



Weatherford®

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

Company: Anadarko Petroleum Corpora
Well: Howard 29C-28HZ
Field: Wattenberg
Rig: Xtreme 23
County: Weld

COMPANY	<u>Anadarko Petroleum Corporation</u>	
WELL	<u>Howard 29C-28HZ</u>	
FIELD	<u>Wattenberg</u>	
RIG	<u>Xtreme 23</u>	
COUNTY	<u>Weld</u>	STATE <u>Colorado</u>
API #	<u>05-123-37679</u>	

Latitude: 40.01562° N	x = 3,168,012 ft	Mag Decl: 8.65°
Longitude: 104.90014° W	y = 1,249,106 ft	Mag Dip: 66.64°

Other Services: Directional and Temperature

Permanent Datum: <u>Mean Sea Level</u>		
Log Measured From: <u>Drill Floor</u>	Elev: <u>5024 ft</u>	above perm. datum
Depth Reference: <u>Drillers Tally</u>	Total Depth: <u>12805 ft</u>	
Depth Logged: 7193 ft	to 12805 ft	Runs: 6
Date Logged: 13-Aug-13	to 14-Sep-13	Spud Date: 23-Aug-13

Elevation		K.B.	Top Drive
		G.L.	5008 ft
		D.F.	5024 ft
		W.D.	Land

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
12.250 in.	Surface	946 ft	9.625 in.	57.0 lb/ft	Surface	946 ft	
8.750 in.	946 ft	8073 ft	7.000 in.	26.0 lb/ft	Surface	8064 ft	
6.125 in.	8073 ft	12805 ft					

Borehole Deviation Record			Mud Record			
Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From	To
8.750 in.	0.28°	84.68°	WBM	8.45 - 10.10 ppq	946 ft	12805 ft
6.125 in.	88.39°	92.35°				

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	5	6	
Bit Size in.	8.750	8.750	8.750	8.750	6.125	6.125	
Bit Type	PDC	PDC	PDC	Rock	PDC	PDC	
Bit TFA sq.in.	1.490	1.530	1.530	1.430	1.530	1.530	
Bit Start Depth ft	946	7240	7572	7697	8073	11000	
Bit End Depth ft	7240	7572	7697	8073	11000	12805	
Top Log Interval ft	NA	7193	7533	7642	7996	10925	
Bottom Log Interval ft	NA	7572	7697	8073	11000	12805	
Begin Log Time hrs	NA	19:33	18:48	8:30	5:51	1:17	
Begin Log Date DD-MMM-YY	NA	13-Aug-13	14-Aug-13	15-Aug-13	10-Sep-13	12-Sep-13	
End Log Time hrs	NA	1:31	22:23	21:42	02:07	18:47	
End Log Date DD-MMM-YY	NA	14-Aug-13	14-Aug-13	16-Aug-13	11-Sep-13	14-Sep-13	
Drill or Wipe	NA	Drill	Drill	Drill	Drill	Drill	
Flow Rate gal/min	586	560	544	545	295	250	
Max AV / CV @ MWD ft/min	469 / 100	545 / 273	430 / 318	430 / 348	483 / 323	409 / 310	
Min Inc @ Depth deg @ ft	0.28 @ 6133	1.47 @ 7206	22.41 @ 7547	39.57 @ 7718	88.77 @ 10087	88.39 @ 11879	
Max Inc @ Depth deg @ ft	14.86 @ 2219	16.05 @ 7462	26.73 @ 7594	84.68 @ 8007	92.35 @ 9448	91.98 @ 12050	
MUD DATA							
Depth ft	7240	7572	7697	8073	11000	12805	
Fluid Type	WBM	WBM	WBM	WBM	WBM	WBM	
Mud Weight ppg	8.45	10.10	10.00	10.10	8.70	8.80	
Plastic Viscosity cP	1	10	10	12	8	8	
Solids / Sand %	1.2 / 0.10	8.8 / 0.30	8.2 / 0.25	8.7 / 0.25	6.7 / 0.30	6.7 / 0.30	
NaCl Equiv. Chlorides ppm	1155	1650	1815	1980	1980	1200	
pH	8.7	9.5	9.3	9.3	8.0	9.2	
Oil:Water Ratio % Vol	0.0 : 100.0	2.5 : 97.5	3.0 / 96.5	3.5 : 96.5	1.0 : 99.0	3.0 : 97.0	
Rm @ Temperature ohm-m @ deg F	NA	NA	NA	NA	0.909 @ 75	0.912 @ 75	
Rmc @ Temperature ohm-m @ deg F	NA	NA	NA	NA	0.337 @ 75	0.342 @ 75	
Rmf @ Temperature ohm-m @ deg F	NA	NA	NA	NA	0.276 @ 75	0.255 @ 75	
KCl % Vol	0	0	0	0	0	0	
Client Representative	R. McPeters	R. McPeters	R. McPeters	R. McPeters	R. McPeters	R. McPeters	
WeatherfordM/LWD Engineer	D. Palmer	D. Palmer	D. Palmer	D. Palmer	M. Nguyen	M. Nguyen	

EQUIPMENT SUMMARY						
M/LWD Run Number	1	2	3	4	5	6
BTR / CDS Serial Number	44708 / 44742	44708 / 44742	44708 / 44742	44708 / 44742	NA	NA
Battery Serial Number	403115889	403115889	403115889	403115889	NA	NA
Gamma Ray Serial Number	NA	3138	3138	3138	NA	NA
HEL Serial Number	NA	NA	NA	NA	NW132070PDBS4.75	NW132074PDBS4.75
MFR Serial Number	NA	NA	NA	NA	NW132071RBBKV4.75	NW132071RBBKV4.75
SAGR Serial Number	NA	NA	NA	NA	NW132077JB4.75	NW132077JB4.75
IDS Serial Number	NA	NA	NA	NA	NW132072IB4.75	NW132072IB4.75
Sensor to Bit Offsets / Acquisition Rates						
Directional	ft / sec	45.8 / RT	45.8 / RT	46.04 / RT	55.18 / RT	55.18 / RT
Gamma Ray	ft / sec	NA	49.45 / 16	49.76 / 16	66.88 / 5	66.88 / 5
Resistivity	ft / sec	NA	NA	NA	76.45 / 5	76.45 / 5
Spectral Gamma Ray	ft / sec	NA	NA	NA	40.40 / 5	40.23 / 5
Other Information						
Total BHA Length	ft	120.33	115.62	115.65	7228.09	7227.76
BHA Assembly Type		Steerable	Steerable	Steerable	Steerable	Steerable
Stabilizer Location	ft	NA	NA	NA	30.34	35.49
Run Circulating Time	hr	30.97	16.93	28.99	4.25	44.91
Run Drilling Time	hr	22.53	11.19	15.16	0.88	6.82

