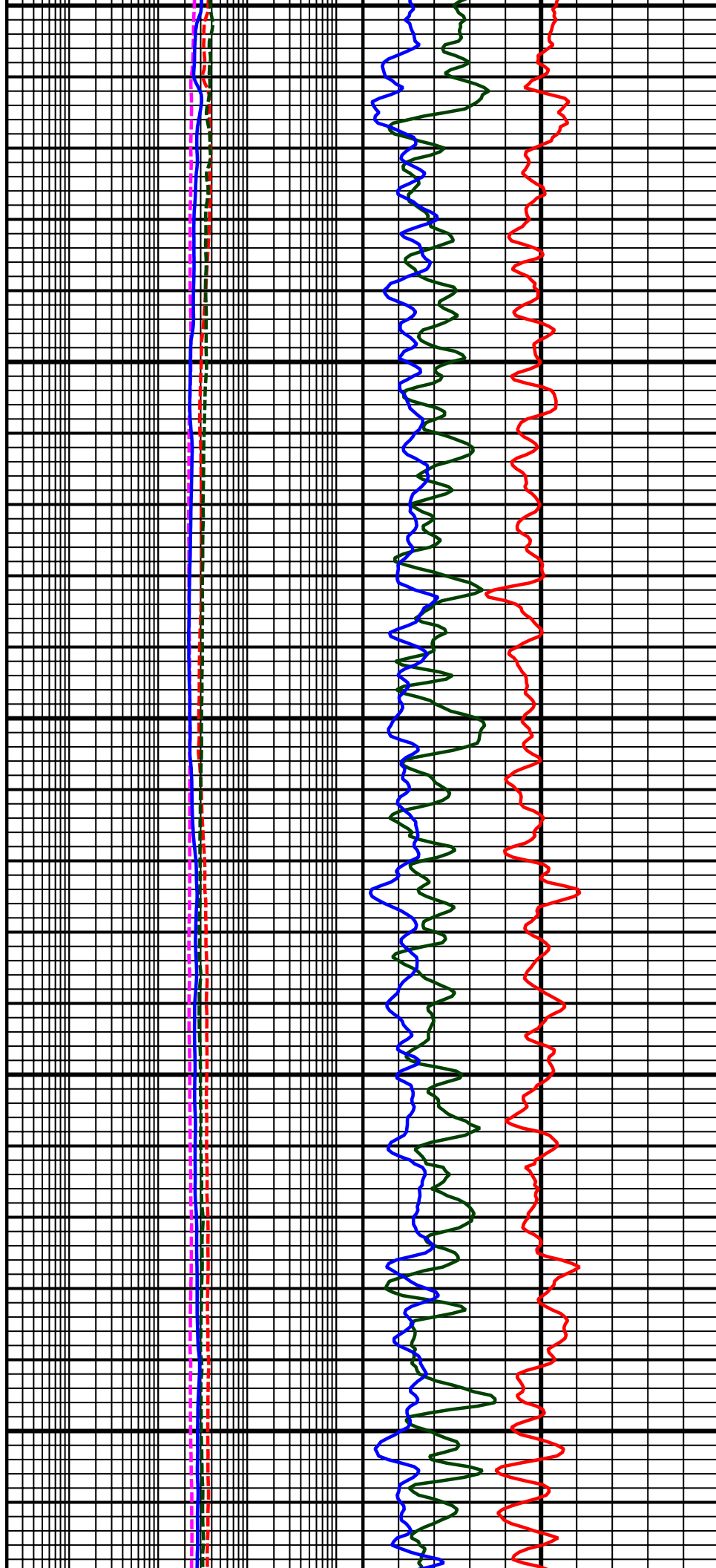
13900
MD

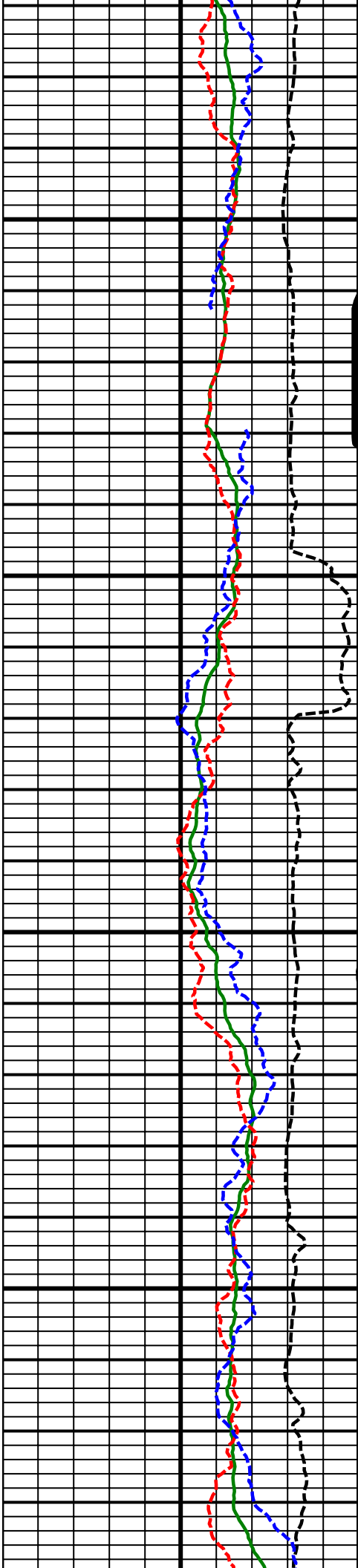




14000
MD

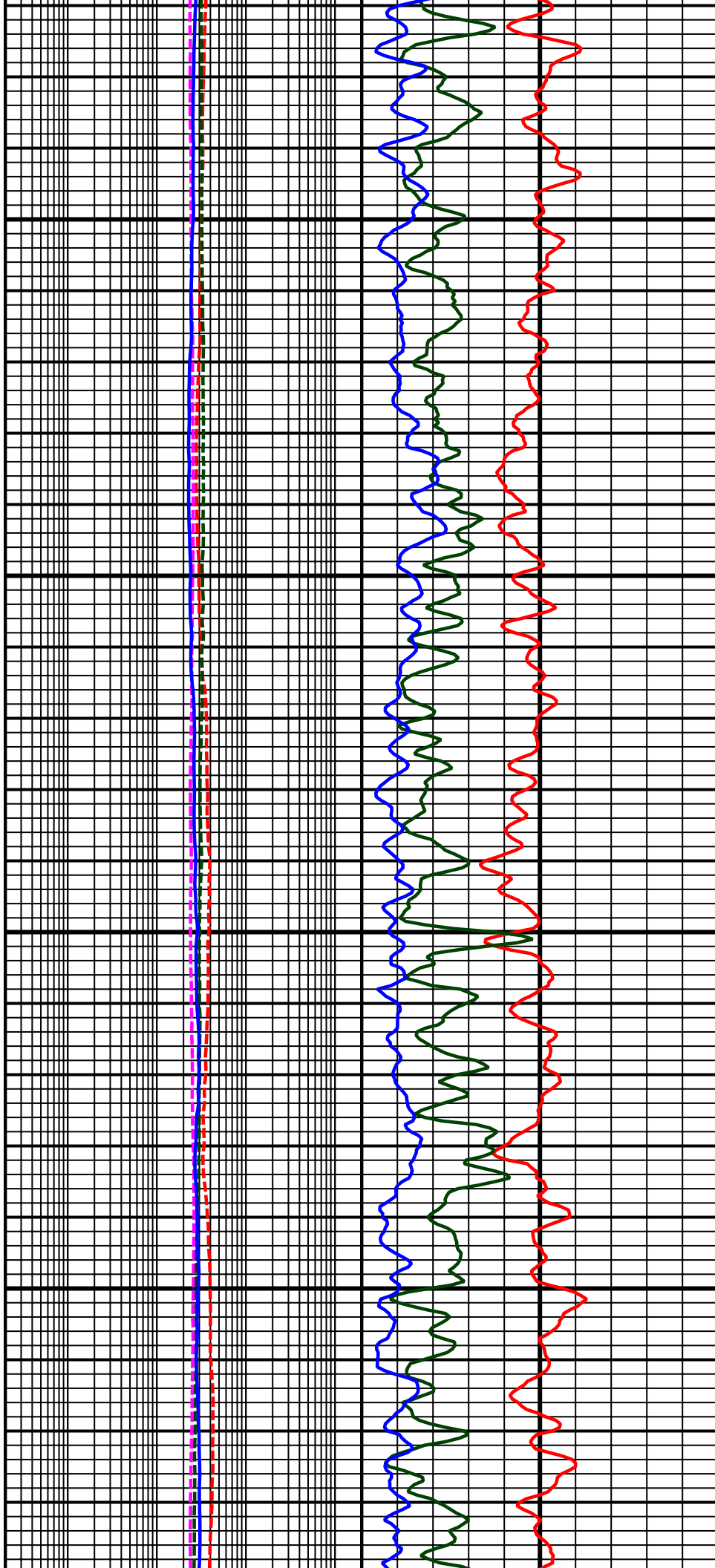
14100
MD

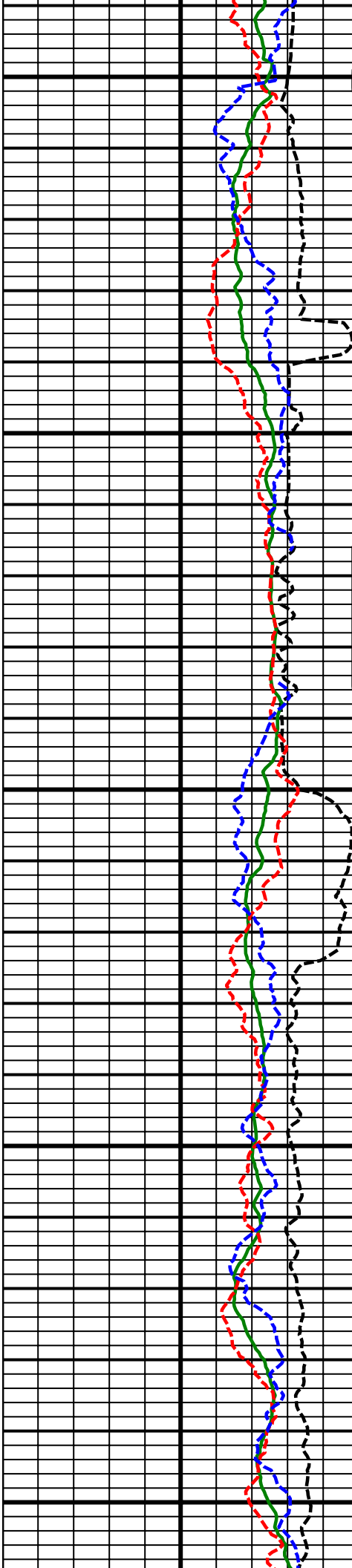




14200
MD

14300
MD

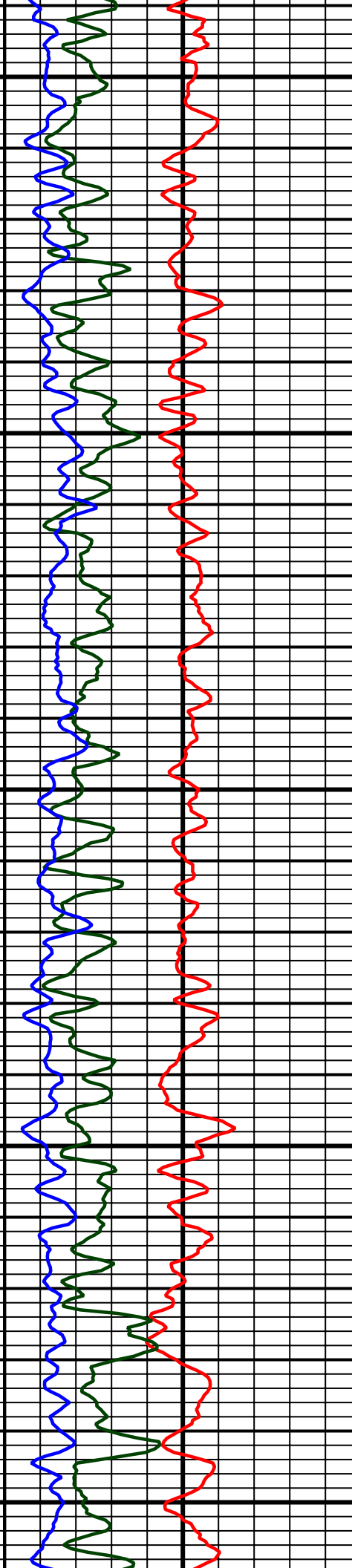
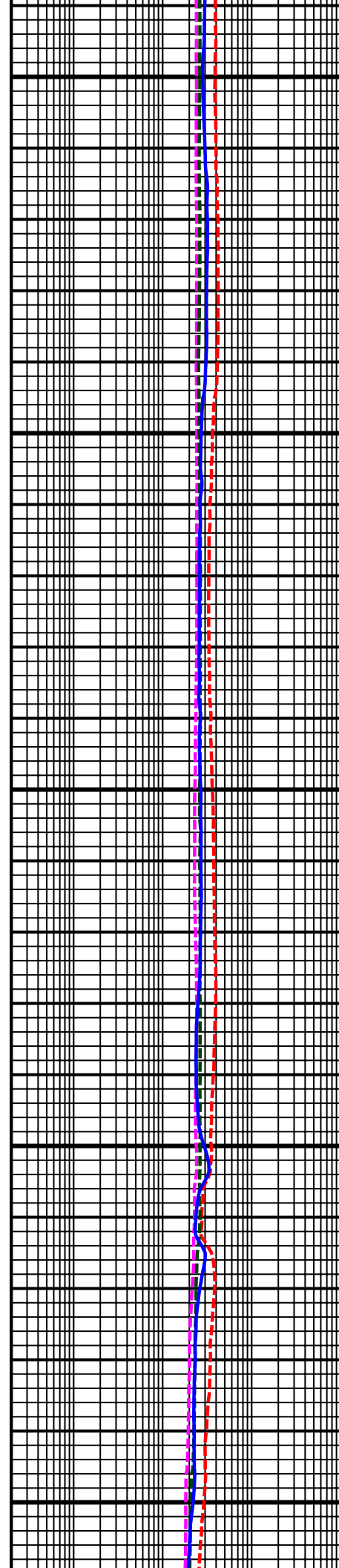


