



# Weatherford®

**6 3/4 & 4 3/4 in. WeatherfordM/LWD™**  
**Spectral Gamma Ray**  
**1 in. & 5 in. MEASURED DEPTH**  
**RECORDED DATA**  
**FINAL PRINT**

Company: Anadarko  
Well: Thomsen 36N-18HZ  
Field: Wattenburg  
Rig: H&P 307  
County: Weld

Location		Other Services: Spectral Azimuthal Gamma Ray and Directional	
Latitude: 40.153758° N	x = 3221038 ft	Mag Decl: 8.50°	
Longitude: 104.709538° W	y = 1299842 ft	Mag Dip: 66.94°	
COMPANY		Anadarko	
WELL		Thomsen 36N-18HZ	
FIELD		Wattenburg	
RIG		H&P 307	
COUNTY		Weld	
API #		05-123-36872-00	
STATE		Colorado	

Permanent Datum: <u>Mean Sea Level</u>		
Log Measured From: <u>Drill Floor</u>	Elev: <u>4977.0 ft</u>	above perm. datum
Depth Reference: <u>Drillers Tally</u>	Total Depth: <u>14693 ft</u>	
Depth Logged: <u>6450 ft</u>	to <u>14693 ft</u>	Runs: <u>4</u>
Date Logged: <u>31-May-13</u>	to <u>9-Jun-13</u>	Spud Date: <u>29-May-13</u>
		Elevation
		K.B. Top Drive
		G.L. 4952.0 ft
		D.F. 4977.0 ft
		W.D. Land

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
8.750 in.	977 ft	7734 ft	7.000 in.	26.0 lb/ft	Surface	7699 ft
6.125 in.	7734 ft	14693 ft				

Borehole Deviation Record			Mud Record			
Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From	To
8.750 in.	0.30°	91.96°	WBM	8.60 - 10.80 ppq	977 ft	14693 ft
6.125 in.	86.43°	92.90°				

**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.	1.242	0.982	1.243	1.243		
Bit Start Depth	ft	977	5970	7734	13609		
Bit End Depth	ft	5970	7734	13609	14693		
Top Log Interval	ft	N/A	6450	7697	13573		
Bottom Log Interval	ft	N/A	7734	13609	14693		
Begin Log Time	hrs	N/A	18:00	16:39	17:53		
Begin Log Date	DD-MMM-YY	N/A	31-May-13	3-Jun-13	8-Jun-13		
End Log Time	hrs	N/A	21:45	16:19	7:39		
End Log Date	DD-MMM-YY	N/A	1-Jun-13	7-Jun-13	9-Jun-13		
Drill or Wipe		Drill	Drill	Drill	Drill		
Flow Rate	gal/min	595	590	297	298		
Max AV / CV @ MWD	ft/min	473 / 140	466 / 321	487 / 363	487 / 339		
Min Inc @ Depth	deg @ ft	0.30 @ 1375	8.34 @ 6354	86.43 @ 11866	89.32 @ 14376		
Max Inc @ Depth	deg @ ft	11.17 @ 4178	91.96 @ 7672	92.90 @ 11508	91.79 @ 13997		
MUD DATA							
Depth	ft	5970	7734	13609	14693		
Fluid Type		WBM	WBM	WBM	WBM		
Mud Weight	ppg	8.80	9.95	10.70	10.80		
Plastic Viscosity	cP	1	15	12	11		
Solids / Sand	%	0.7 / 0.1	8.0 / 0.3	11.2 / 0.3	11.1 / 0.3		
NaCl Equiv. Chlorides	ppm	1485	1650	1485	1485		
pH		8.8	9	9.2	9.2		
Oil:Water Ratio	% Vol	1.2 : 98.8	10.0 : 90.0	15.7 : 84.3	15.0 : 85.0		
KCl	% Vol	0	0	0	0		
Client Representative		C. Jones	C. Jones	P. Cain	P. Cain		
WeatherfordLWD Engineer		F.J. Harmych	F.J. Harmych	M. Chisam	M. Chisam		

EQUIPMENT SUMMARY					
M/LWD Run Number	1	2	3	4	
BTR / CDS Serial Number	849 / 983	849 / 983	N/A	N/A	
Battery Serial Number	403716789	403716789	N/A	N/A	
Gamma Ray Serial Number	2657	2657	N/A	N/A	
CMS Serial Number	1929	1929	N/A	N/A	
Pulser Serial Number	43919	43919	N/A	N/A	
Inclination Sonde Serial Number	44418	44418	N/A	N/A	
HEL Serial Number	N/A	N/A	NW131376PDBBI4.75	NW131376PDBBI4.75	
SAGR Serial Number	N/A	N/A	NW130895JB4.75-M1	NW130895JB4.75-M1	
Sensor to Bit Offsets / Acquisition Rates					
Directional	ft / sec	59.95 / RT	59.29 / RT	51.37 / RT	52.06 / RT
Gamma Ray	ft / sec	45.74 / 18	45.08 / 18	36.84 / 5	37.53 / 5
Other Information					
Total BHA Length	ft	98.30	97.43	2026.56	2027.25
BHA Assembly Type		Steerable	Steerable	Steerable	Steerable
Stabilizer Location	ft	N/A	N/A	25.03	25.97
Stabilizer Location	ft	N/A	N/A	65.17	65.86
Stabilizer Location	ft	N/A	N/A	N/A	N/A
Run Circulating Time	hr	38.21	28.79	85.97	32.24
Run Drilling Time	hr	22.39	16.28	46.17	8.62

## MUD SUMMARY

Date and Time	Run	Bit Depth	Mud Weight	% K	Rm @ Temp	Rmf @ Temp	Rmc @ Temp	BHCT
31 May 13 @ 00:00	01	5970 ft	8.80 ppg	0	N/A	N/A	N/A	161 F
01 Jun 13 @ 21:45	02	7734 ft	9.95 ppg	0	N/A	N/A	N/A	182 F
07 Jun 13 @ 16:39	03	13609 ft	10.70 ppg	0	N/A	N/A	N/A	246 F
09 Jun 13 @ 07:39	04	14693 ft	10.80 ppg	0	N/A	N/A	N/A	253 F

## M/LWD RUN REMARKS

**Run Number:** 1 :: No Logging Data

**WFT Services Provided:**

No Logging Services provided during Run 01.

Directional Services: On demand Inclination and Azimuth.

**Run Number:** 2 :: REAL-TIME DATA LOG

**WFT Services Provided:**

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: 9.95 ppg

**Collar O.D.:** 6.750 in.

K1 Factor: 3.958

**Collar I.D.:** 3.250 in.

**Run Number:** 3 :: RECORDED DATA LOG

**WFT Services Provided:**

Recorded and Real Time Logging: Spectral Azimuthal 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.

Mud Weight: 10.70 ppg

KCl Concentration: 0%

**Run Number:** 4 :: RECORDED DATA LOG

**WFT Services Provided:**

Recorded and Real Time Logging: Spectral Azimuthal 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.

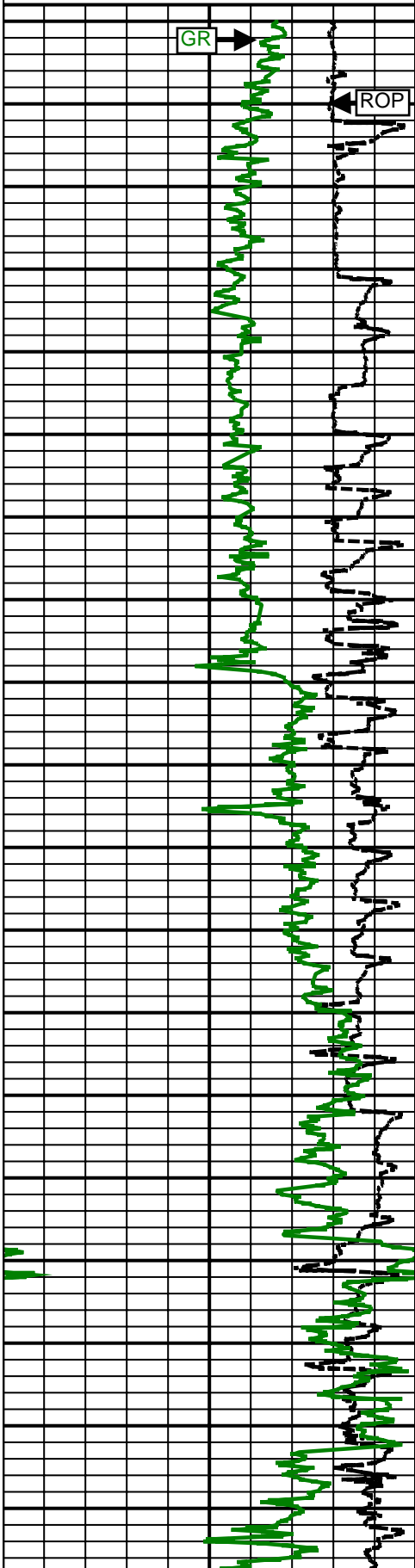
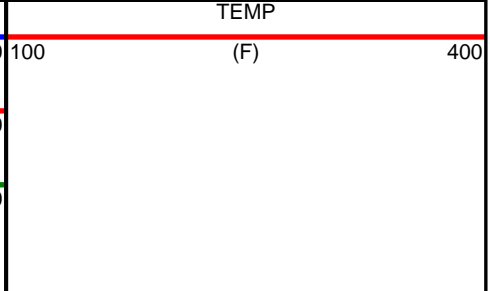
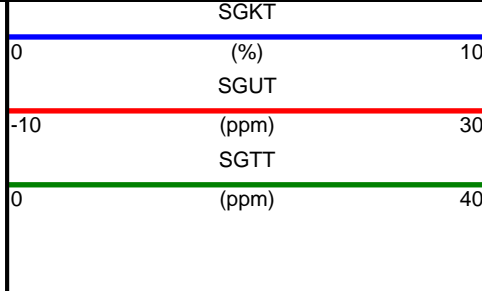
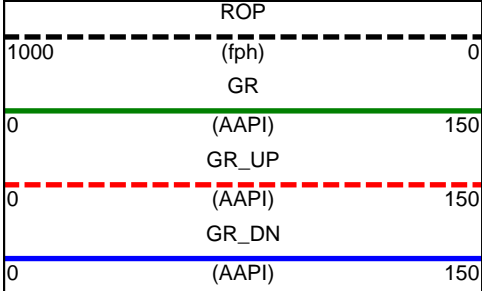
Mud Weight: 10.80 ppg

KCl Concentration: 0%

M/LWD LOG COMMENTS	
Comment No. 1-1	No Logging Services Provided for Run 01.
Comment No. 2-1	REAL-TIME DATA LOG Start of MWD Drilling Run 02 Weatherford International provided 6 3/4 in. Directional, Gamma Ray, and Temperature for Run 02. Run 02 started formation drilling May 31, 2013 at 18:00 at 5970 MD /5929 TVD. Weatherford International logged the 8.750 in. borehole. The WBM at the start of drilling was 9.30 ppg.
Comment No. 2-2	End of MWD Drilling Run 02 Run 02 ended drilling formation June 1, 2013 at 21:45 at 7734 MD / 7220 TVD. The WBM at the end of drilling was 9.95 ppg.
Comment No. 3-1	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 June 3, 2013 at 16:39 at 7734 MD / 7221 TVD. Weatherford International logged the 6.125 in. borehole. The WBM at the start of drilling was 10.10 ppg.
Comment No. 3-2	End of LWD Drilling Run 03 Run 03 ended drilling formation June 7, 2013 at 16:19 at 13609 MD / 7238 TVD. The WBM at the end of drilling was 10.70 ppg.
Comment No. 4-1	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 June 8, 2013 at 17:53 at 13609 MD / 7238 TVD. Weatherford International logged the 6.125 in. borehole. The WBM at the start of drilling was 10.70 ppg.
Comment No. 4-2	End of LWD Drilling Run 04 Run 04 ended drilling formation June 9, 2013 at 7:39 at 14693 MD / 7227 TVD. The WBM at the end of drilling was 10.80 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	Recorded Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	See M/LWD Run Remarks
Gamma Ray Up	GR_UP	AAPI	Recorded Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Gamma Ray Down	GR_DN	AAPI	Recorded Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Uranium Total	SGUT	ppm	Unranium 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 Concentraion 3.0 ft window 0.5 ft Exponential Smoothing	
Temperature	TEMP	F	Borehole Temperature 3.0 ft window 0.5 ft Exponential Smoothing	None

**1 Inch - Measured Depth**



6500 MD

6600 MD

6700 MD

6800 MD

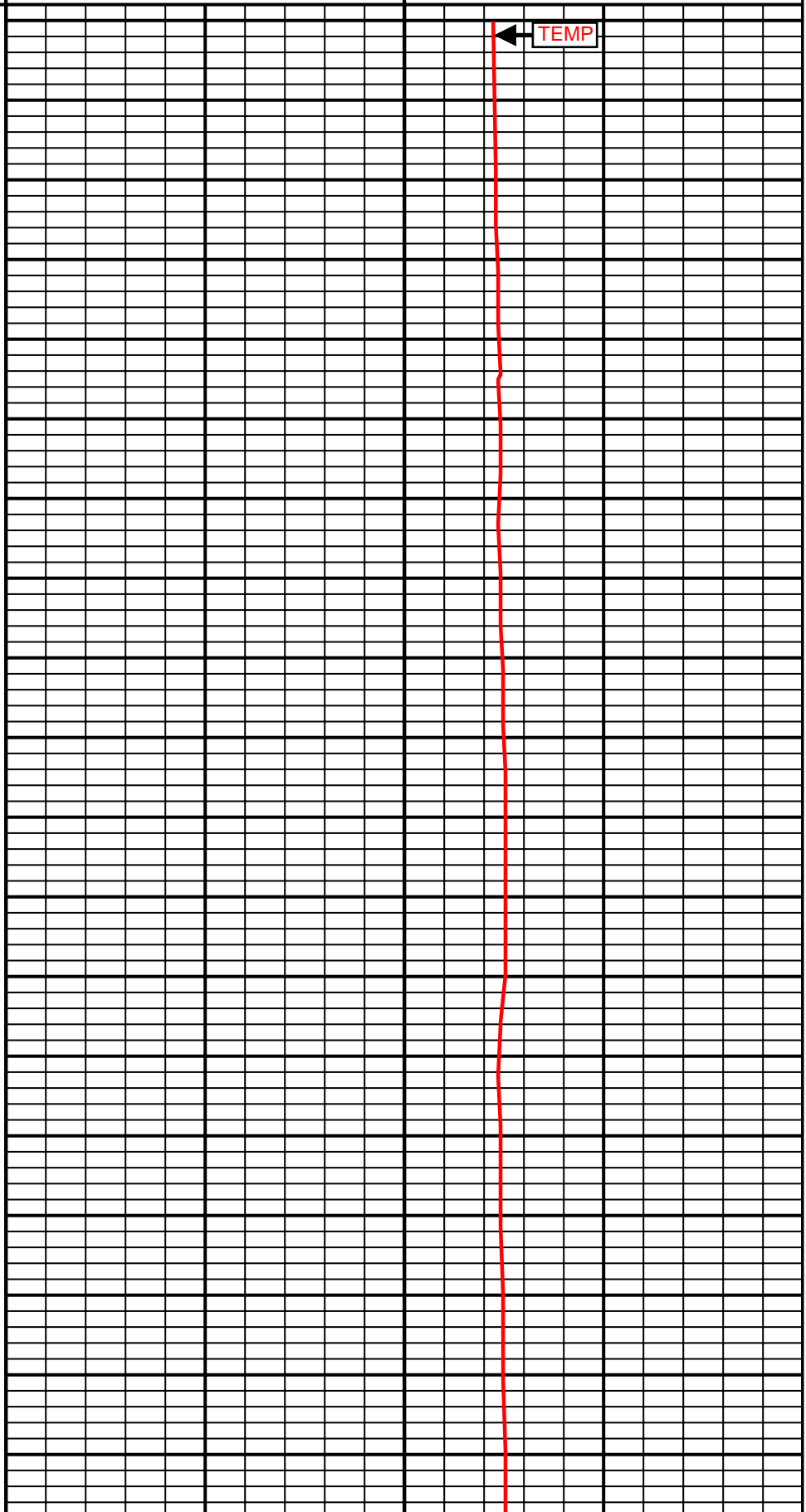
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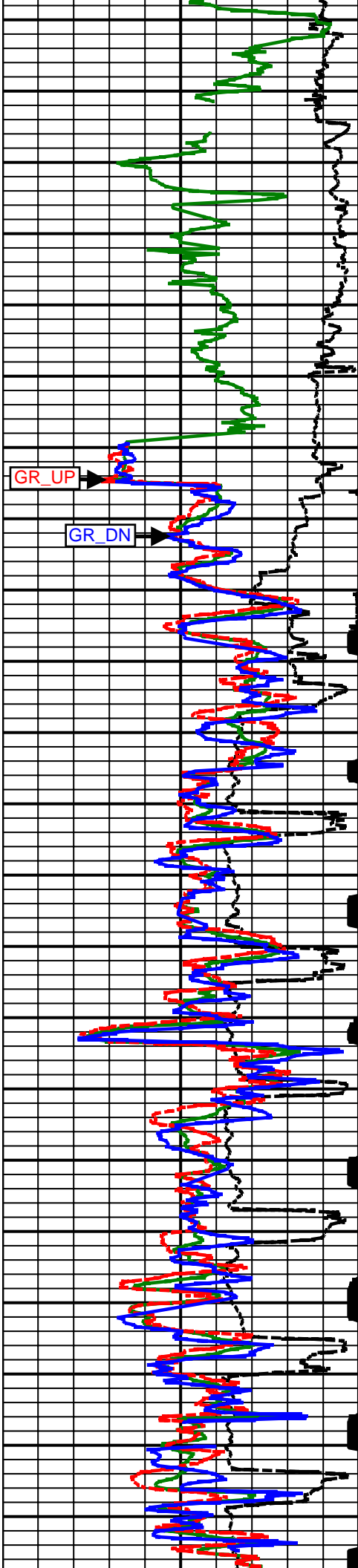
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7300 MD





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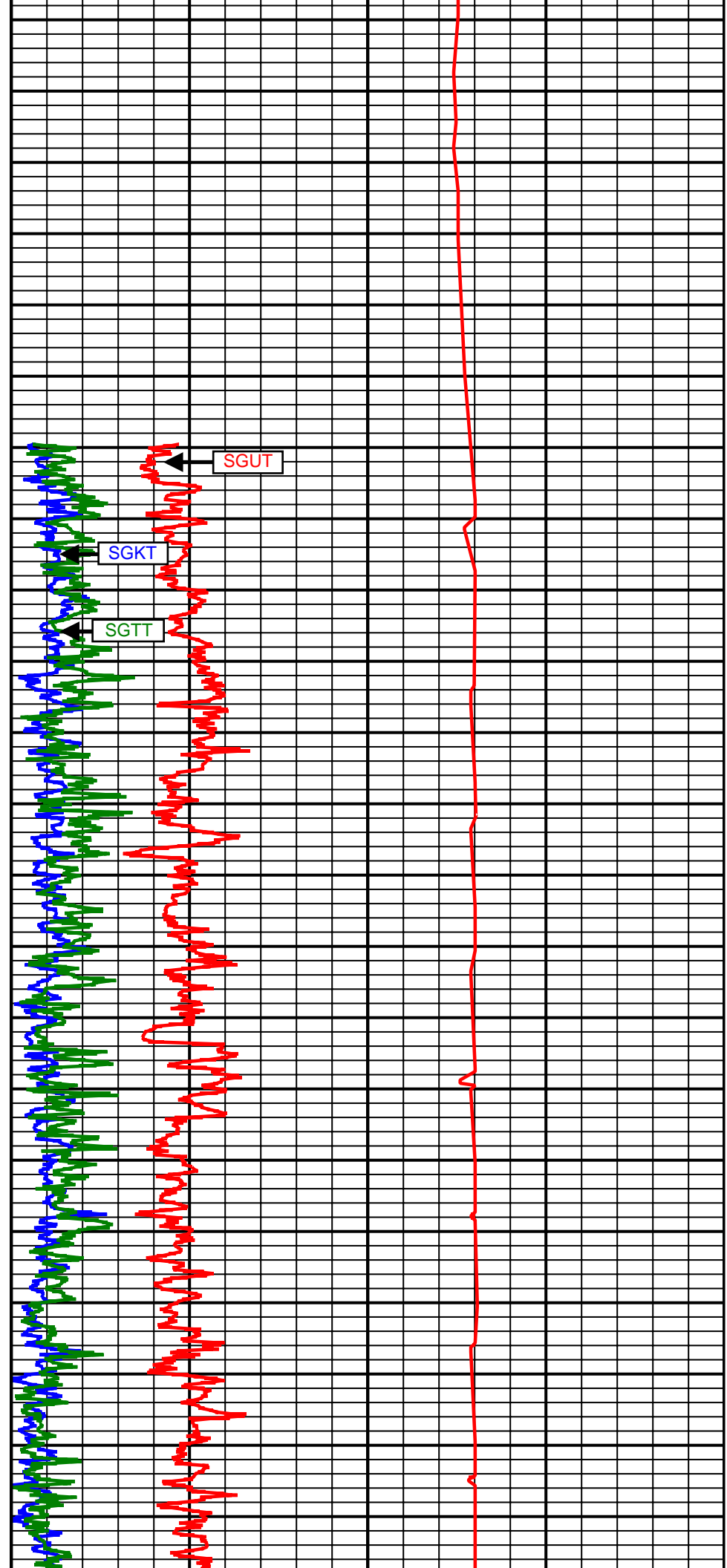
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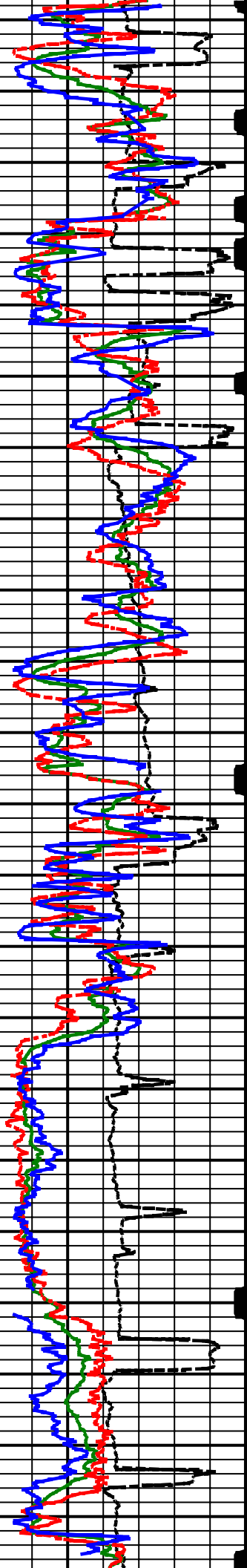
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8400 MD





8500 MD

8600 MD

8700 MD

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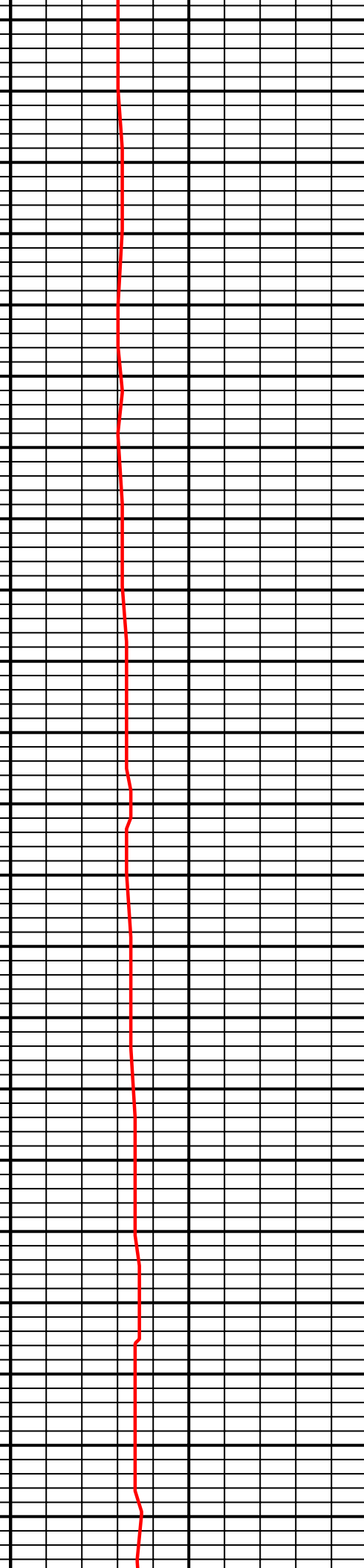
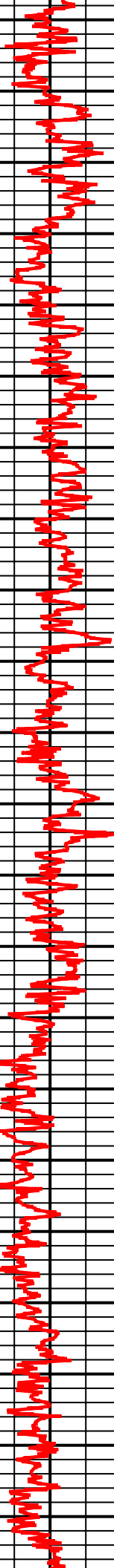
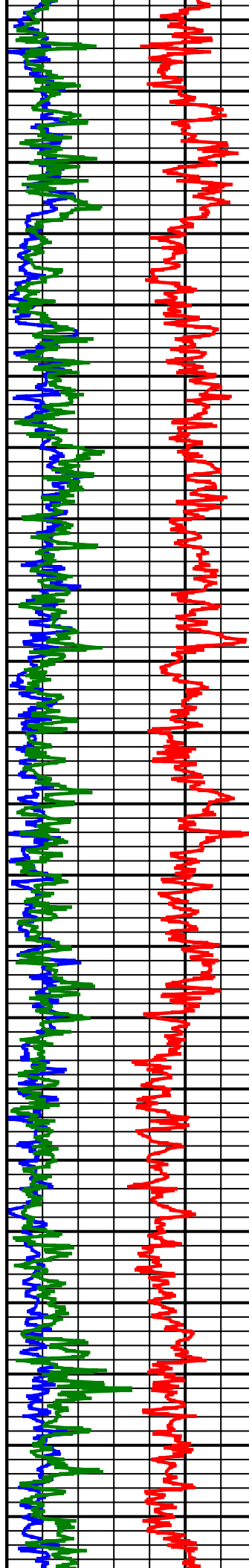
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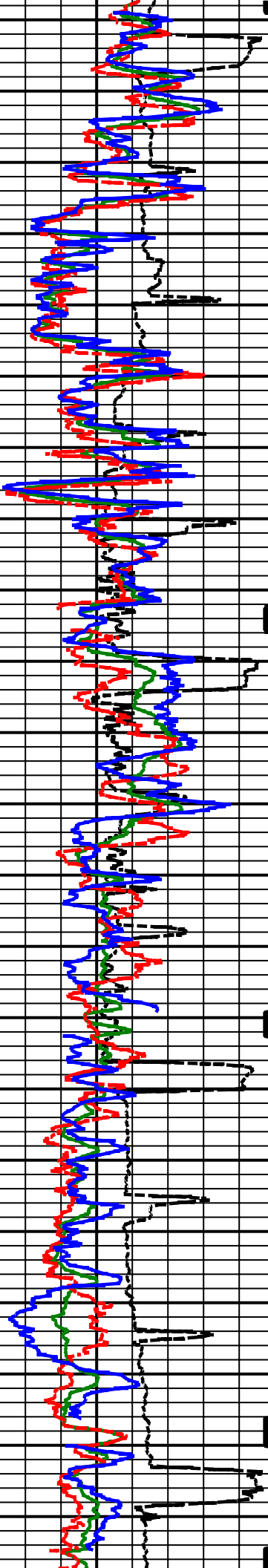
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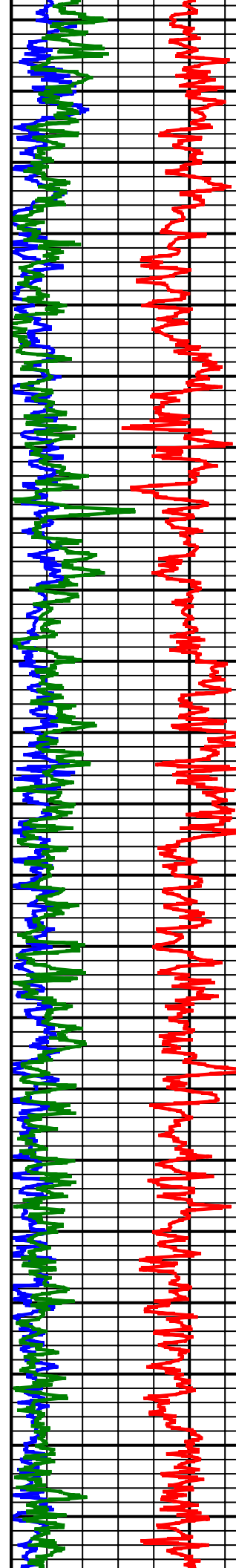
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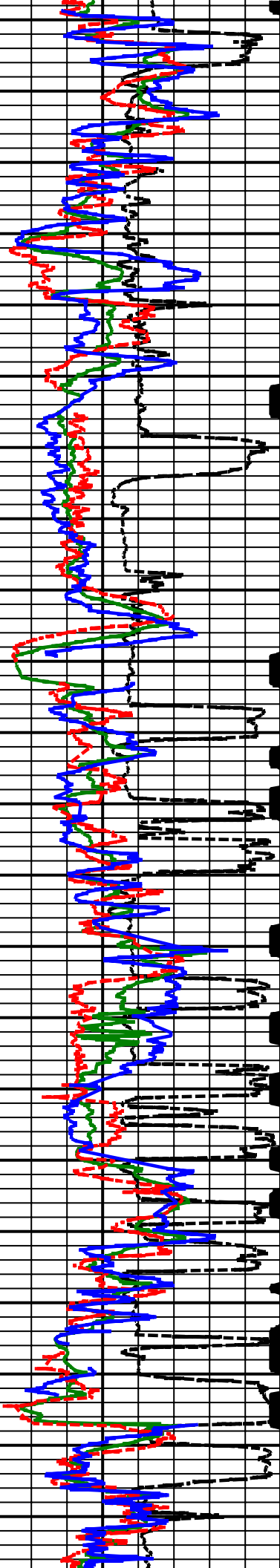
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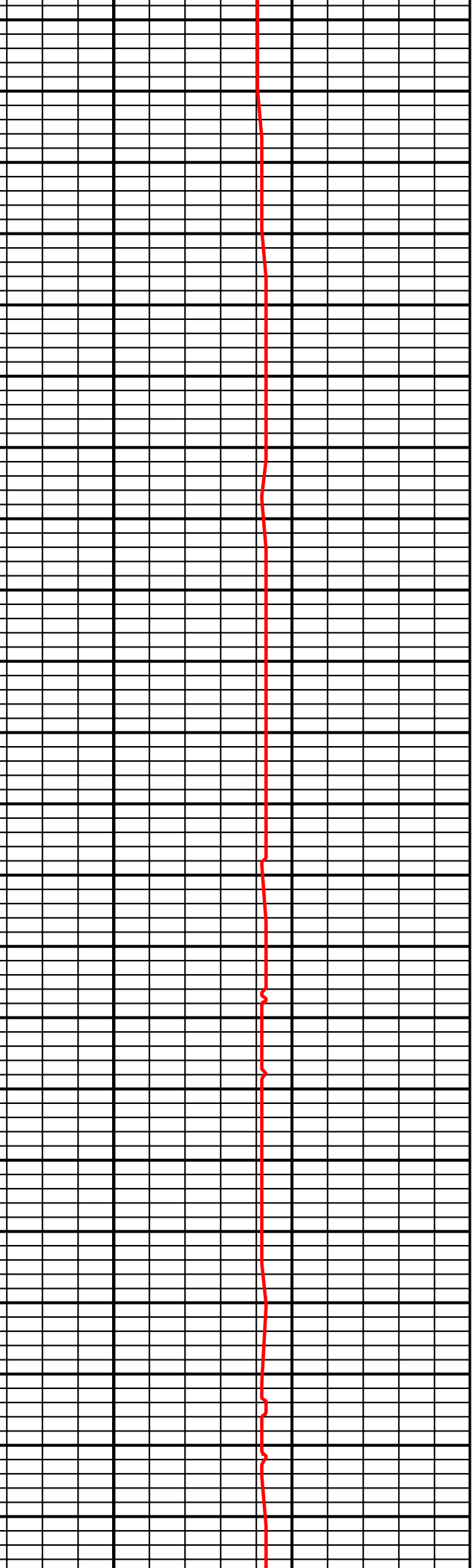
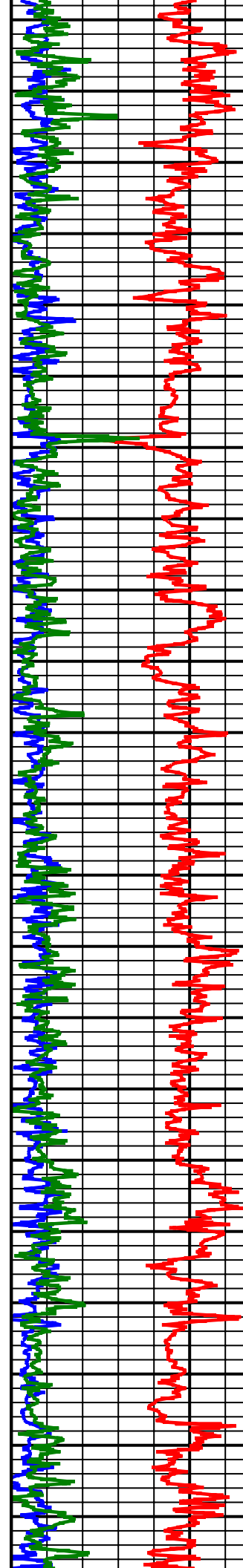