MUD SUMMARY

Date and Time	Run	Bit Depth	Mud Weight	% K	Rm @ Temp	Rmf @ Temp	Rmc @ Temp	BHCT
13 Aug 13 @ 12:20	01	7240 ft	8.45 ppg	0	NA	NA	NA	163 F
14 Aug 13 @ 12:00	02	7572 ft	10.10 ppg	0	NA	NA	NA	163 F
15 Aug 13 @ 03:00	03	7697 ft	10.00 ppg	0	NA	NA	NA	161 F
16 Aug 13 @ 18:00	04	8073 ft	10.10 ppg	0	NA	NA	NA	172 F
11 Sept 13 @ 21:33	05	11000 ft	8.70 ppg	0	0.909 ohm-m @ 75 F	0.337 ohm-m @ 75 F	0.276 ohm-m @ 75 F	217 F
15 Sept 13 @ 22:29	06	12805 ft	8.80 ppg	0	0.912 ohm-m @ 75 F	0.342 ohm-m @ 75 F	0.255 ohm-m @ 75 F	226 F

M/LWD RUN REMARKS			
Run Number: 1 :: RECORDED DATA LOG			
WFT Services Provided: Directional Services: On demand Inclination and Azimuth.			
Run Number: 2 :: RECORDED DATA LOG			
WFT Services Provided: Recorded and Real Time Logging: Gamma Ray and Temperature. Directional Services: On demand Inclination and Azimuth.			
Borehole and Environmental Correction:			
Hole Size:	8.750 in.	Gamma Ray: Hole size, mudweight, Collar O.D., Collar I.D. and K1 factor.	
Mud Weight:	10.00 ppg	Collar O.D.:	6.860 in.
K1 Factor:	3.25	Collar I.D.:	3.250 in.
KCl Concentration:	0%		
Run Number: 3 :: 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:	10.20 ppg	Collar O.D.:	6.860 in.
K1 Factor:	3.25	Collar I.D.:	3.250 in.
KCl Concentration:	0%		
Run Number: 4 :: 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:	10.20 ppg	Collar O.D.:	6.860 in.
K1 Factor:	3.25	Collar I.D.:	3.250 in.
KCl Concentration:	0%		
Run Number: 5 :: RECORDED DATA LOG			
WFT Services Provided: Recorded and Real Time Logging: Spectral Gamma Ray, Deep, Medium and Shallow 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:	8.70 ppg	Resistivities: Corrected for borehole temperature, hole size, drilling fluid resistivity	
Borehole Temperature:	217° F	and dielectric correction.	
Drilling Fluid Resistivity:	WBM (0.909 ohm-m)		
KCl Concentration:	0%		

Run Number: 6 :: RECORDED DATA LOG

WFT Services Provided:

Recorded and Real Time Logging: Spectral Gamma Ray, Deep, Medium and Shallow 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: 8.80 ppg

Resistivities: Corrected for borehole temperature, hole size, drilling fluid resistivity

Borehole Temperature: 226° F

and dielectric correction.

Drilling Fluid Resistivity: WBM (0.912 ohm-m)

KCl Concentration: 0%

M/LWD LOG COMMENTS	
Comment No. 1-1	<p>RECORDED DATA LOG</p> <p>Start of M/LWD Drilling Run 02</p> <p>Weatherford International provided 6 3/4 in. Directional and Gamma Ray for Run 02.</p> <p>Run 02 started formation drilling August 13, 2013 at 19:33 at 7240 MD / 7200 TVD. Weatherford International logged the 8.750 in. borehole.</p> <p>The WBM at the start of drilling was 10.10 ppg.</p>
Comment No. 1-2	<p>End of M/LWD Drilling Run 02</p> <p>Run 02 ended drilling formation August 14, 2013 at 01:31 at 7572 MD / 7524 TVD.</p> <p>The WBM at the end of drilling was 10.10 ppg.</p>
Comment No. 2-1	<p>RECORDED DATA LOG</p> <p>Start of M/LWD Drilling Run 03</p> <p>Weatherford International provided 6 3/4 in. Directional and Gamma Ray for Run 03.</p> <p>Run 03 started formation drilling August 14, 2013 at 18:48 at 7572 MD / 7524TVD. Weatherford International logged the 8.750 in. borehole.</p> <p>The WBM at the start of drilling was 10.00 ppg.</p>
Comment No. 2-2	<p>End of M/LWD Drilling Run 03</p> <p>Run 03 ended drilling formation August 14, 2013 at 22:23 at 7697 MD / 7631.57 TVD.</p> <p>The WBM at the end of drilling was 10.00 ppg.</p>
Comment No. 3-1	<p>RECORDED DATA LOG</p> <p>Start of M/LWD Drilling Run 04</p> <p>Weatherford International provided 6 3/4 in. Directional and Gamma Ray for Run 04.</p> <p>Run 04 started formation drilling August 15, 2013 at 08:30 at 7697 MD / 7631 TVD. Weatherford International logged the 8.750 in. borehole.</p> <p>The WBM at the start of drilling was 10.10 ppg.</p>
Comment No. 3-2	<p>End of M/LWD Drilling Run 04</p> <p>Run 04 ended drilling formation August 16, 2013 at 21:42 at 8073 MD / 7778 TVD.</p> <p>The WBM at the end of drilling was 10.10 ppg.</p>

Comment No. 4-1

RECORDED DATA LOG

Start of M/LWD Drilling Run 05

Weatherford International provided 4 3/4 in. Directional. Resistivity and Spectral Gamma Ray for Run 05.

Run 05 started formation drilling September 10, 2013 at 05:51 at 8073 MD / 7778 TVD. Weatherford International logged the 6.125 in. borehole.

The WBM at the start of drilling was 9.60 ppg.

Comment No. 4-2

End of M/LWD Drilling Run 05

Run 05 ended drilling formation September 11, 2013 at 02:07 at 11000 MD / 7742 TVD.

The WBM at the end of drilling was 9.15 ppg.

Comment No. 5-1

RECORDED DATA LOG

Start of M/LWD Drilling Run 06

Weatherford International provided 6 3/4 in. Directional, Resistivity and Spectral Gamma Ray for Run 06.

Run 06 started formation drilling September 12, 2013 at 01:17 at 11000 MD / 7742 TVD. Weatherford International logged the 6.125 in. borehole.

The WBM at the start of drilling was 8.70 ppg.