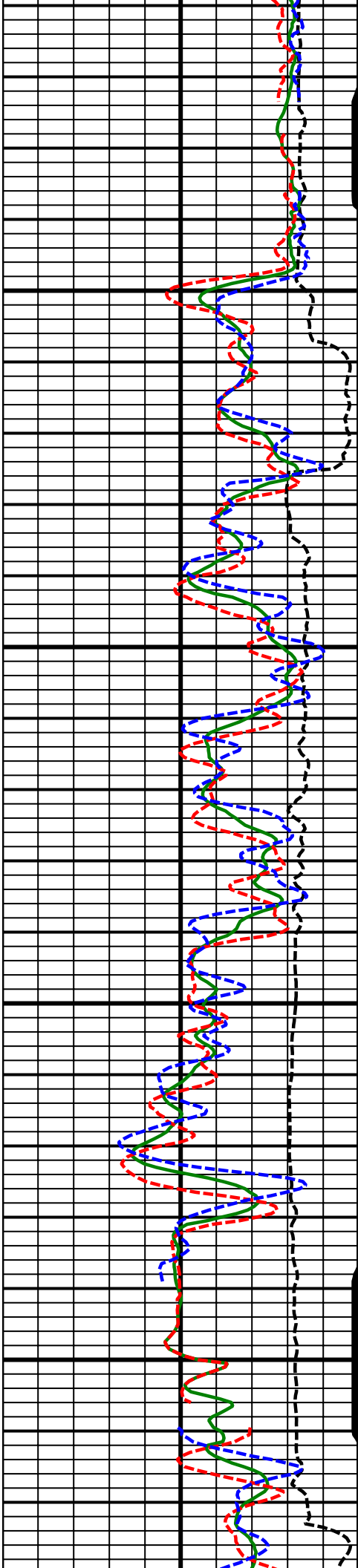


14400
MD

14500
MD

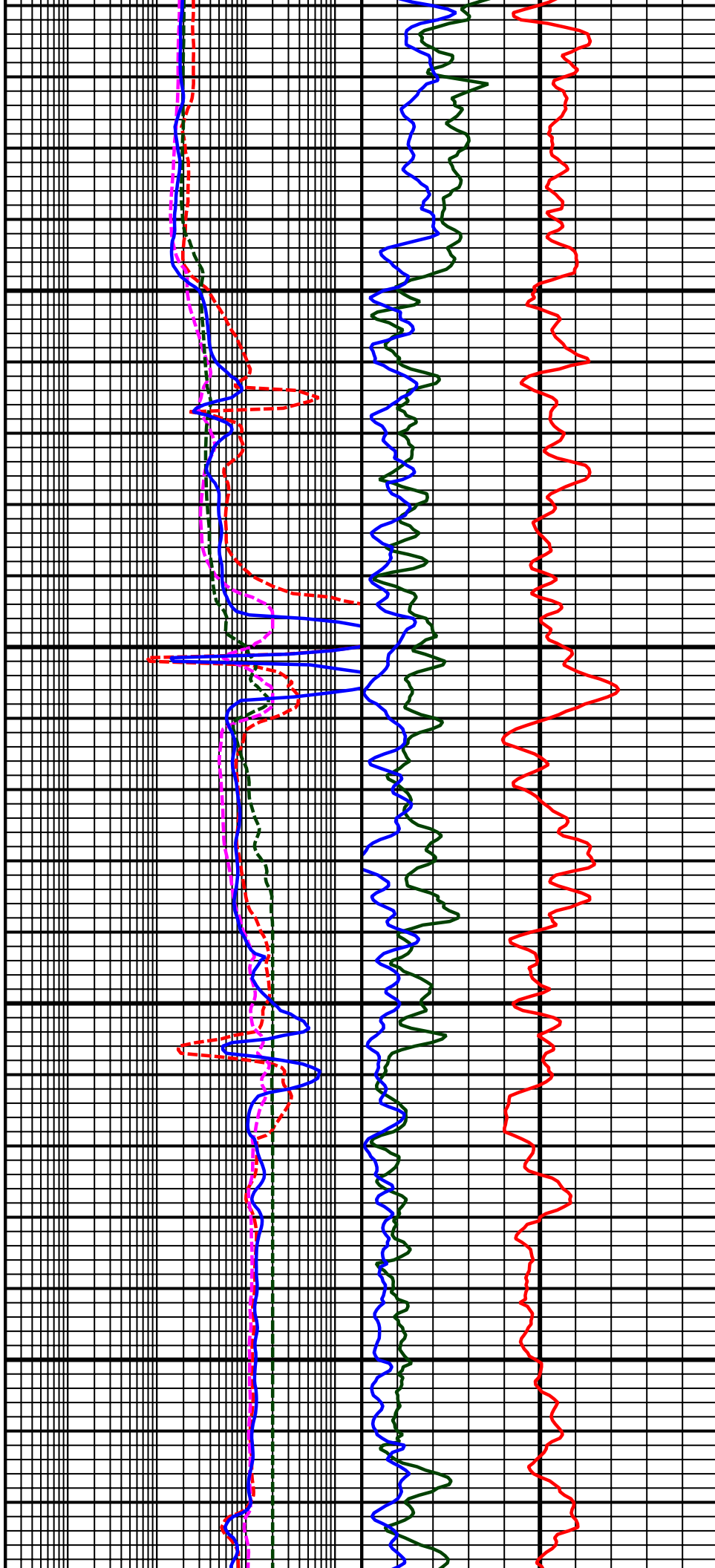
14600
MD

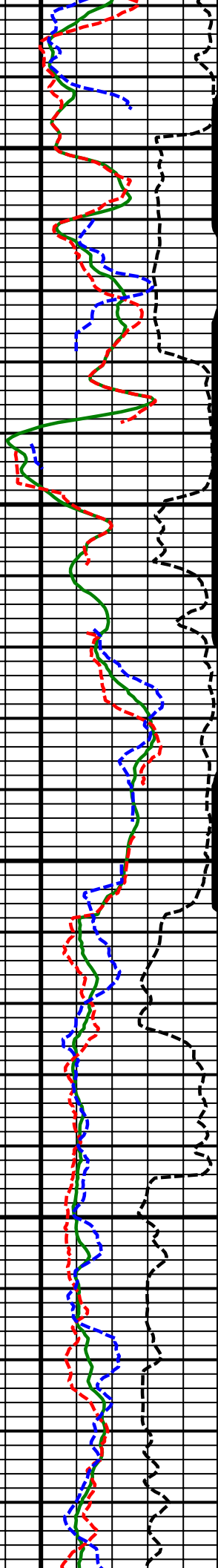




14700
MD

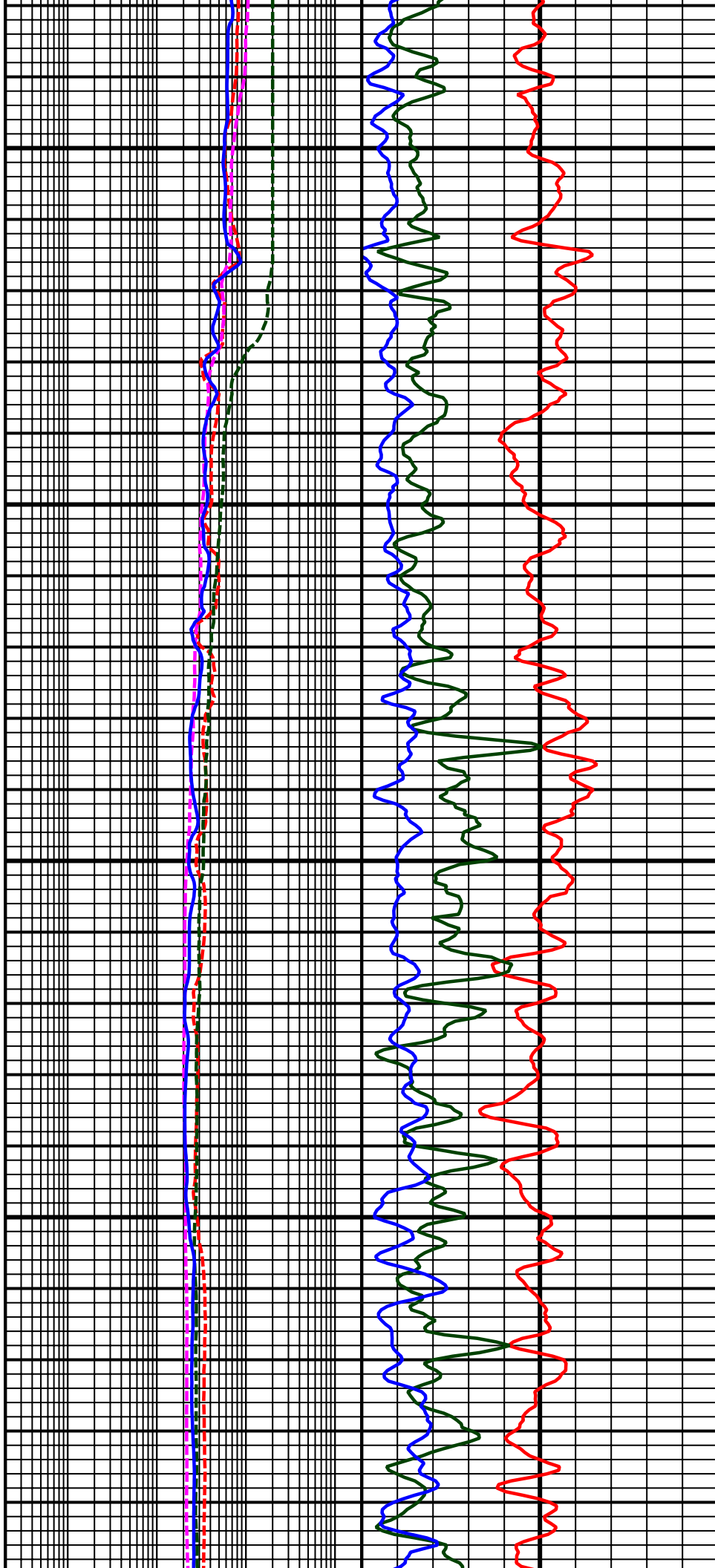
14800
MD

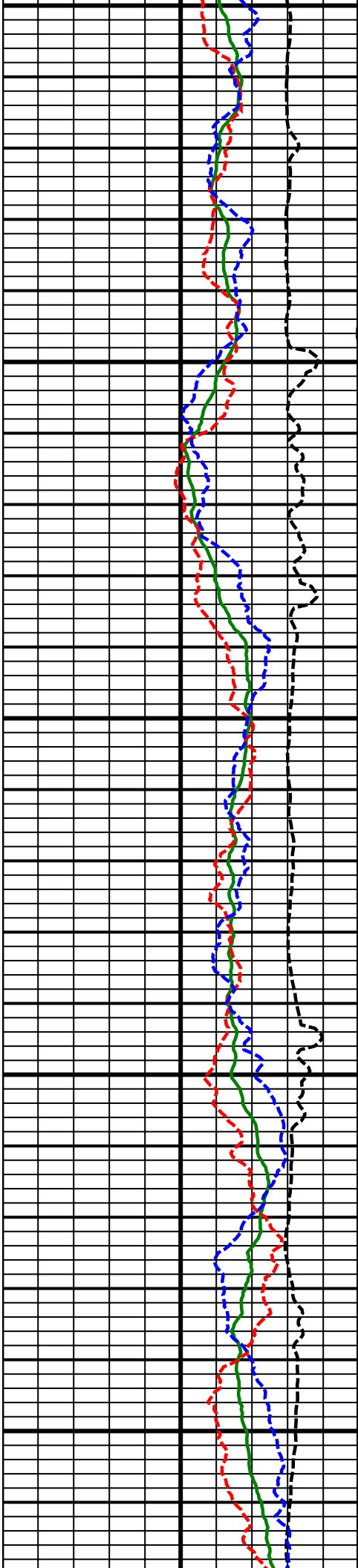




14900
MD

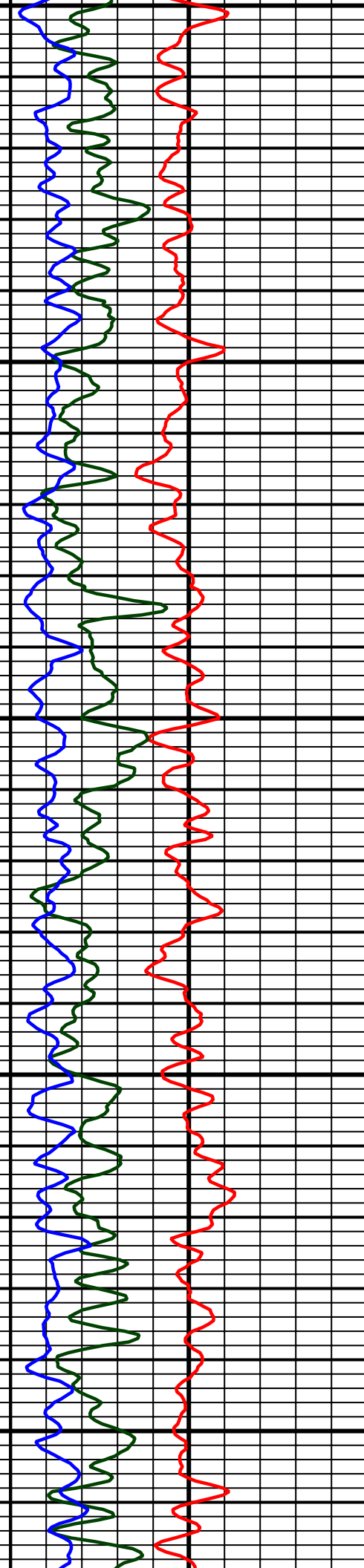
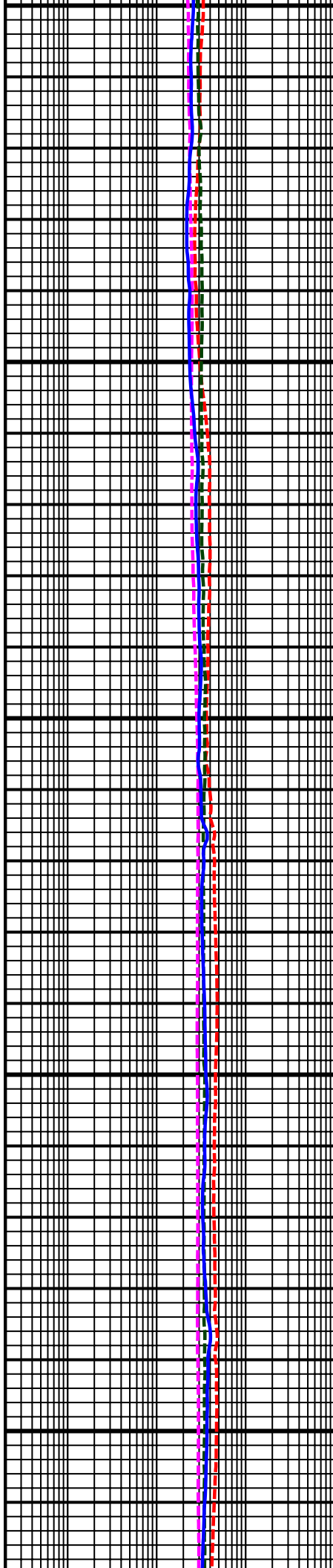
15000
MD