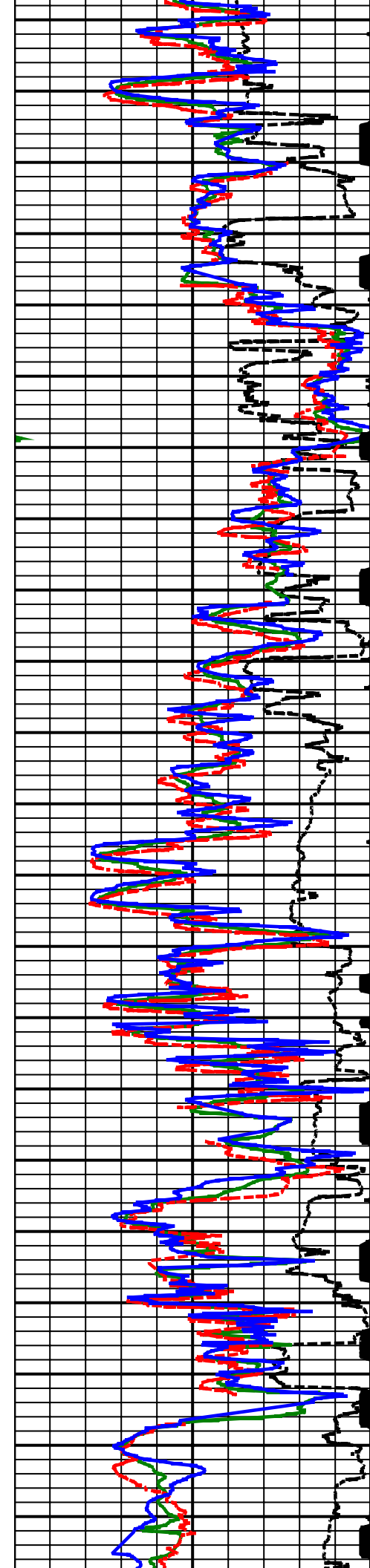
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10600 MD





10700 MD  
10800 MD  
10900 MD  
11000 MD  
11100 MD  
11200 MD  
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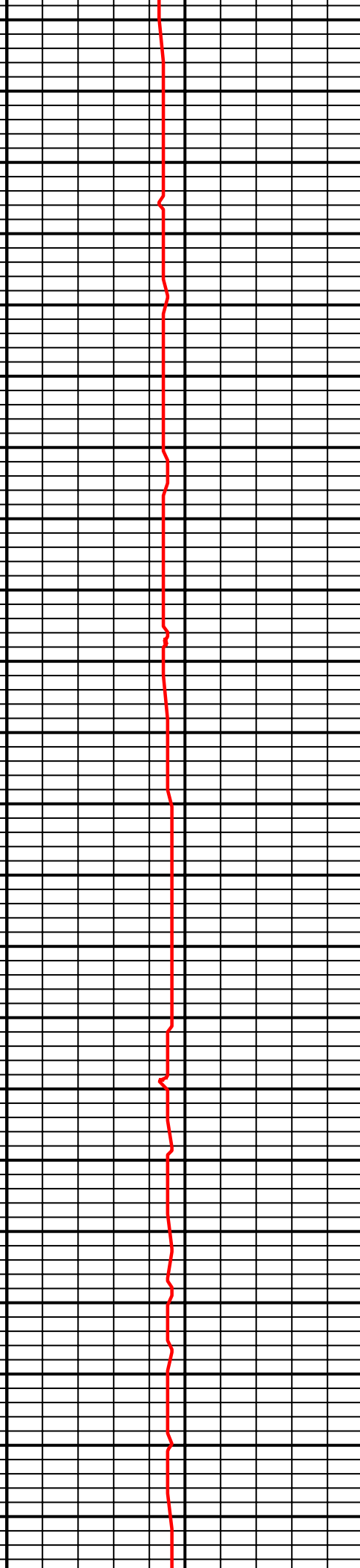
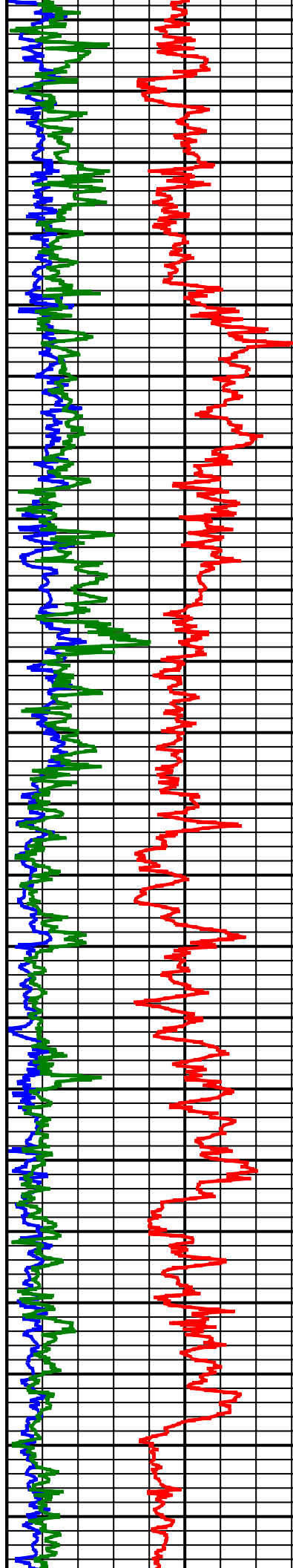
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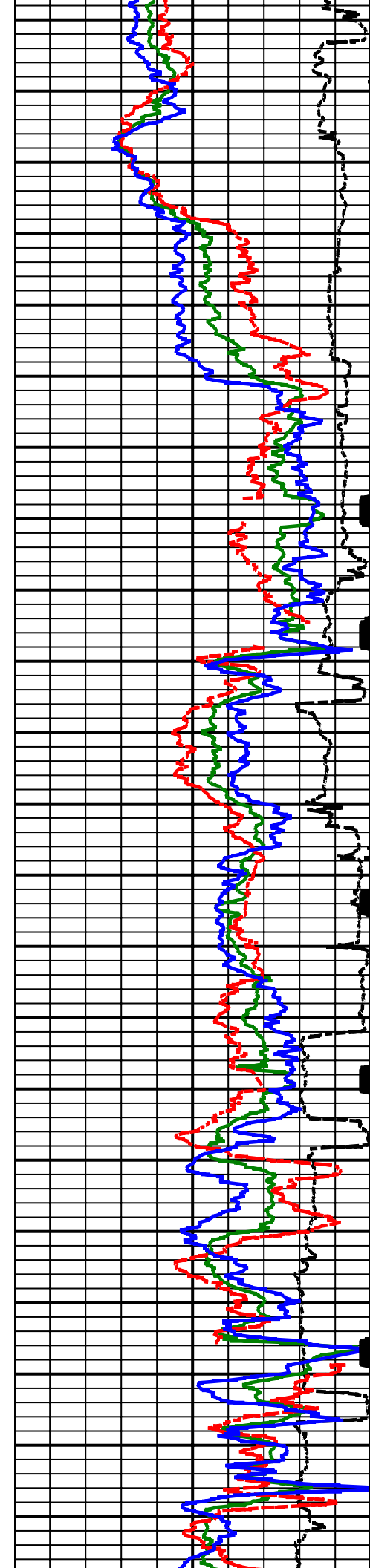
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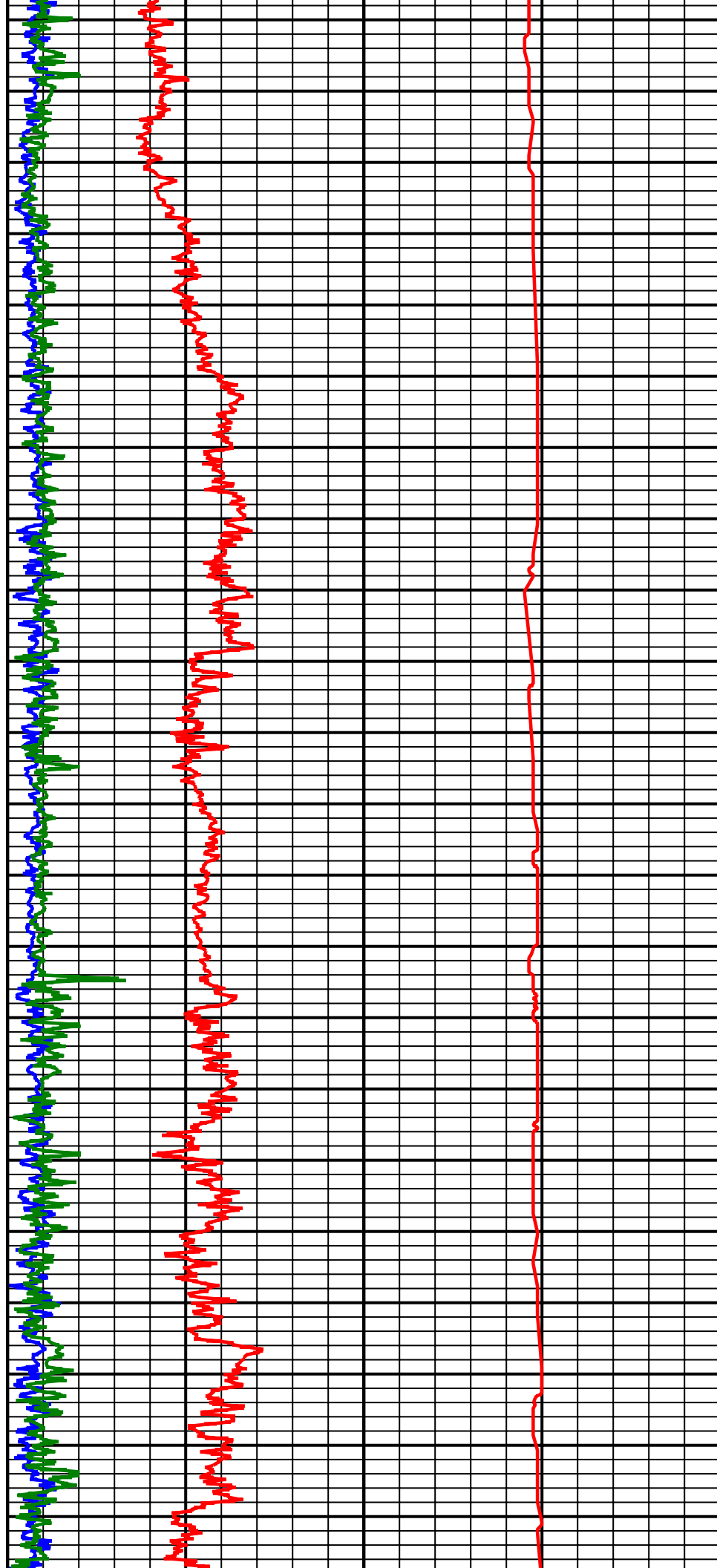
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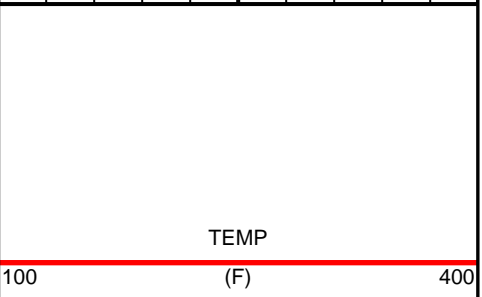
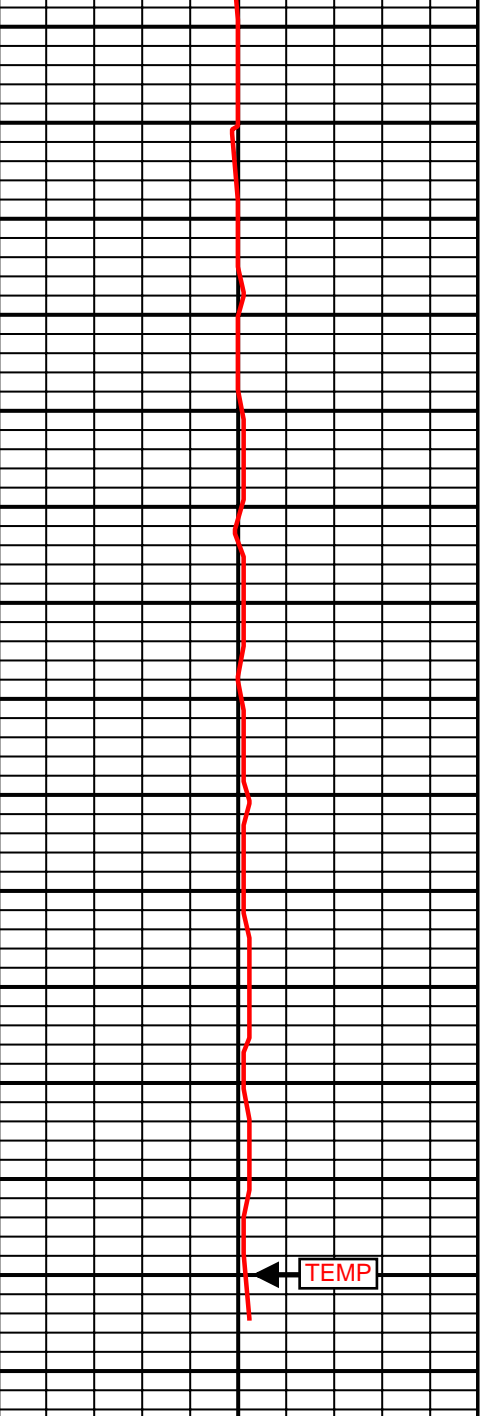
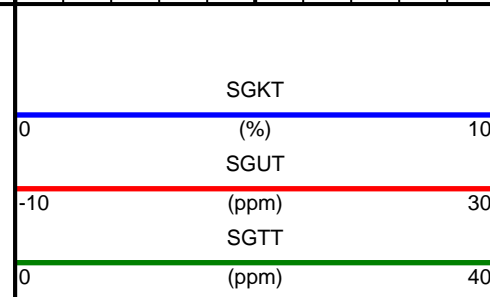
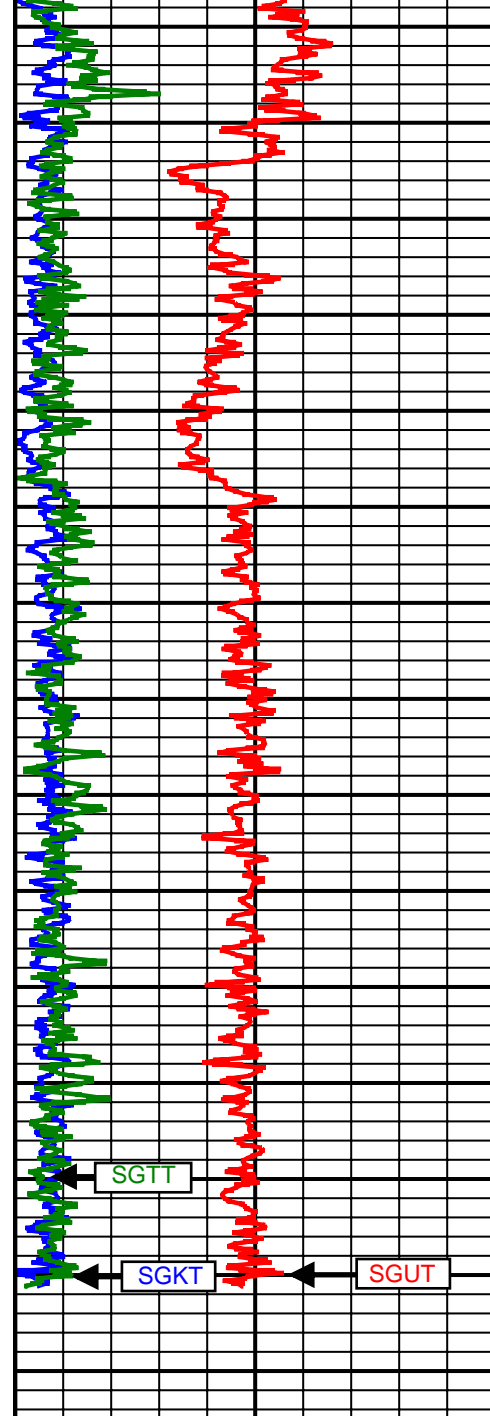
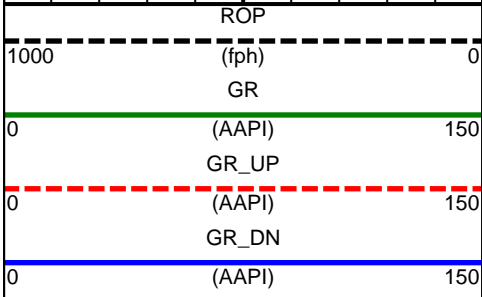
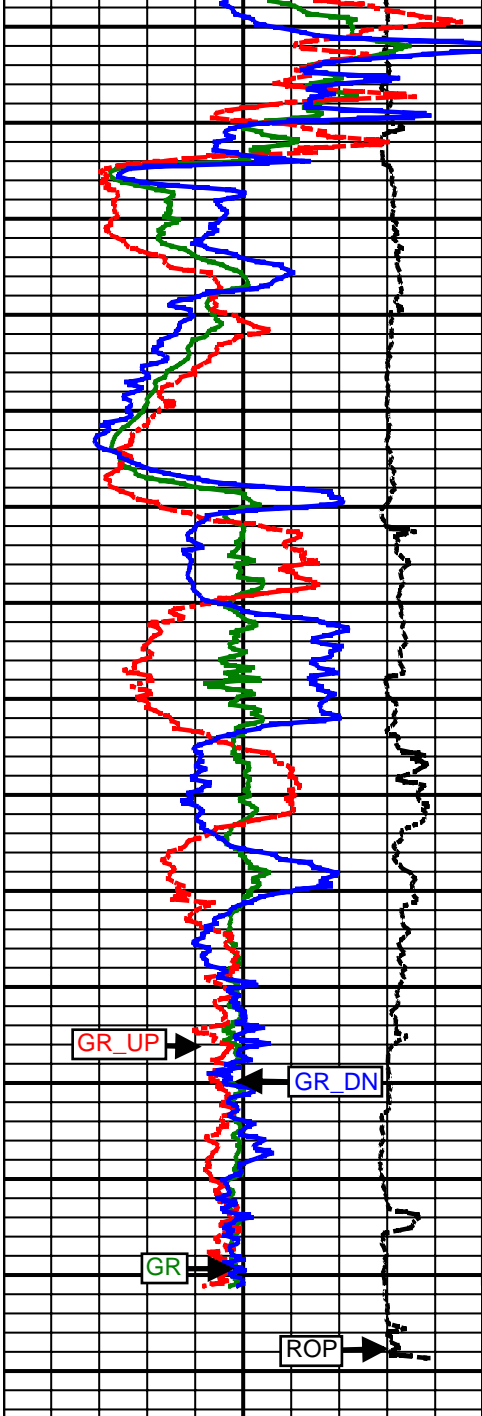
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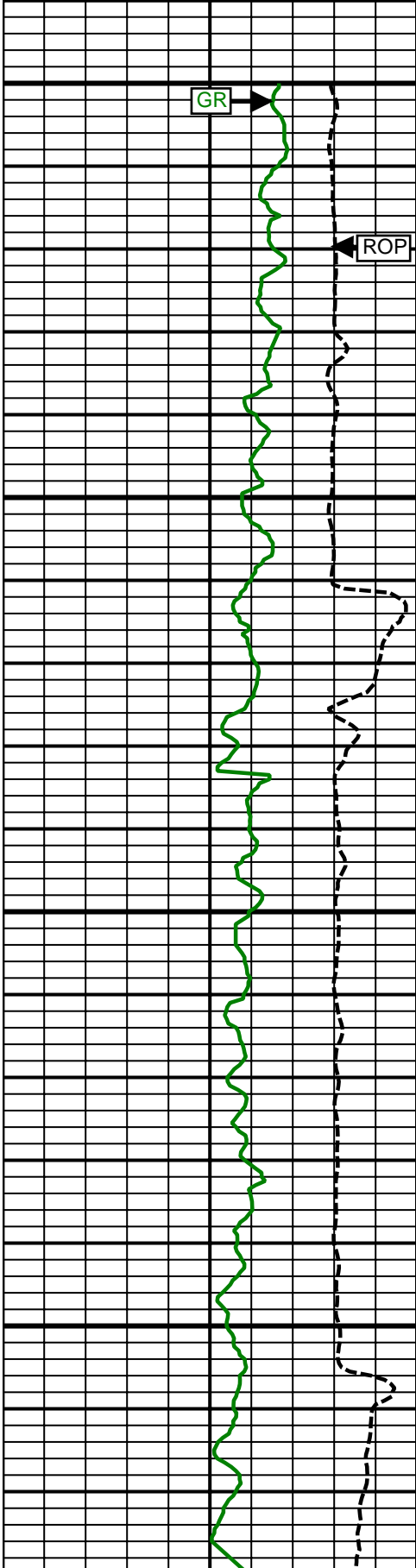
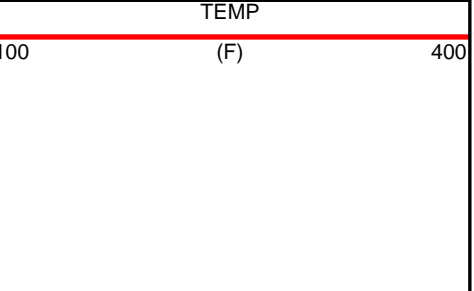
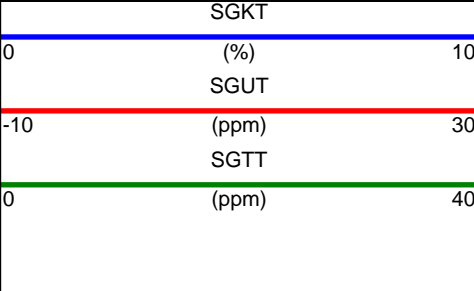
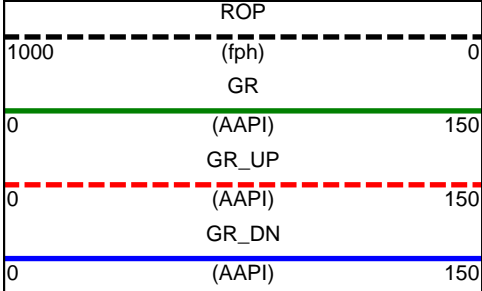
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**5 Inch - Measured Depth**

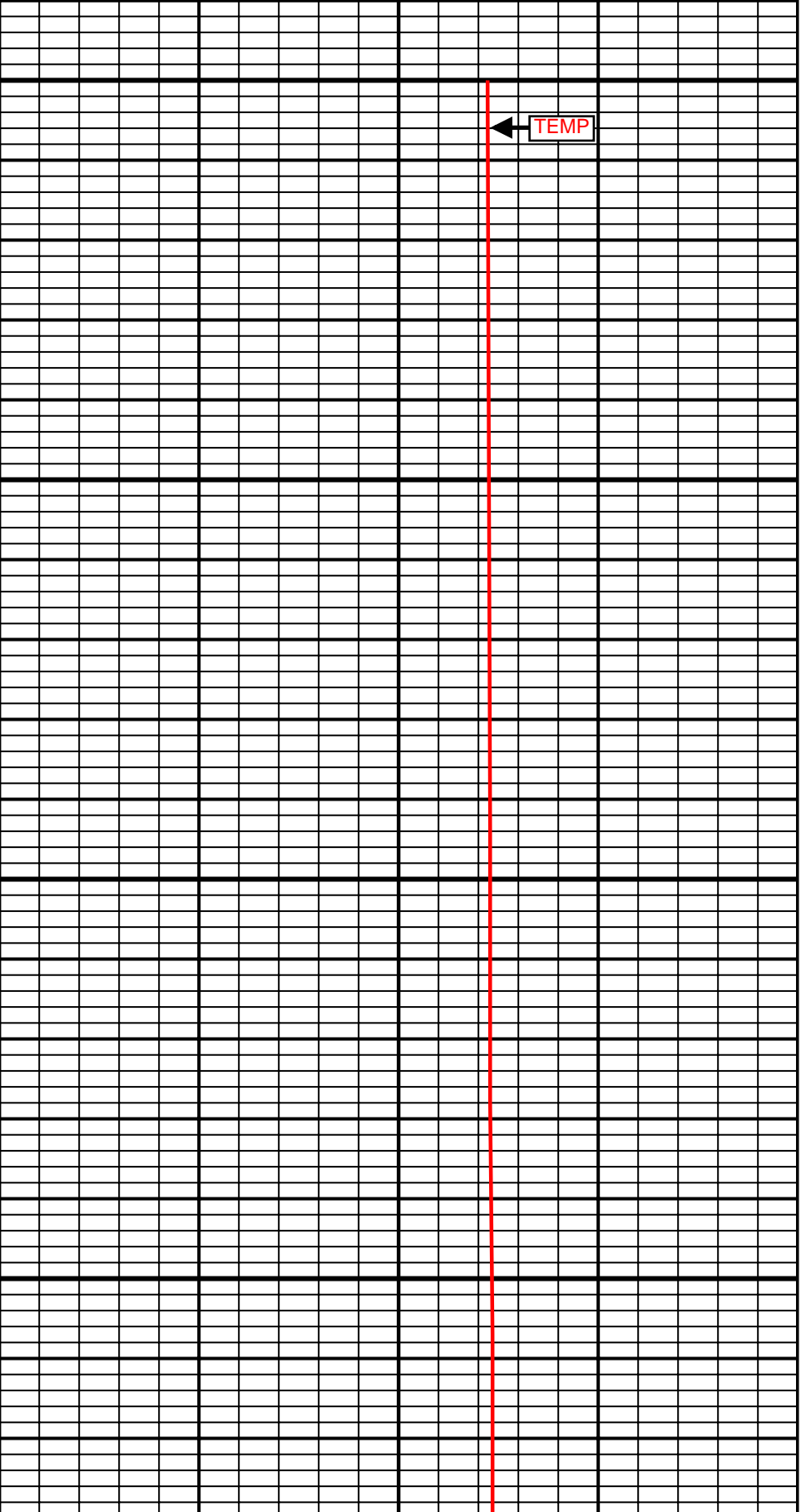


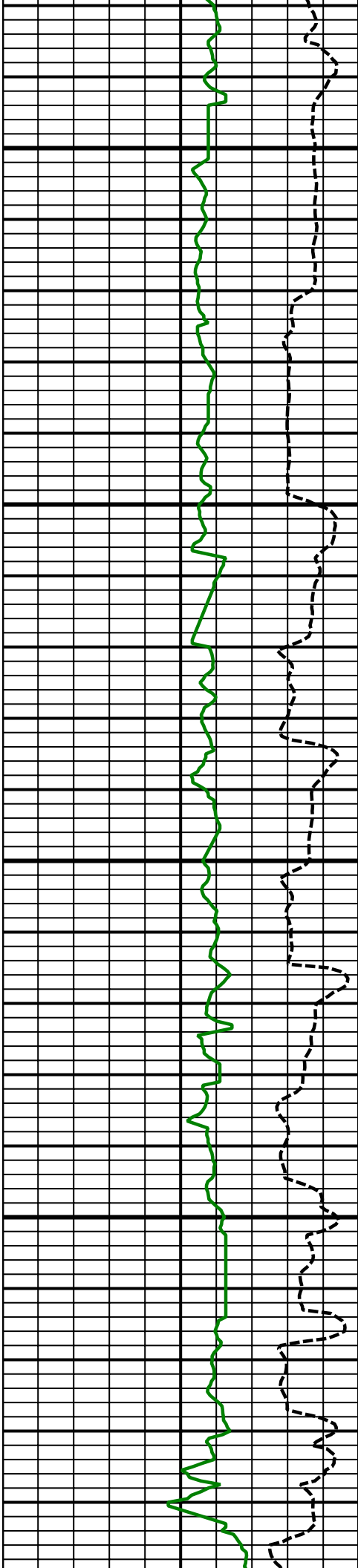
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Comment  
No. 2-1

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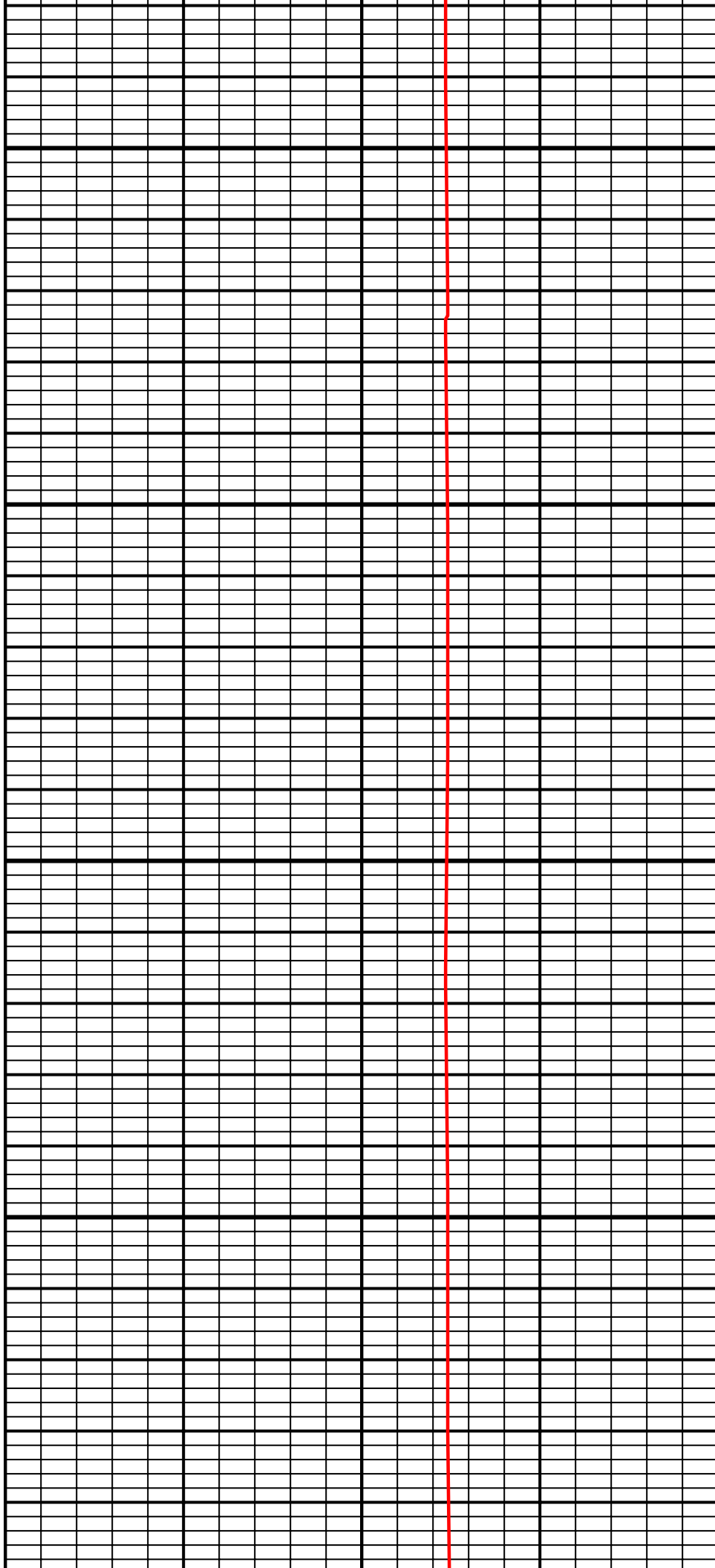
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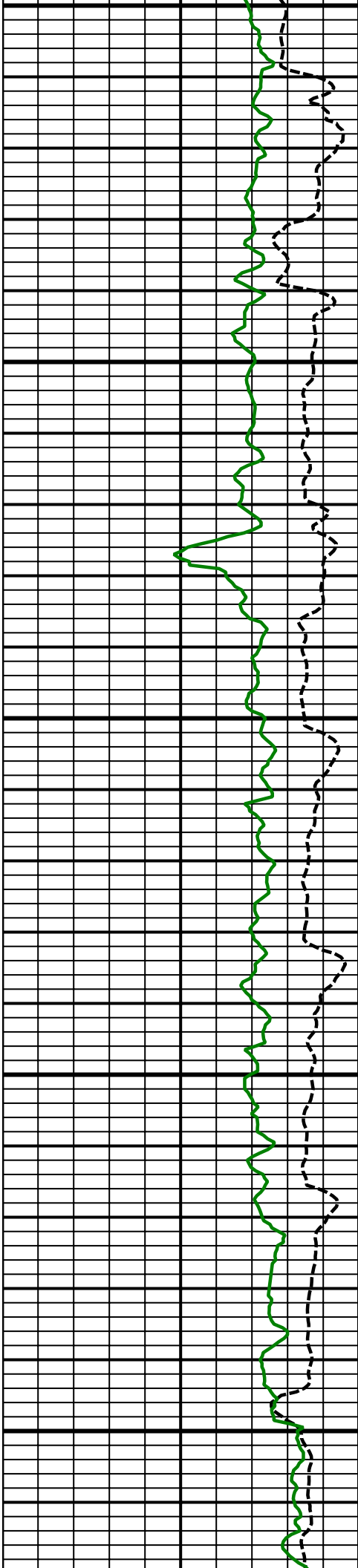