Comment No. 5-2

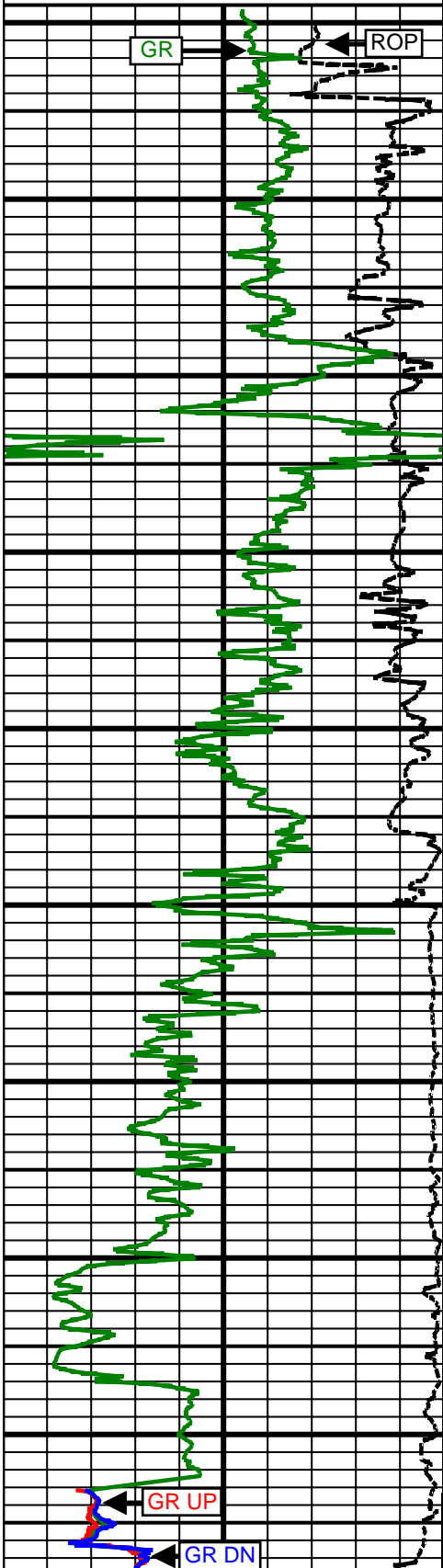
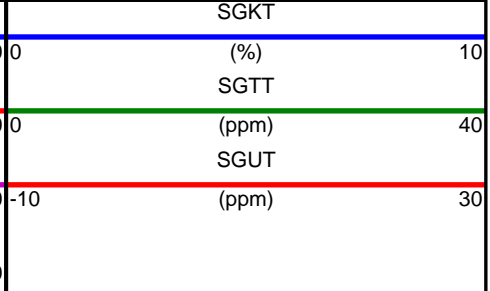
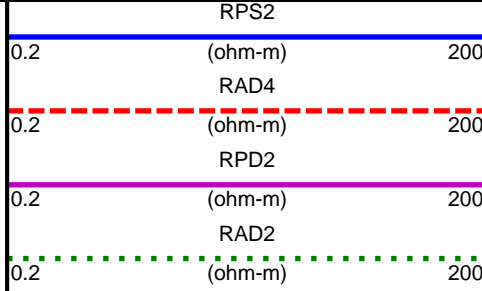
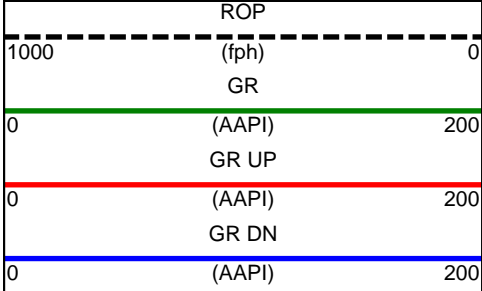
End of M/LWD Drilling Run 06

Run 06 ended drilling formation September 14, 2013 at 18:47 at 12805 MD / 7715.63 TVD.

The WBM at the end of drilling was 8.70 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
Azimuthal Gamma Ray	GR	AAPI	Recorded Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	See M/LWD Run Remarks
Azimuthal Gamma Ray	GR UP	AAPI	Recorded Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Azimuthal Gamma Ray	GR DOWN	AAPI	Recorded Azimuthal Gamma Ray 3.0 ft window 0.5 ft Exponential Smoothing	
Potassium Concentration	SGKT	%	Potassium Concentration 3.0 ft window 0.5 ft Two Stage Smoothing	
Uranium Concentration	SGUT	ppm	Uranium Concentration 3.0 ft window 0.5 ft Two Stage Smoothing	
Thorium Concentration	SGTT	ppm	Thorium Concentration 3.0 ft window 0.5 ft Two Stage Smoothing	
Deep Phase Resistivity	RPD2	ohm-m	2MHz Deep Phase Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Shallow Phase Resistivity	RPS2	ohm-m	2MHz Shallow Phase Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Deep Attenuation Resistivity	RAD2	ohm-m	2MHz Shallow Phase Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	
Deep Attenuation Resistivity	RAD4	mmho/m	400kHz Deep Phase Resistivity 3.0 ft window 0.5 ft Exponential Smoothing	

1 Inch - Measured Depth



7200 MD

7300 MD

7400 MD

7500 MD

7600 MD

7700 MD

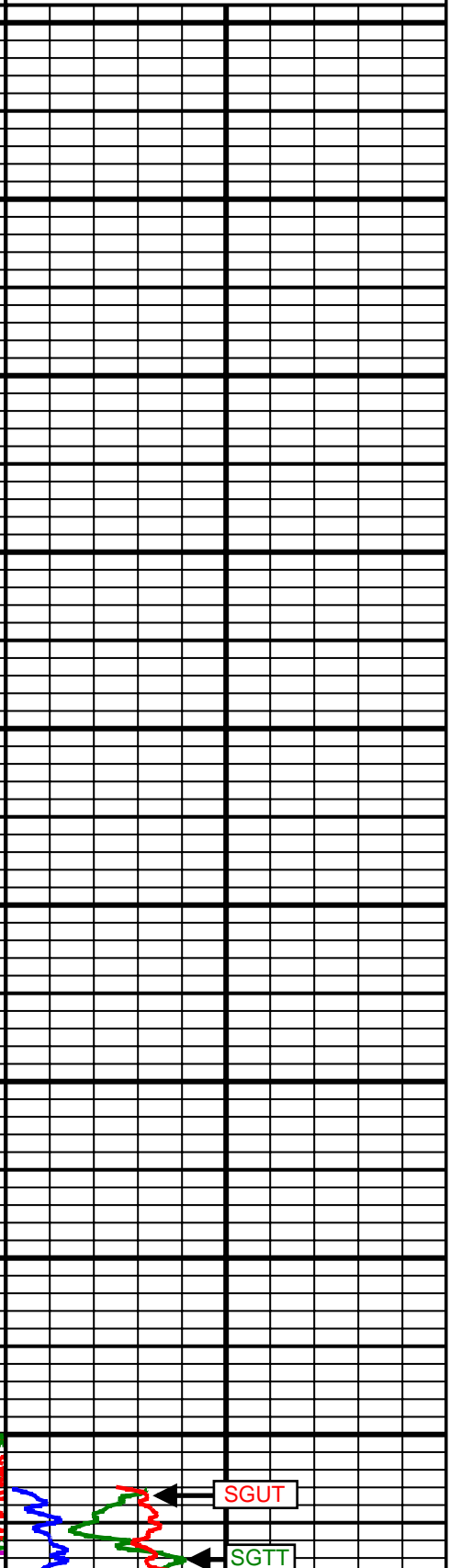
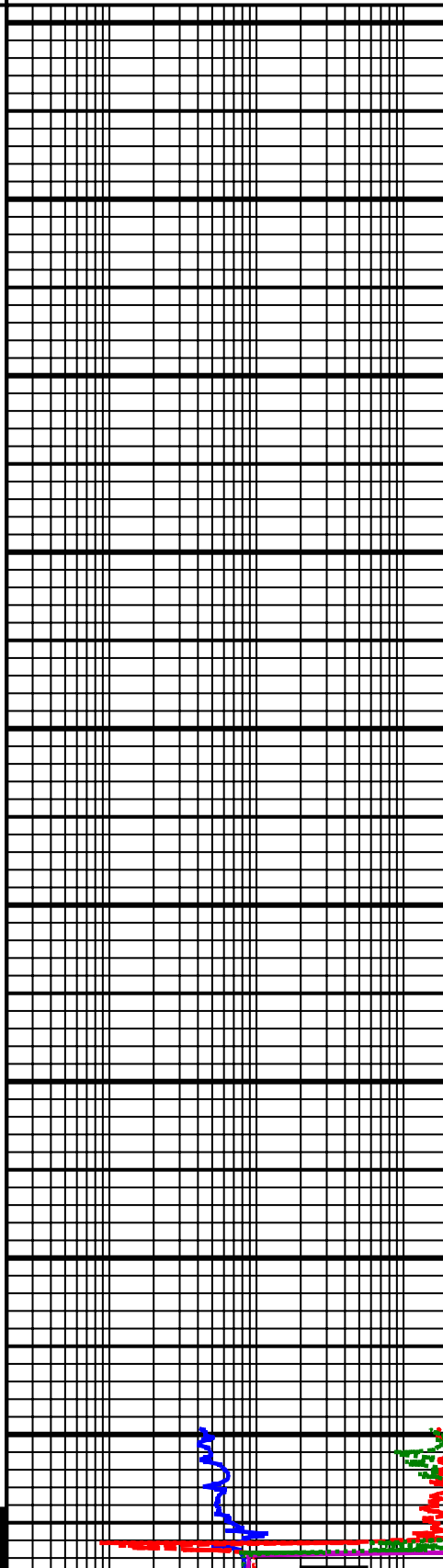
7800 MD