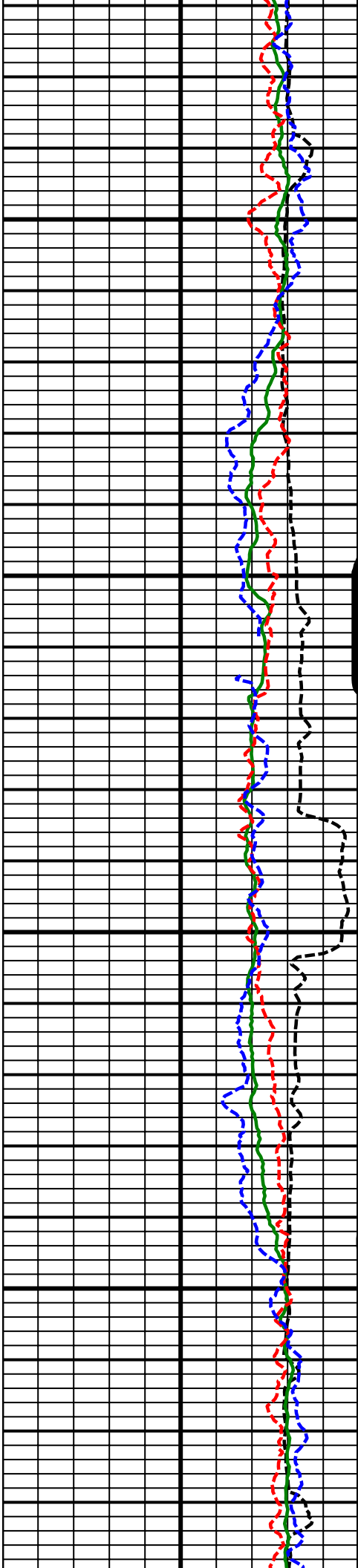




15100
MD

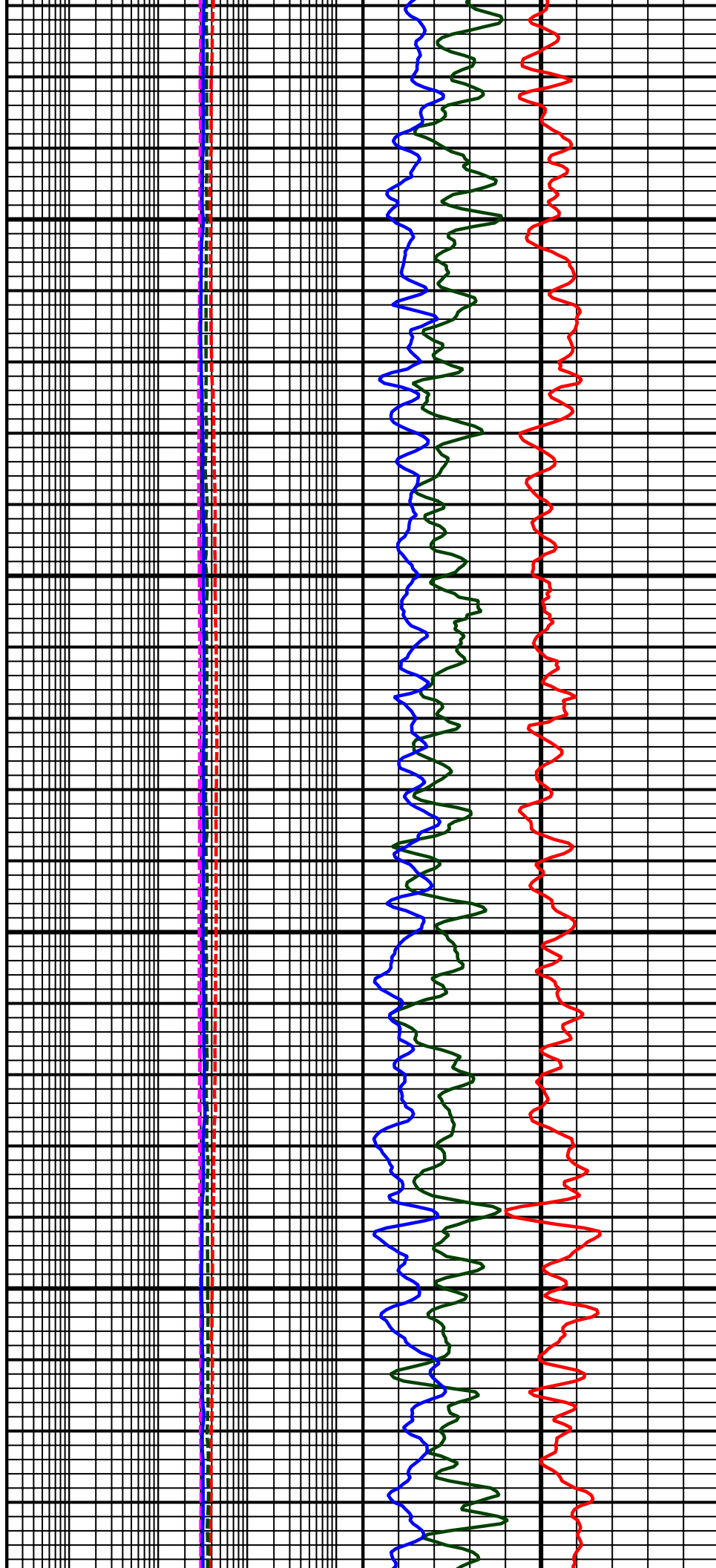
15200
MD

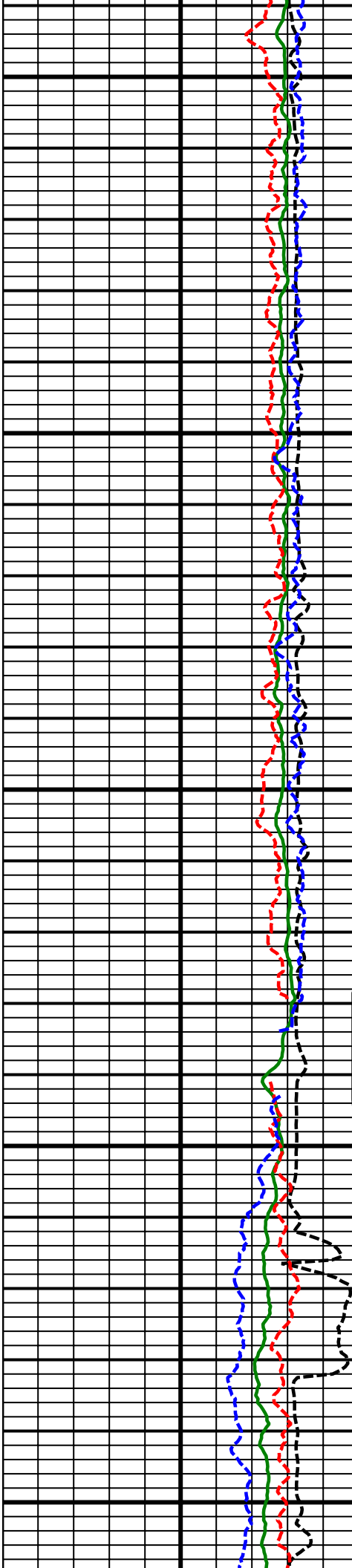




15300
MD

15400
MD

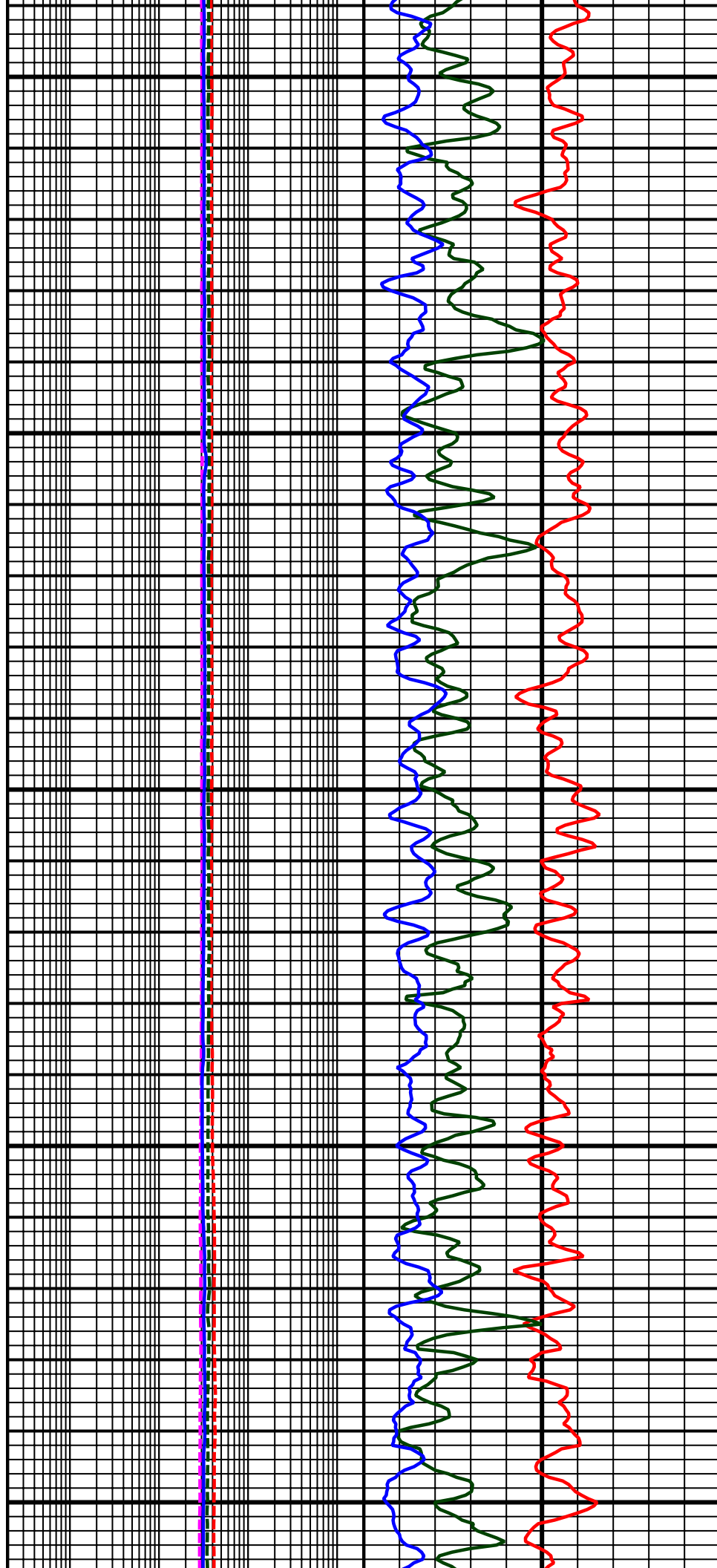


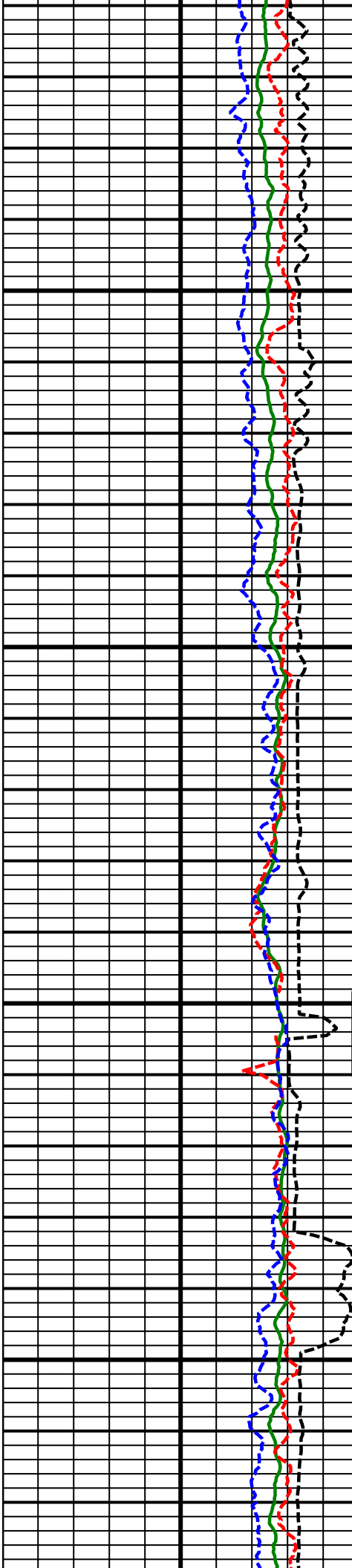


15500
MD

15600
MD

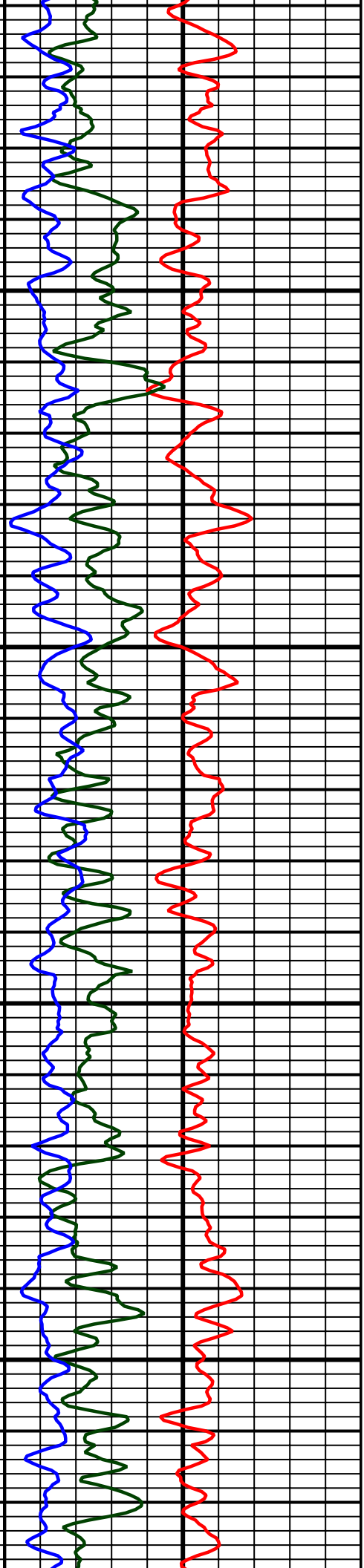
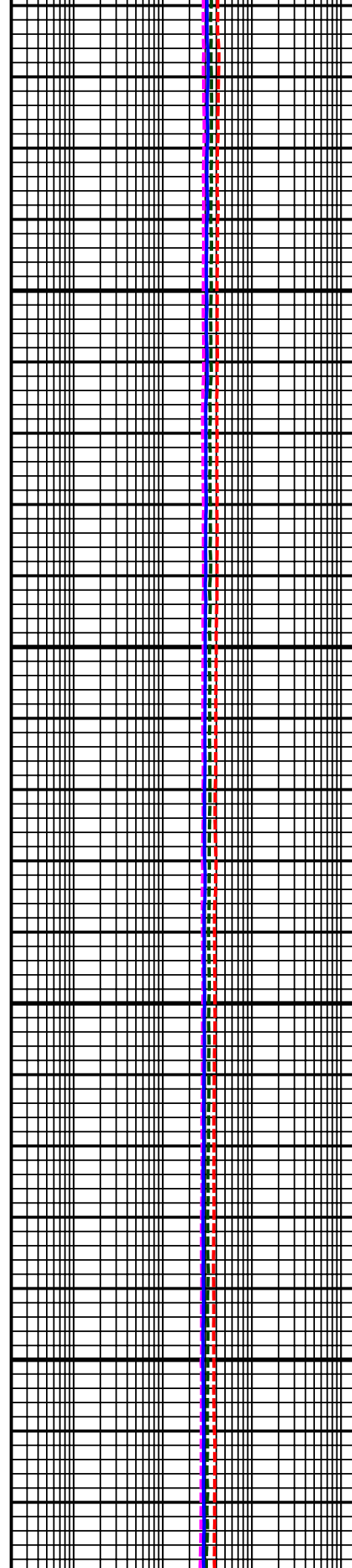
15700
MD