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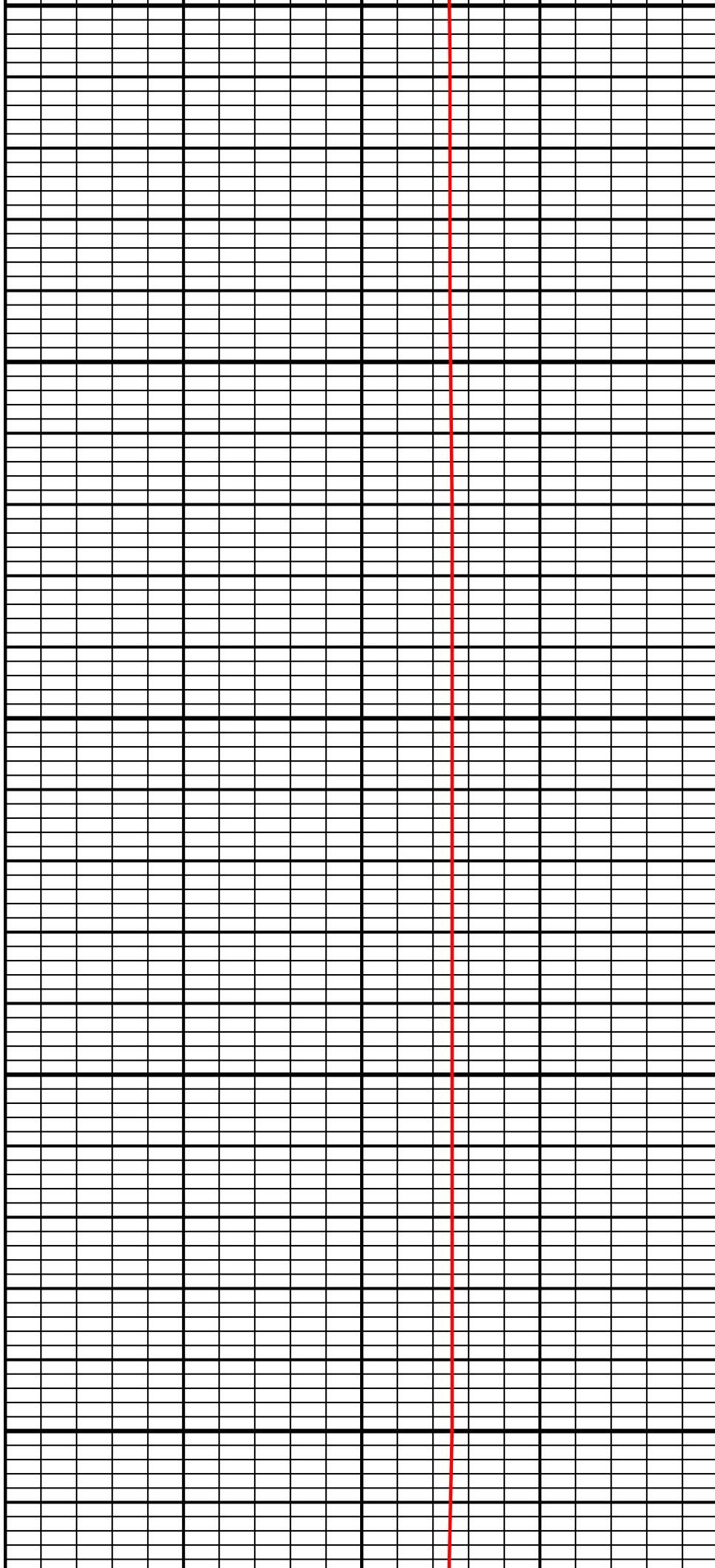
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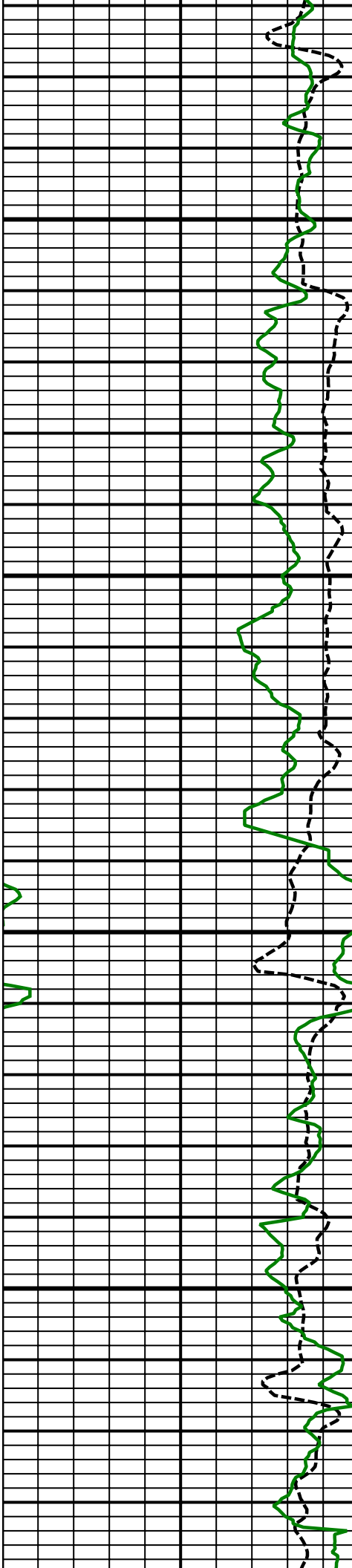




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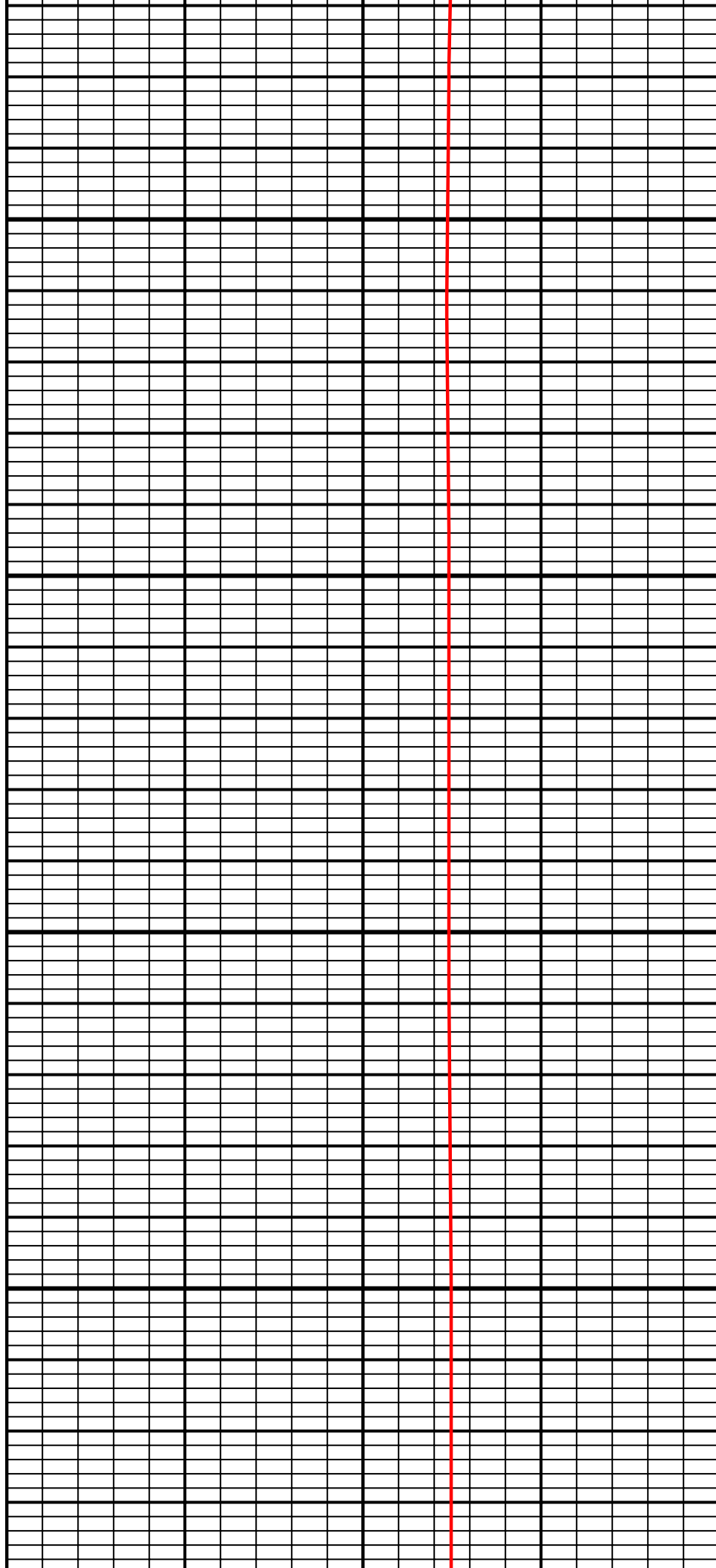
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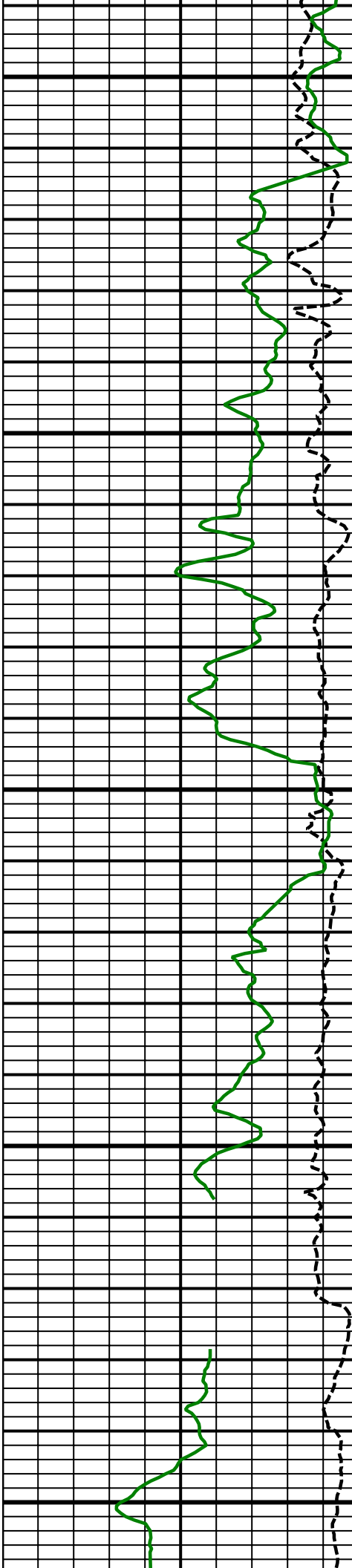




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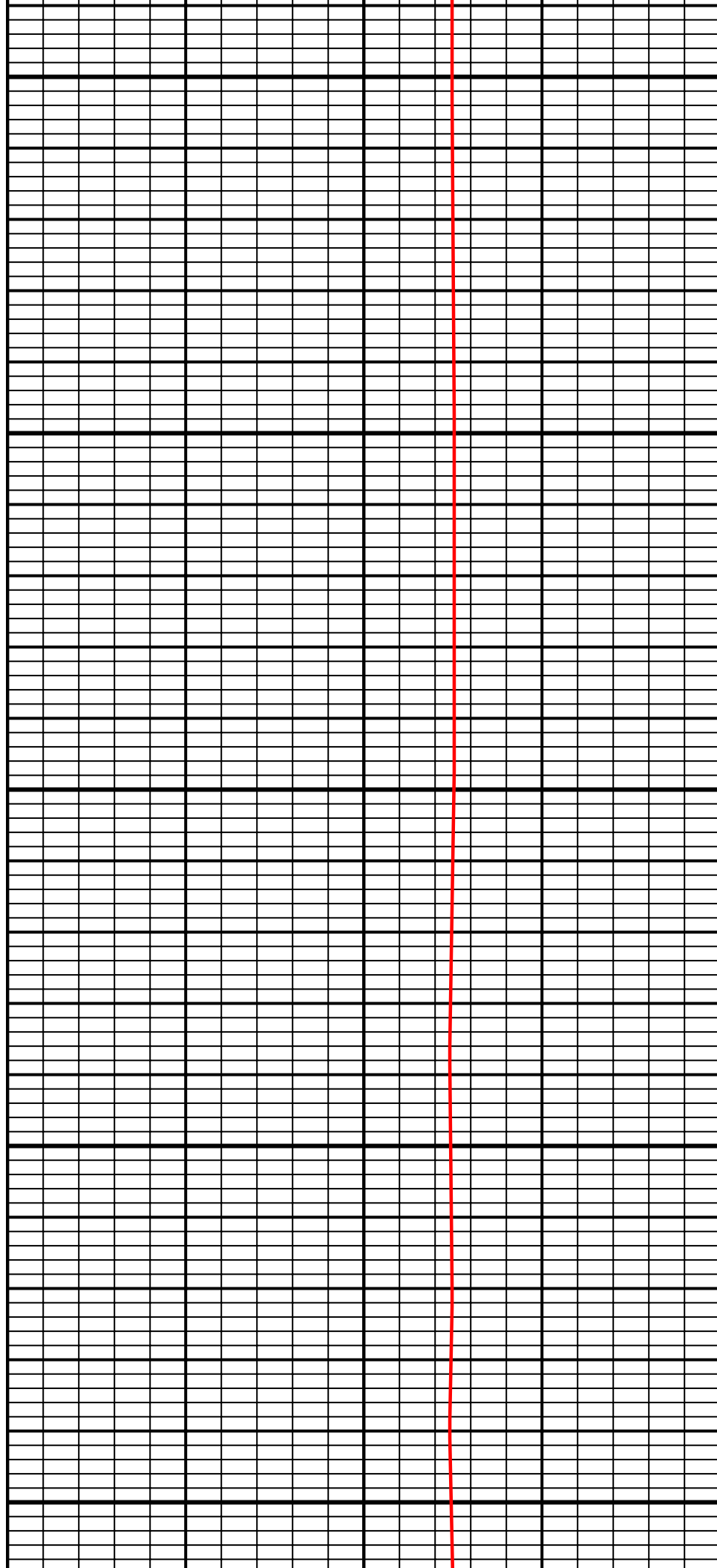


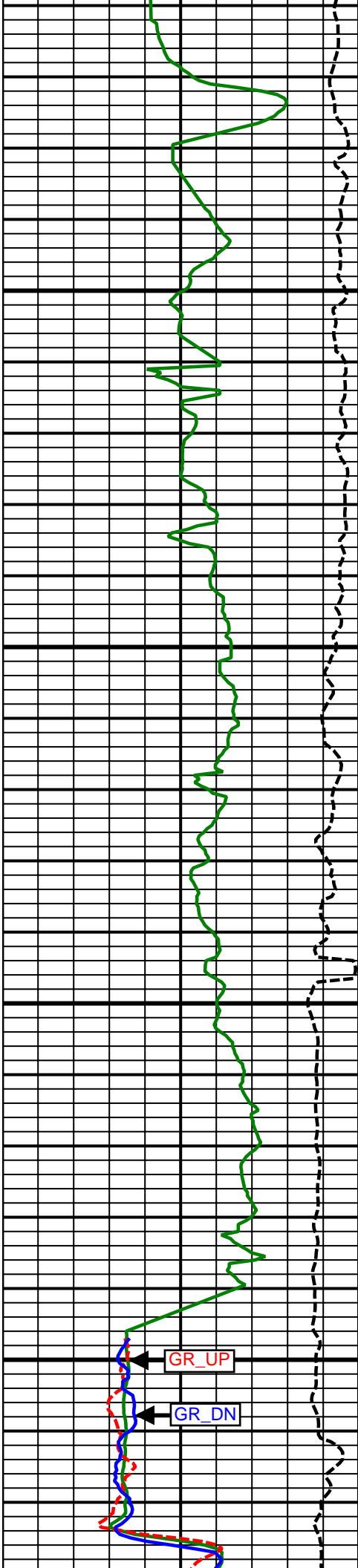


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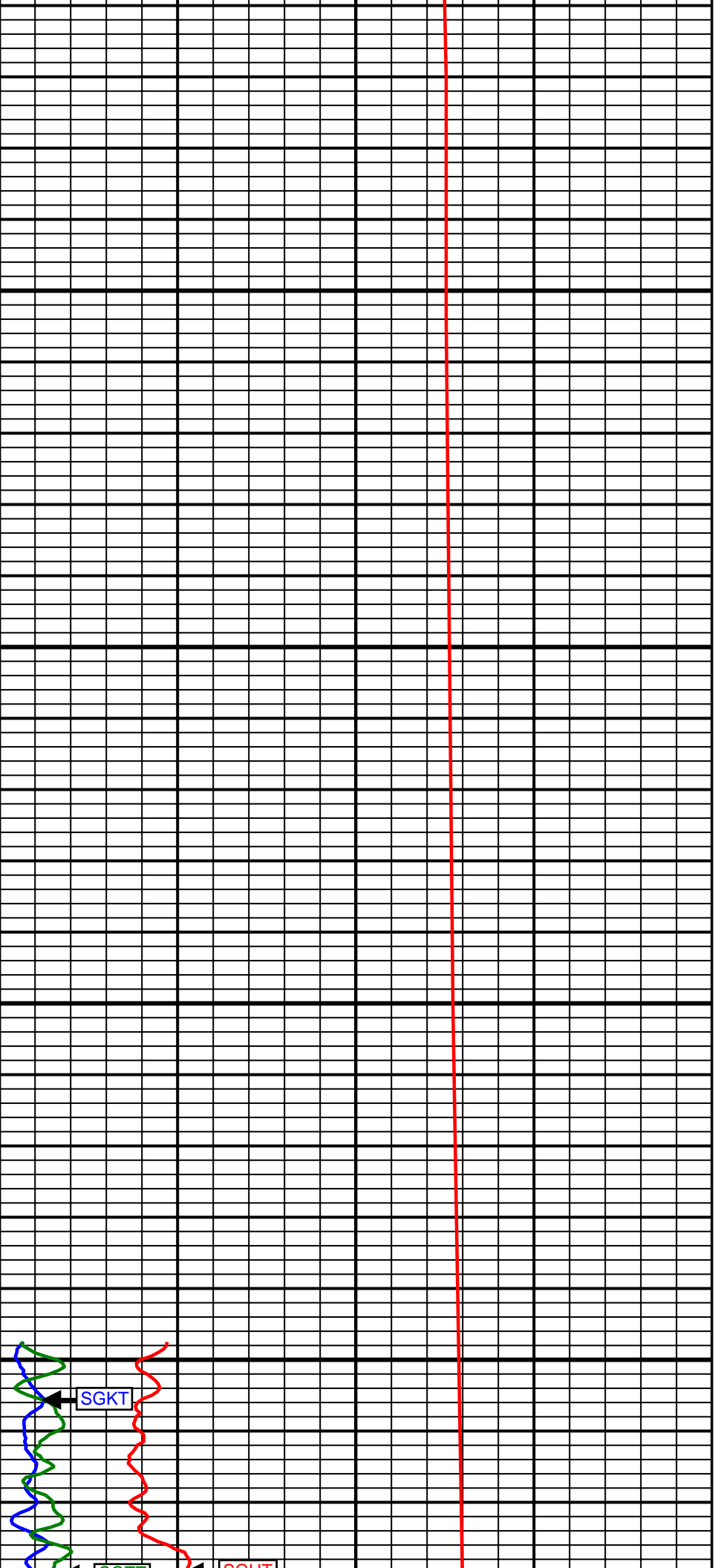


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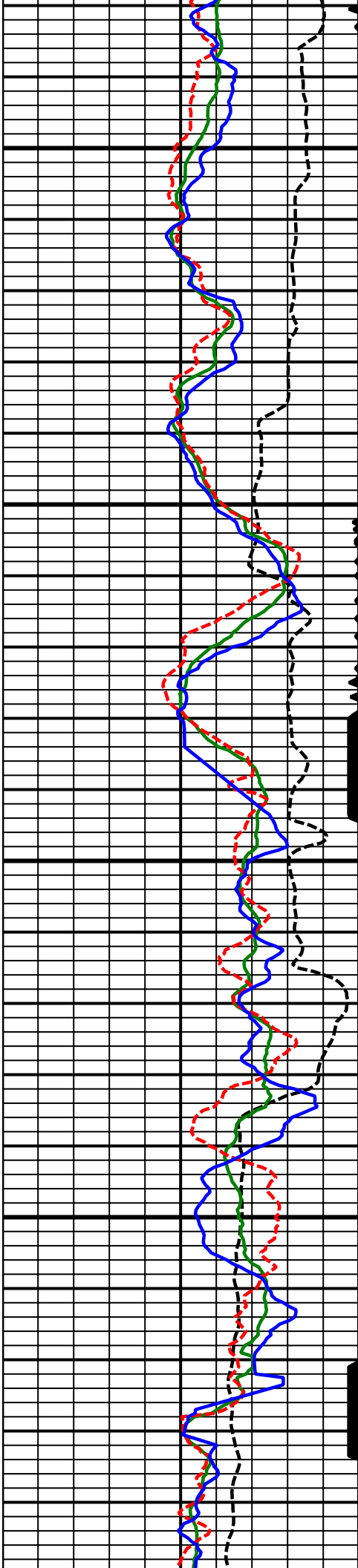
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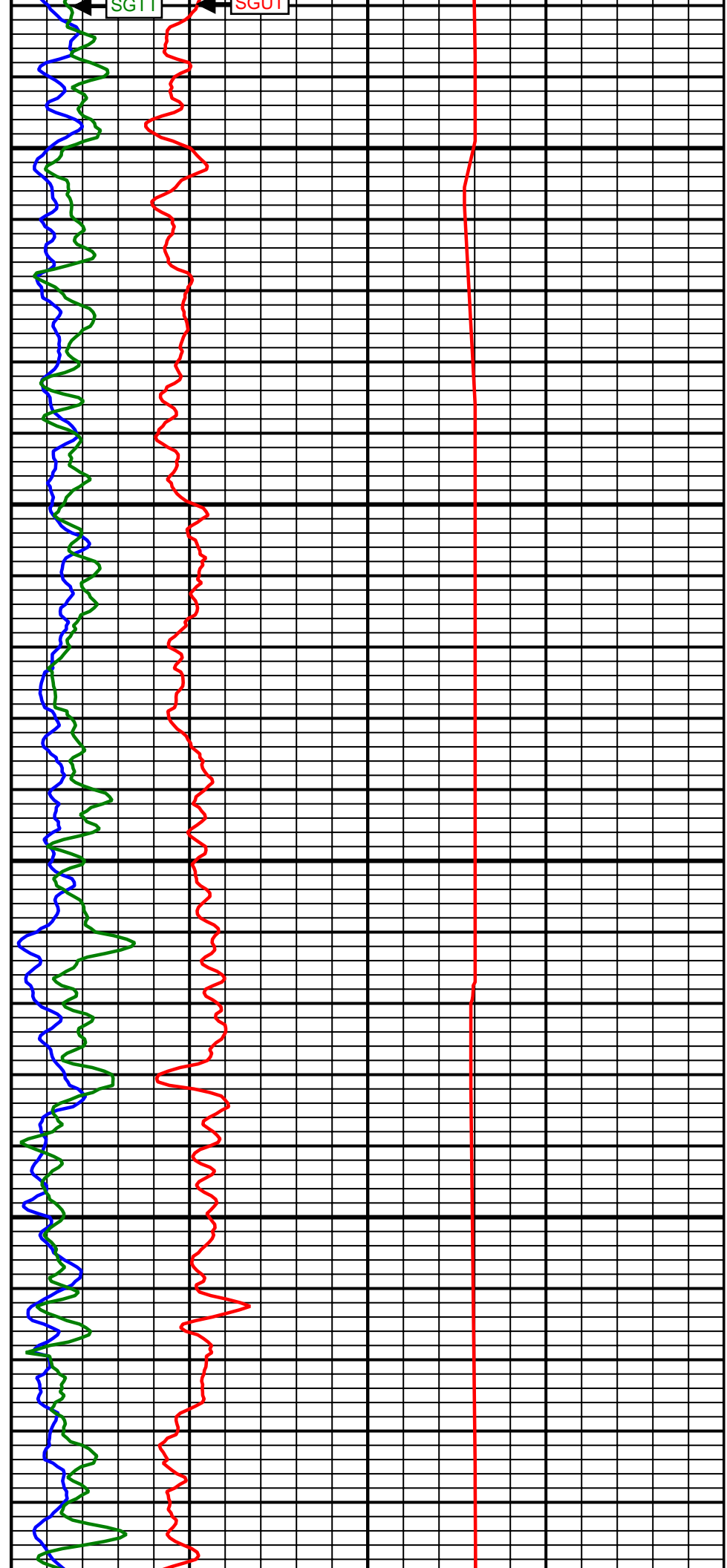
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SOLT



7800  
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7900  
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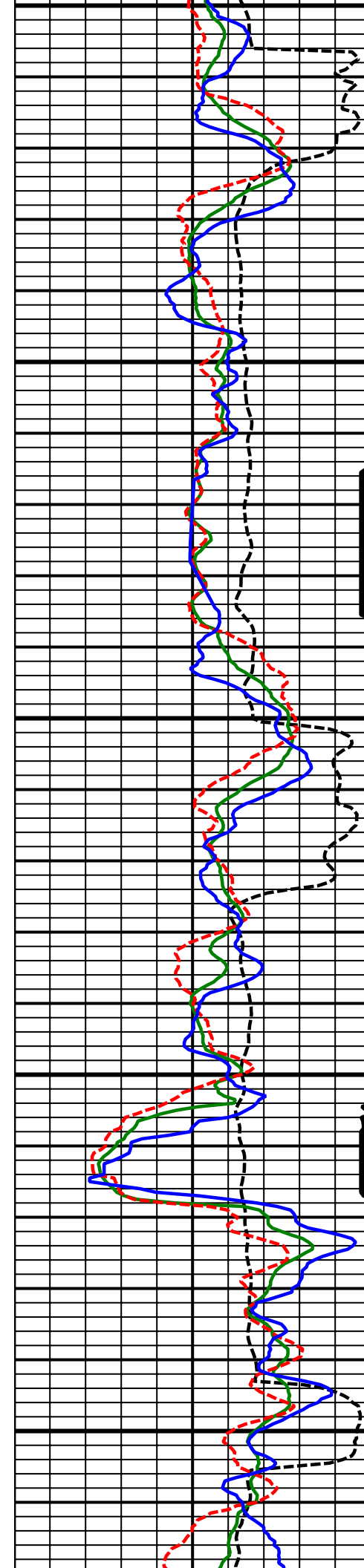


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SG01

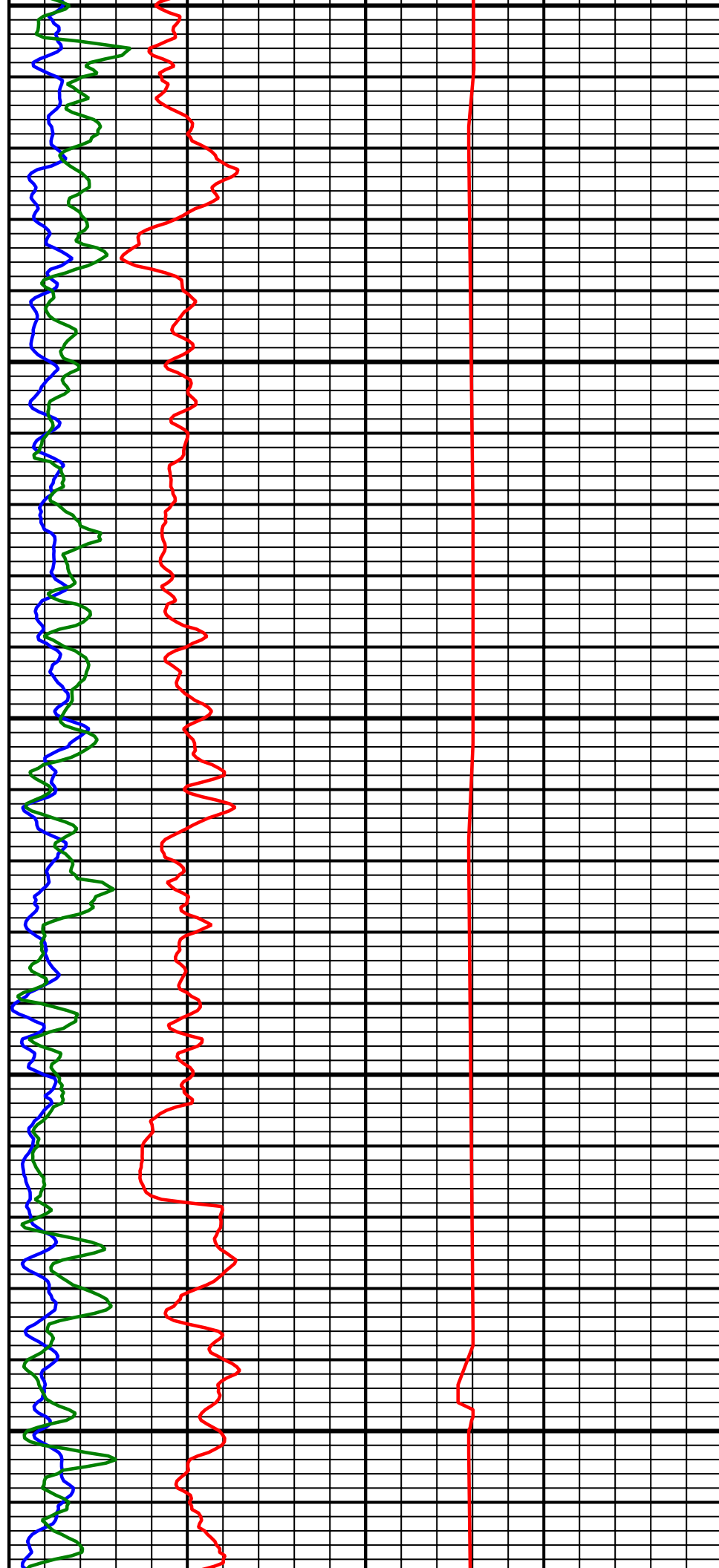
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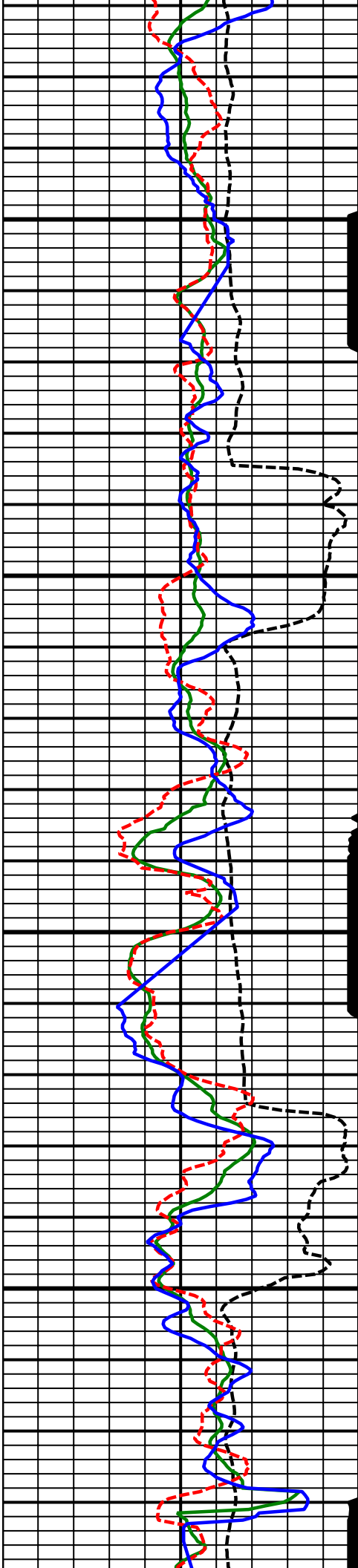
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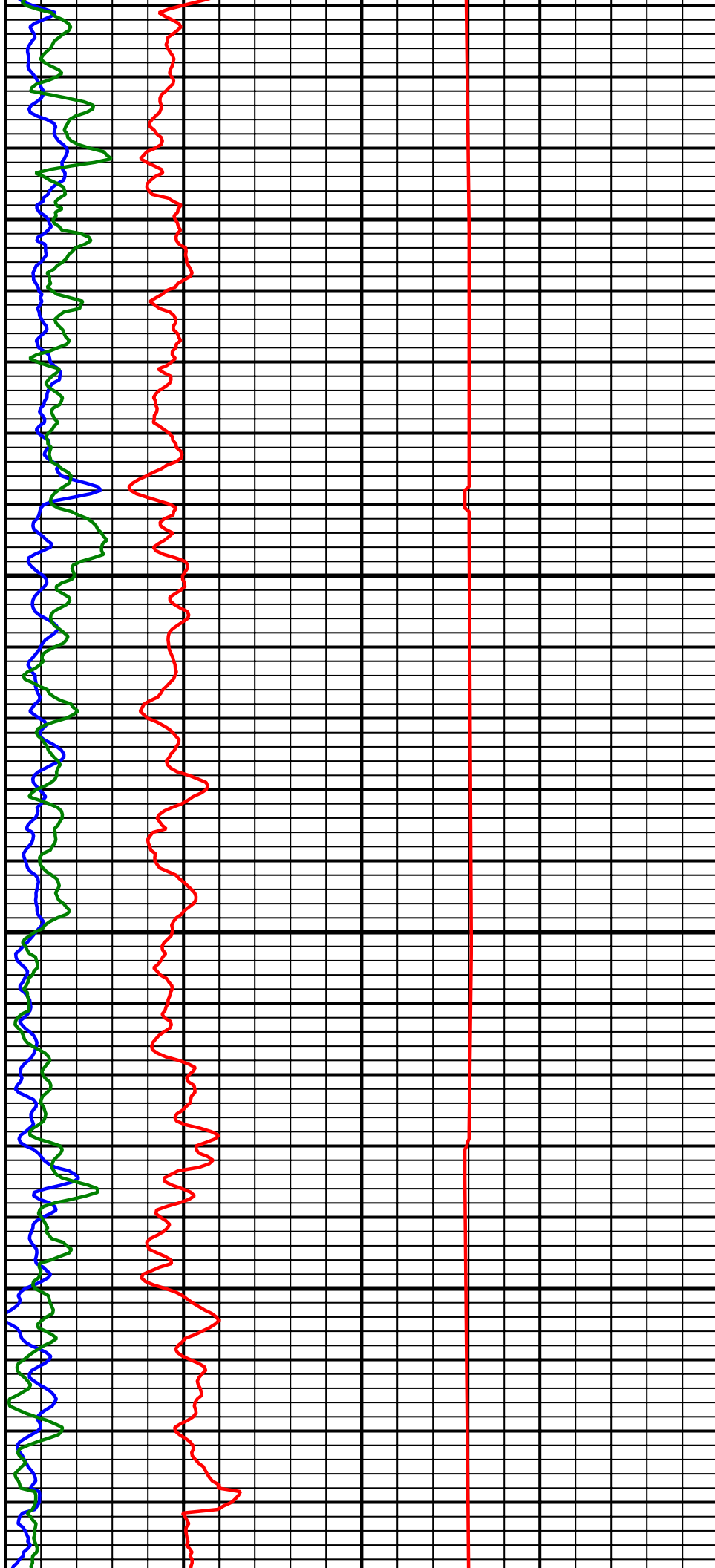
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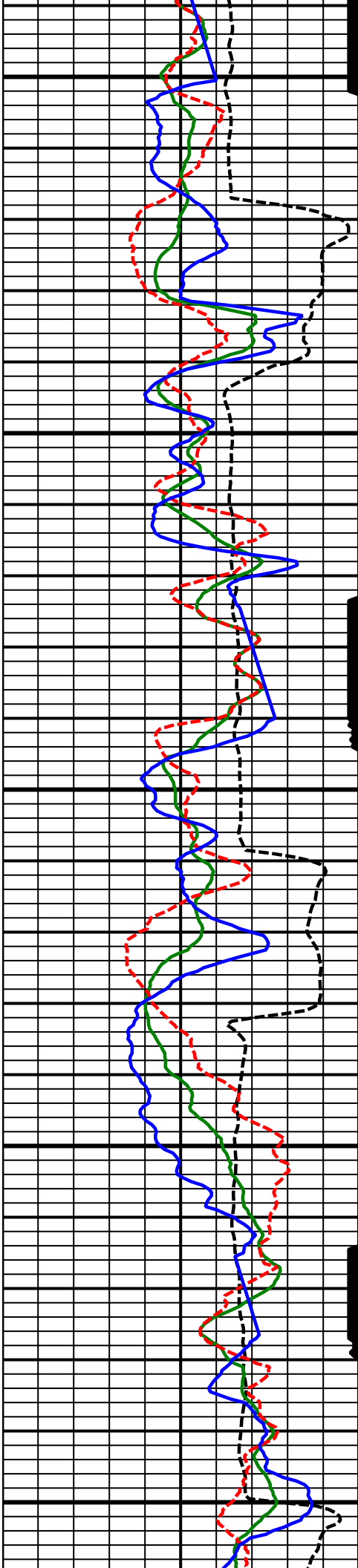