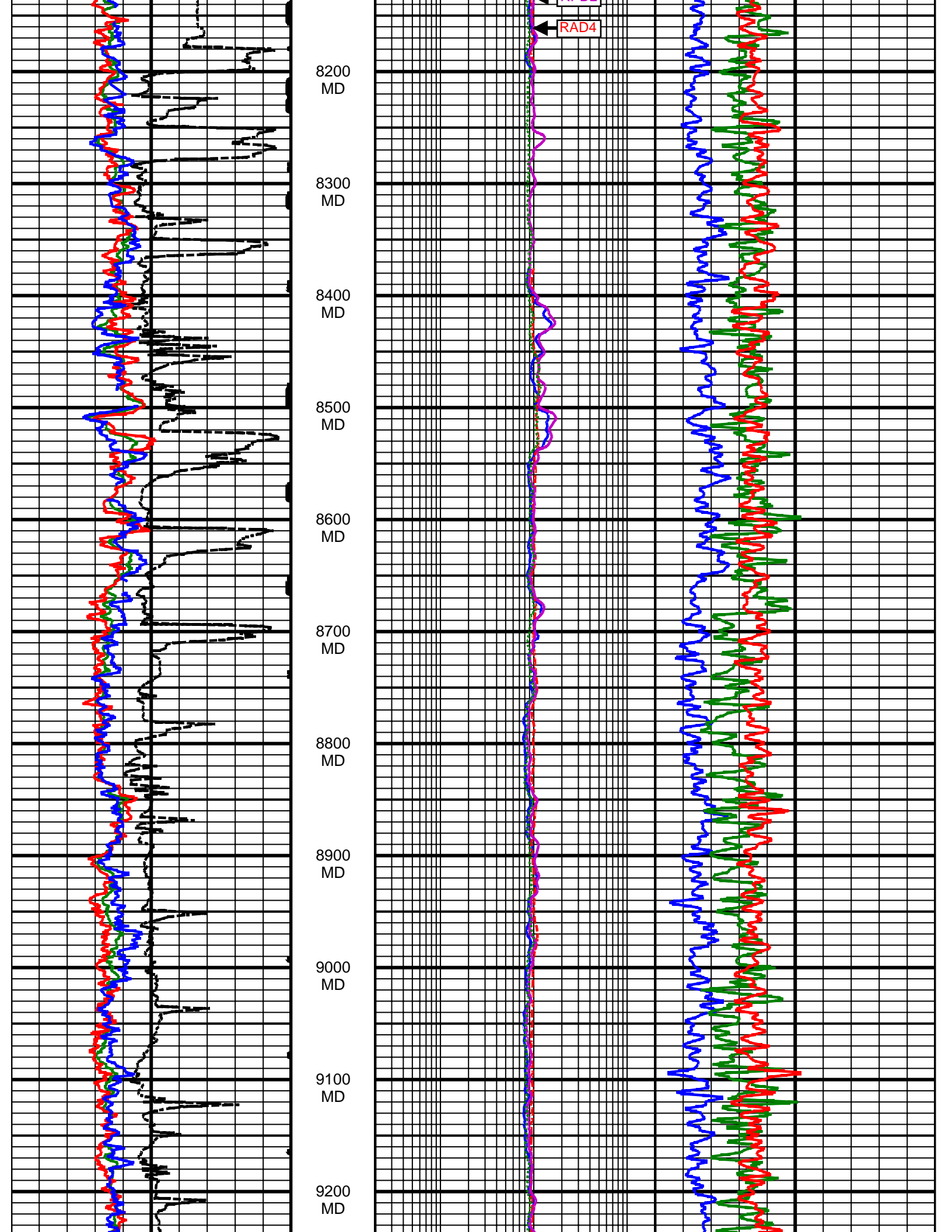
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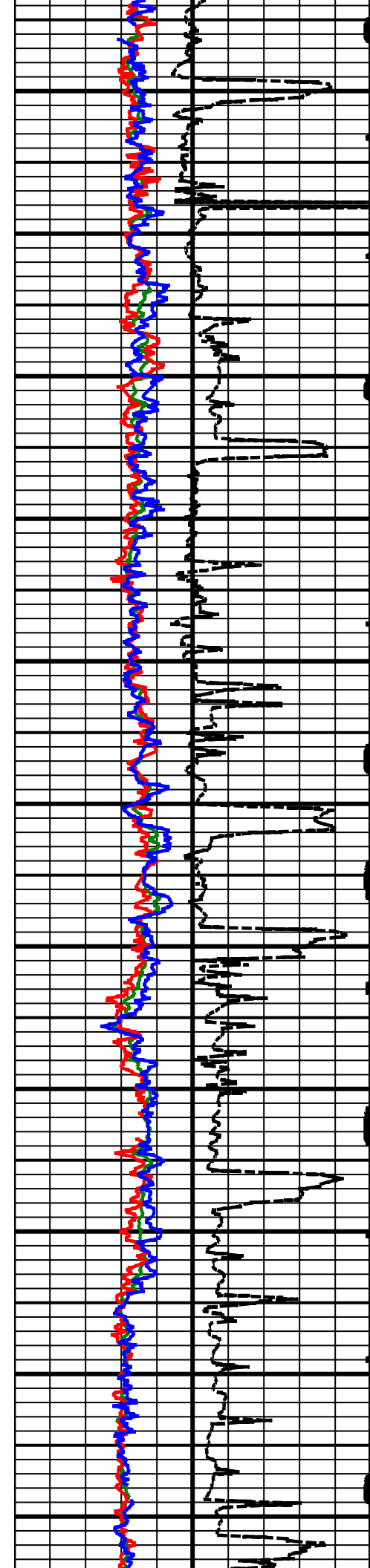
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CASING