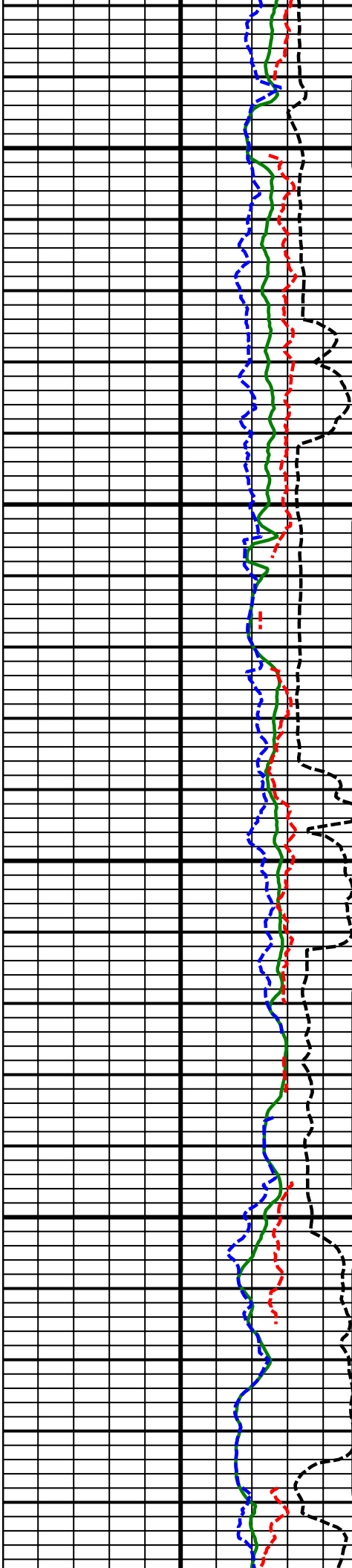




15800
MD

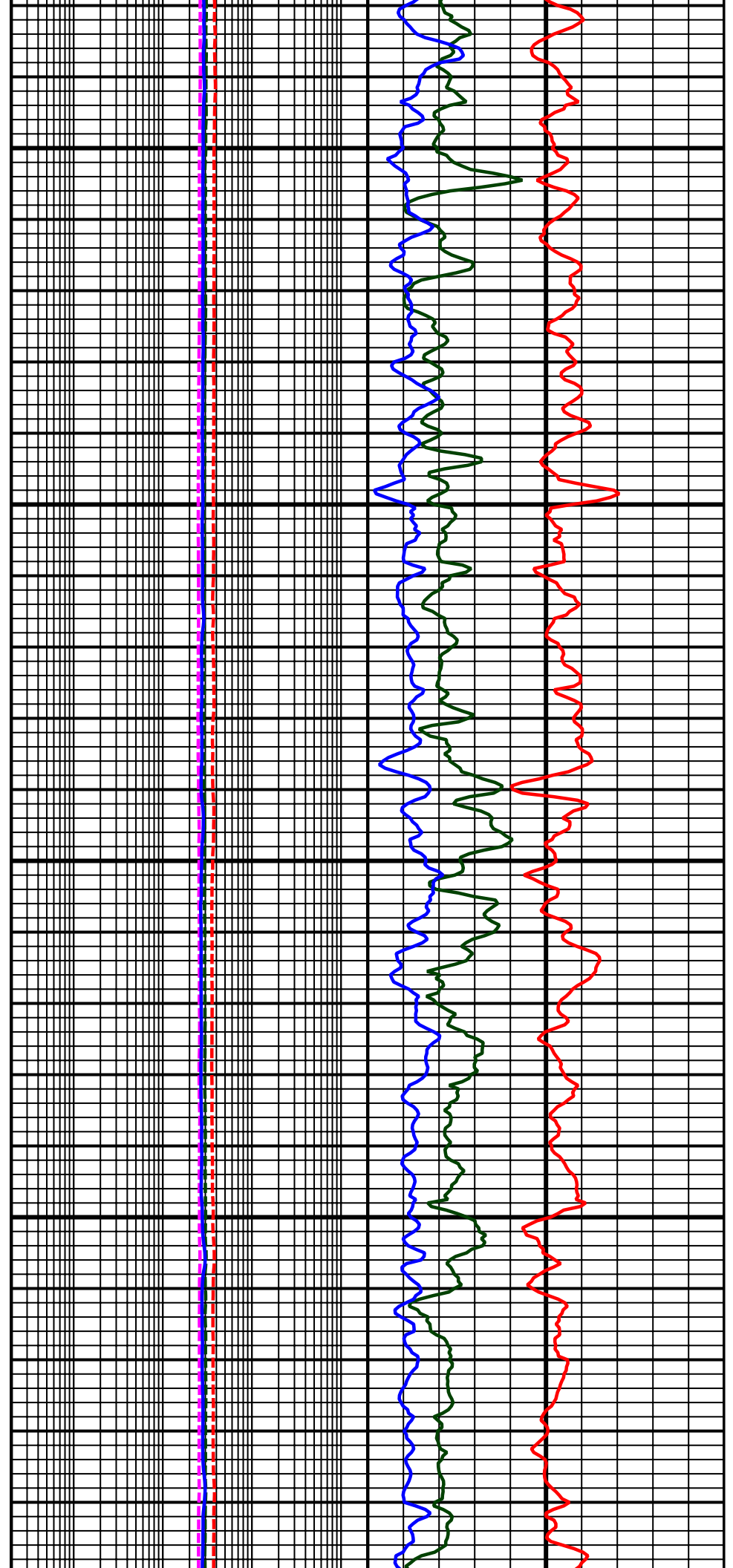
15900
MD

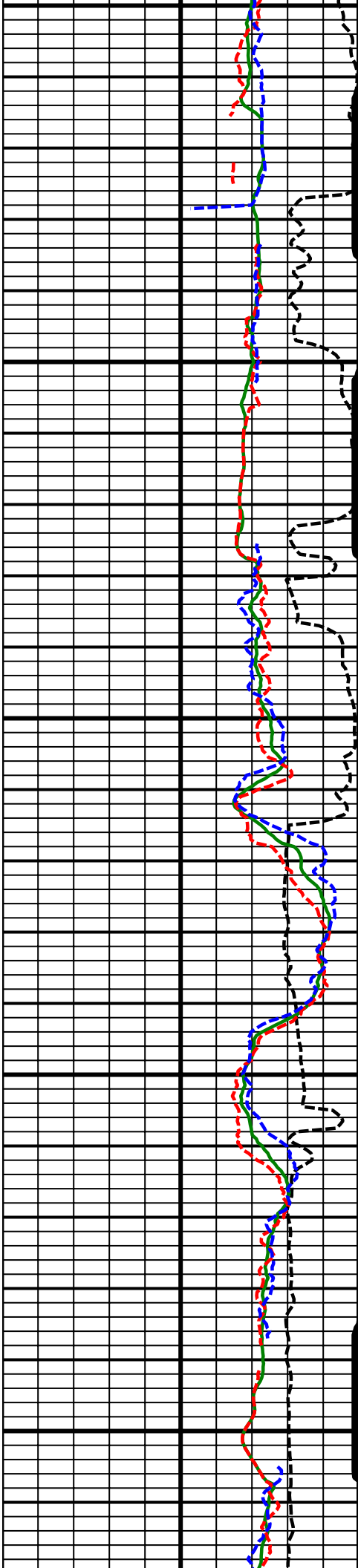




16000
MD

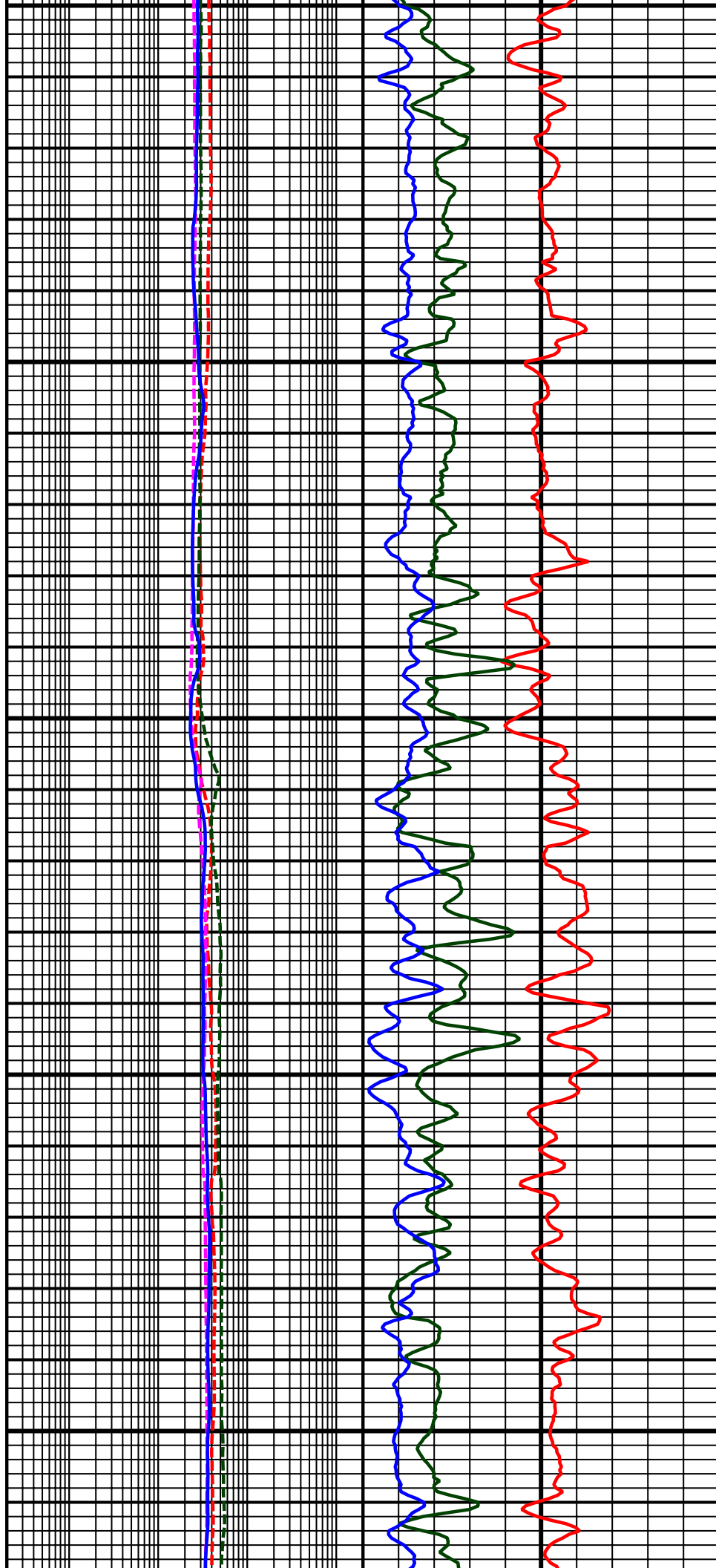
16100
MD

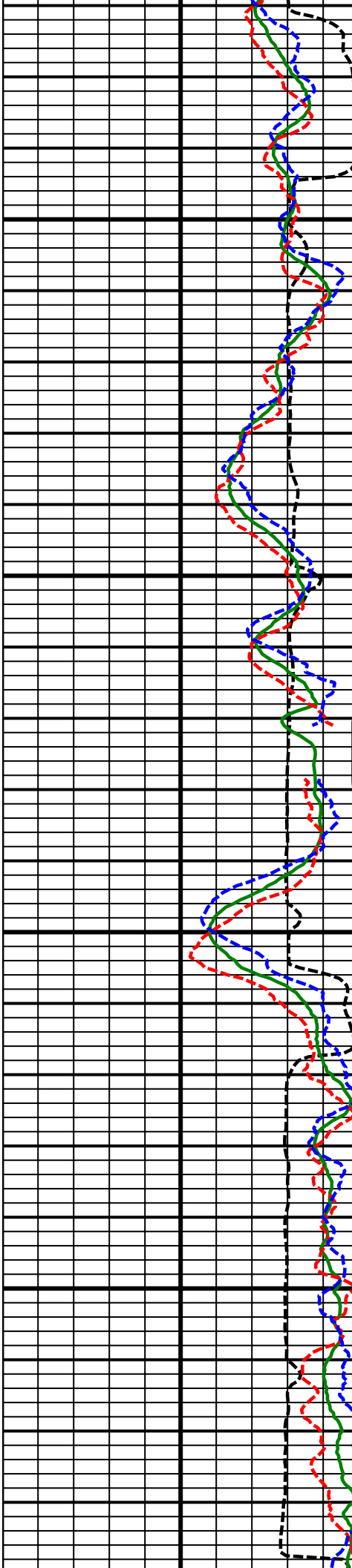




16200
MD

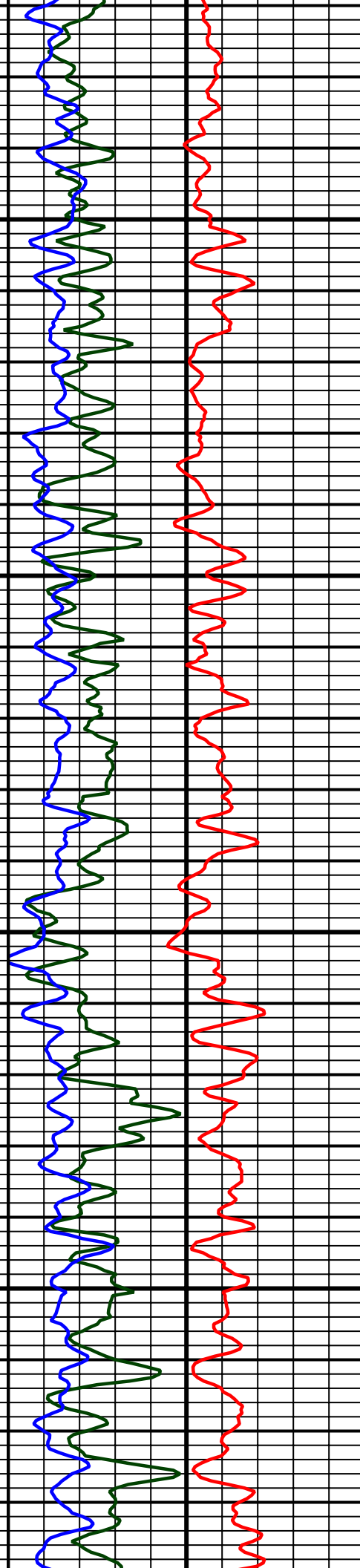
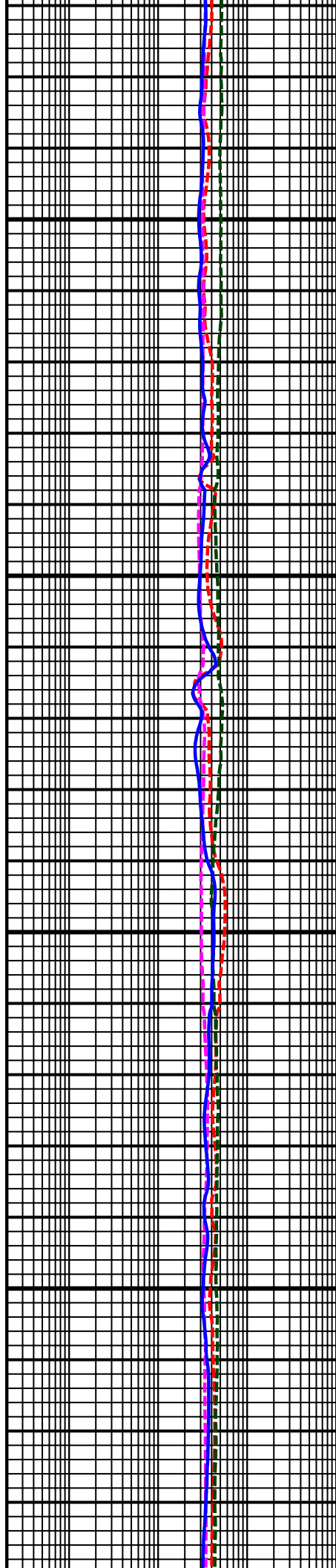
16300
MD