8200  
MD

8300  
MD

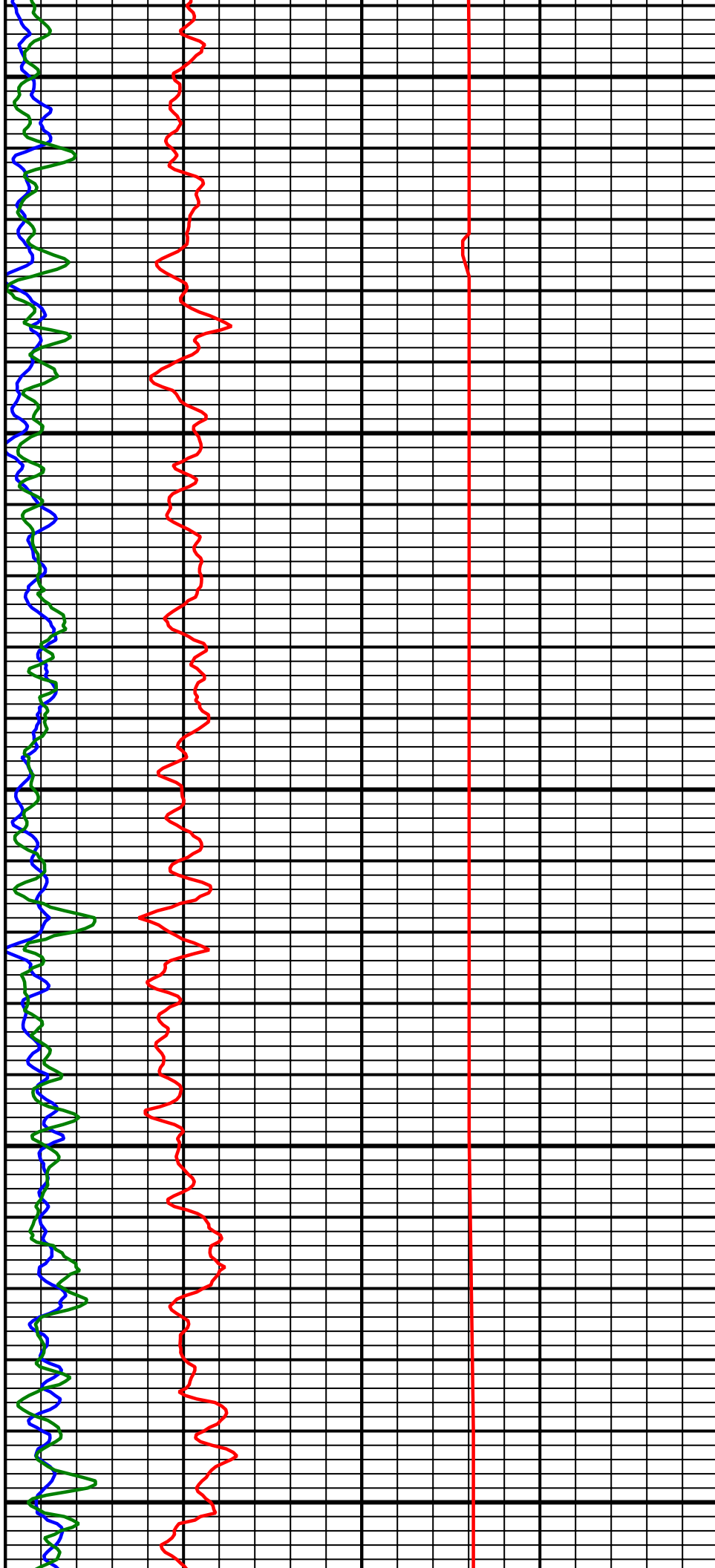


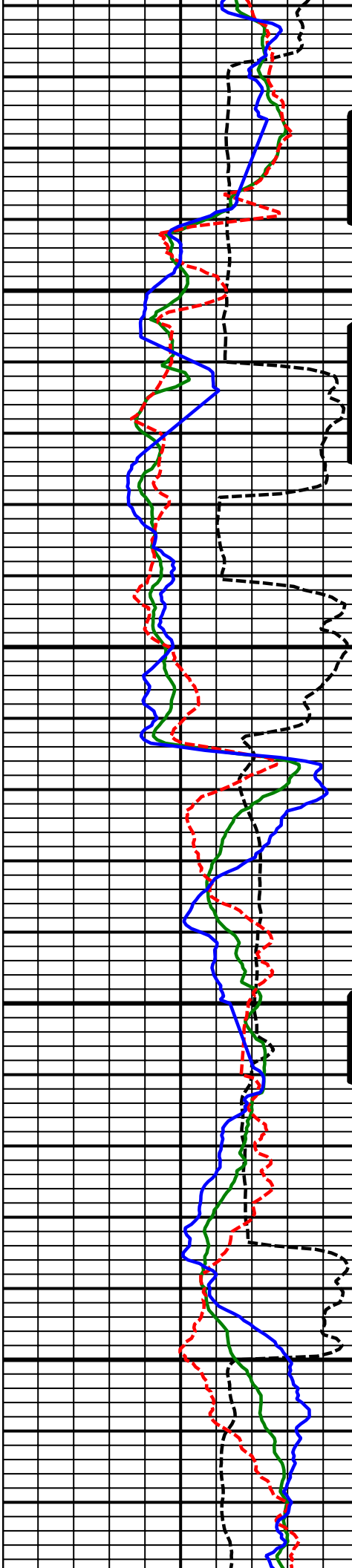


8400  
MD

8500  
MD

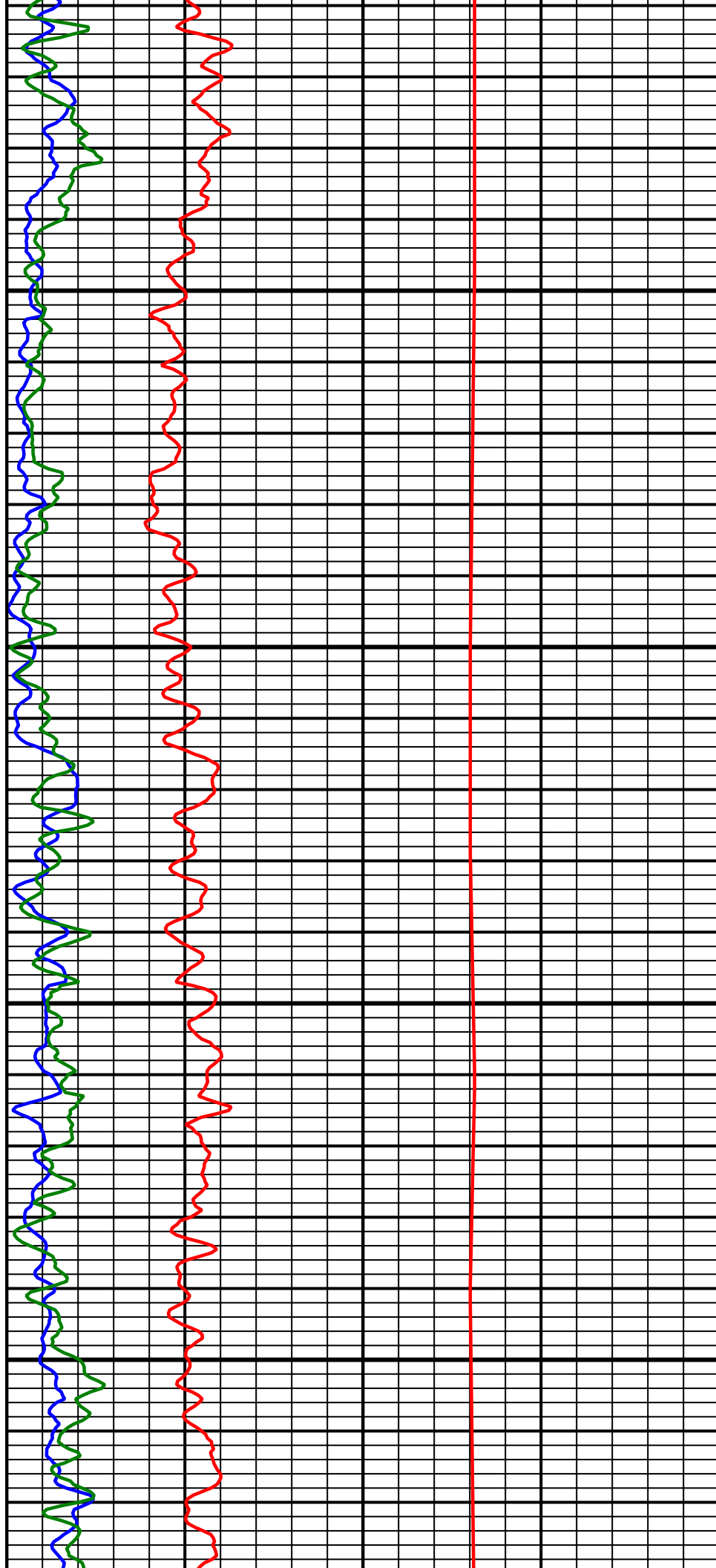
8600  
MD

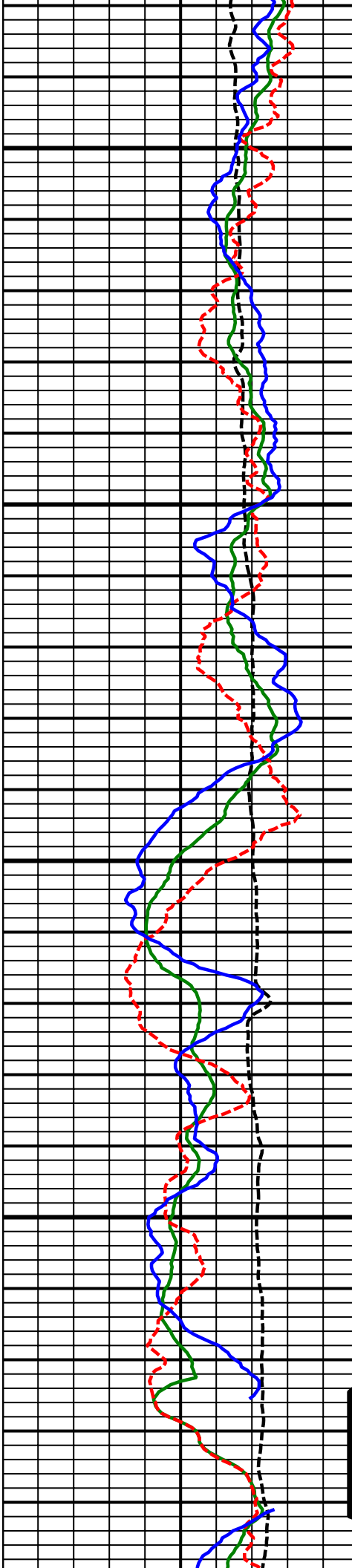




8700  
MD

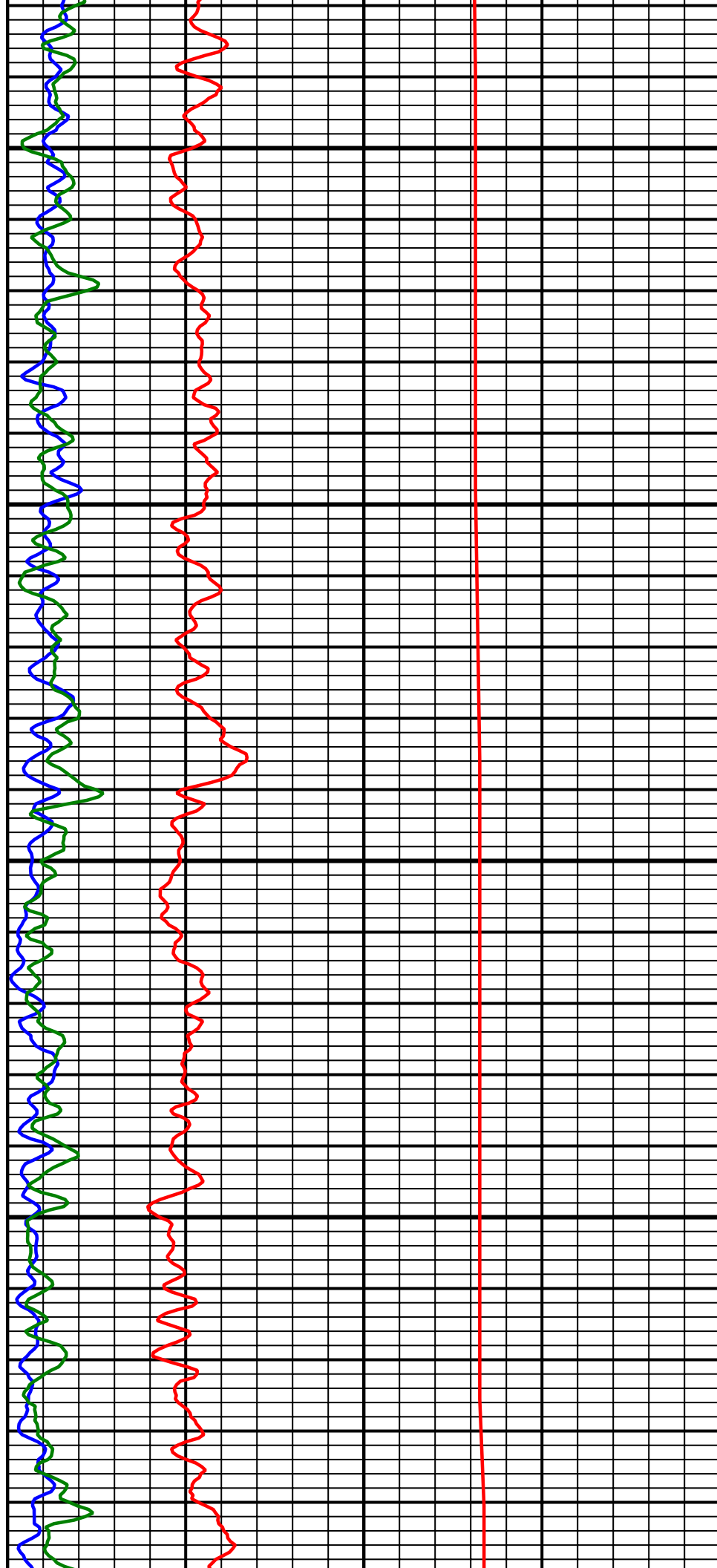
8800  
MD

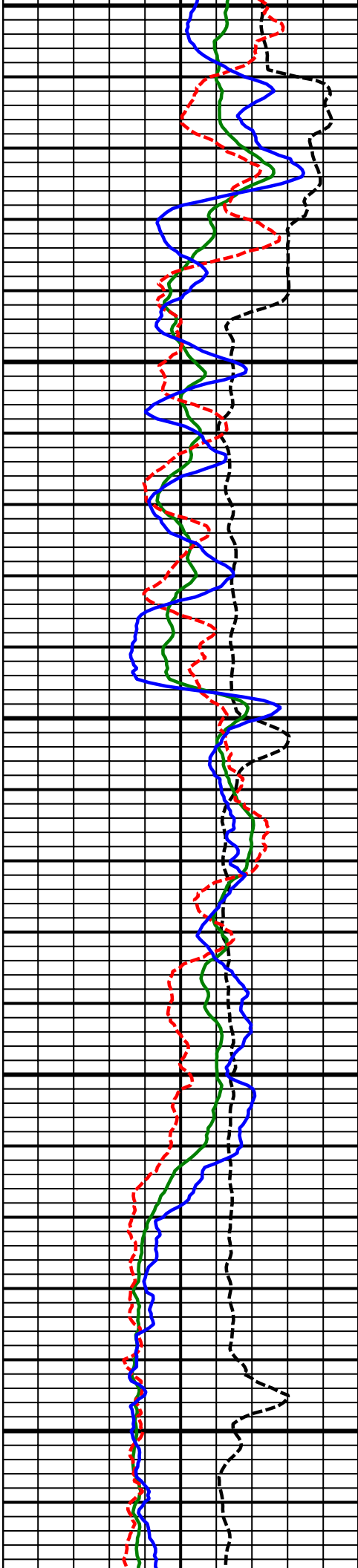




8900  
MD

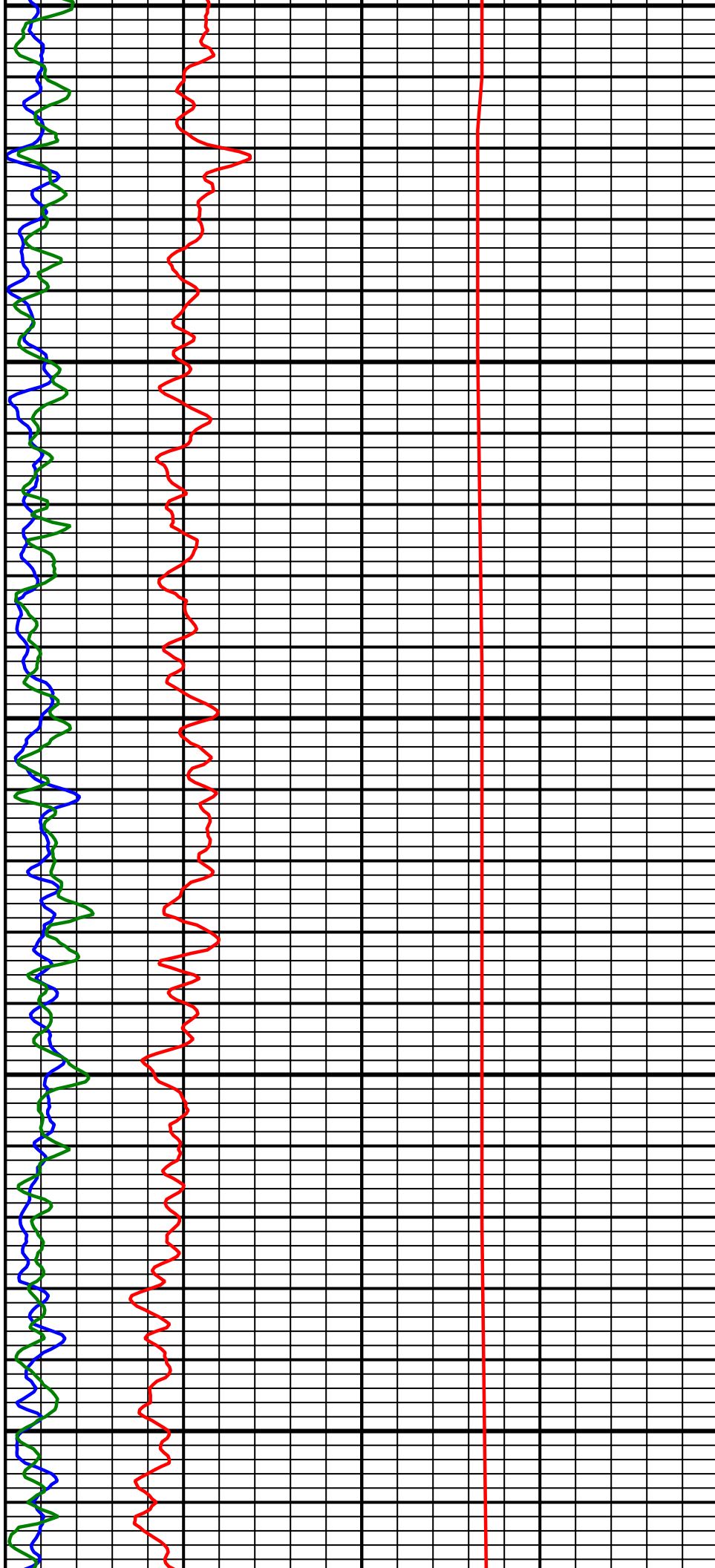
9000  
MD

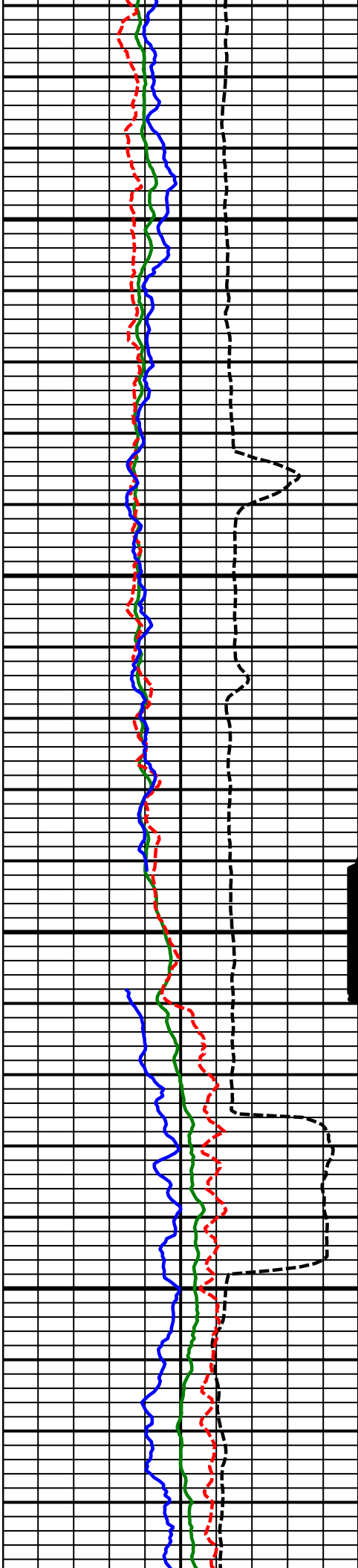




9100  
MD

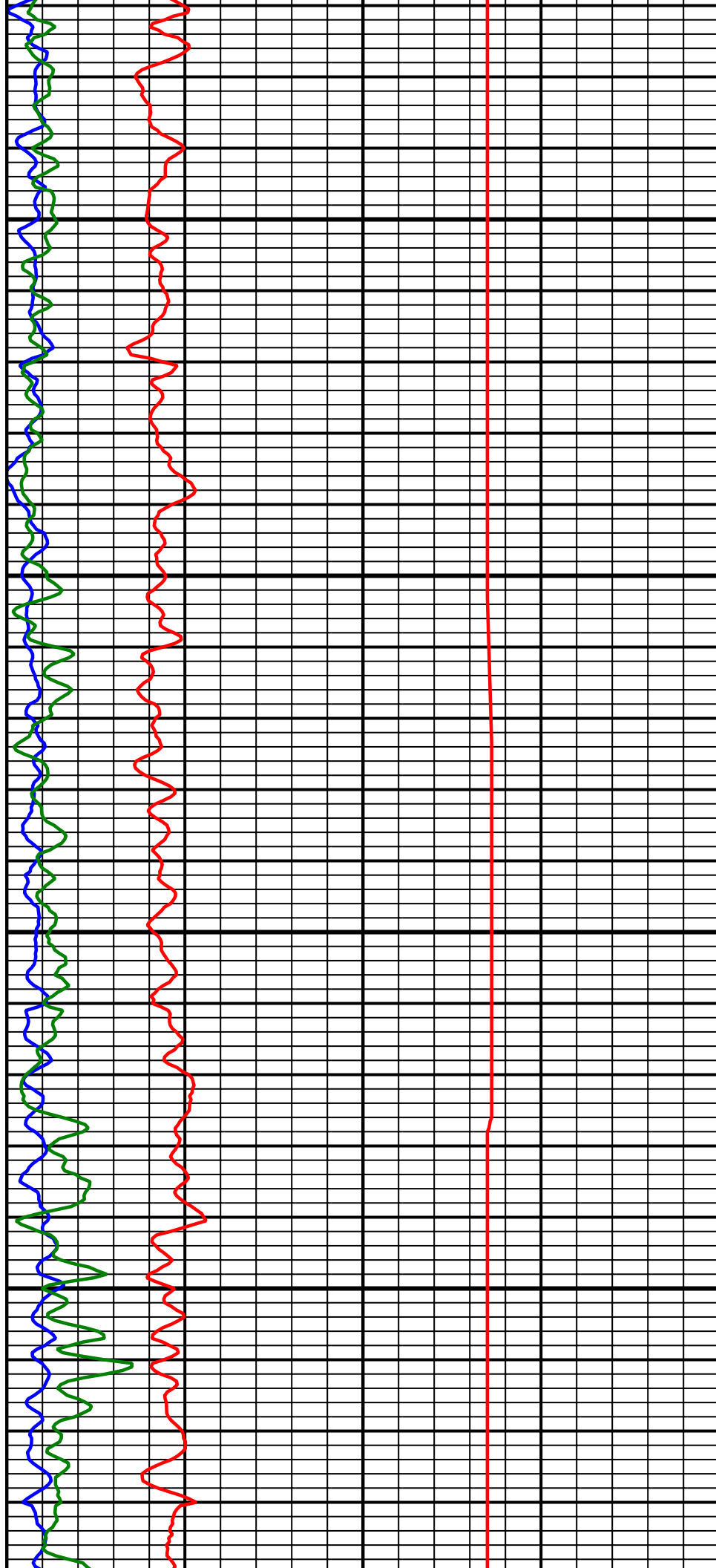
9200  
MD

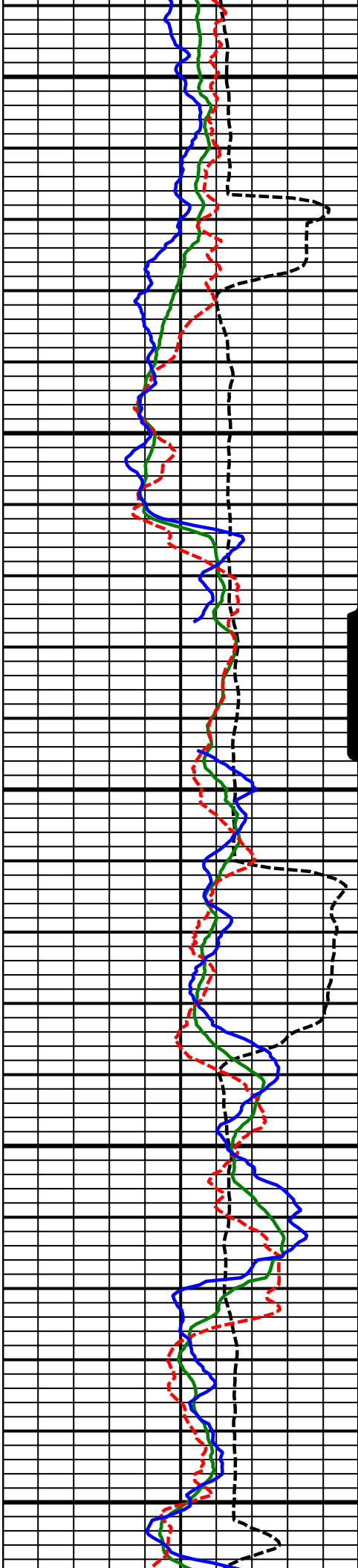




9300  
MD

9400  
MD

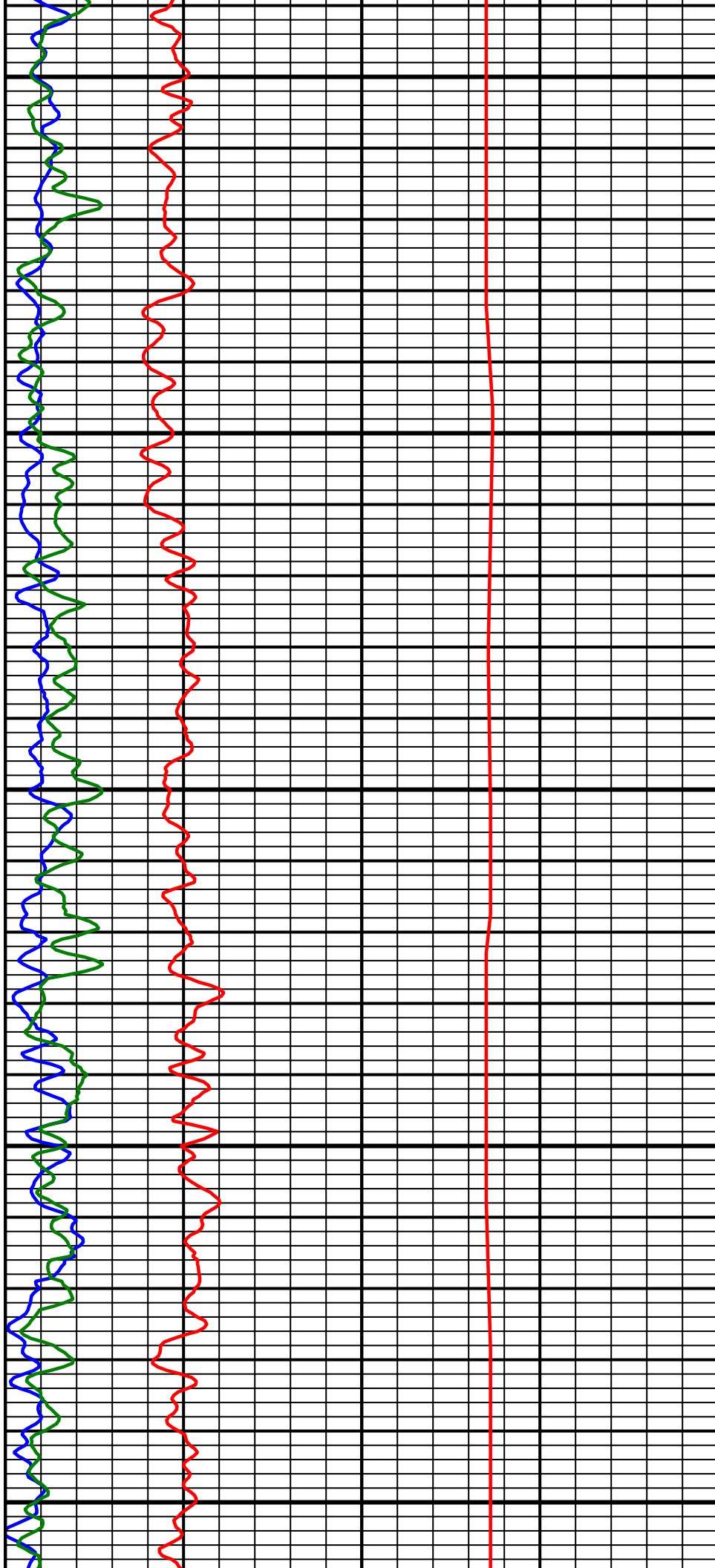


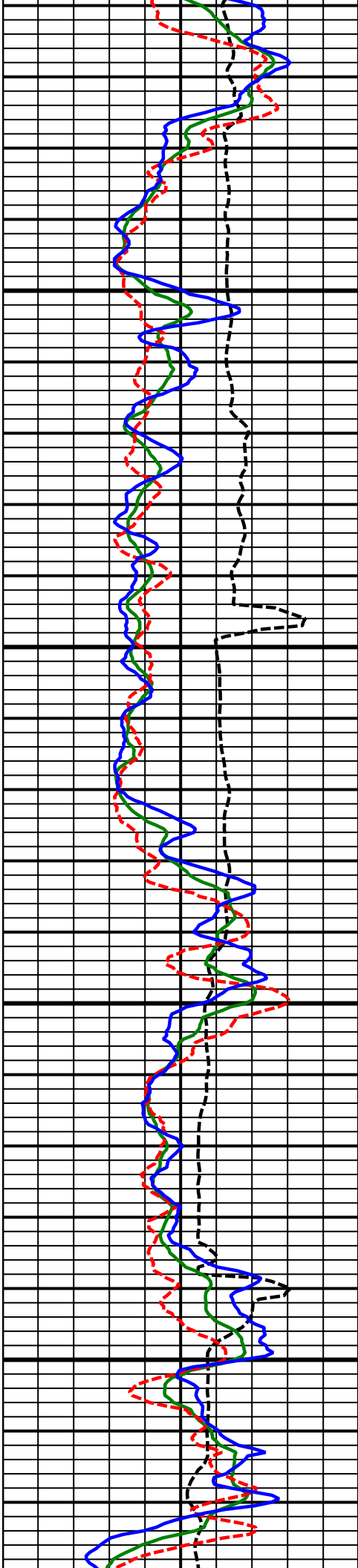


9500  
MD

9600  
MD

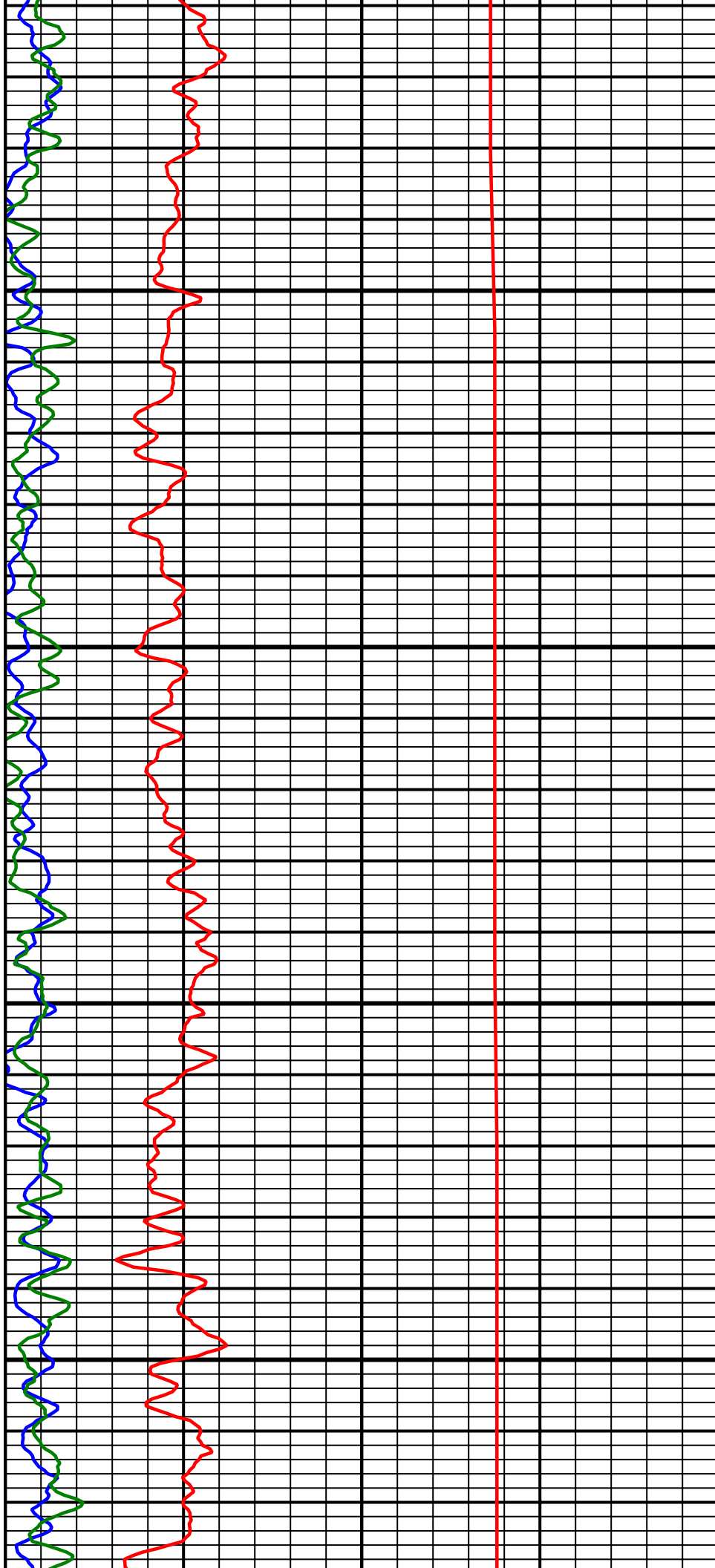
9700  
MD

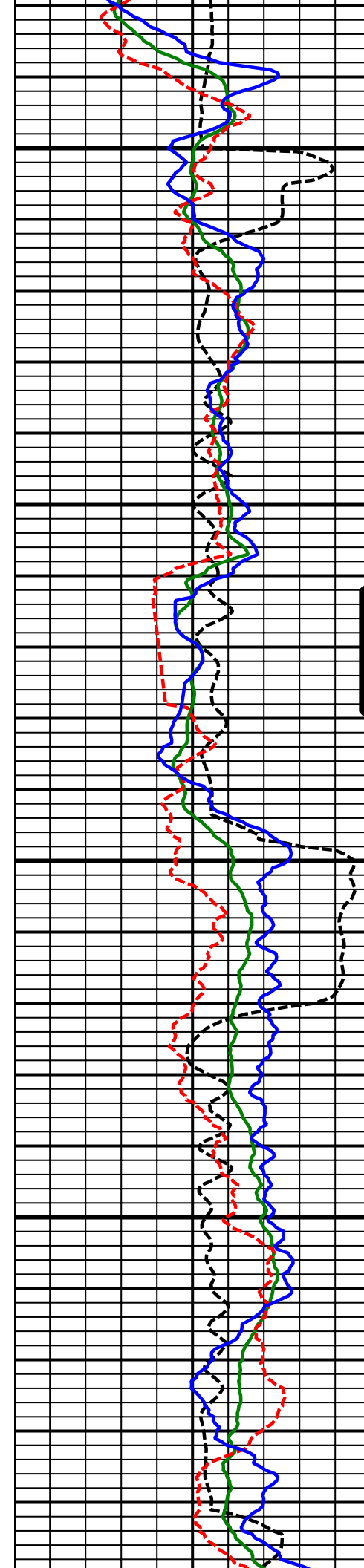




9800  
MD

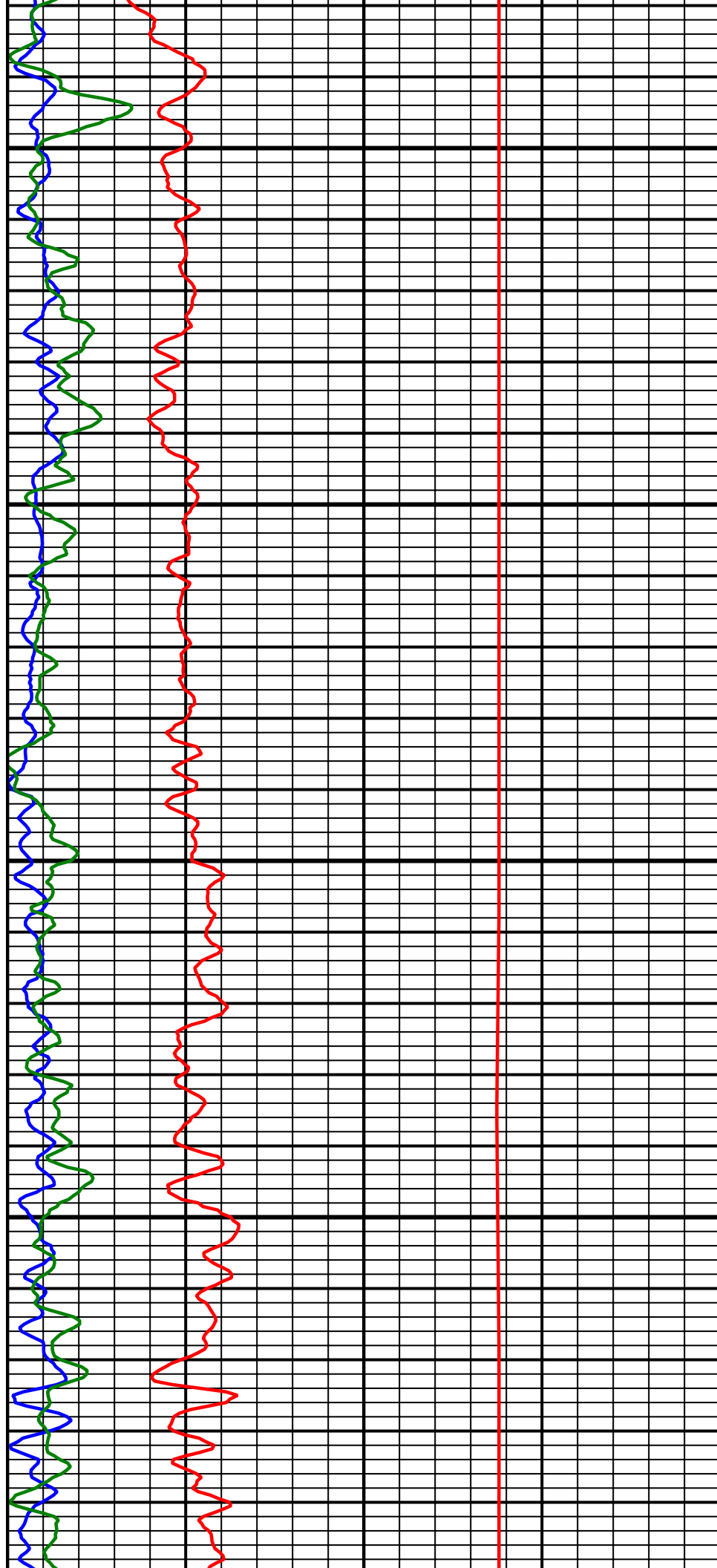
9900  
MD

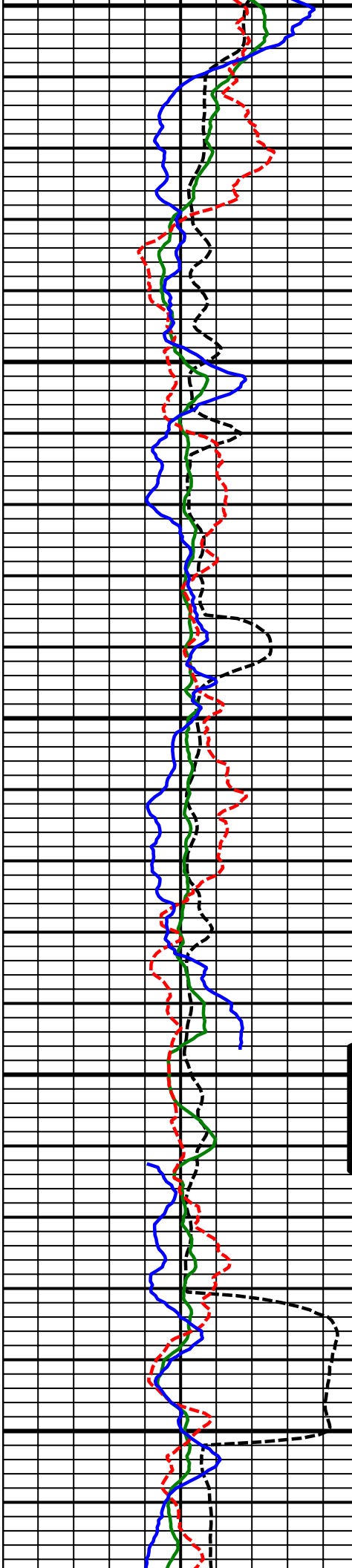




10000  
MD

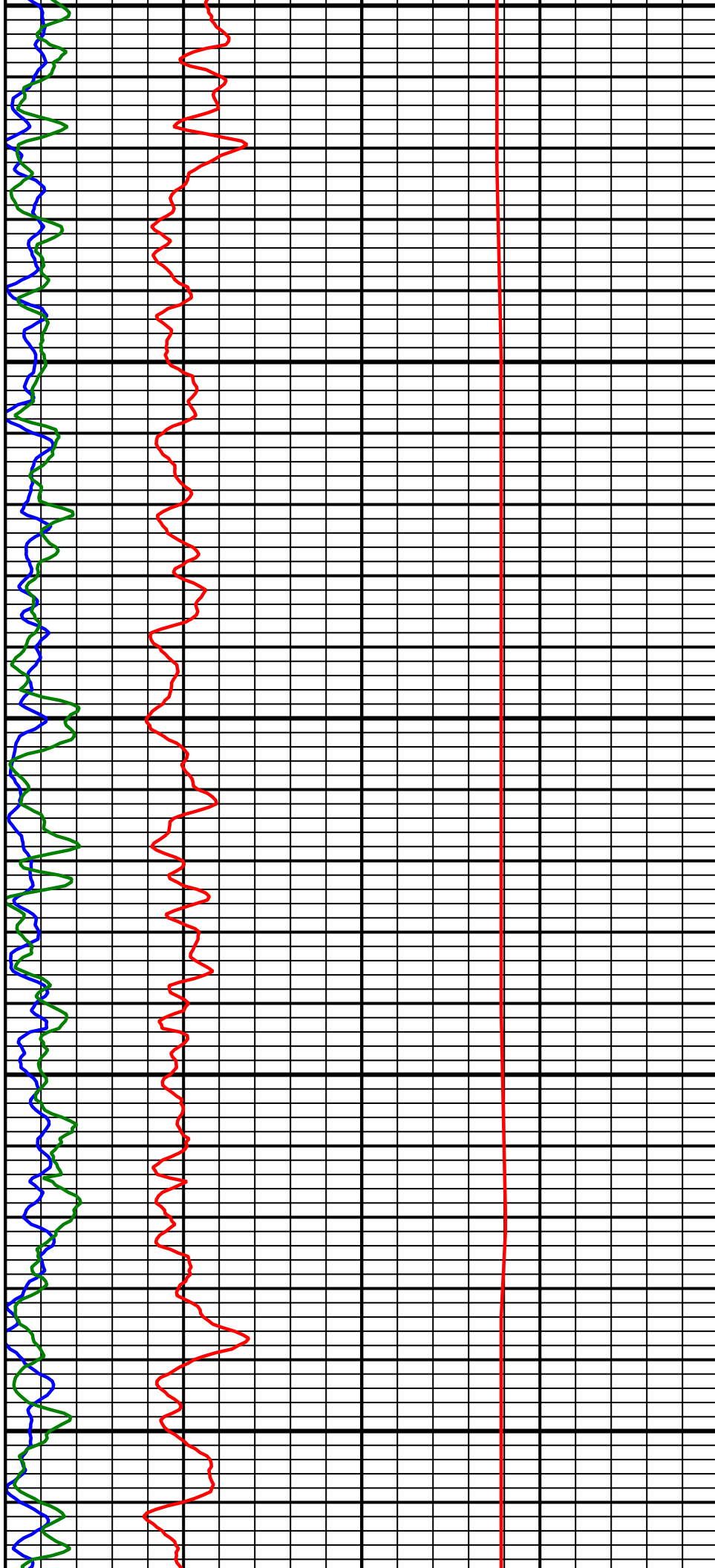
10100  
MD

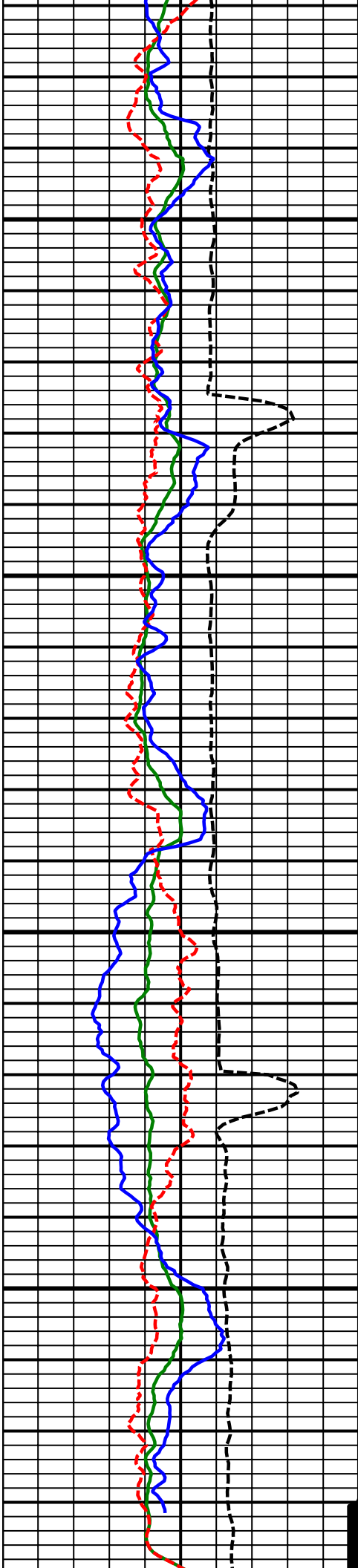




10200  
MD

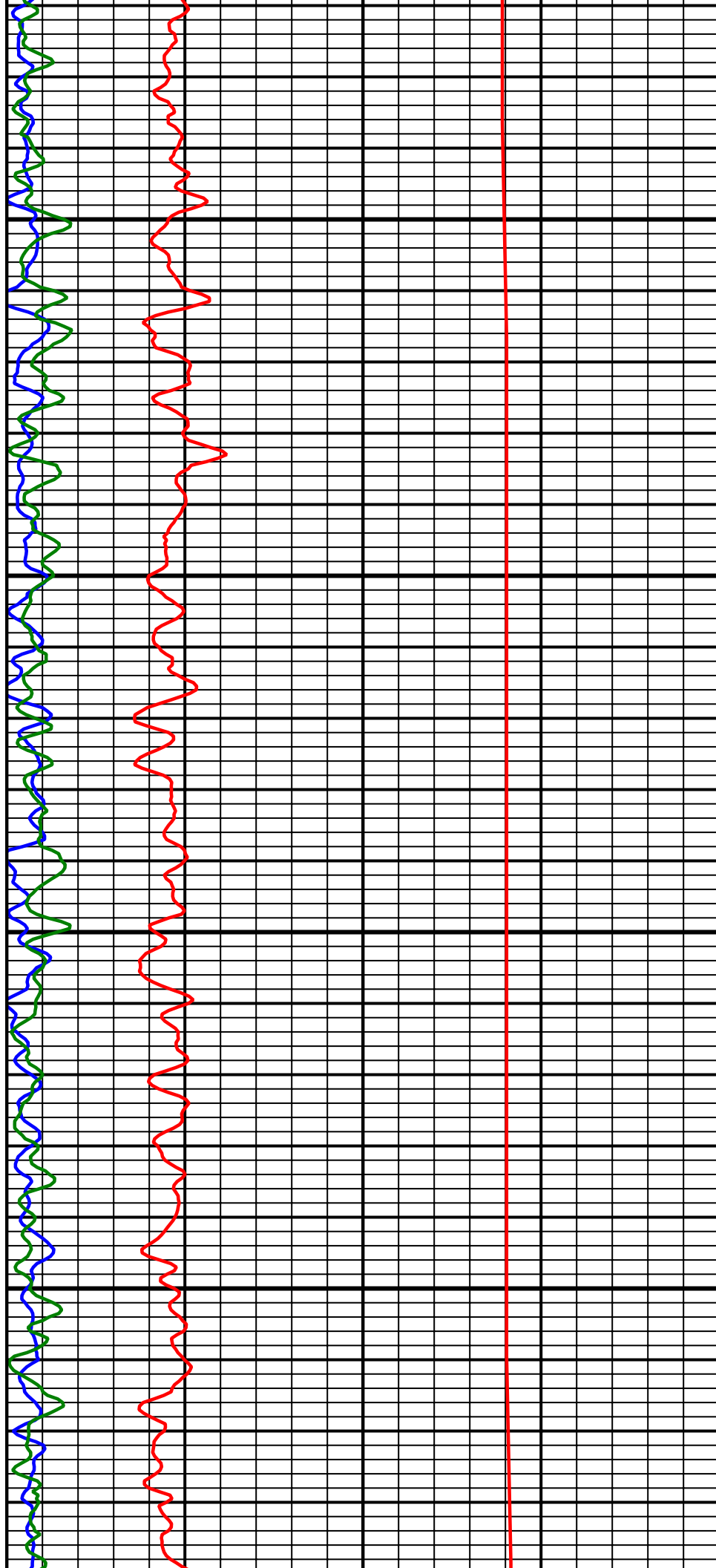
10300  
MD

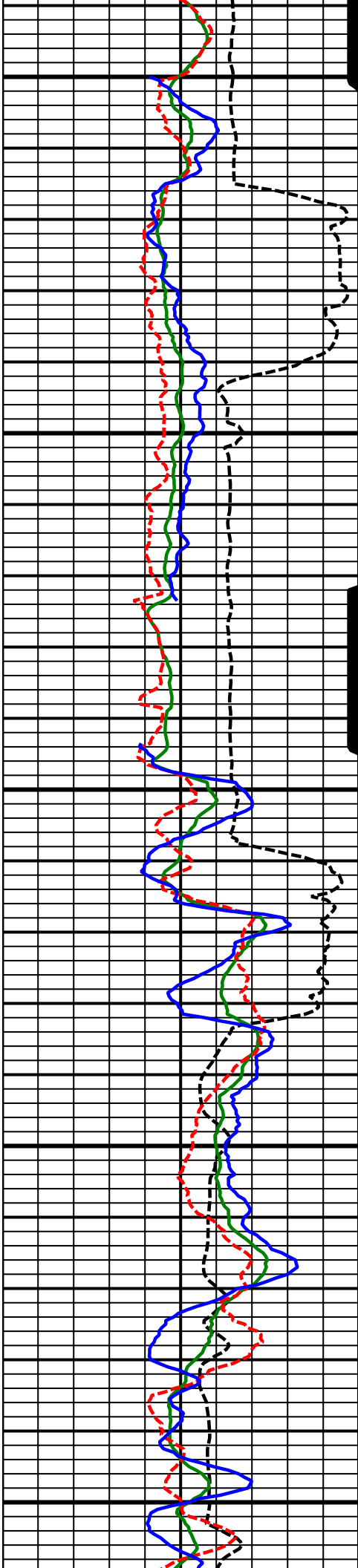




10400  
MD

10500  
MD

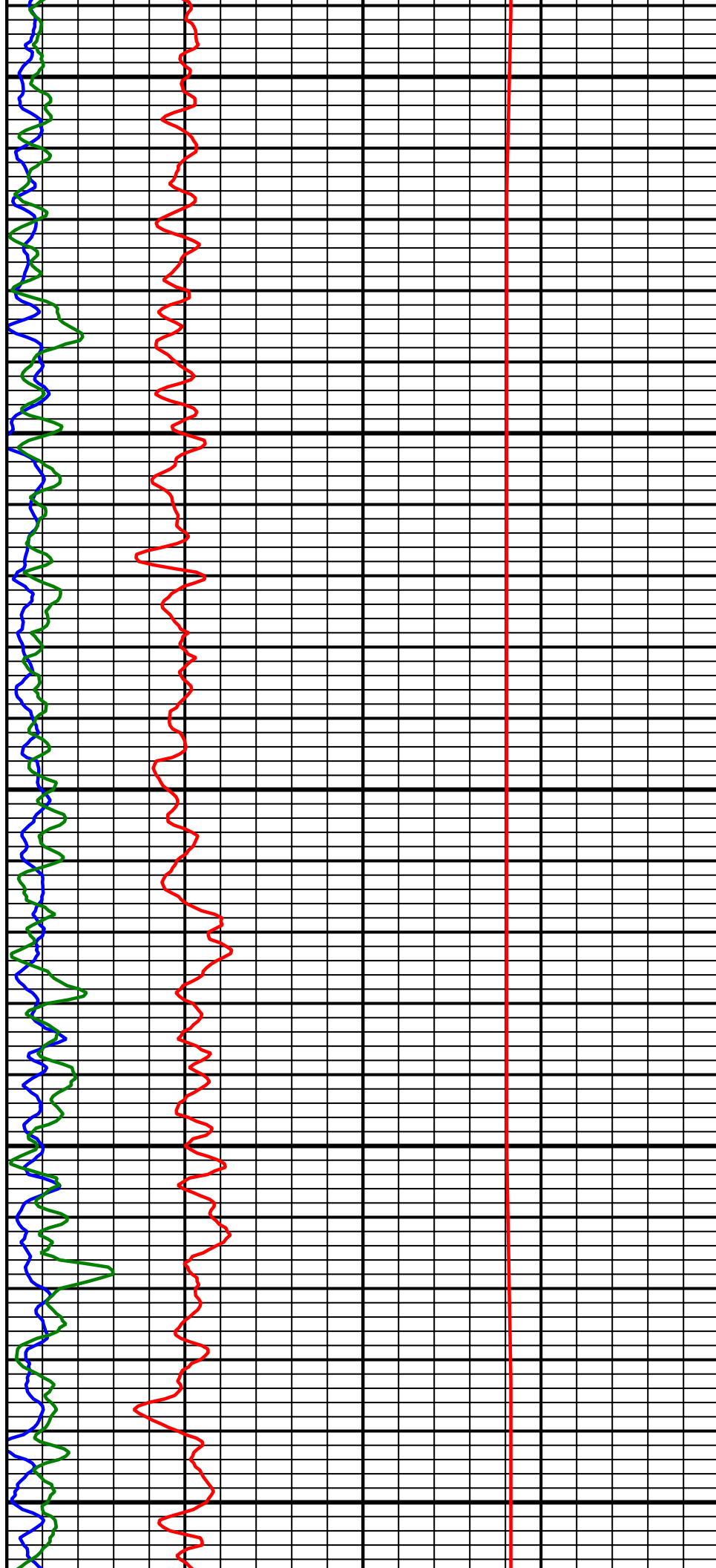


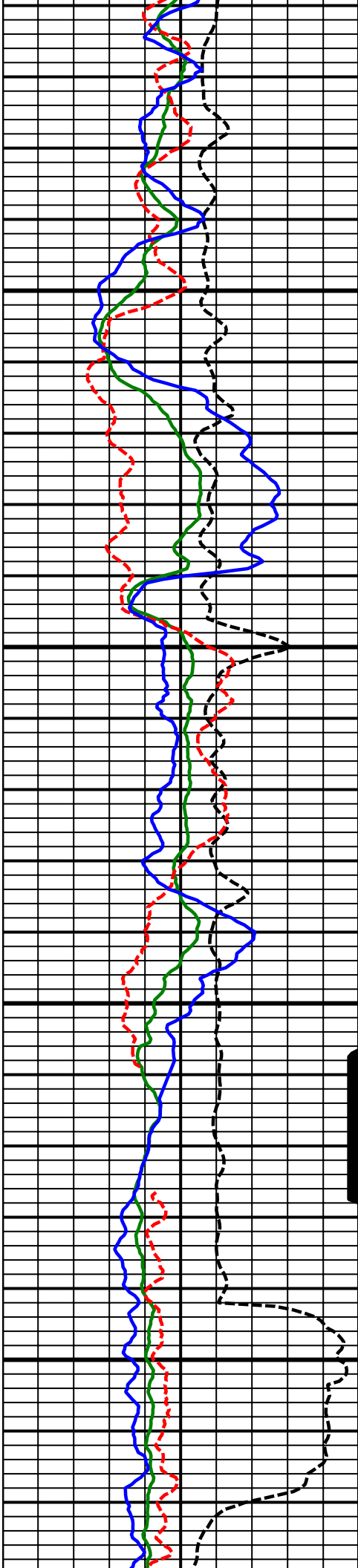


10600  
MD

10700  
MD

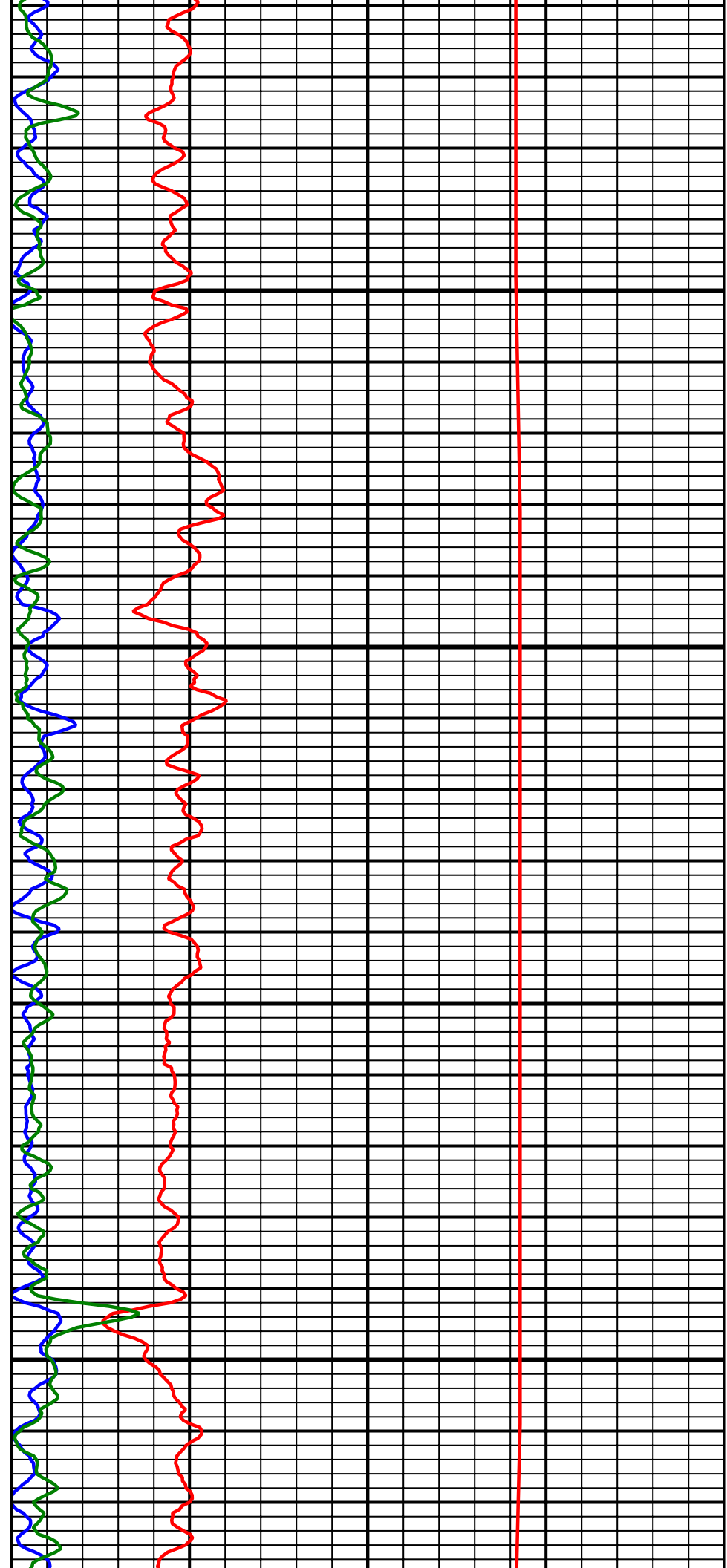
10800  
MD

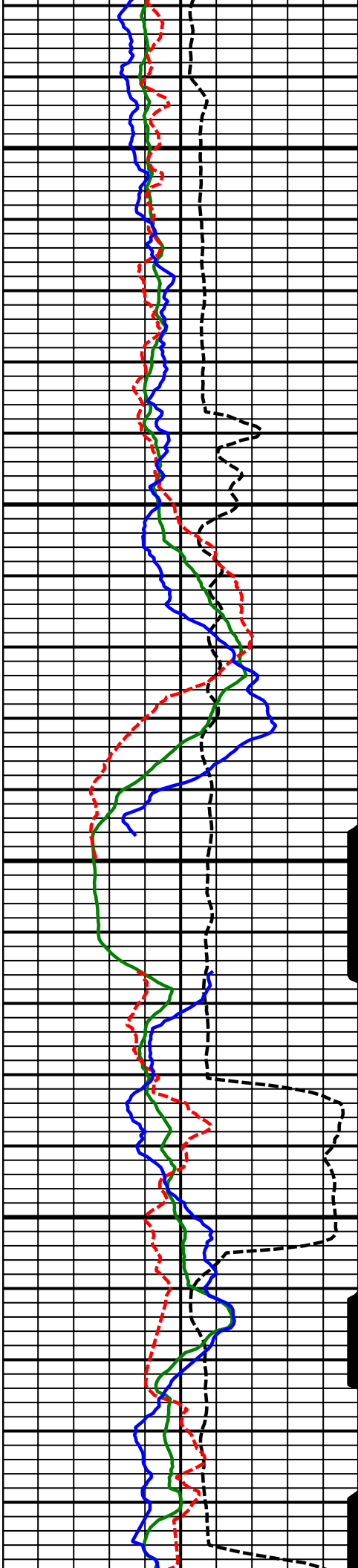




10900  
MD

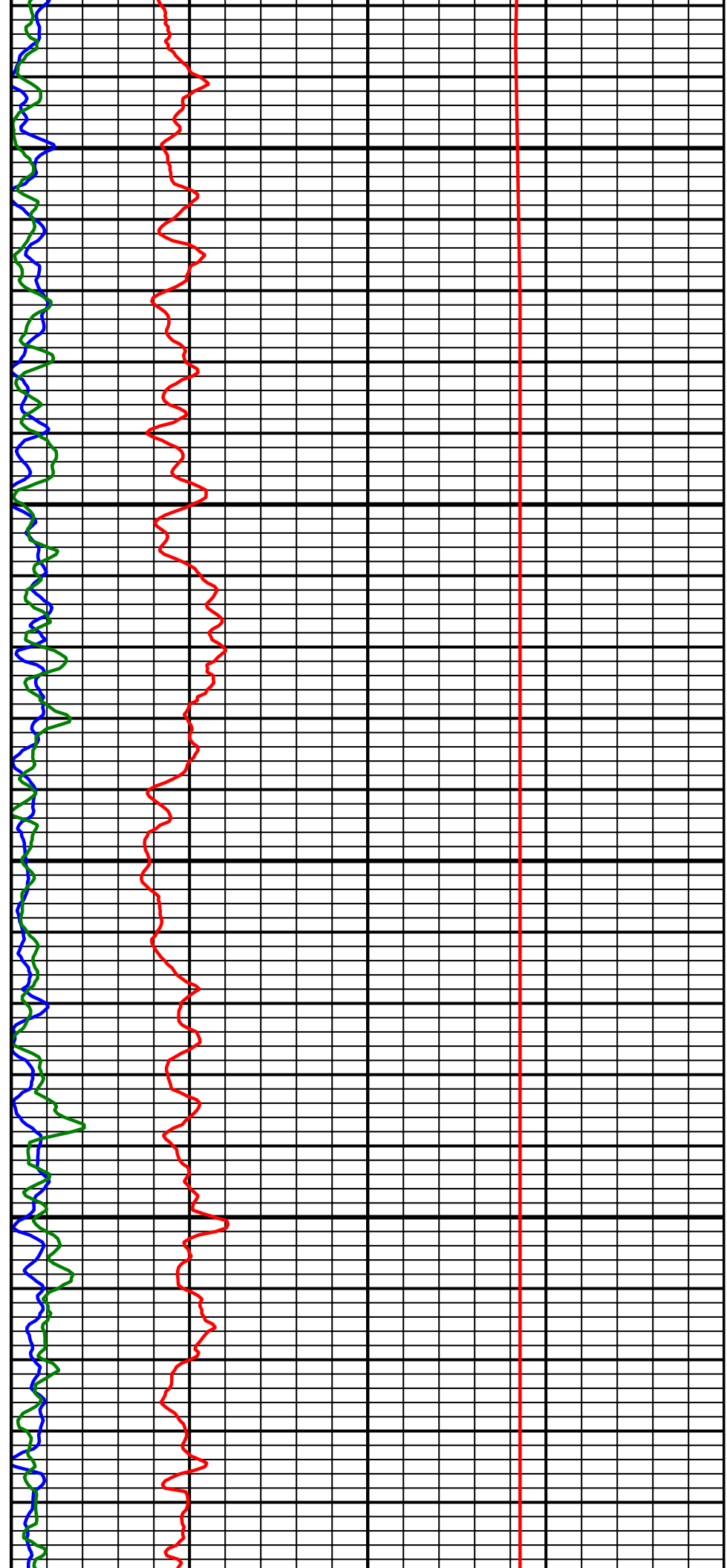
11000  
MD

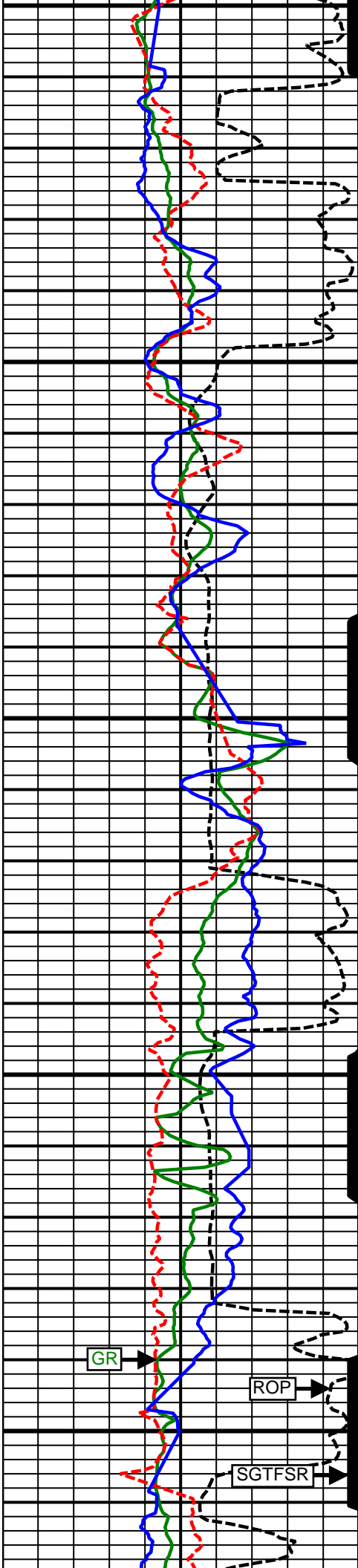




11100  
MD

11200  
MD





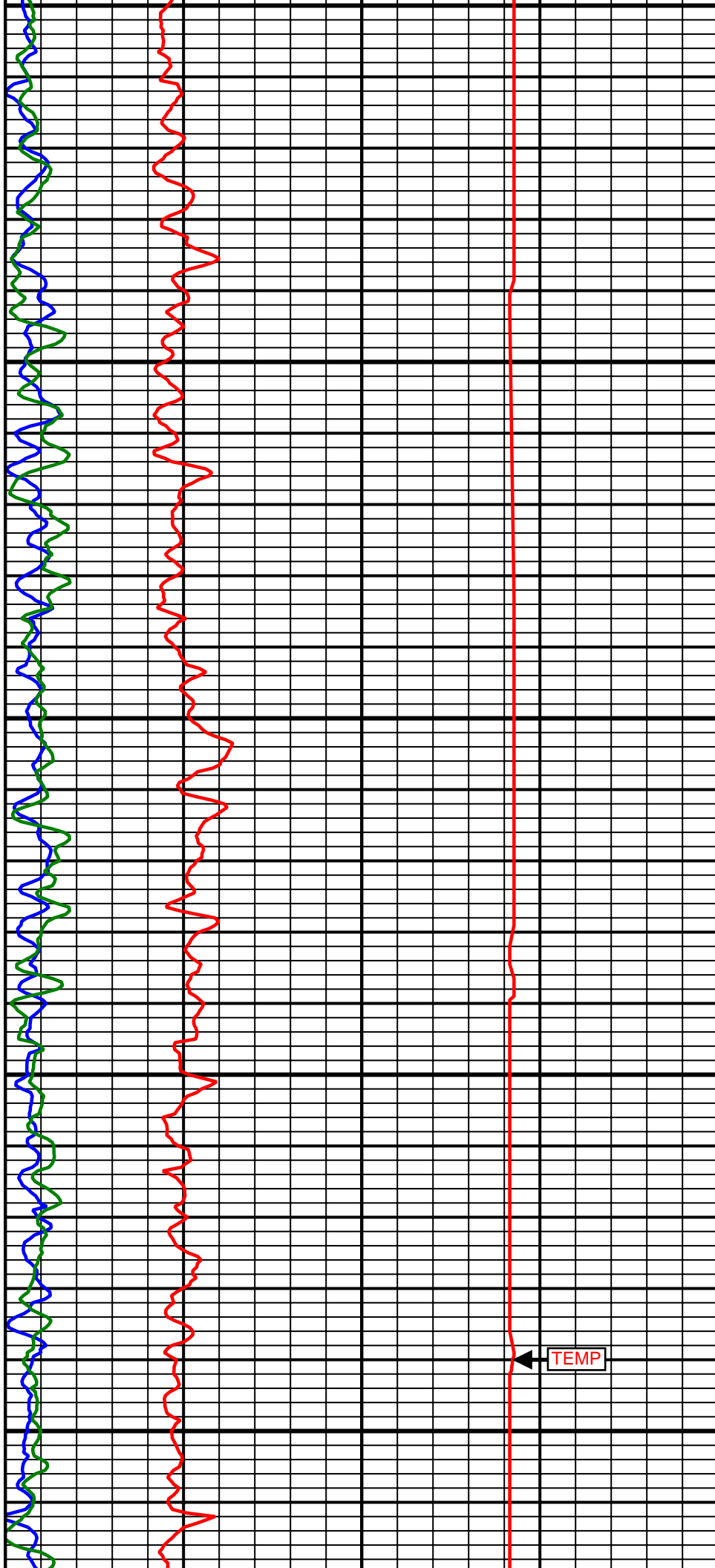
11300  
MD

11400  
MD

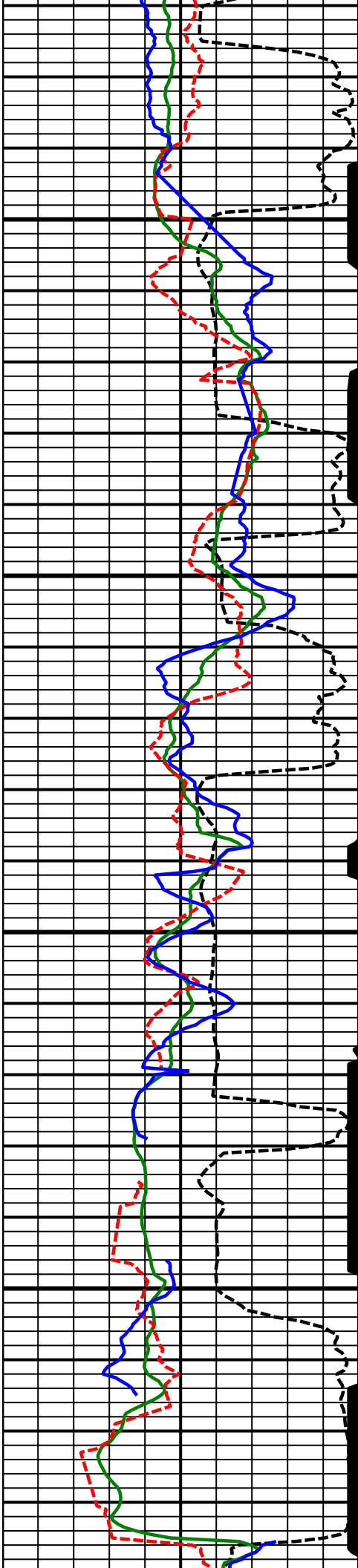
GR

ROP

SGTFSR

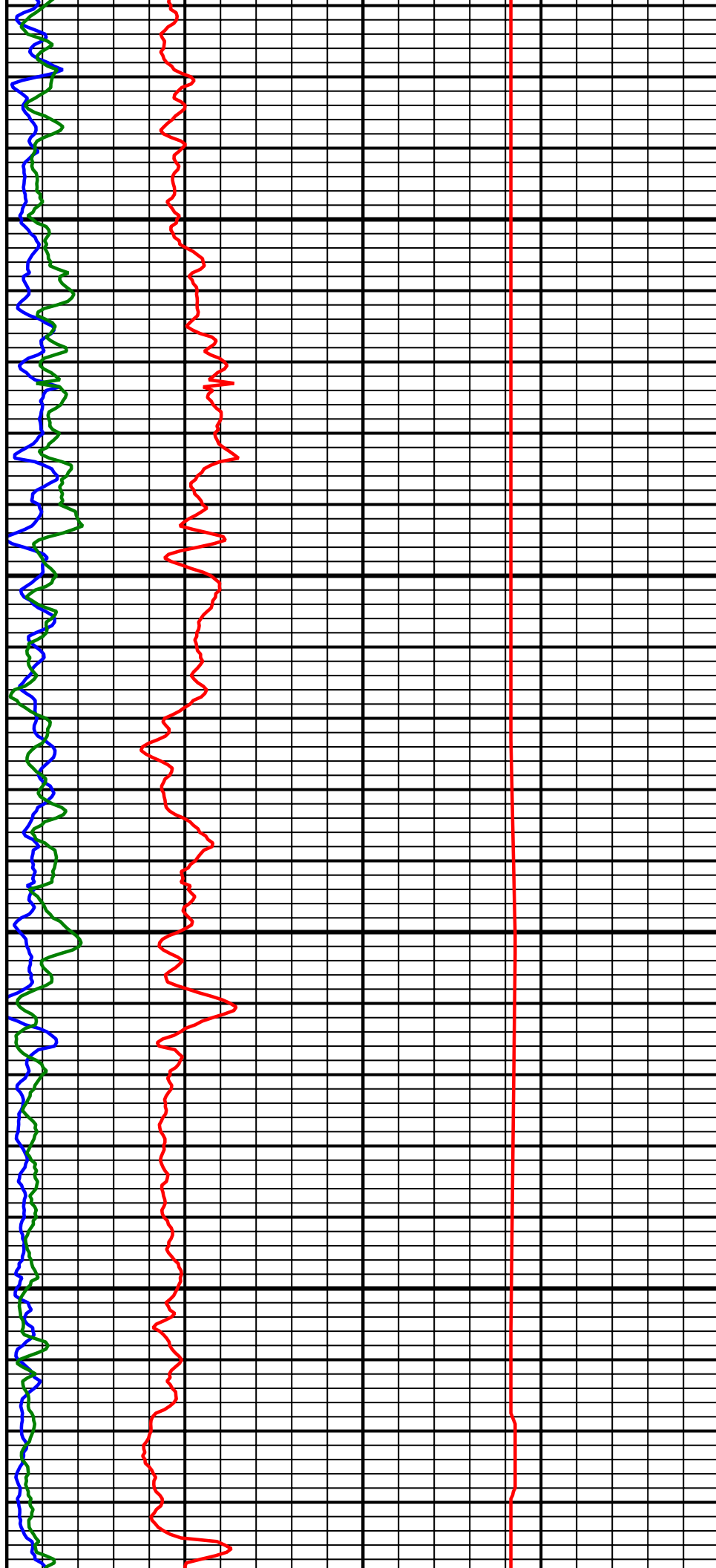


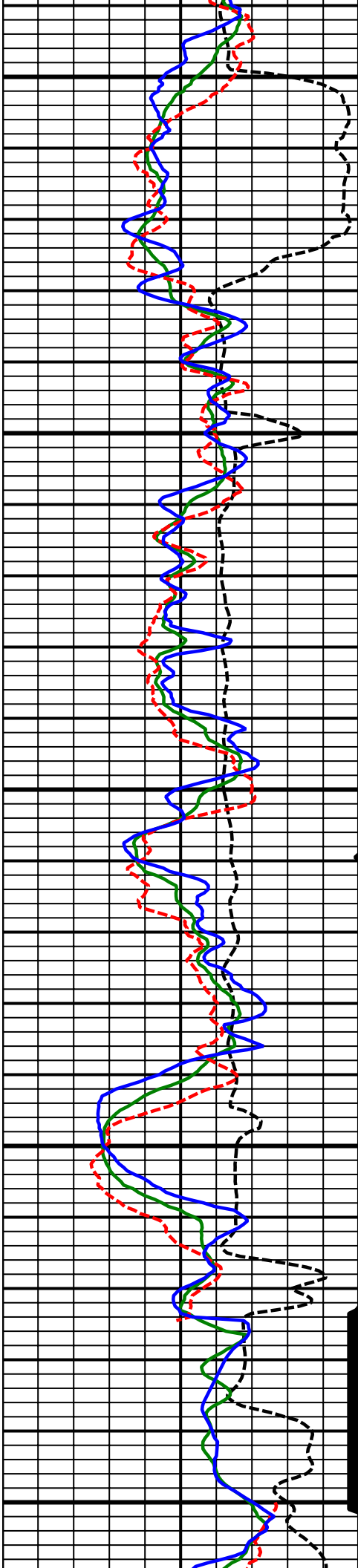
TEMP



11500  
MD

11600  
MD

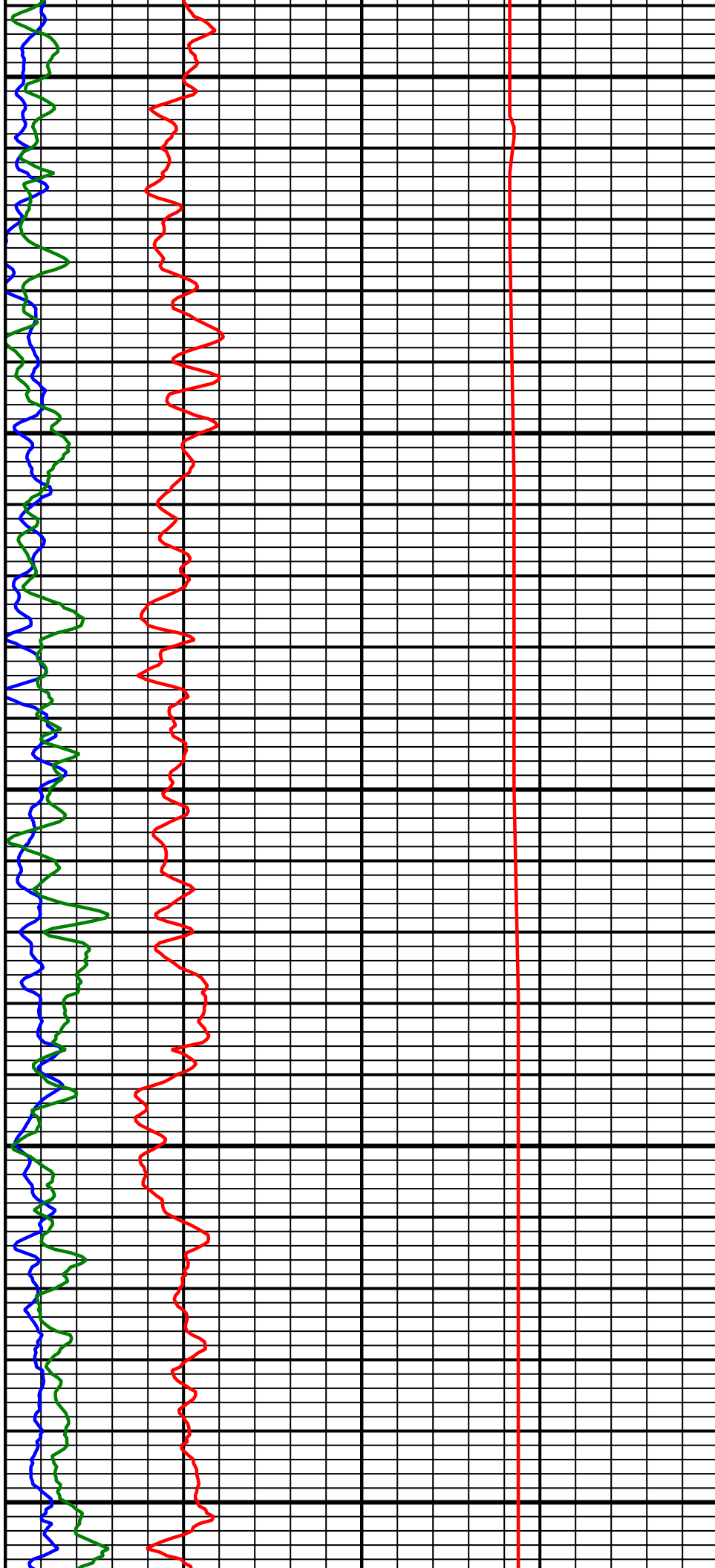


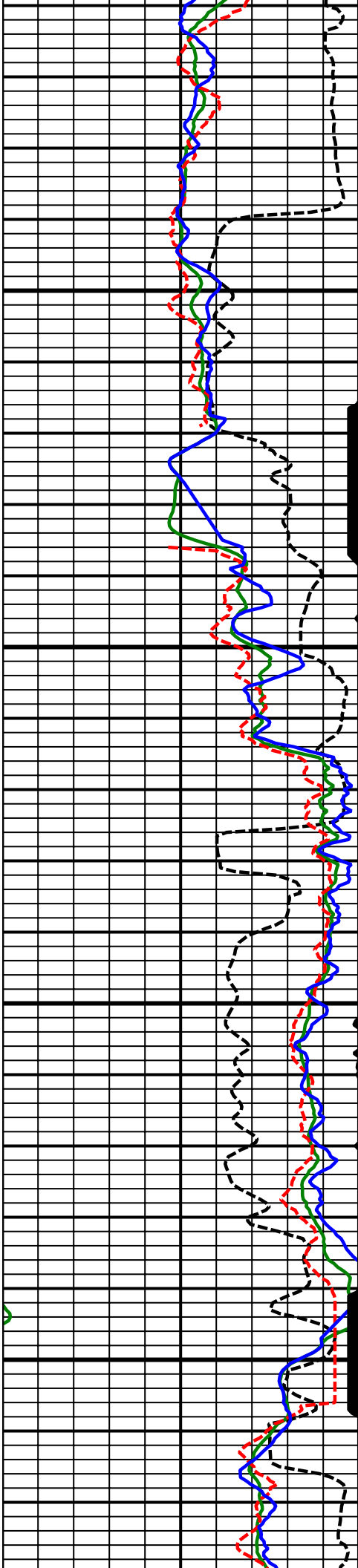


11700  
MD

11800  
MD

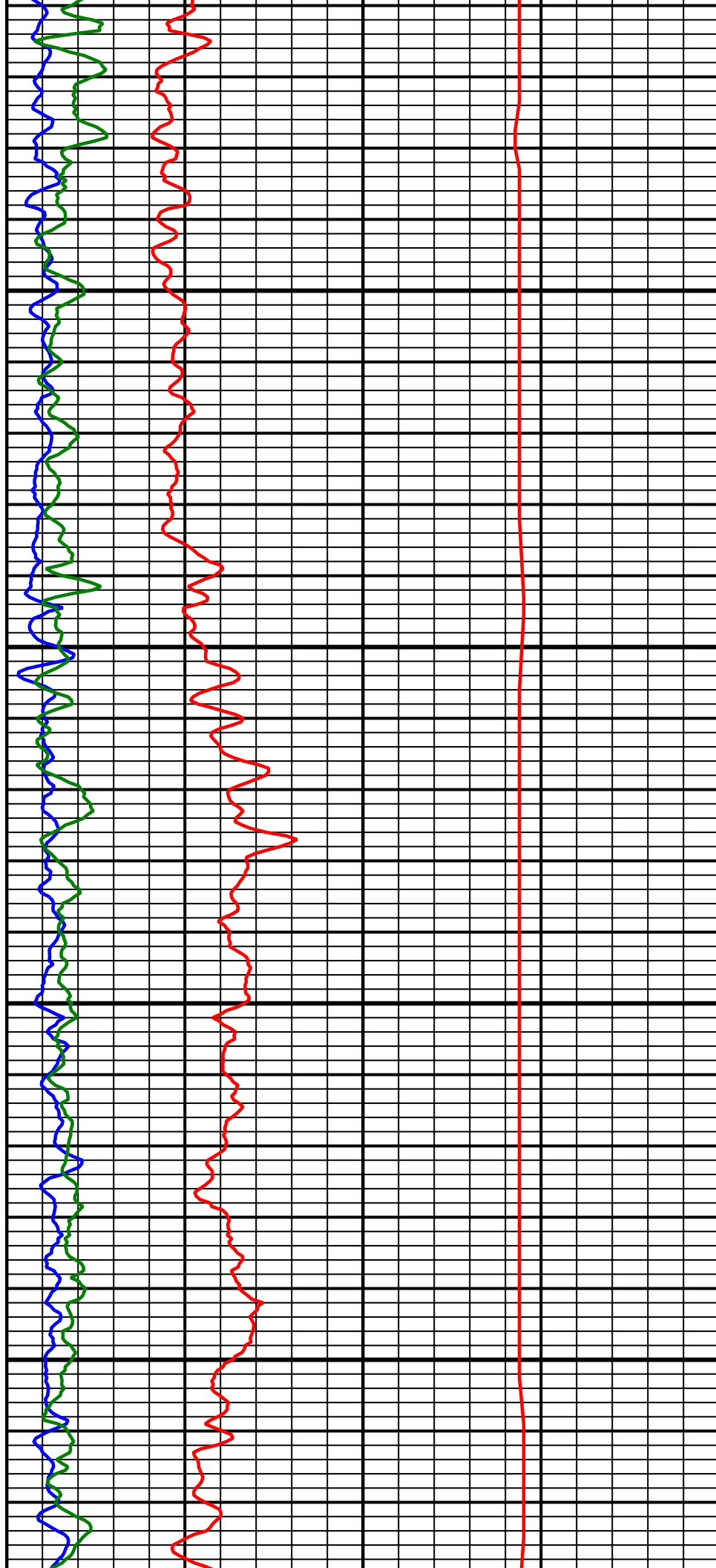
11900  
MD

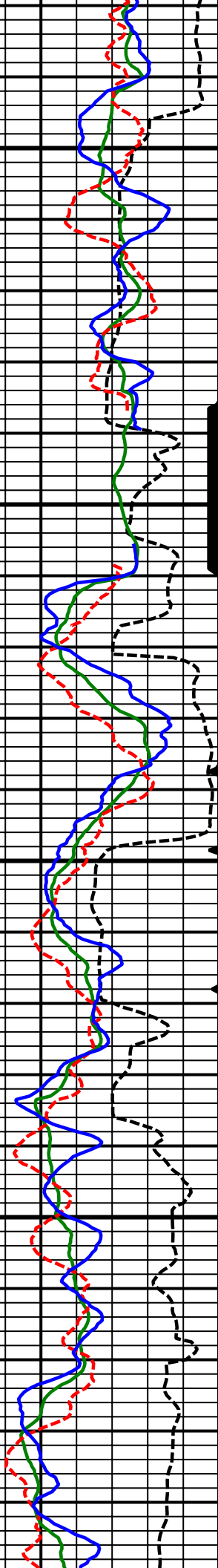




12000  
MD

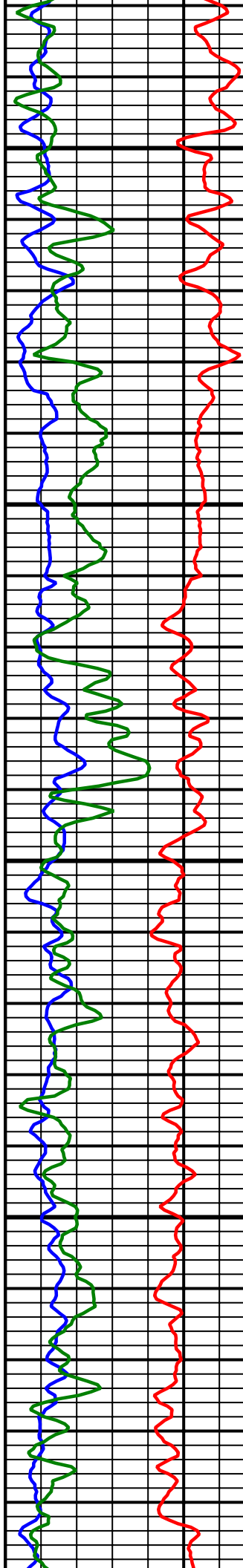
12100  
MD

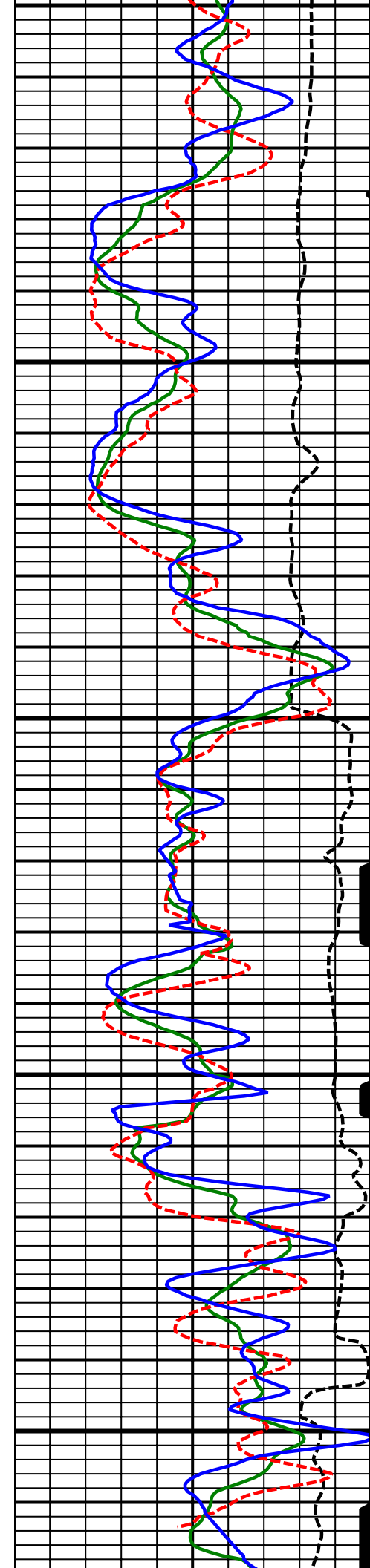




12200  
MD

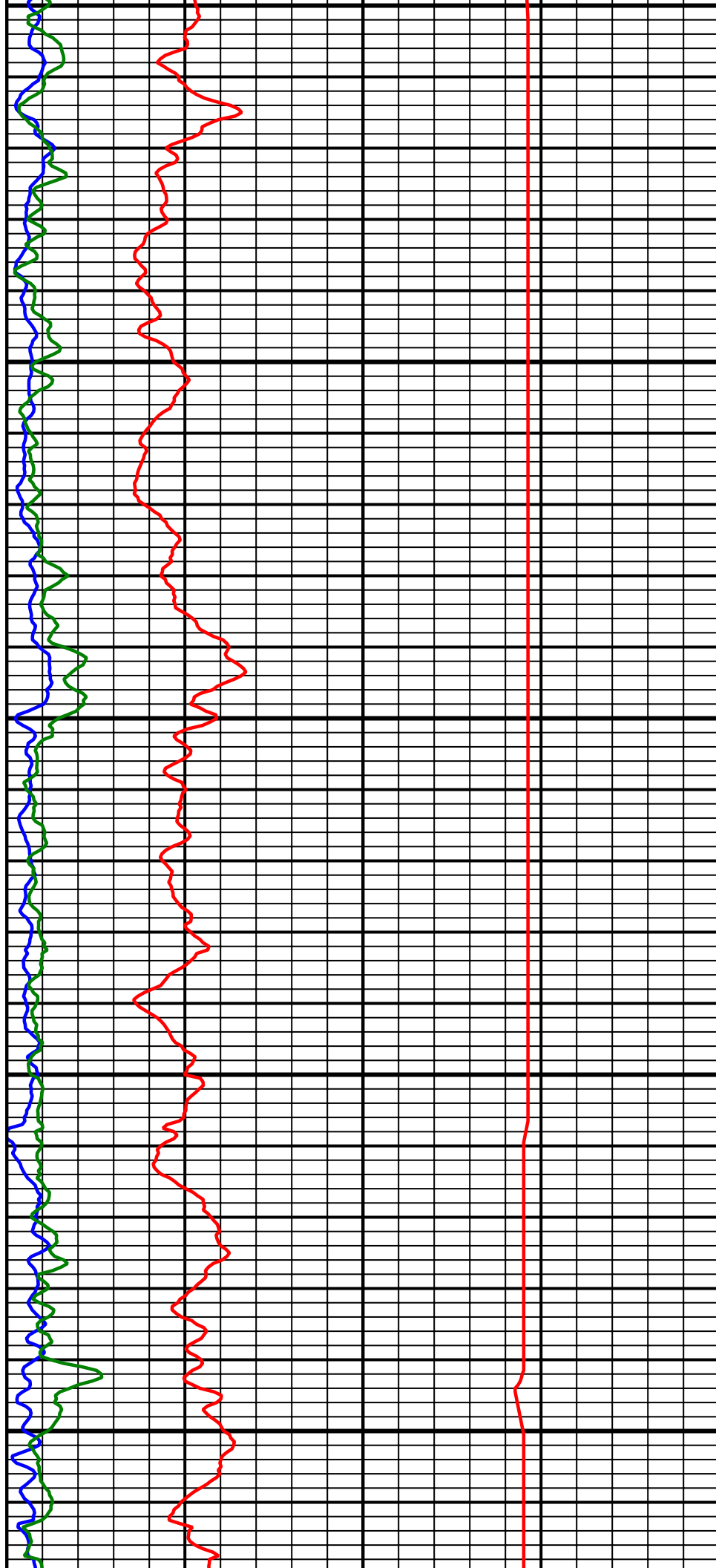
12300  
MD

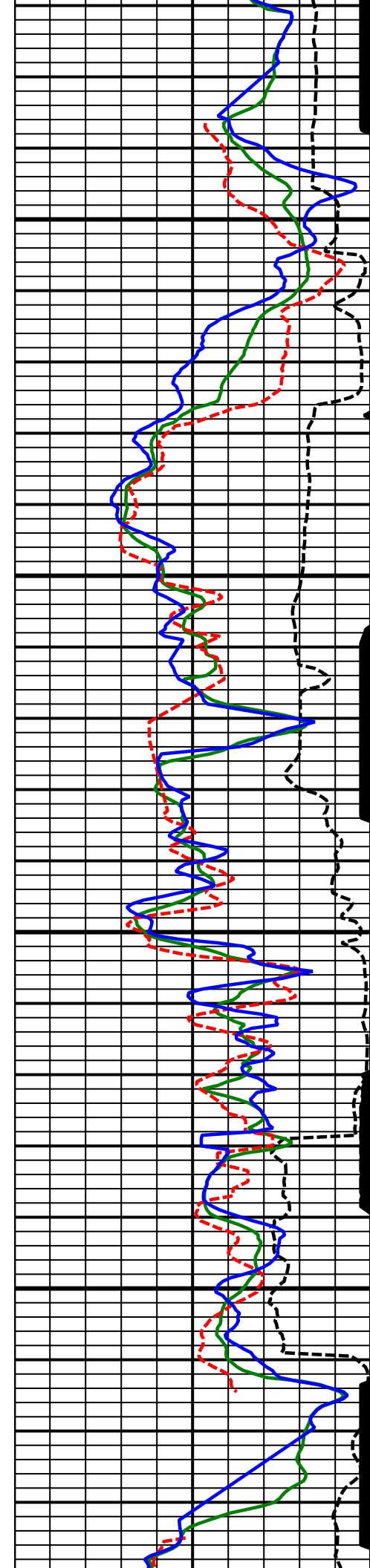




12400  
MD

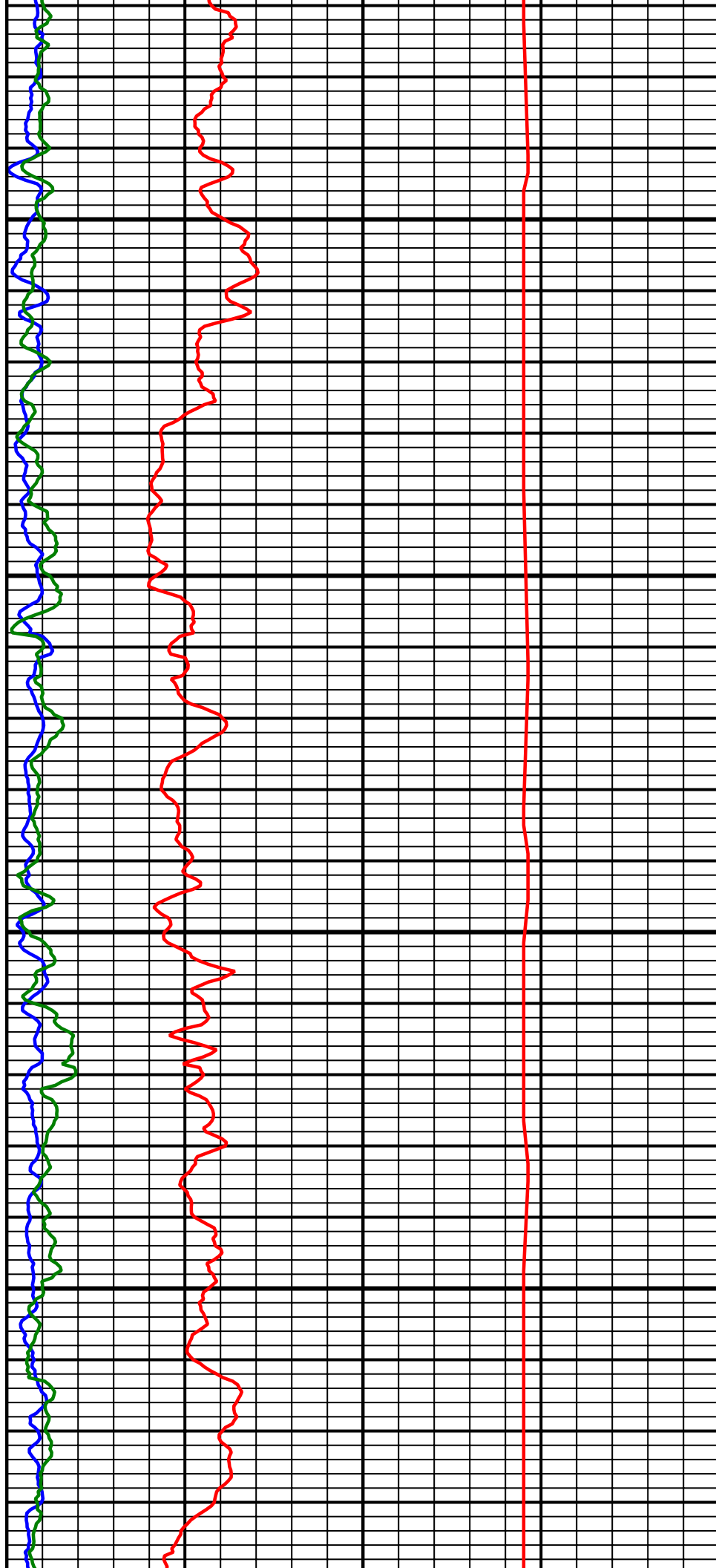
12500  
MD

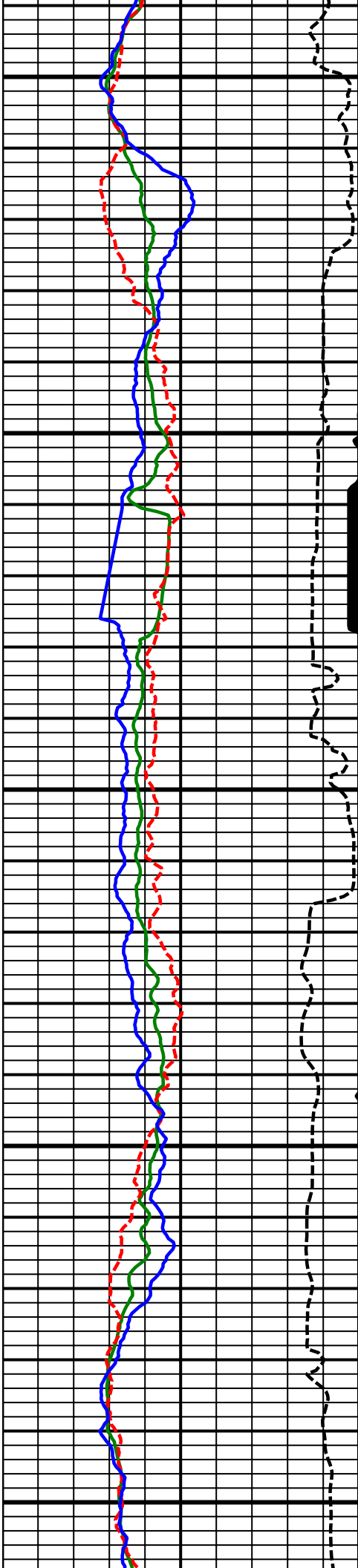




12600  
MD

12700  
MD

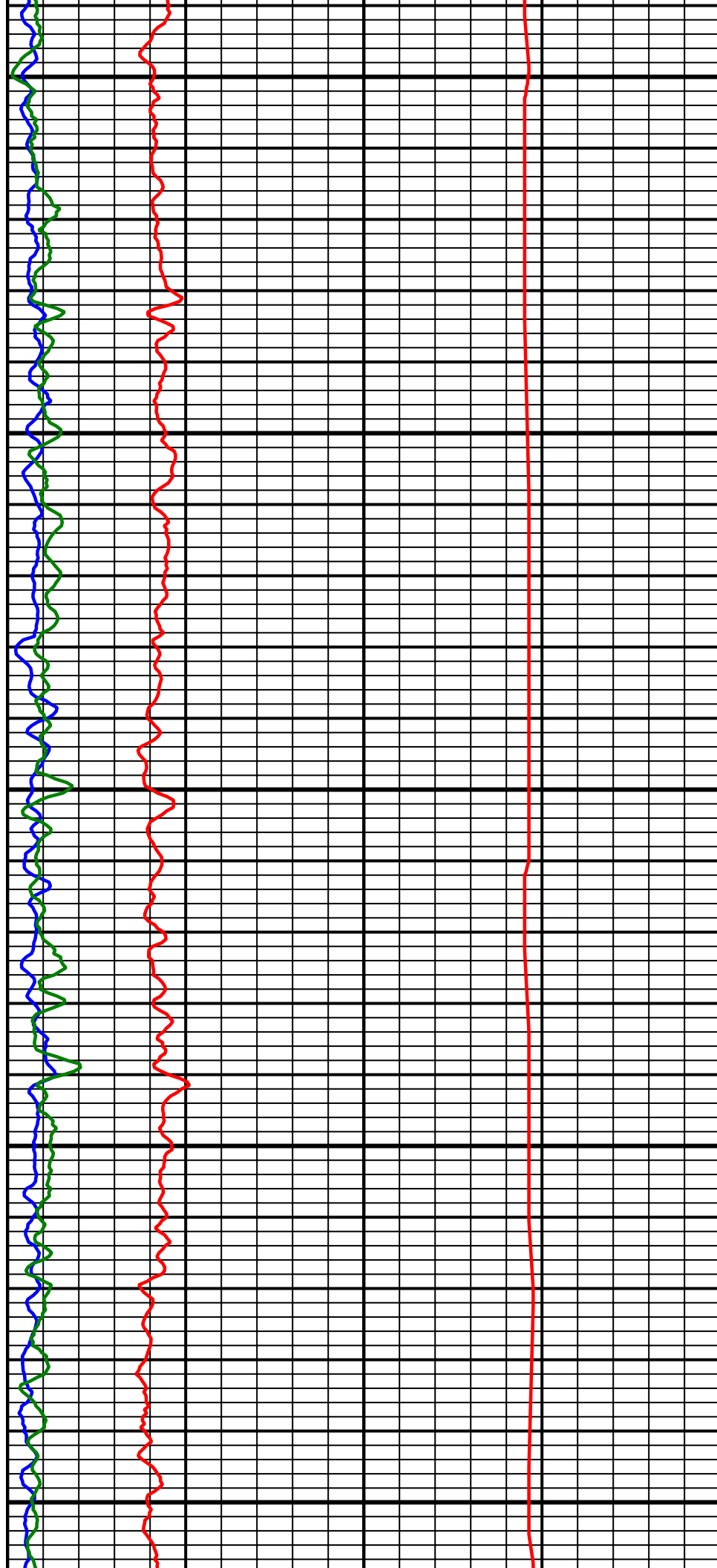


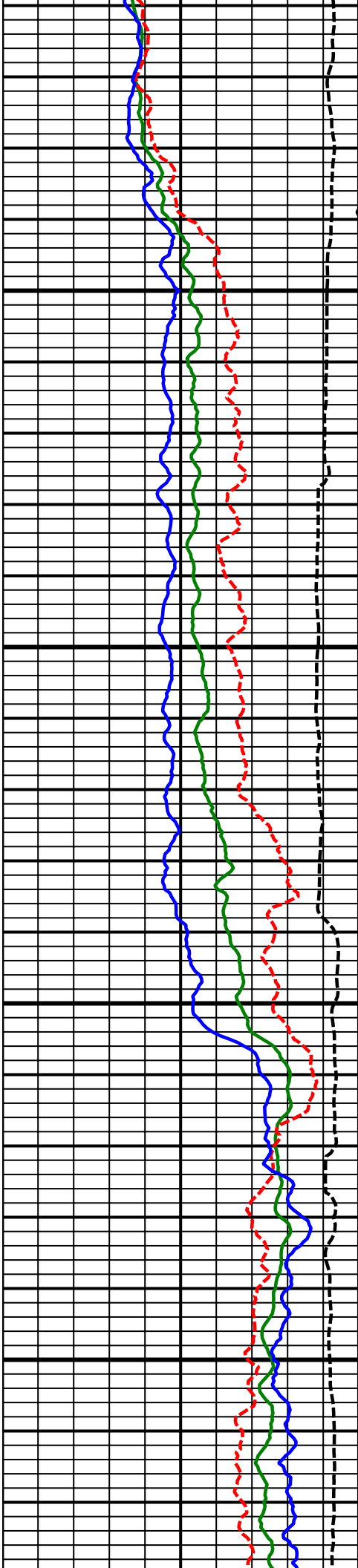


12800  
MD

12900  
MD

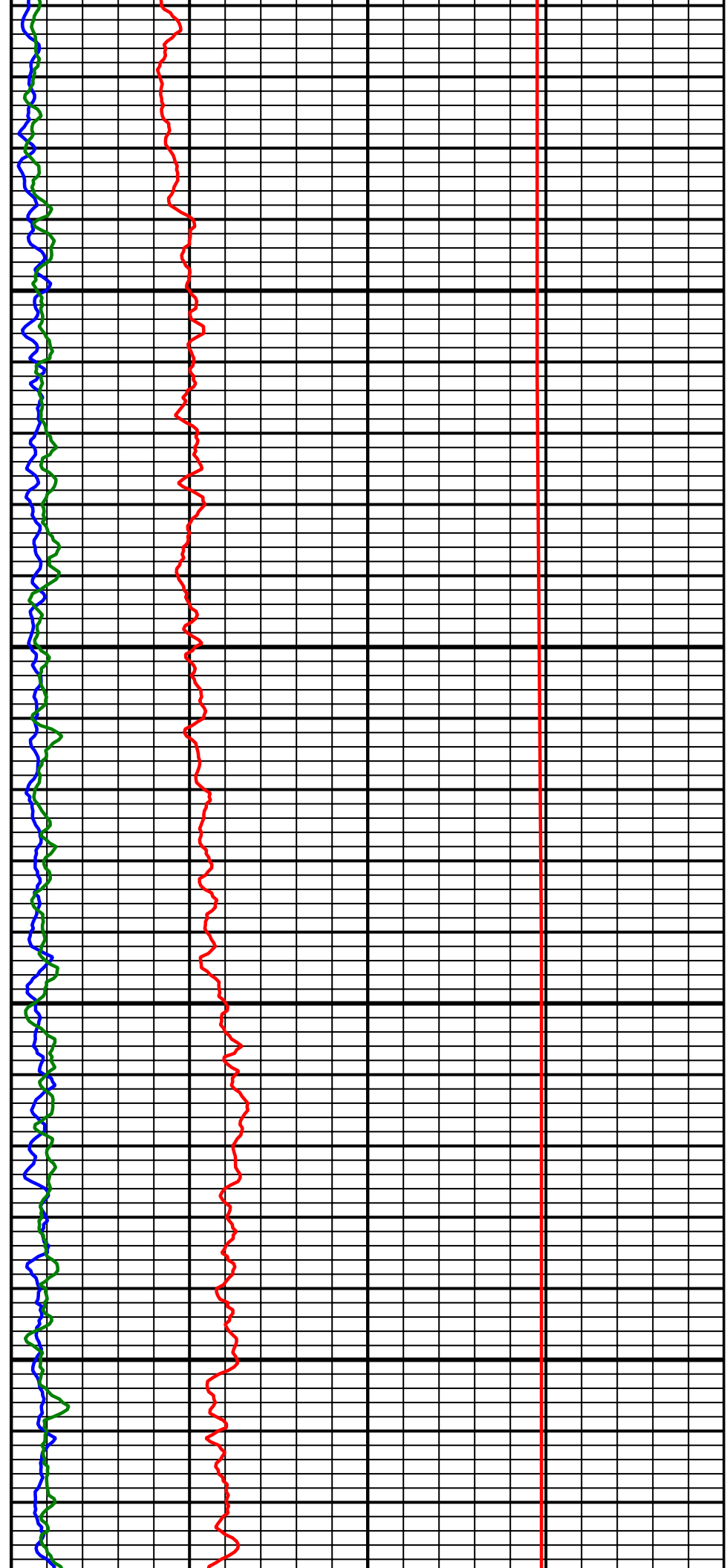
13000  
MD

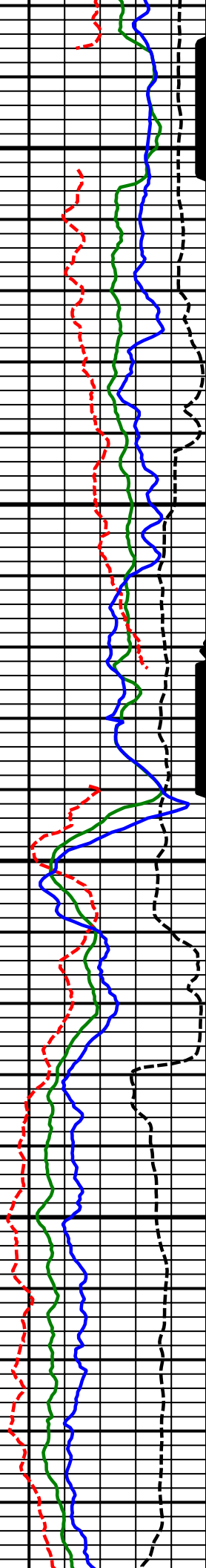




13100  
MD

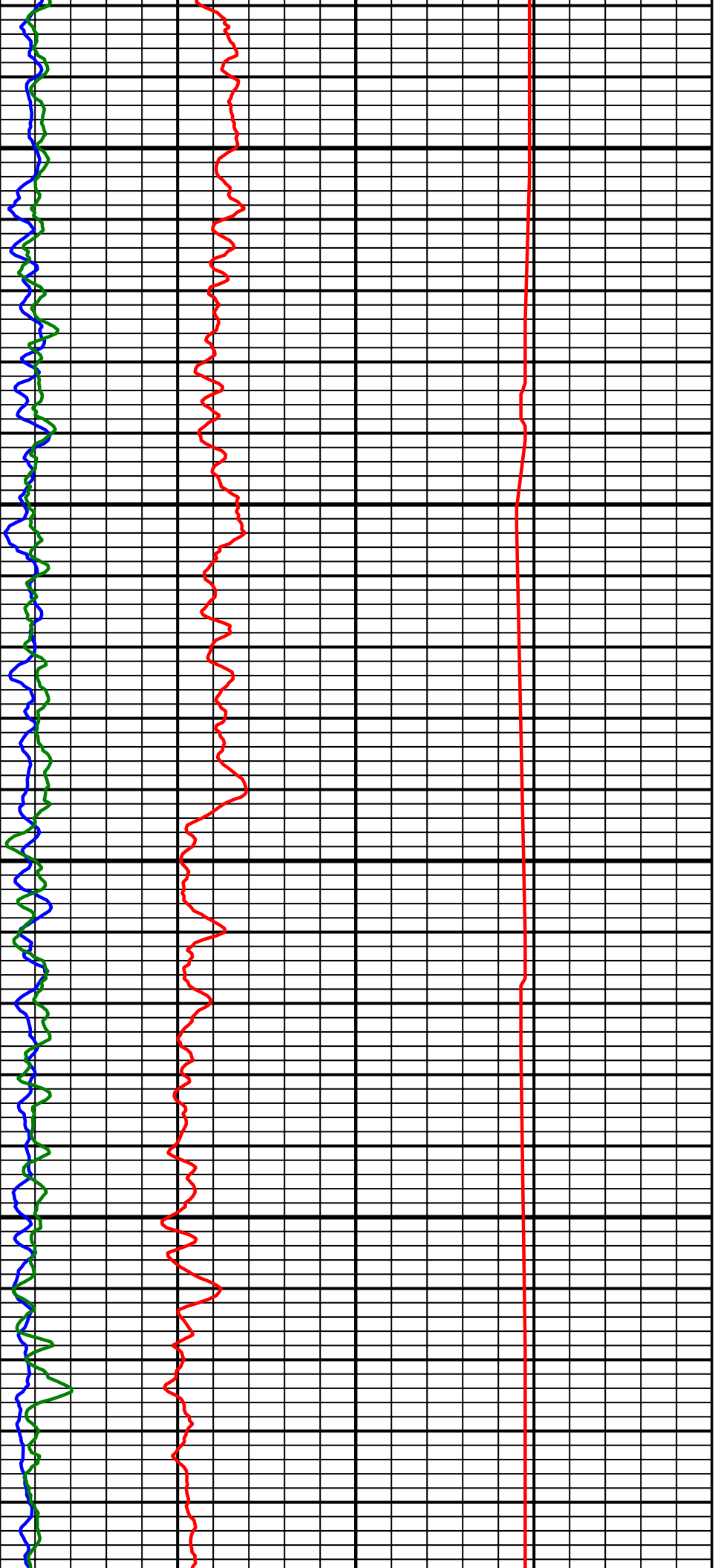
13200  
MD