8100 MD







9300
MD

9400
MD

9500
MD

9600
MD

9700
MD

9800
MD

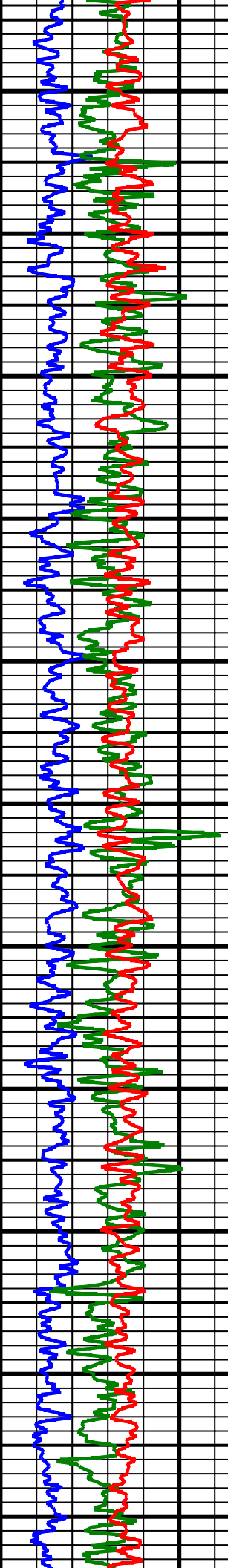
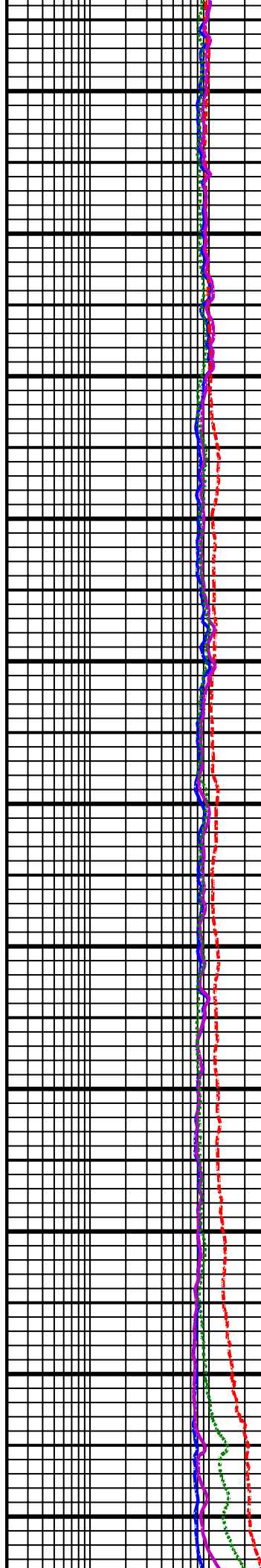
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MD

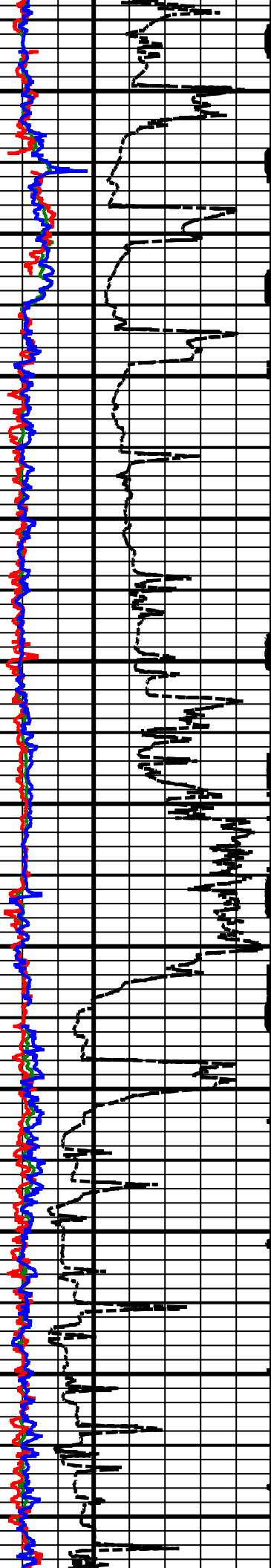
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MD