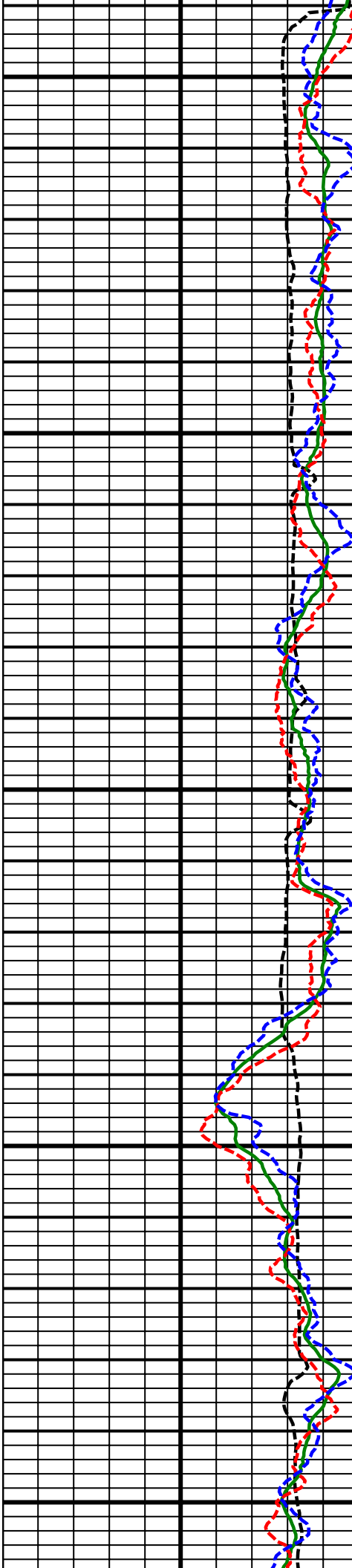




16400
MD

16500
MD

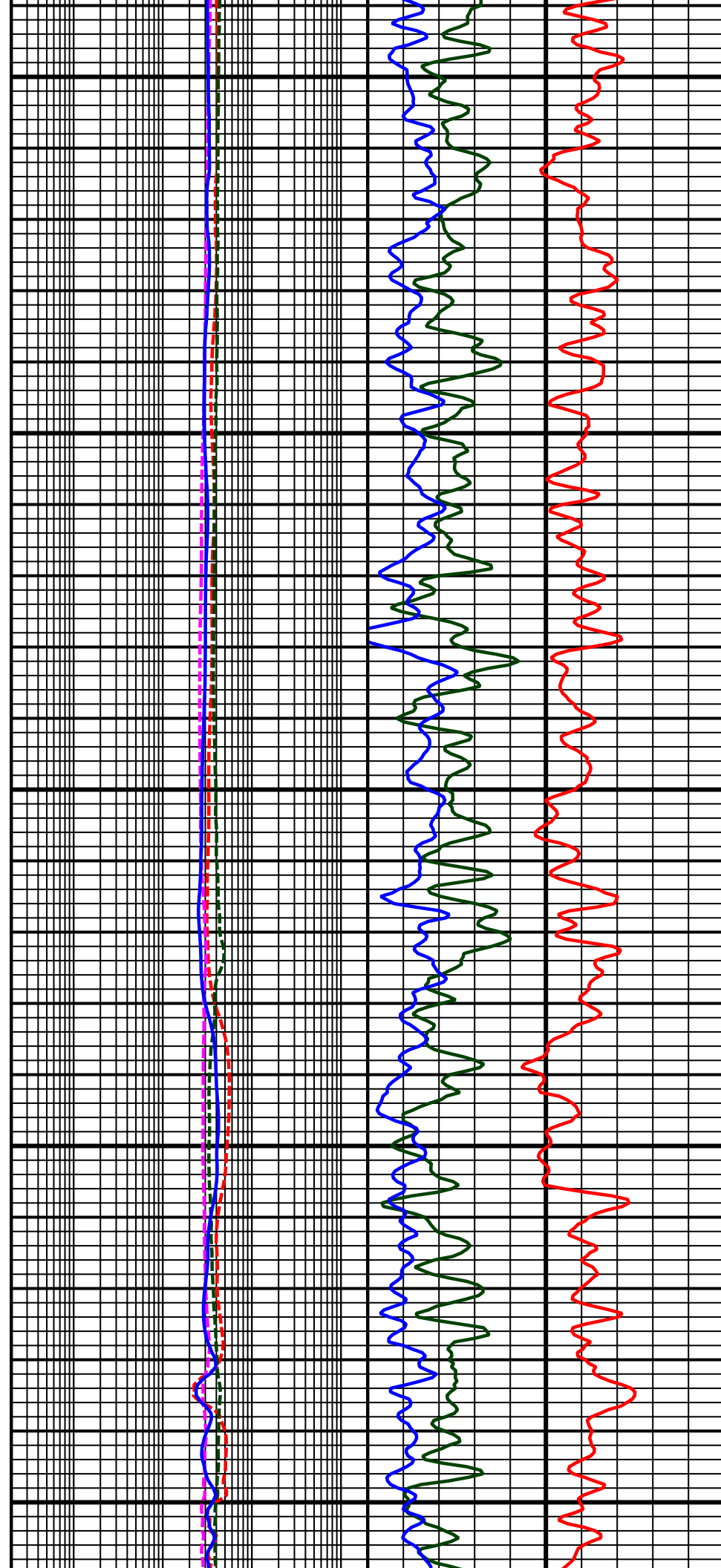


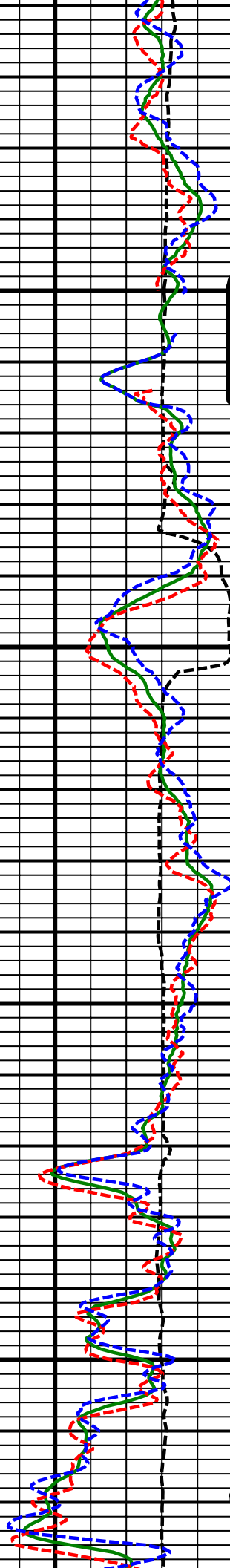


16600
MD

16700
MD

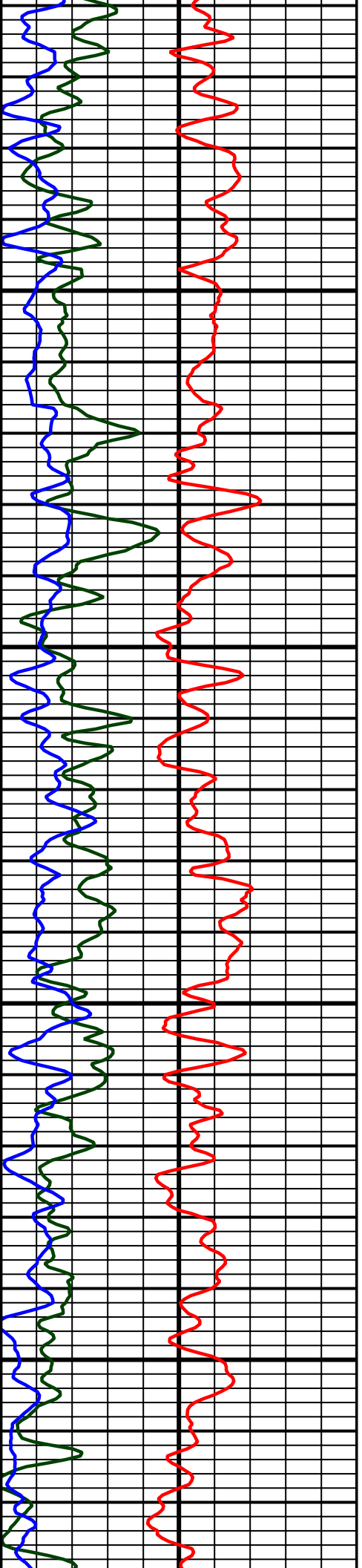
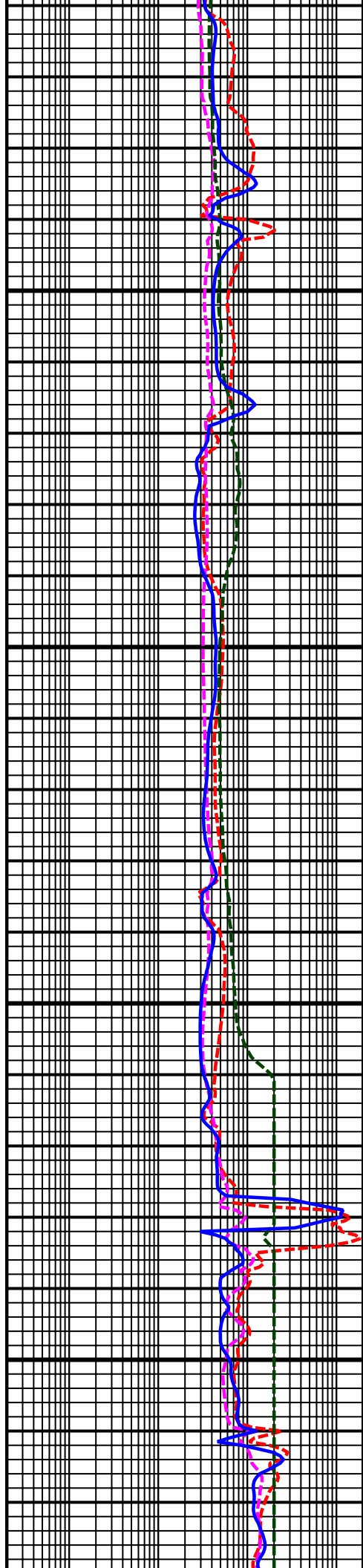
16800
MD