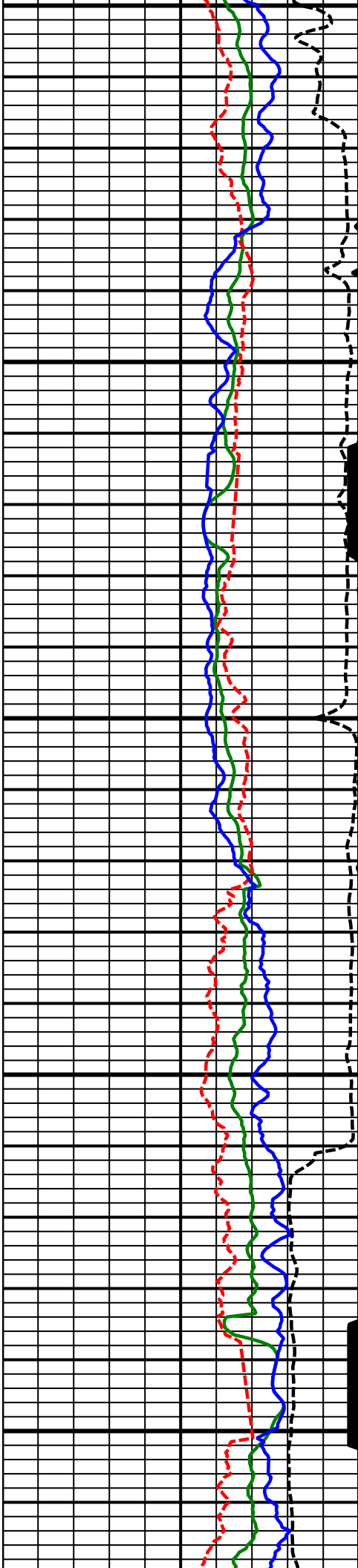




13300  
MD

13400  
MD



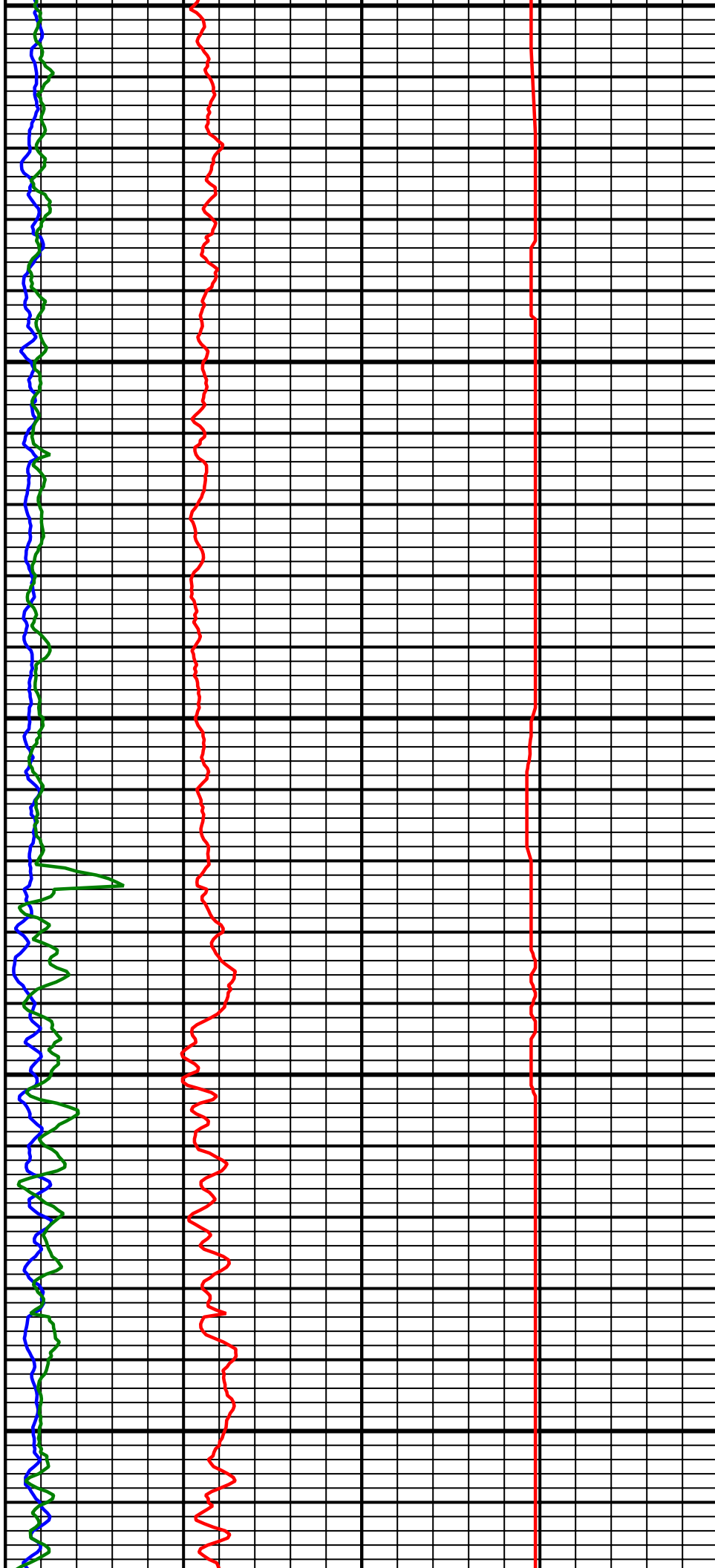


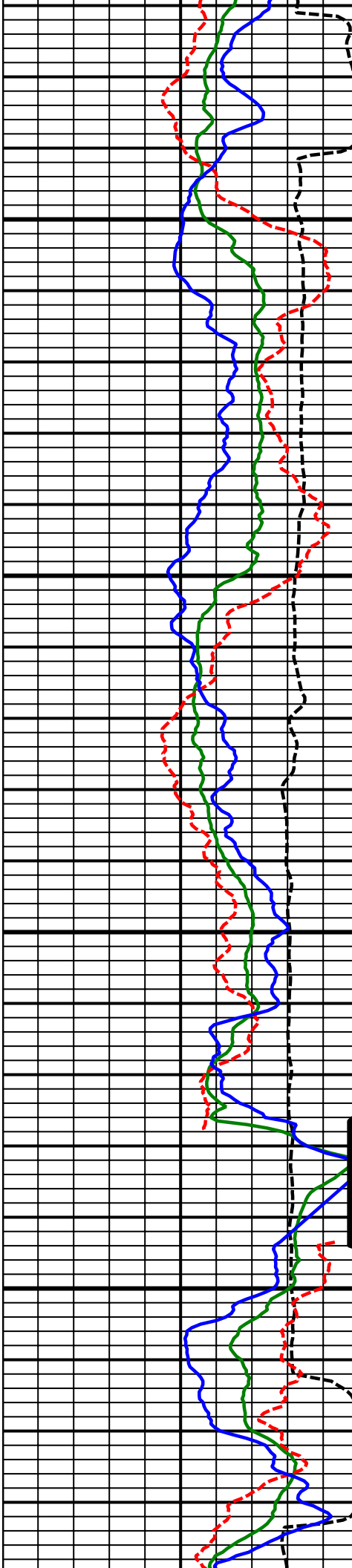
13500  
MD

13600  
MD

Comment  
No. 3-2

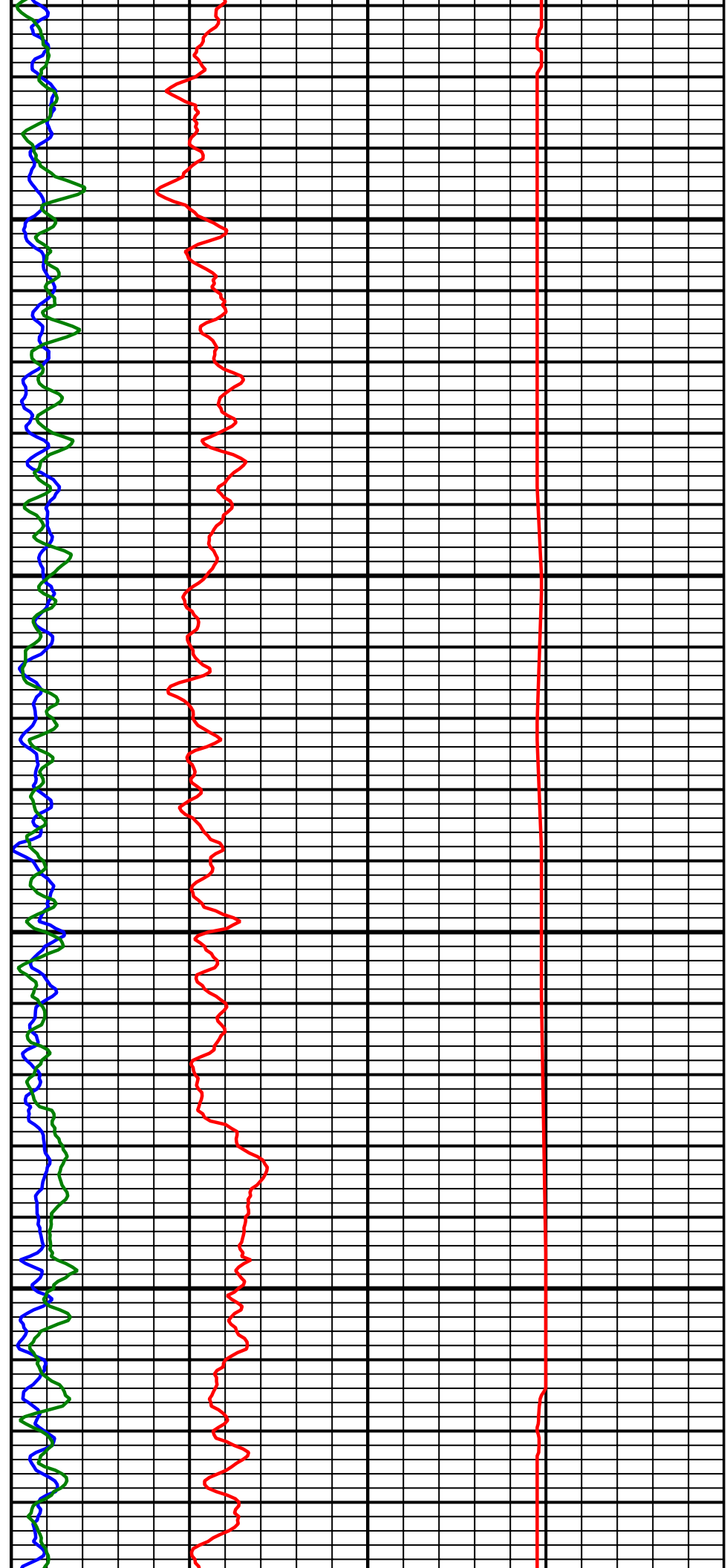
Comment  
No. 4-1

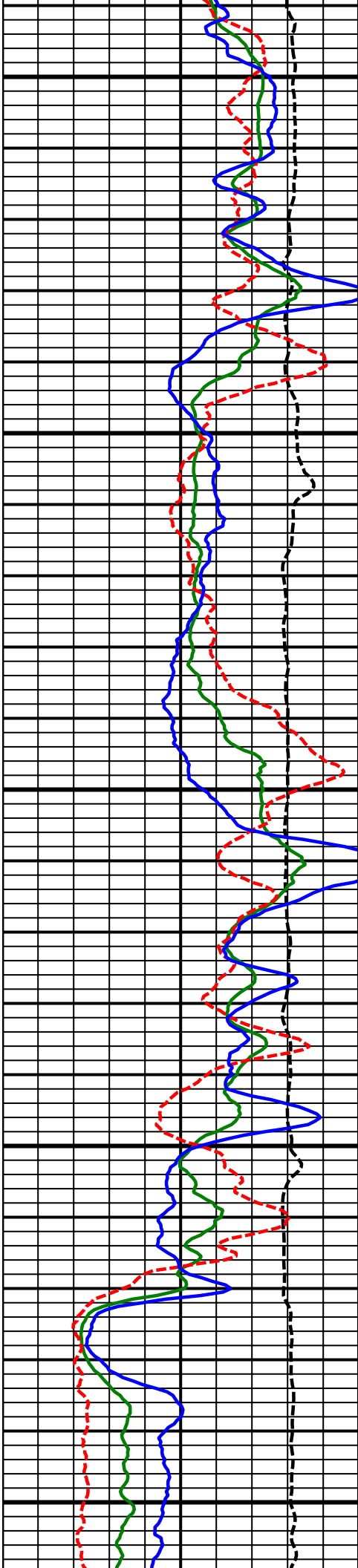




13700  
MD

13800  
MD

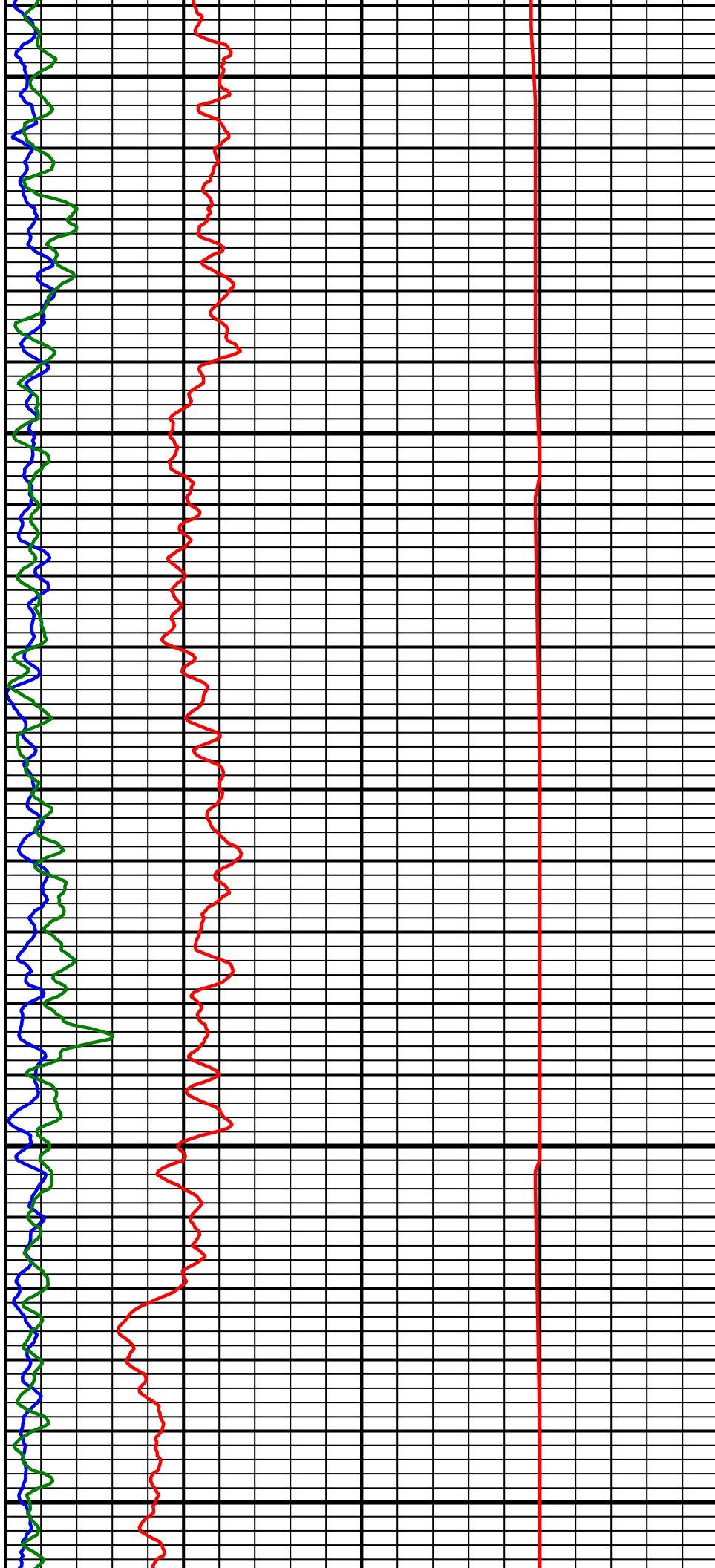


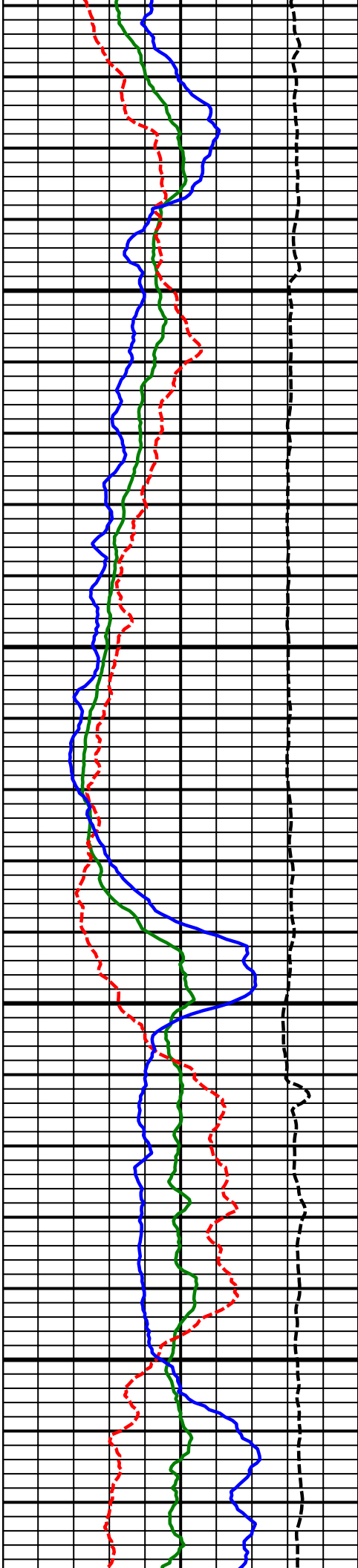


13900  
MD

14000  
MD

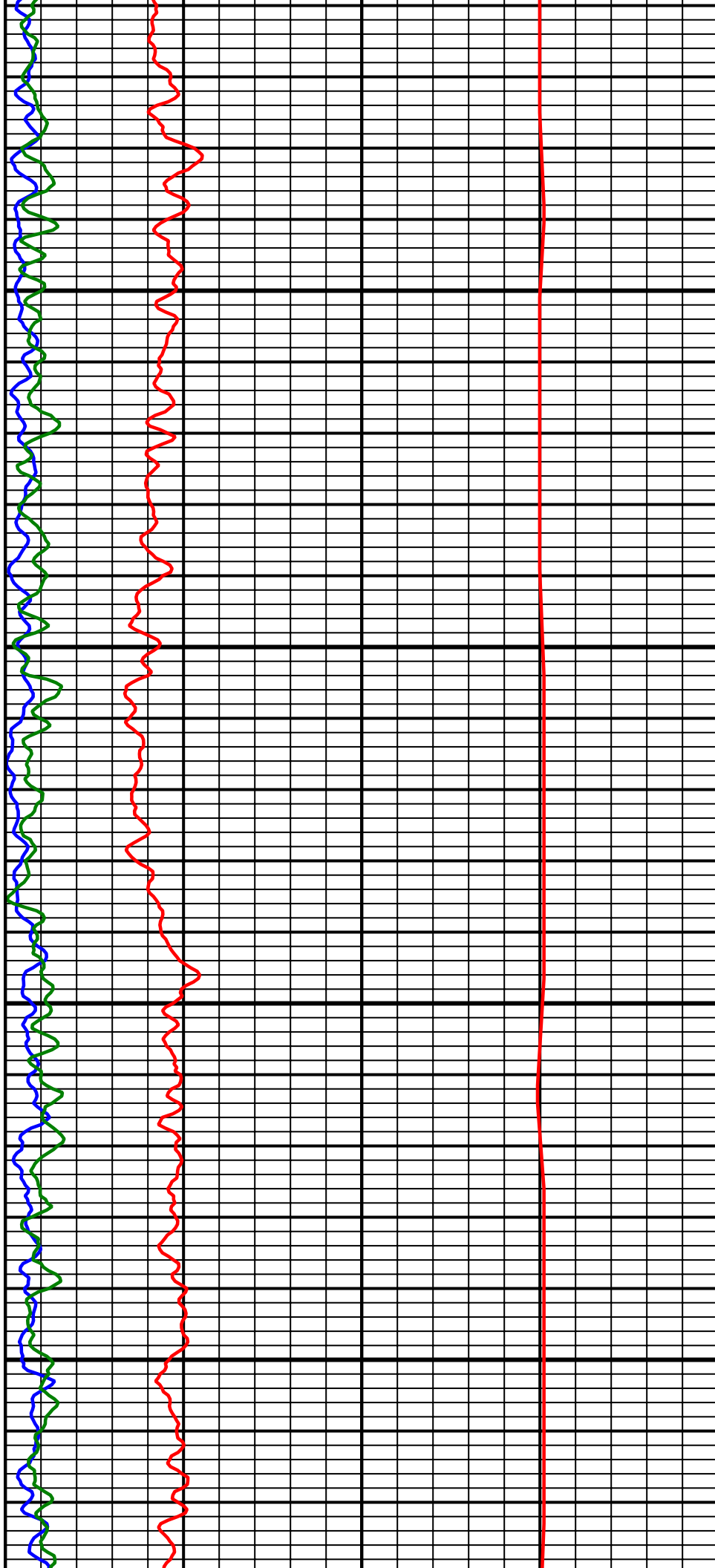
14100  
MD

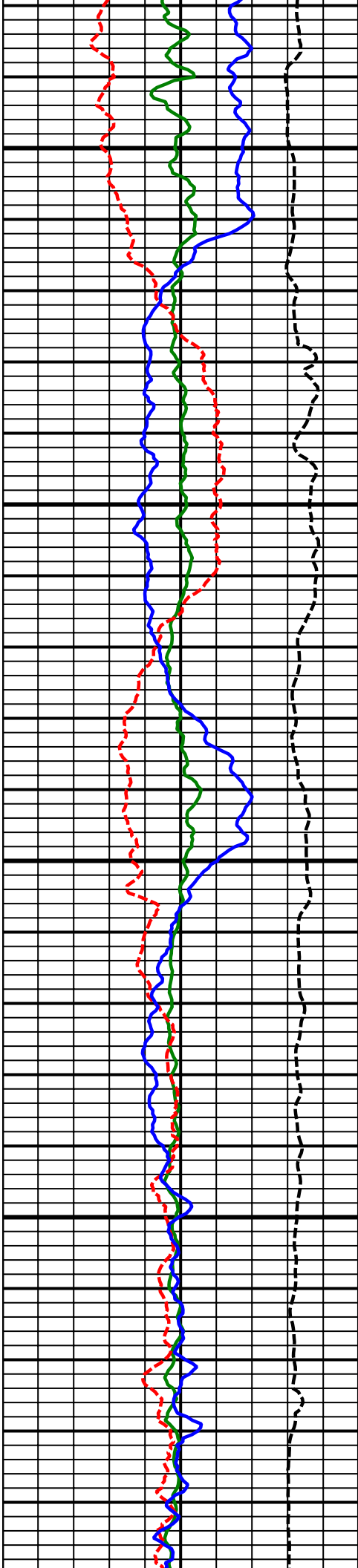




14200  
MD

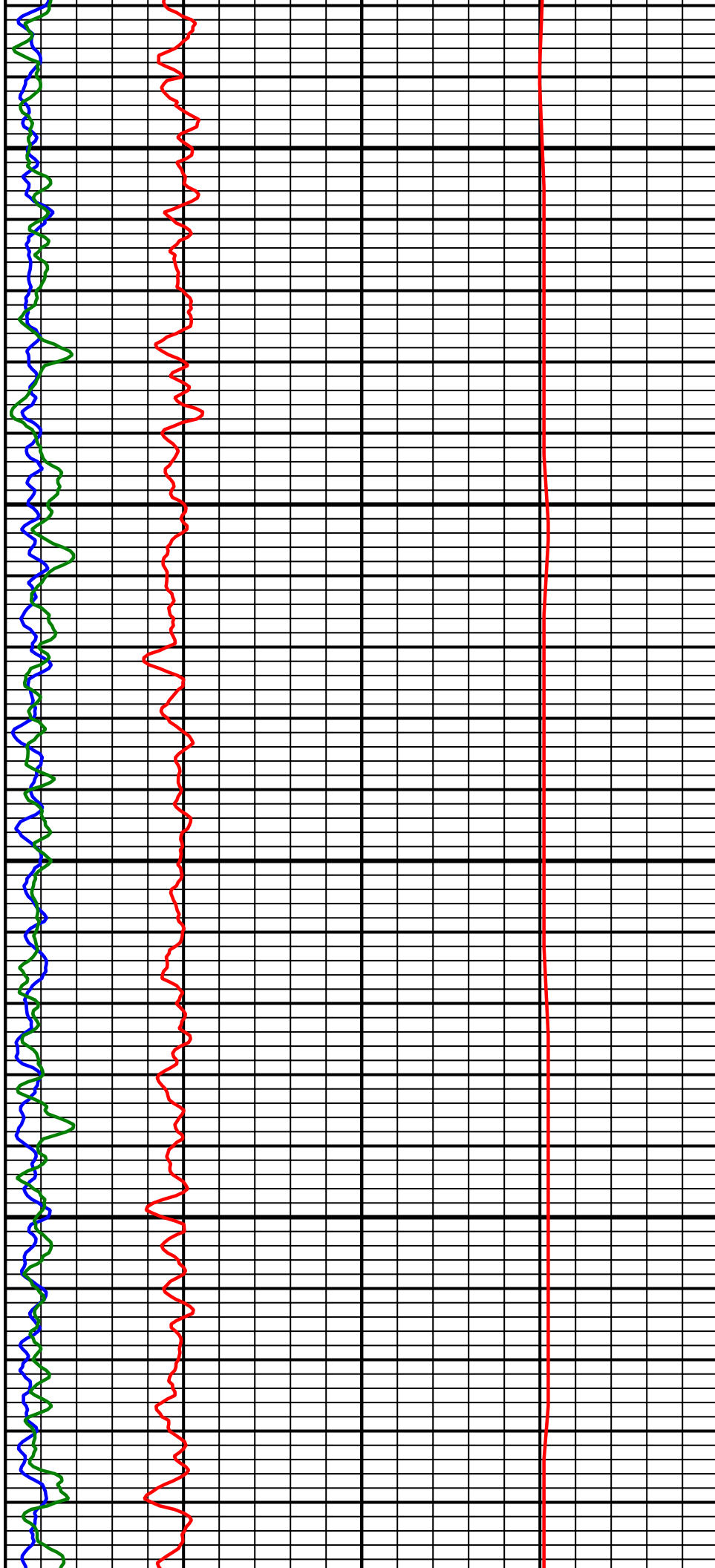
14300  
MD

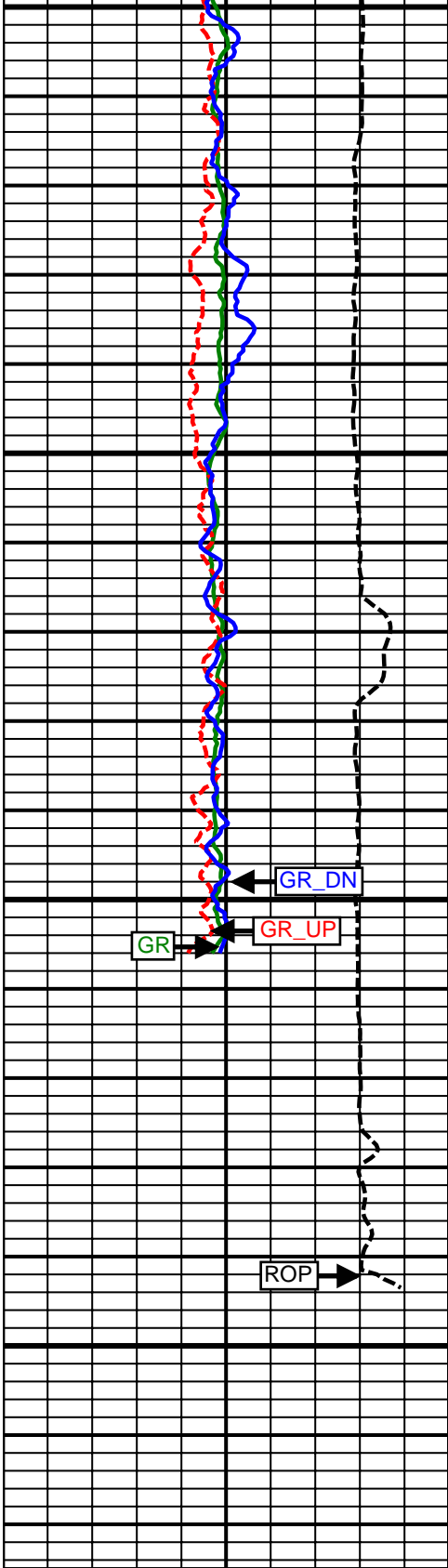




14400  
MD

14500  
MD

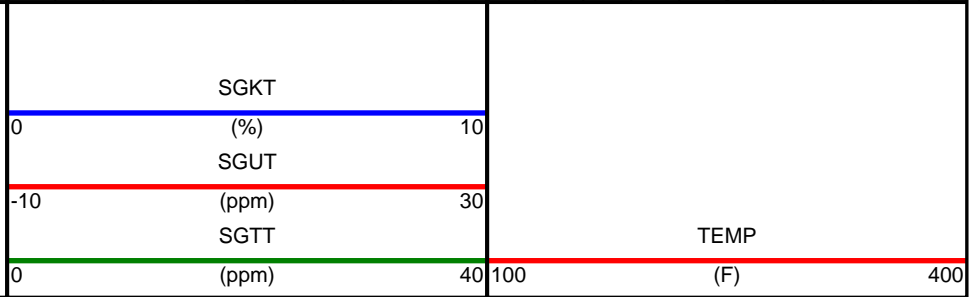
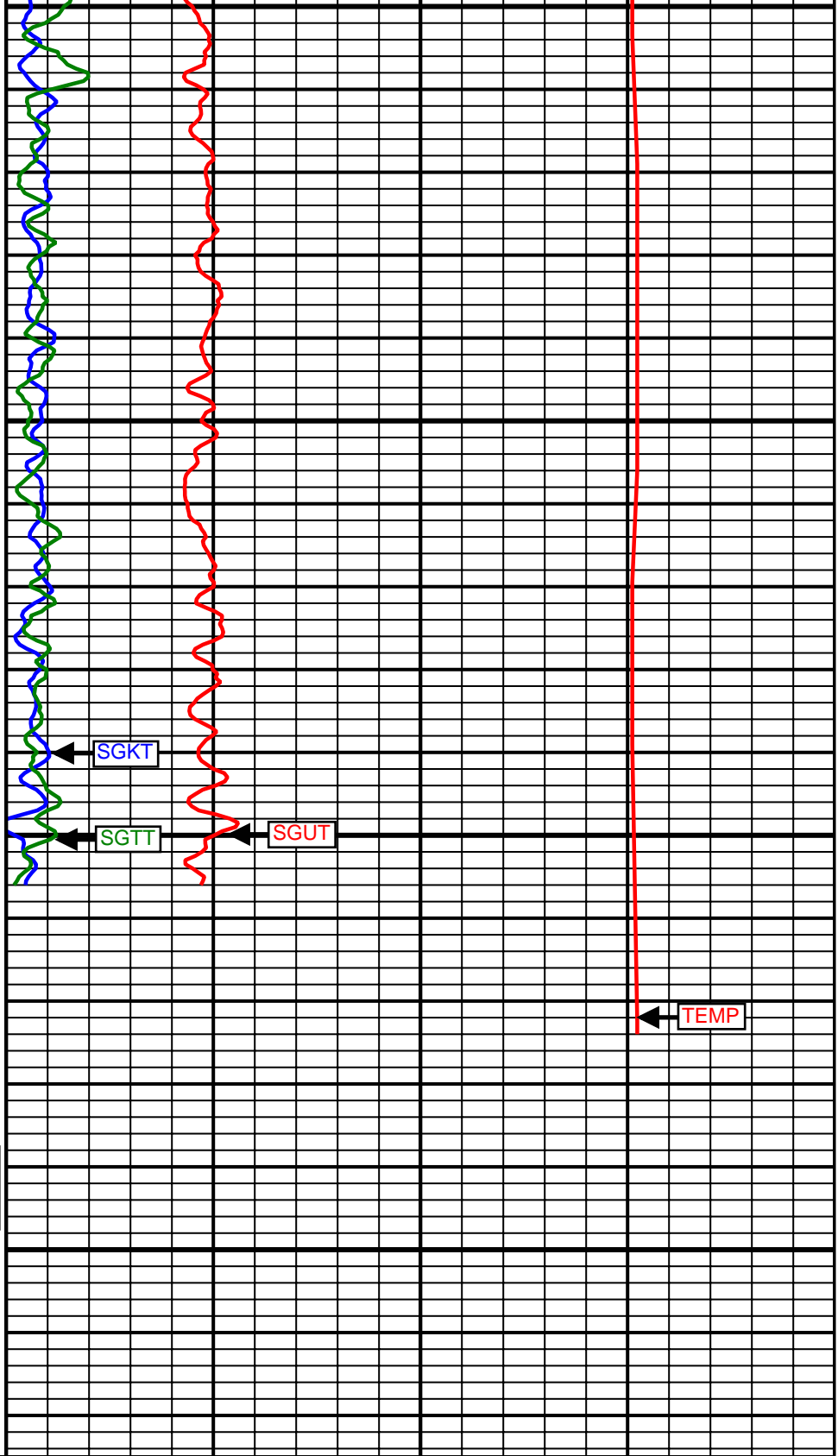
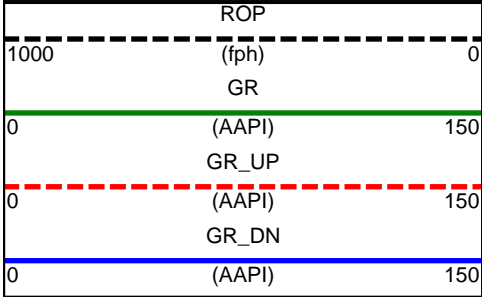




14600  
MD

Comment  
No. 4-2

14700  
MD



SURVEY						
Survey Calculation Method: <b>Minimum Curvature</b>						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
<b>True North</b>	<b>180.08 deg</b>	<b>52889 nT</b>	<b>66.94 deg</b>	<b>8.50 deg</b>	<b>0.00 deg</b>	<b>8.50 deg</b>
<b>Survey Tie-On</b>	Depth	INC	AZ	TVD	NS	EW
	<b>918.00 ft</b>	<b>0.22 deg</b>	<b>104.52 deg</b>	<b>917.99 ft</b>	<b>0.07 ft</b>	<b>0.97 ft</b>

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
1009.00	0.50	245.17	1008.99	-0.14	0.78	0.14	0.75
1375.00	0.30	232.97	1374.98	-1.39	-1.44	1.39	0.06
1833.00	0.43	338.21	1832.97	-0.51	-3.03	0.52	0.13
2200.00	0.56	311.15	2199.96	1.94	-4.89	-1.94	0.07
2569.00	1.44	130.16	2568.93	0.14	-2.71	-0.14	0.54
2661.00	3.52	130.70	2660.84	-2.45	0.32	2.45	2.26
2754.00	5.42	121.46	2753.55	-6.60	6.23	6.59	2.18
2850.00	7.04	122.57	2848.98	-12.13	15.06	12.11	1.69
2945.00	8.85	115.37	2943.07	-18.40	26.57	18.36	2.17
3040.00	9.33	106.87	3036.88	-23.77	40.54	23.71	1.50
3135.00	8.99	102.53	3130.67	-27.61	55.15	27.53	0.81
3230.00	7.92	98.79	3224.64	-30.22	68.87	30.13	1.27
3324.00	7.54	88.77	3317.79	-31.08	81.44	30.97	1.49
3419.00	7.50	89.68	3411.97	-30.91	93.87	30.78	0.13
3514.00	7.90	101.01	3506.12	-32.12	106.48	31.97	1.65
3609.00	8.79	101.62	3600.11	-34.83	119.99	34.67	0.94
3704.00	10.27	96.16	3693.80	-37.20	135.53	37.01	1.82
3799.00	10.16	88.71	3787.30	-37.92	152.32	37.71	1.39
3894.00	8.86	82.53	3880.99	-36.78	167.95	36.55	1.74
3988.00	9.01	87.84	3973.85	-35.57	182.49	35.31	0.89
4083.00	9.59	96.22	4067.61	-36.14	197.79	35.87	1.55
4178.00	11.17	87.79	4161.06	-36.64	214.85	36.34	2.30
4273.00	10.35	88.82	4254.39	-36.11	232.58	35.79	0.89
4367.00	8.98	84.52	4347.05	-35.24	248.33	34.89	1.65
4462.00	9.10	86.69	4440.87	-34.10	263.21	33.73	0.38