10100
MD

10200
MD

10300
MD





10400 MD

10500 MD

10600 MD

10700 MD

10800 MD

10900 MD

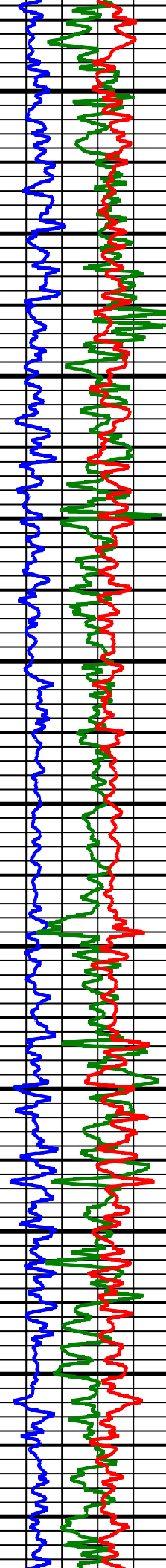
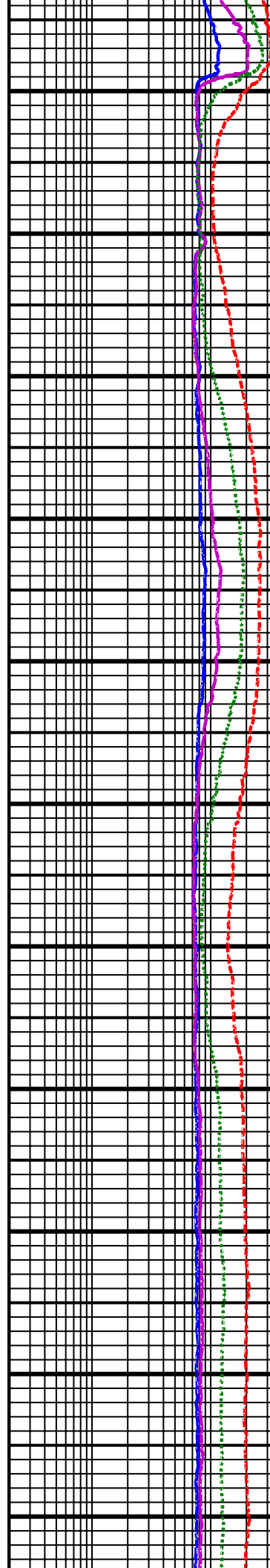
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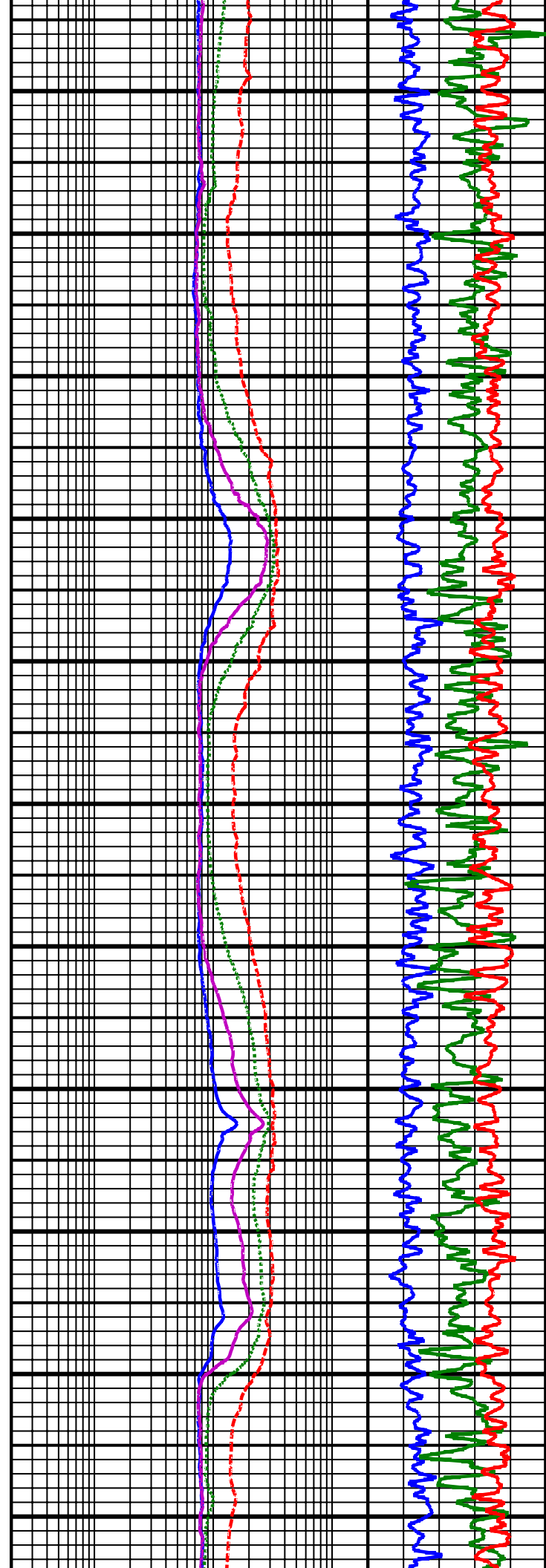
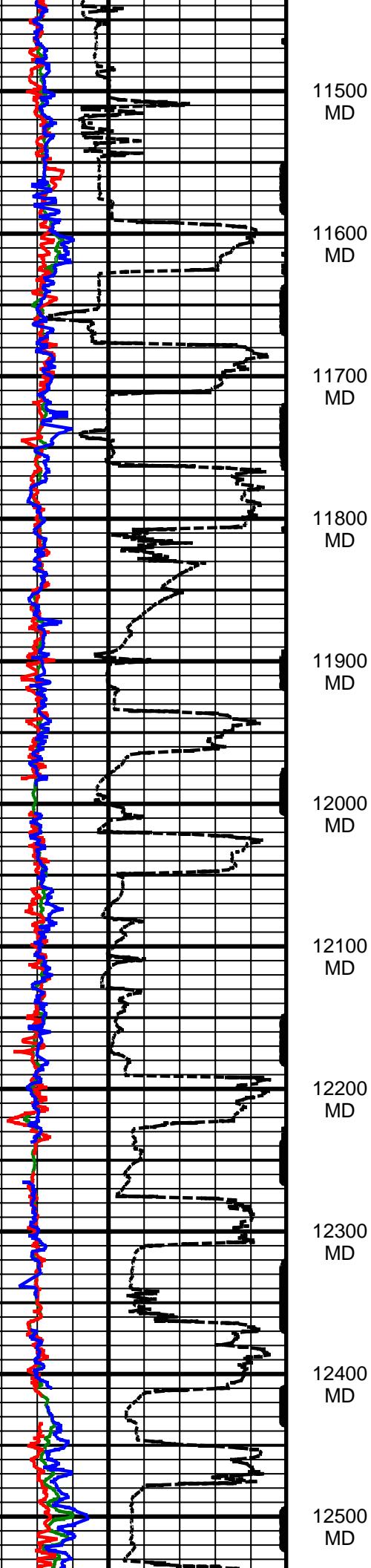
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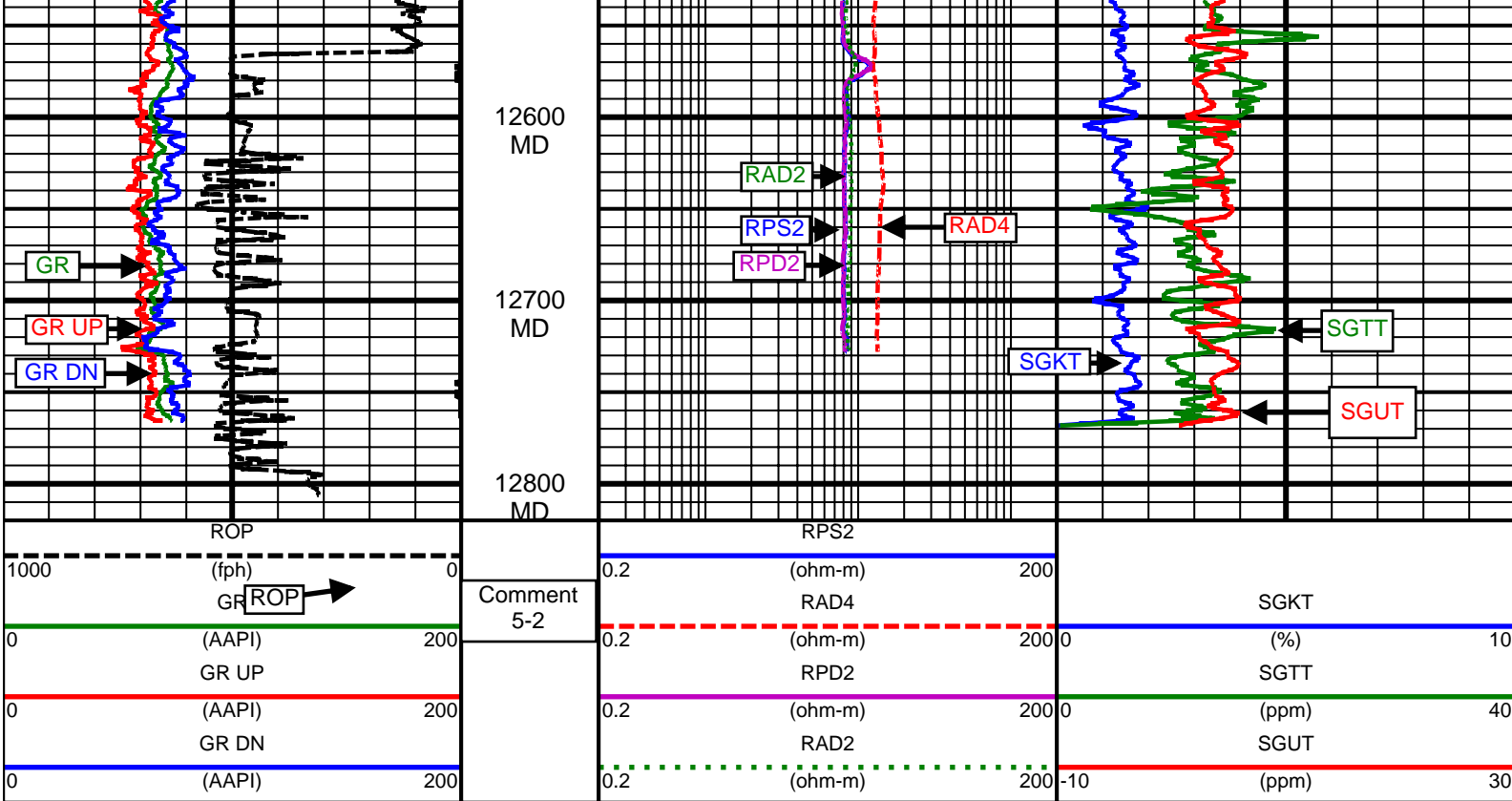
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11300 MD