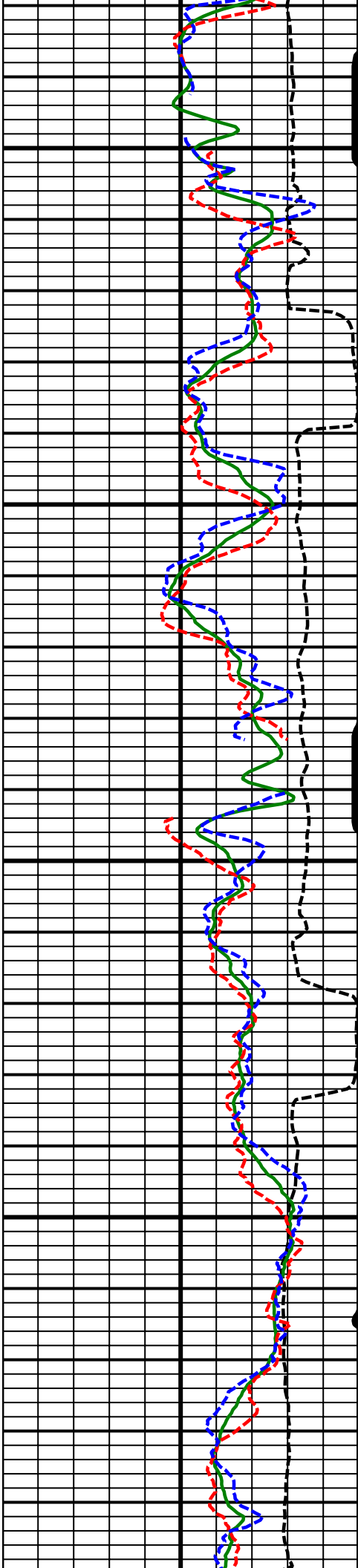




16900
MD

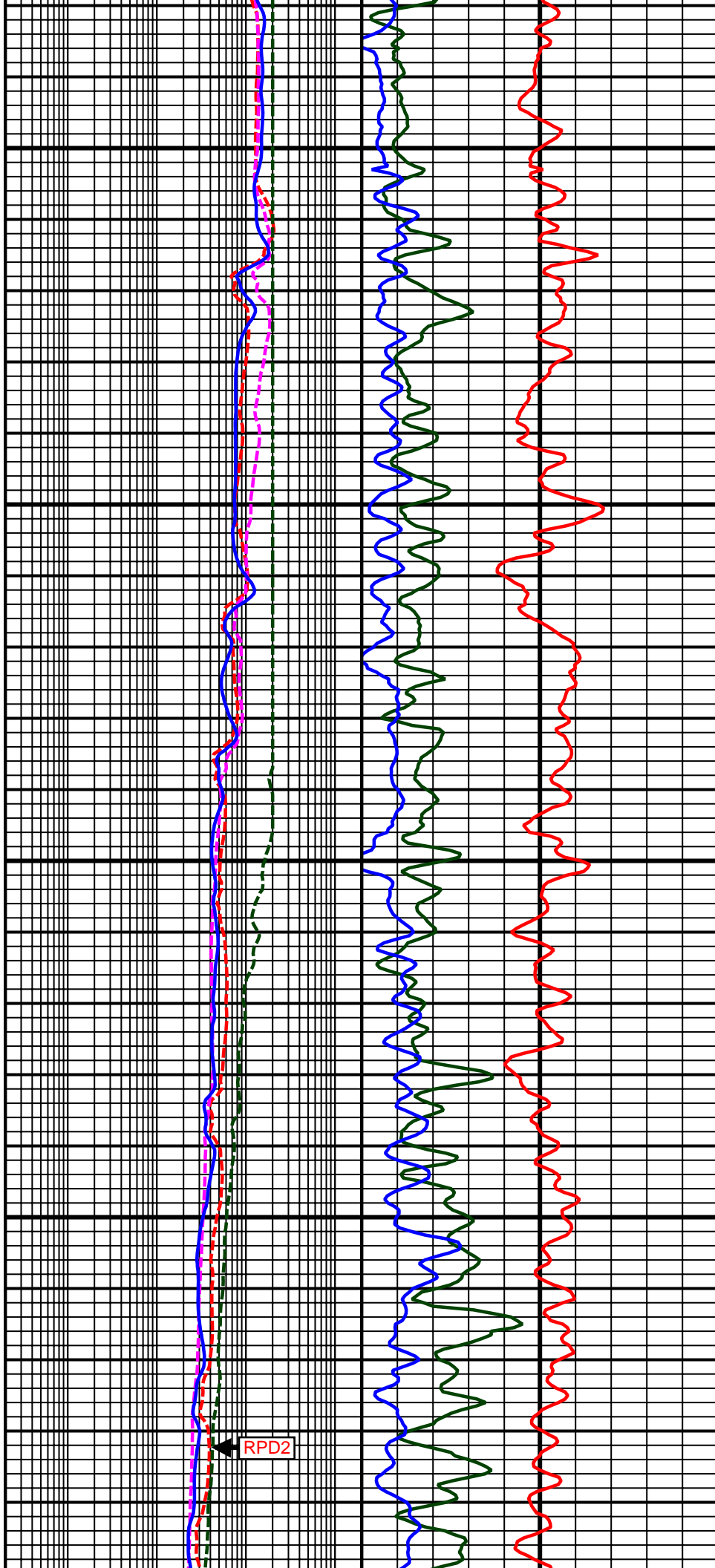
17000
MD

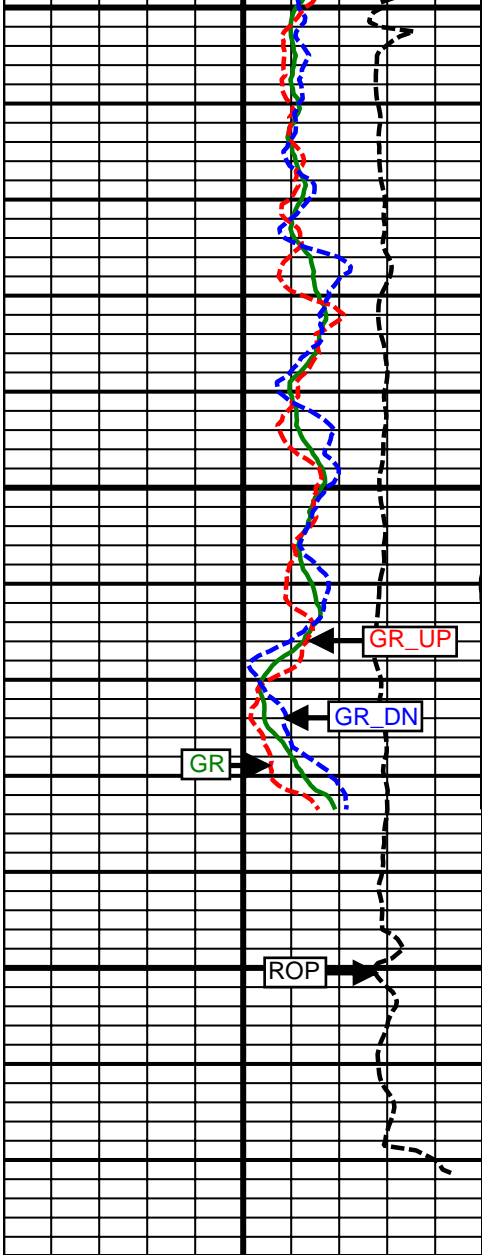




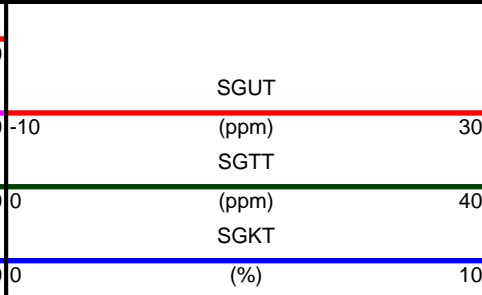
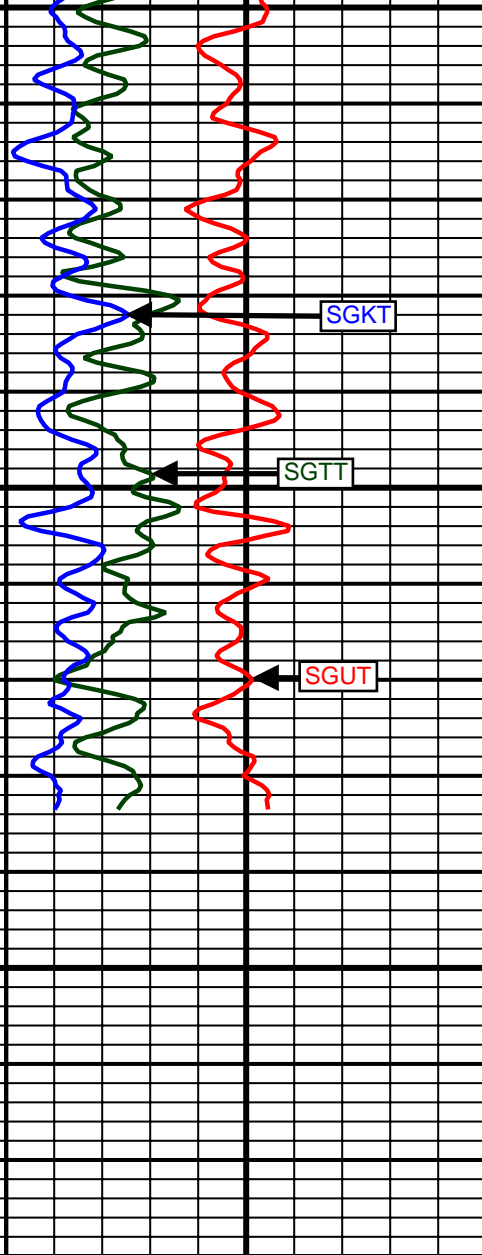
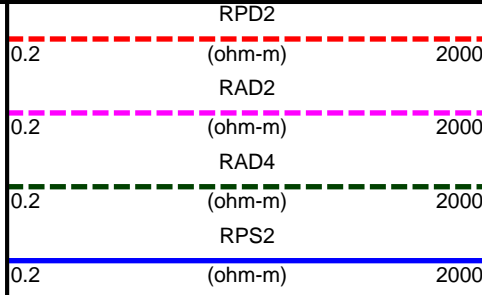
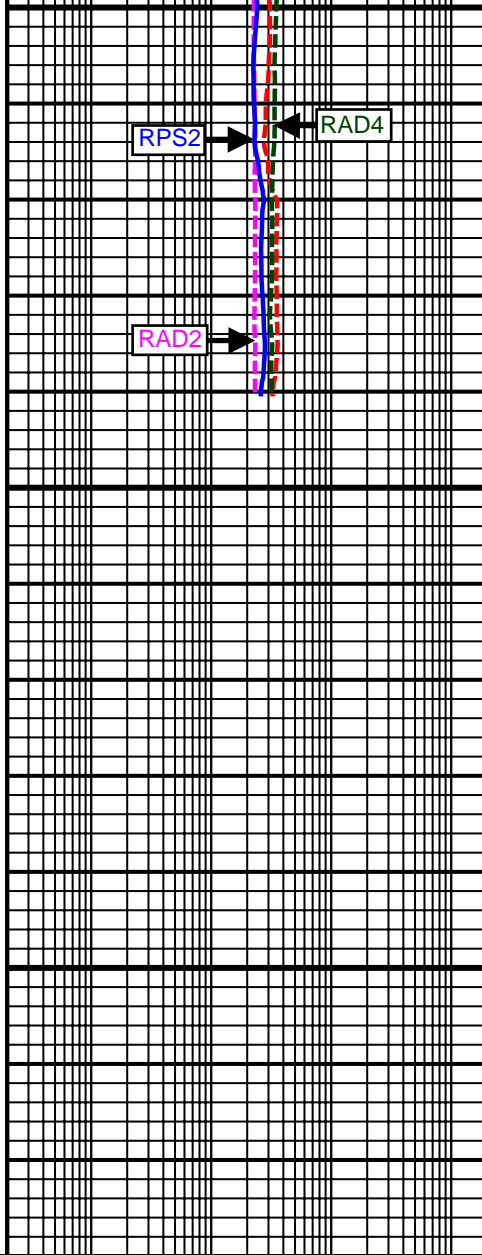
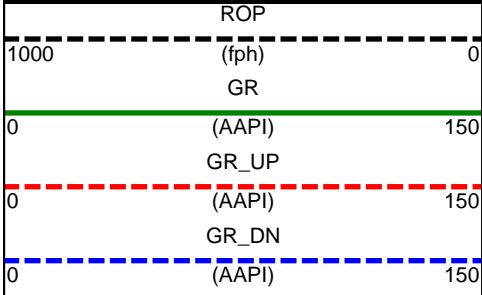
17100
MD

17200
MD





17300
MD



SURVEY						
Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
True North	180.17 deg	52903 nT	66.48 deg	8.56 deg	0.00 deg	8.56 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	1037.00 ft	0.09 deg	27.03 deg	1036.97 ft	6.72 ft	-2.89 ft

Well Head							
Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	NS (ft)	EW (ft)	VSect (ft)	Dogleg (deg/100ft)
1144.00	0.30	71.85	1143.97	6.88	-2.59	-6.87	0.23
1235.00	1.94	76.91	1234.95	7.31	-0.86	-7.30	1.80
1327.00	1.69	73.55	1326.90	8.04	1.96	-8.05	0.30
1419.00	3.19	75.74	1418.82	9.06	5.74	-9.07	1.63
1511.00	4.87	66.61	1510.59	11.24	11.81	-11.27	1.95
1602.00	6.95	61.35	1601.10	15.41	20.18	-15.47	2.36
1694.00	7.63	67.64	1692.36	20.40	30.72	-20.49	1.14
1786.00	9.36	63.61	1783.34	26.05	43.07	-26.18	1.99
1878.00	10.35	61.90	1873.99	33.27	57.06	-33.44	1.12
1970.00	11.52	59.10	1964.31	41.88	72.24	-42.10	1.40
2062.00	12.71	56.91	2054.26	52.13	88.60	-52.39	1.39
2154.00	13.11	51.34	2143.94	64.17	105.23	-64.48	1.42
2249.00	11.24	46.34	2236.80	77.29	120.34	-77.65	2.26
2344.00	10.73	49.79	2330.06	89.40	133.79	-89.79	0.88
2438.00	11.08	53.87	2422.37	100.37	147.77	-100.81	0.90