4556.00	8.42	89.43	4533.78	-33.60	277.51	33.21	0.85
4651.00	8.67	86.57	4627.72	-33.10	291.61	32.70	0.52
4746.00	10.17	90.18	4721.44	-32.70	307.15	32.27	1.70
4840.00	9.05	86.29	4814.12	-32.25	322.82	31.80	1.38
4935.00	9.28	94.09	4907.91	-32.31	337.92	31.84	1.33
5030.00	8.77	93.87	5001.73	-33.35	352.79	32.85	0.54
5125.00	9.50	95.21	5095.53	-34.55	367.82	34.03	0.80
5219.00	9.61	93.28	5188.22	-35.70	383.38	35.17	0.36
5314.00	10.06	91.58	5281.83	-36.38	399.59	35.82	0.56
5409.00	9.29	85.72	5375.48	-36.04	415.53	35.46	1.31
5503.00	8.85	87.71	5468.30	-35.18	430.32	34.58	0.57
5598.00	9.07	90.23	5562.14	-34.92	445.11	34.30	0.47
5693.00	8.41	92.77	5656.04	-35.29	459.54	34.65	0.80
5787.00	9.70	94.10	5748.87	-36.19	474.30	35.52	1.39
5882.00	9.40	94.00	5842.55	-37.30	490.03	36.62	0.32
5976.00	10.45	92.21	5935.14	-38.16	506.20	37.46	1.16
6070.00	11.83	91.28	6027.37	-38.71	524.36	37.98	1.48

6165.00	11.93	80.94	6120.34	-37.38	543.79	36.62	2.24
6260.00	10.44	77.43	6213.54	-33.96	561.89	33.18	1.72
6354.00	8.34	84.74	6306.28	-31.48	576.99	30.68	2.56
6449.00	8.36	98.61	6400.28	-31.88	590.68	31.06	2.12
6544.00	9.87	93.57	6494.08	-33.42	605.64	32.58	1.80
6575.00	9.38	91.95	6524.64	-33.68	610.81	32.82	1.81
6607.00	8.77	105.01	6556.25	-34.40	615.78	33.54	6.70
6638.00	10.19	125.88	6586.83	-36.62	620.28	35.75	11.91
6670.00	11.41	135.41	6618.27	-40.53	624.80	39.66	6.75
6701.00	12.41	139.99	6648.60	-45.26	629.09	44.39	4.44
6733.00	14.47	143.78	6679.72	-51.12	633.67	50.24	7.00
6764.00	16.47	145.79	6709.60	-57.88	638.43	56.99	6.68
6796.00	17.99	148.22	6740.16	-65.84	643.58	64.94	5.25
6827.00	19.13	149.97	6769.55	-74.30	648.64	73.40	4.09
6859.00	20.19	149.46	6799.68	-83.60	654.07	82.69	3.36
6891.00	21.72	151.51	6829.56	-93.56	659.71	92.64	5.30
6922.00	24.19	156.21	6858.11	-104.42	665.00	103.49	9.92
6954.00	26.87	160.91	6886.99	-117.25	670.02	116.32	10.49
6985.00	29.62	166.15	6914.30	-131.32	674.14	130.38	11.94
7017.00	32.23	168.57	6941.75	-147.36	677.73	146.42	9.03
7048.00	34.67	171.52	6967.61	-164.19	680.67	163.24	9.46
7080.00	37.11	172.92	6993.53	-182.77	683.20	181.82	8.04
7111.00	40.16	174.08	7017.75	-202.00	685.38	201.05	10.11
7143.00	43.73	175.09	7041.54	-223.29	687.39	222.33	11.35
7174.00	47.37	174.90	7063.25	-245.33	689.33	244.37	11.75
7206.00	49.95	174.38	7084.39	-269.25	691.57	268.29	8.15
7251.00	53.69	176.54	7112.20	-304.51	694.35	303.54	9.13
7301.00	58.68	178.97	7140.02	-346.00	695.96	345.03	10.76
7348.00	63.36	180.73	7162.78	-387.10	696.05	386.13	10.48
7395.00	69.04	182.21	7181.74	-430.07	694.93	429.10	12.42