11400 MD





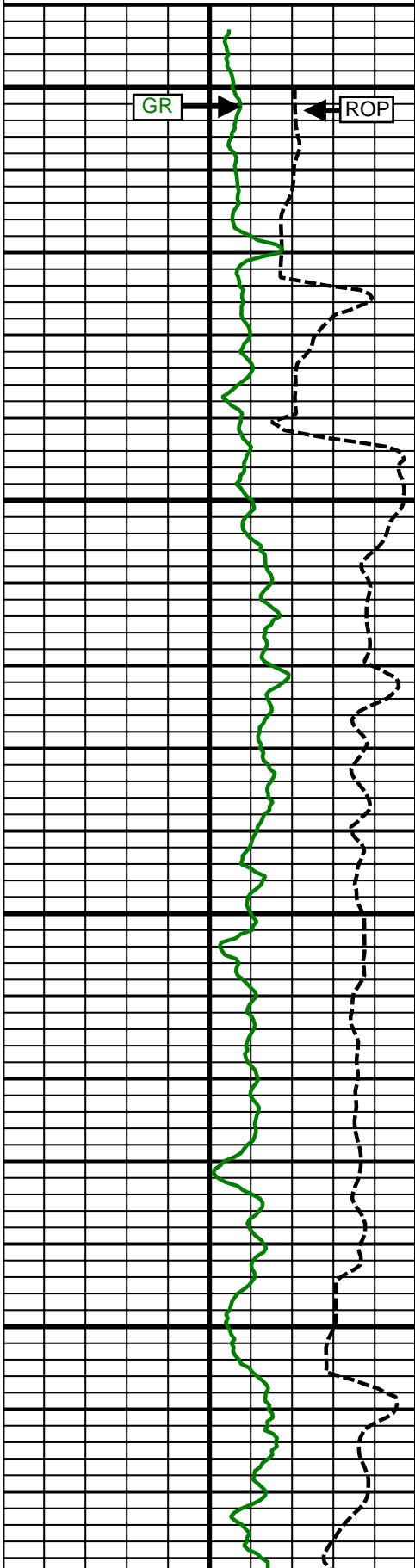


5 Inch - Measured Depth

ROP		
1000	(fph)	0
GR		
0	(AAPI)	200
GR UP		
0	(AAPI)	200
GR DN		
0	(AAPI)	200

RPS2		
0.2	(ohm-m)	200
RAD4		
0.2	(ohm-m)	200
RPD2		
0.2	(ohm-m)	200
RAD2		
0.2	(ohm-m)	200

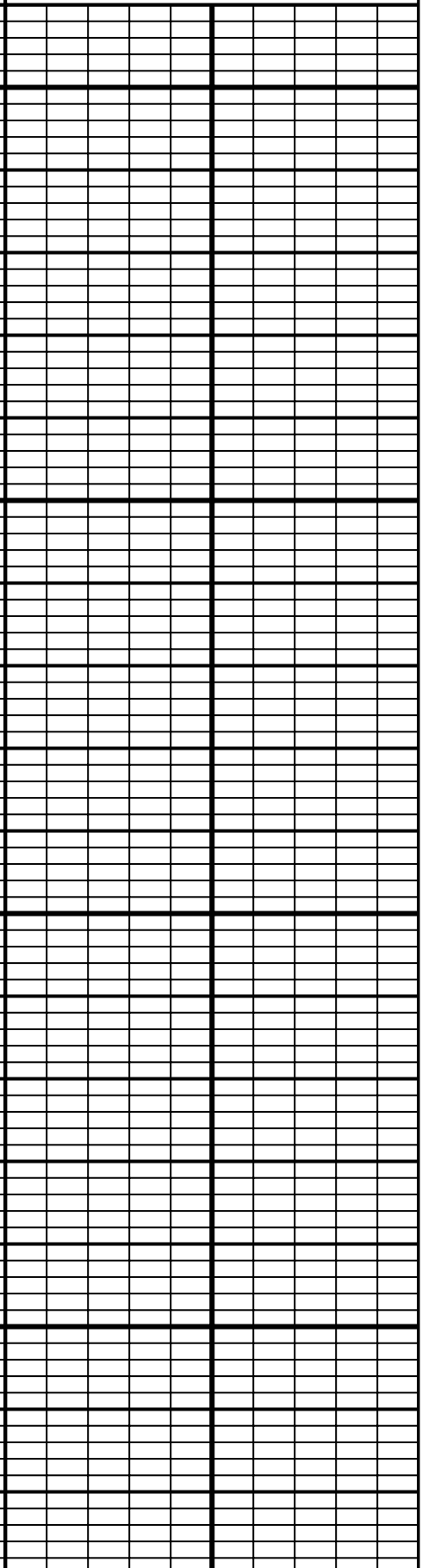
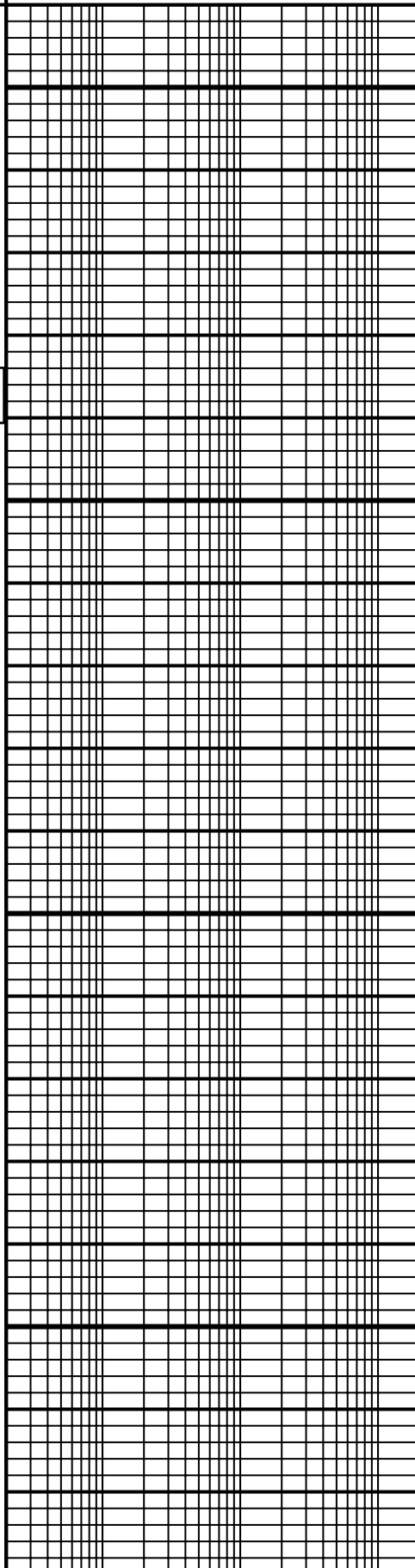
SGKT		
	(%)	10
SGTT		
	(ppm)	40
SGUT		
-10	(ppm)	30