2533.00	11.75	56.56	2515.49	111.08	163.21	-111.57	0.90
2628.00	12.33	57.56	2608.40	121.85	179.85	-122.39	0.65
2722.00	10.12	54.56	2700.60	132.03	195.05	-132.61	2.43
2818.00	10.28	58.65	2795.08	141.38	209.23	-142.00	0.77
2913.00	10.34	60.15	2888.55	150.03	223.87	-150.69	0.29
3008.00	11.42	60.31	2981.84	158.93	239.43	-159.64	1.14
3103.00	12.45	57.80	3074.78	169.05	256.27	-169.81	1.21
3197.00	9.51	52.10	3167.05	179.22	270.97	-180.02	3.33
3292.00	9.92	56.21	3260.69	188.59	283.97	-189.43	0.85
3387.00	10.10	55.68	3354.25	197.84	297.65	-198.72	0.21
3481.00	11.90	49.70	3446.52	208.76	311.85	-209.68	2.26
3576.00	11.72	46.09	3539.51	221.78	326.27	-222.75	0.80
3670.00	10.79	48.45	3631.70	234.24	339.73	-235.25	1.10
3765.00	10.63	54.48	3725.05	245.23	353.52	-246.28	1.19
3859.00	11.06	53.38	3817.37	255.64	367.81	-256.73	0.51
3954.00	11.10	50.98	3910.60	266.84	382.23	-267.97	0.49
4049.00	12.45	50.45	4003.60	279.12	397.23	-280.29	1.43
4143.00	12.67	48.27	4095.35	292.43	412.74	-293.65	0.56
4238.00	12.64	50.20	4188.04	306.02	428.50	-307.29	0.45
4332.00	12.30	50.40	4279.82	318.98	444.12	-320.30	0.36
4427.00	13.28	50.94	4372.47	332.31	460.39	-333.67	1.04
4522.00	12.62	52.07	4465.05	345.56	477.05	-346.98	0.74
4616.00	11.13	51.54	4557.03	357.52	492.25	-358.98	1.59
4711.00	9.51	53.82	4650.50	367.86	505.77	-369.36	1.76
4806.00	10.51	50.71	4744.05	377.98	518.81	-379.51	1.20
4900.00	12.23	53.77	4836.20	389.29	533.47	-390.87	1.94
4995.00	10.58	50.55	4929.32	400.78	548.33	-402.41	1.86