7440.00	74.78	183.02	7195.71	-472.78	692.98	471.81	12.87
7490.00	78.16	181.36	7207.41	-521.35	691.13	520.39	7.49
7522.00	80.03	179.64	7213.46	-552.77	690.85	551.80	7.87
7553.00	83.06	177.40	7218.02	-583.42	691.65	582.45	12.11
7585.00	85.59	176.48	7221.18	-615.21	693.35	614.24	8.41
7672.00	91.96	176.07	7223.04	-701.96	699.00	700.99	7.34
7814.00	91.60	175.02	7218.63	-843.46	710.02	842.47	0.78
7907.00	90.43	175.08	7216.99	-936.10	718.04	935.10	1.26
7999.00	90.18	174.93	7216.50	-1027.75	726.05	1026.73	0.32
8090.00	89.56	176.16	7216.70	-1118.47	733.12	1117.45	1.51
8182.00	91.06	177.39	7216.20	-1210.32	738.30	1209.29	2.11
8273.00	90.62	177.92	7214.87	-1301.23	742.02	1300.20	0.76
8364.00	91.11	179.42	7213.50	-1392.20	744.13	1391.16	1.73
8456.00	90.92	180.03	7211.87	-1484.18	744.57	1483.14	0.69
8548.00	90.92	180.23	7210.39	-1576.17	744.37	1575.13	0.22
8640.00	90.62	180.87	7209.15	-1668.15	743.48	1667.11	0.77
8732.00	88.77	180.92	7209.64	-1760.14	742.05	1759.10	2.01
8824.00	89.57	181.61	7210.98	-1852.10	740.01	1851.07	1.15
8915.00	89.91	182.15	7211.39	-1943.05	737.03	1942.02	0.70
9005.00	90.00	181.87	7211.46	-2033.00	733.87	2031.97	0.33
9097.00	89.12	183.56	7212.17	-2124.89	729.51	2123.87	2.07
9189.00	89.51	182.63	7213.27	-2216.75	724.55	2215.73	1.10
9282.00	89.74	182.68	7213.87	-2309.64	720.24	2308.64	0.25
9374.00	90.35	182.86	7213.80	-2401.54	715.79	2400.53	0.69
9465.00	89.57	183.79	7213.87	-2492.38	710.52	2491.39	1.33
9558.00	89.69	183.45	7214.47	-2585.19	704.64	2584.21	0.39
9651.00	88.34	184.09	7216.06	-2677.98	698.53	2677.00	1.61
9743.00	88.06	184.45	7218.95	-2769.68	691.68	2768.71	0.50
9836.00	88.33	184.27	7221.88	-2862.36	684.62	2861.40	0.35
9899.00	88.15	184.27	7223.82	-2925.16	679.93	2924.20	0.29
9994.00	87.29	183.34	7227.60	-3019.87	673.63	3018.93	1.33

10089.00	88.94	183.03	7230.72	-3114.67	668.35	3113.73	1.77
10183.00	89.56	183.03	7231.95	-3208.53	663.39	3207.60	0.66
10278.00	91.60	182.77	7230.99	-3303.40	658.58	3302.47	2.16
10372.00	89.82	182.15	7229.83	-3397.30	654.55	3396.38	2.01
10467.00	90.18	181.46	7229.83	-3492.25	651.55	3491.34	0.82
10562.00	91.79	181.62	7228.19	-3587.20	649.00	3586.29	1.70
10656.00	90.92	182.37	7225.97	-3681.11	645.73	3680.21	1.22
10751.00	89.20	181.57	7225.87	-3776.05	642.46	3775.15	2.00
10845.00	89.51	181.92	7226.93	-3870.00	639.60	3869.11	0.50
10940.00	90.00	181.85	7227.34	-3964.95	636.48	3964.06	0.52
11035.00	91.05	180.78	7226.47	-4059.92	634.30	4059.03	1.58
11129.00	92.53	180.28	7223.53	-4153.87	633.43	4152.98	1.66
11224.00	92.10	179.72	7219.69	-4248.79	633.43	4247.90	0.74
11318.00	92.84	179.35	7215.64	-4342.70	634.19	4341.81	0.88
11413.00	92.77	179.14	7210.99	-4437.58	635.44	4436.68	0.23
11508.00	92.90	178.99	7206.29	-4532.45	636.99	4531.55	0.21
11602.00	90.68	179.62	7203.36	-4626.39	638.13	4625.49	2.45
11697.00	89.51	178.12	7203.20	-4721.36	640.00	4720.47	2.00
11791.00	87.10	178.19	7205.98	-4815.27	643.03	4814.36	2.56
11886.00	86.43	177.86	7211.34	-4910.06	646.30	4909.15	0.79
11980.00	87.16	177.96	7216.60	-5003.85	649.72	5002.94	0.78
12075.00	88.09	177.39	7220.53	-5098.69	653.57	5097.77	1.15
12170.00	87.47	176.65	7224.21	-5193.49	658.50	5192.56	1.02
12264.00	88.77	175.95	7227.30	-5287.24	664.57	5286.30	1.57
12359.00	88.89	176.20	7229.24	-5382.00	671.07	5381.05	0.29
12454.00	88.27	176.24	7231.59	-5476.76	677.33	5475.81	0.65
12548.00	87.47	177.34	7235.08	-5570.54	682.59	5569.59	1.45
12643.00	87.78	178.70	7239.02	-5665.40	685.87	5664.44	1.47
12737.00	88.52	176.85	7242.06	-5759.28	689.52	5758.31	2.12
12832.00	90.86	176.08	7242.57	-5854.09	695.37	5853.11	2.59
12927.00	91.32	177.75	7240.76	-5948.93	700.48	5947.95	1.82
13021.00	91.42	177.63	7238.52	-6042.83	704.27	6041.84	0.17
13116.00	90.80	181.12	7236.67	-6137.79	705.31	6136.80	3.73
13210.00	90.06	181.13	7235.97	-6231.77	703.46	6230.78	0.79
13305.00	89.26	177.03	7236.53	-6326.73	704.99	6325.74	4.40
13400.00	90.49	176.32	7236.74	-6421.57	710.50	6420.57	1.49
13494.00	89.57	176.15	7236.69	-6515.37	716.67	6514.36	1.00
13619.00	90.25	177.87	7236.89	-6640.19	723.19	6639.17	1.48
13714.00	90.62	178.60	7236.17	-6735.14	726.12	6734.12	0.86
13808.00	90.06	179.71	7235.61	-6829.13	727.50	6828.11	1.32
13903.00	91.79	178.87	7234.08	-6924.10	728.68	6923.08	2.02
13997.00	91.79	179.11	7231.14	-7018.04	730.33	7017.02	0.26
14092.00	91.35	179.01	7228.54	-7112.99	731.89	7111.97	0.47
14187.00	90.86	178.97	7226.70	-7207.96	733.57	7206.93	0.52
14281.00	91.42	180.09	7224.83	-7301.94	734.34	7300.91	1.33
14376.00	89.32	179.07	7224.22	-7396.93	735.03	7395.89	2.46
14470.00	89.63	179.04	7225.08	-7490.91	736.58	7489.87	0.33
14565.00	89.82	178.22	7225.54	-7585.88	738.86	7584.84	0.89
14639.00	89.45	177.42	7226.01	-7659.83	741.67	7658.78	1.19
*Projection to Total Depth*							
14693.00	89.45	177.42	7226.53	-7713.77	744.10	7712.72	0.00

\*Weatherford surveys from 1009 ft MD to 14639 ft MD.\*

\*TD called at 14693 ft MD.\*

The total correction is 8.50 deg relative to True North.



# Weatherford®

Final Print

COMPANY	<u>Anadarko</u>		
WELL	<u>Thomsen 36N-18HZ</u>		
FIELD	<u>Wattenburg</u>		
RIG	<u>H&amp;P 307</u>		
LOC.	<u>Colorado</u>	COUNTY	<u>Weld</u>