5089.00	8.62	48.22	5022.00	410.96	560.24	-412.62	2.13
5184.00	6.97	53.65	5116.12	419.12	570.20	-420.81	1.90
5279.00	5.62	50.02	5210.55	425.52	578.40	-427.24	1.48
5373.00	4.87	47.31	5304.15	431.19	584.86	-432.92	0.84
5468.00	3.20	51.10	5398.92	435.59	589.89	-437.34	1.78
5563.00	2.24	47.68	5493.81	438.50	593.33	-440.26	1.02
5657.00	0.22	9.51	5587.78	439.92	594.72	-441.68	2.20
5752.00	0.21	327.17	5682.78	440.24	594.65	-442.01	0.16
5846.00	0.29	290.93	5776.78	440.47	594.34	-442.23	0.18
5941.00	0.49	286.82	5871.78	440.68	593.72	-442.44	0.21
6035.00	0.51	277.35	5965.77	440.85	592.92	-442.60	0.09
6130.00	0.47	272.62	6060.77	440.92	592.11	-442.67	0.06
6225.00	0.44	264.84	6155.77	440.90	591.36	-442.66	0.07
6319.00	0.56	294.39	6249.76	441.06	590.58	-442.81	0.30
6414.00	0.63	305.58	6344.76	441.56	589.74	-443.30	0.14
6509.00	0.47	269.32	6439.75	441.86	588.92	-443.60	0.39
6603.00	0.38	141.92	6533.75	441.61	588.73	-443.35	0.81
6698.00	0.49	110.07	6628.75	441.22	589.31	-442.96	0.27
6792.00	0.41	69.41	6722.75	441.20	590.00	-442.95	0.34
6887.00	0.69	93.06	6817.74	441.29	590.89	-443.04	0.37
6919.00	0.51	100.58	6849.74	441.25	591.22	-443.00	0.61
6950.00	2.20	144.13	6880.73	440.74	591.70	-442.50	6.01
6982.00	5.75	155.29	6912.65	438.79	592.73	-440.55	11.30
7013.00	9.95	160.91	6943.35	434.85	594.26	-436.61	13.76
7045.00	13.42	161.59	6974.69	428.71	596.34	-430.47	10.85
7076.00	16.29	162.97	7004.65	421.14	598.75	-422.91	9.33
7108.00	18.27	164.64	7035.20	412.01	601.39	-413.79	6.38
7139.00	19.88	169.44	7064.50	402.14	603.64	-403.93	7.25
7171.00	22.41	169.62	7094.34	390.79	605.74	-392.58	7.91
7203.00	24.73	171.94	7123.67	378.16	607.78	-379.96	7.81
7234.00	27.03	174.86	7151.56	364.72	609.32	-366.53	8.48
7266.00	29.87	177.55	7179.70	349.51	610.31	-351.32	9.73
7297.00	32.58	180.99	7206.20	333.45	610.50	-335.26	10.46
7328.00	35.09	183.65	7231.95	316.21	609.79	-318.02	9.40
7360.00	37.41	184.60	7257.76	297.34	608.42	-299.14	7.46
7391.00	40.43	184.06	7281.87	277.92	606.95	-279.72	9.80
7423.00	43.64	184.10	7305.64	256.55	605.43	-258.35	10.03
7454.00	47.19	184.17	7327.40	234.53	603.84	-236.33	11.45
7501.00	52.94	183.38	7357.55	198.59	601.47	-200.37	12.30
7548.00	57.29	181.07	7384.43	160.08	600.00	-161.86	10.09
7595.00	61.09	179.76	7408.50	119.72	599.72	-121.50	8.43
7643.00	66.48	179.28	7429.70	76.67	600.08	-78.45	11.26
7690.00	71.42	180.17	7446.57	32.83	600.29	-34.61	10.66
7737.00	72.54	179.71	7461.11	-11.87	600.33	10.09	2.56
7768.00	75.37	179.18	7469.68	-41.66	600.62	39.87	9.28
7800.00	77.60	179.45	7477.16	-72.77	600.99	70.98	7.02
7831.00	79.81	179.29	7483.23	-103.16	601.33	101.38	7.15
7863.00	80.59	180.08	7488.68	-134.69	601.50	132.91	3.44
7894.00	82.07	180.16	7493.35	-165.34	601.44	163.55	4.78
7926.00	84.26	180.45	7497.16	-197.11	601.27	195.32	6.90
8121.00	89.01	180.60	7508.60	-391.71	599.48	389.93	2.44
8215.00	90.31	180.82	7509.16	-485.70	598.32	483.92	1.40
8309.00	91.61	180.59	7507.58	-579.67	597.16	577.90	1.40
8404.00	92.59	180.58	7504.10	-674.61	596.19	672.83	1.03
8498.00	91.48	179.42	7500.76	-768.54	596.19	766.77	1.71
8592.00	91.73	179.41	7498.13	-862.50	597.15	860.73	0.27
8686.00	90.43	178.23	7496.36	-956.46	599.09	954.68	1.87
8780.00	89.81	179.08	7496.16	-1050.43	601.30	1048.64	1.12
8874.00	88.77	178.70	7497.33	-1144.41	603.12	1142.61	1.18
8969.00	88.52	178.64	7499.57	-1239.35	605.32	1237.55	0.27
9063.00	87.90	179.13	7502.51	-1333.29	607.15	1331.48	0.84

9157.00	88.77	179.49	7505.24	-1427.24	608.28	1425.43	1.00
9252.00	89.63	179.28	7506.57	-1522.23	609.30	1520.41	0.93
9346.00	89.14	179.40	7507.58	-1616.21	610.38	1614.40	0.54
9440.00	90.25	179.73	7508.08	-1710.21	611.10	1708.39	1.23
9534.00	89.69	180.15	7508.13	-1804.21	611.19	1802.39	0.74
9629.00	90.00	180.26	7508.38	-1899.21	610.85	1897.39	0.35
9723.00	90.25	180.79	7508.18	-1993.20	609.99	1991.38	0.62
9818.00	89.88	180.14	7508.07	-2088.20	609.22	2086.38	0.79
9912.00	89.63	179.31	7508.47	-2182.20	609.67	2180.38	0.92
10007.00	88.83	179.42	7509.75	-2277.18	610.73	2275.36	0.85
10102.00	88.34	179.13	7512.09	-2372.14	611.93	2370.32	0.60
10197.00	88.58	179.74	7514.65	-2467.10	612.86	2465.28	0.69
10291.00	89.14	179.68	7516.52	-2561.08	613.34	2559.25	0.60
10386.00	89.26	179.90	7517.84	-2656.07	613.69	2654.24	0.26
10482.00	88.83	180.64	7519.44	-2752.06	613.24	2750.23	0.89
10577.00	89.01	181.03	7521.23	-2847.03	611.85	2845.20	0.45
10671.00	88.52	181.26	7523.26	-2940.99	609.97	2939.17	0.58
10766.00	89.20	181.23	7525.15	-3035.95	607.91	3034.13	0.72
10861.00	88.64	181.49	7526.94	-3130.91	605.66	3129.09	0.65
10955.00	89.38	181.34	7528.56	-3224.86	603.34	3223.06	0.80
11050.00	89.57	181.64	7529.44	-3319.83	600.86	3318.03	0.37
11144.00	90.25	181.62	7529.58	-3413.79	598.19	3412.00	0.72
11239.00	90.25	180.91	7529.17	-3508.76	596.09	3506.98	0.75
11334.00	89.57	180.07	7529.32	-3603.76	595.28	3601.98	1.14
11428.00	88.46	179.44	7530.93	-3697.74	595.68	3695.96	1.36
11523.00	89.57	179.69	7532.57	-3792.72	596.40	3790.94	1.20
11617.00	89.75	179.28	7533.12	-3886.72	597.25	3884.93	0.48
11712.00	89.07	179.63	7534.10	-3981.71	598.15	3979.91	0.81
11806.00	89.26	179.19	7535.47	-4075.69	599.12	4073.90	0.51
11901.00	90.18	178.69	7535.94	-4170.67	600.88	4168.87	1.10
11946.00	90.53	178.69	7535.66	-4215.66	601.91	4213.86	0.78
12040.00	89.14	180.99	7535.93	-4309.65	602.17	4307.84	2.86
12134.00	88.15	180.72	7538.15	-4403.61	600.77	4401.81	1.09
12229.00	87.22	180.58	7541.99	-4498.53	599.69	4496.73	0.99
12323.00	87.16	182.07	7546.60	-4592.39	597.52	4590.59	1.58
12418.00	88.71	181.52	7550.02	-4687.28	594.55	4685.49	1.73
12512.00	89.26	181.91	7551.69	-4781.22	591.73	4779.44	0.72
12607.00	89.14	181.26	7553.01	-4876.17	589.11	4874.40	0.70
12702.00	87.97	181.40	7555.41	-4971.11	586.90	4969.35	1.24
12775.00	88.02	181.85	7557.96	-5044.04	584.83	5042.28	0.62
12870.00	89.44	181.24	7560.07	-5138.98	582.27	5137.23	1.63
12964.00	90.12	180.18	7560.43	-5232.97	581.11	5231.22	1.34
13059.00	89.38	179.29	7560.84	-5327.97	581.55	5326.22	1.22
13153.00	89.88	177.03	7561.45	-5421.91	584.56	5420.15	2.46
13248.00	89.44	178.25	7562.01	-5516.82	588.48	5515.05	1.37
13343.00	89.94	178.46	7562.53	-5611.78	591.20	5610.01	0.57
13437.00	89.12	176.92	7563.30	-5705.70	594.99	5703.91	1.86
13532.00	89.88	176.95	7564.13	-5800.56	600.07	5798.75	0.80
13626.00	89.51	178.09	7564.63	-5894.47	604.14	5892.65	1.28
13721.00	88.83	179.56	7566.00	-5989.44	606.09	5987.61	1.70
13815.00	88.15	180.70	7568.48	-6083.40	605.87	6081.58	1.41
13910.00	88.70	180.25	7571.09	-6178.36	605.09	6176.54	0.75
14005.00	90.37	180.28	7571.86	-6273.35	604.65	6271.53	1.76
14099.00	90.25	179.78	7571.36	-6367.35	604.60	6365.53	0.55
14194.00	89.91	179.22	7571.22	-6462.35	605.43	6460.52	0.69
14289.00	90.53	180.45	7570.86	-6557.34	605.70	6555.52	1.45
14383.00	90.12	179.68	7570.32	-6651.34	605.59	6649.52	0.93
14478.00	89.69	179.20	7570.48	-6746.34	606.52	6744.51	0.68
14572.00	89.47	180.63	7571.17	-6840.33	606.66	6838.50	1.54
14667.00	89.51	180.64	7572.02	-6935.32	605.61	6933.50	0.04
14762.00	87.59	180.72	7574.42	-7030.28	604.48	7028.46	2.02

14856.00	85.99	180.98	7579.68	-7124.12	603.09	7122.30	1.72
14951.00	88.83	182.07	7583.98	-7218.98	600.56	7217.16	3.20
15045.00	89.82	181.41	7585.08	-7312.93	597.71	7311.12	1.27
15140.00	90.00	180.81	7585.23	-7407.91	595.87	7406.11	0.66
15234.00	89.75	180.68	7585.44	-7501.90	594.65	7500.10	0.30
15329.00	89.51	180.61	7586.05	-7596.89	593.58	7595.10	0.26
15423.00	90.26	182.04	7586.24	-7690.86	591.40	7689.07	1.72
15517.00	89.69	181.64	7586.28	-7784.81	588.39	7783.03	0.74
15612.00	89.32	181.04	7587.10	-7879.78	586.16	7878.01	0.74
15705.00	90.12	181.91	7587.56	-7972.75	583.77	7970.98	1.27
15800.00	90.55	184.07	7587.00	-8067.61	578.82	8065.86	2.32
15891.00	90.43	184.88	7586.22	-8158.33	571.72	8156.60	0.90
15985.00	90.62	186.34	7585.36	-8251.88	562.53	8250.17	1.57
16080.00	90.19	186.88	7584.69	-8346.24	551.59	8344.57	0.73
16175.00	90.19	185.62	7584.37	-8440.67	541.25	8439.03	1.33
16254.00	90.37	182.47	7583.99	-8519.47	535.68	8517.84	3.99
16349.00	89.69	181.67	7583.94	-8614.40	532.25	8612.79	1.11
16443.00	88.58	179.39	7585.36	-8708.38	531.38	8706.77	2.70
16538.00	88.64	178.49	7587.66	-8803.34	533.13	8801.71	0.95
16632.00	88.64	177.36	7589.89	-8897.25	536.54	8895.61	1.20
16727.00	88.89	176.92	7591.94	-8992.11	541.28	8990.46	0.53
16822.00	89.26	175.90	7593.48	-9086.90	547.22	9085.24	1.14
16916.00	88.58	176.63	7595.25	-9180.69	553.35	9179.01	1.06
17011.00	87.84	175.87	7598.21	-9275.44	559.56	9273.74	1.12
17105.00	86.73	175.76	7602.67	-9369.08	566.41	9367.36	1.19
17200.00	86.61	176.19	7608.19	-9463.68	573.06	9461.94	0.47
17294.00	86.92	175.80	7613.49	-9557.31	579.62	9555.54	0.53
17317.00	87.04	175.62	7614.70	-9580.21	581.34	9578.44	0.94
17370.00	87.04	175.62	7617.44	-9632.98	585.38	9631.20	0.00

Weatherford Surveys from 1144 ft MD to 17317 ft MD.

Well TD at 17370 ft MD.

The total correction is 8.56 deg relative to True North.



Weatherford®

Final Print

COMPANY	<u>Anadarko</u>		
WELL	<u>Griffiths 35N-20HZ</u>		
FIELD	<u>Wattenberg</u>		
RIG	<u>H&P 307</u>		
LOC.	<u>Colorado</u>	COUNTY	<u>Weld</u>