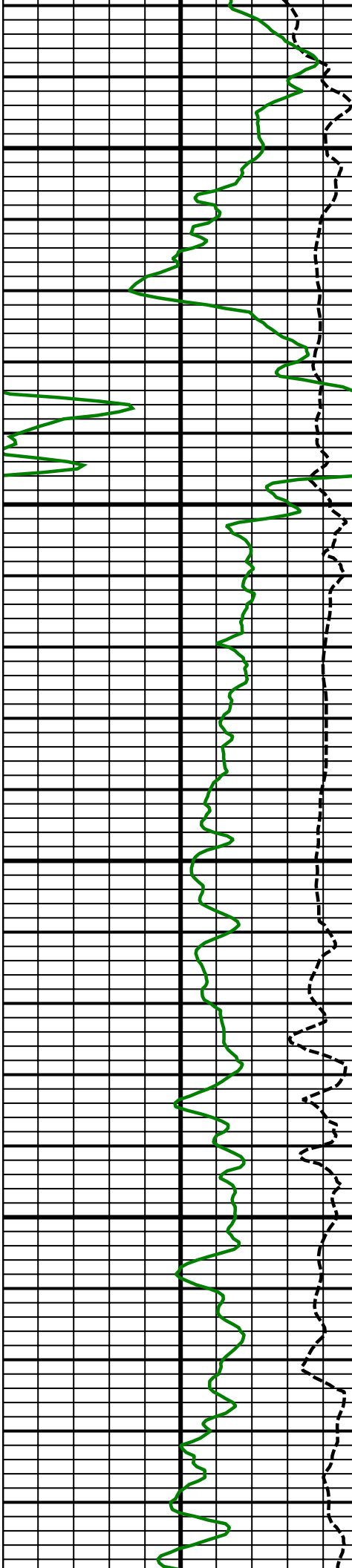


7200 MD

Comment 1-1

7300 MD





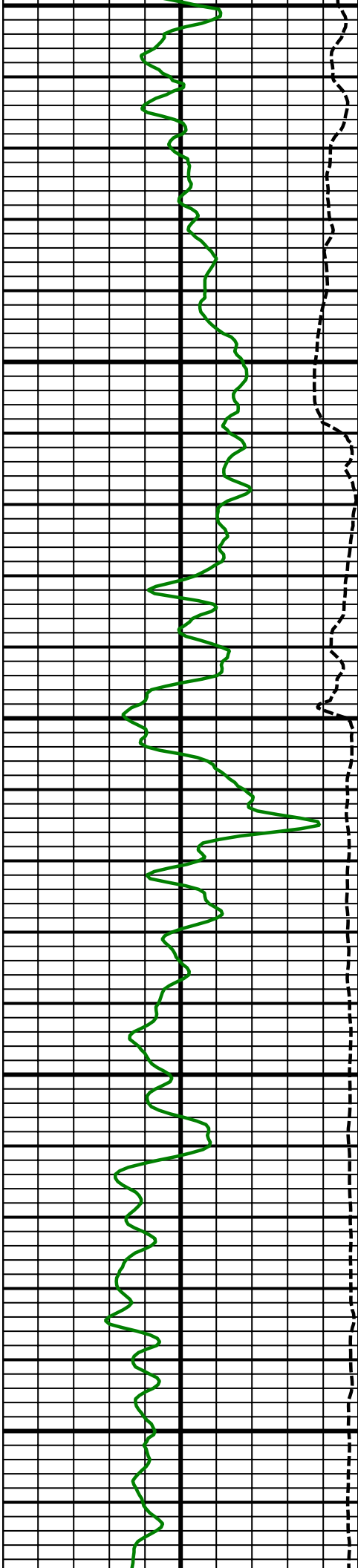
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MD

7500
MD

Comment
1-2

Comment
2-1

7600
MD



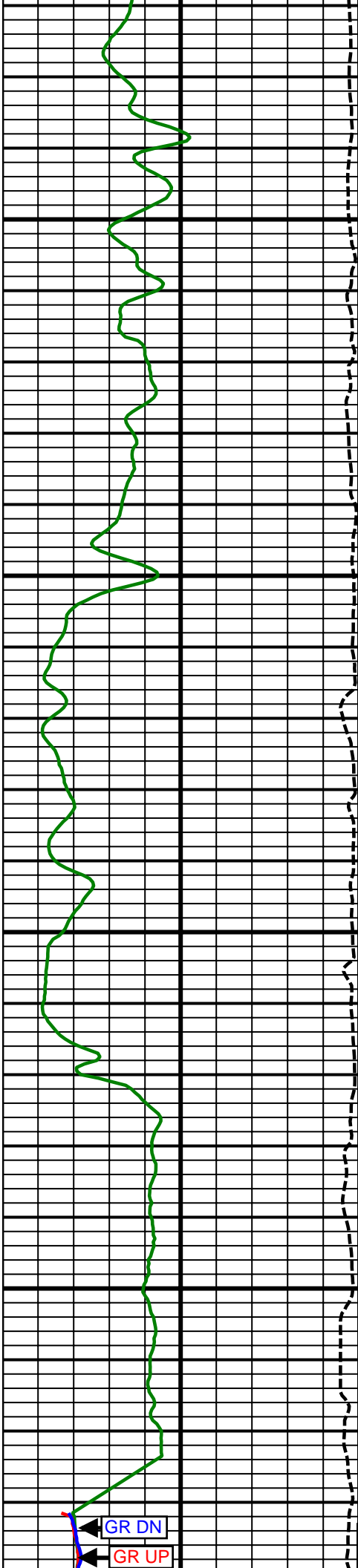
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MD

Comment
2-2

7700
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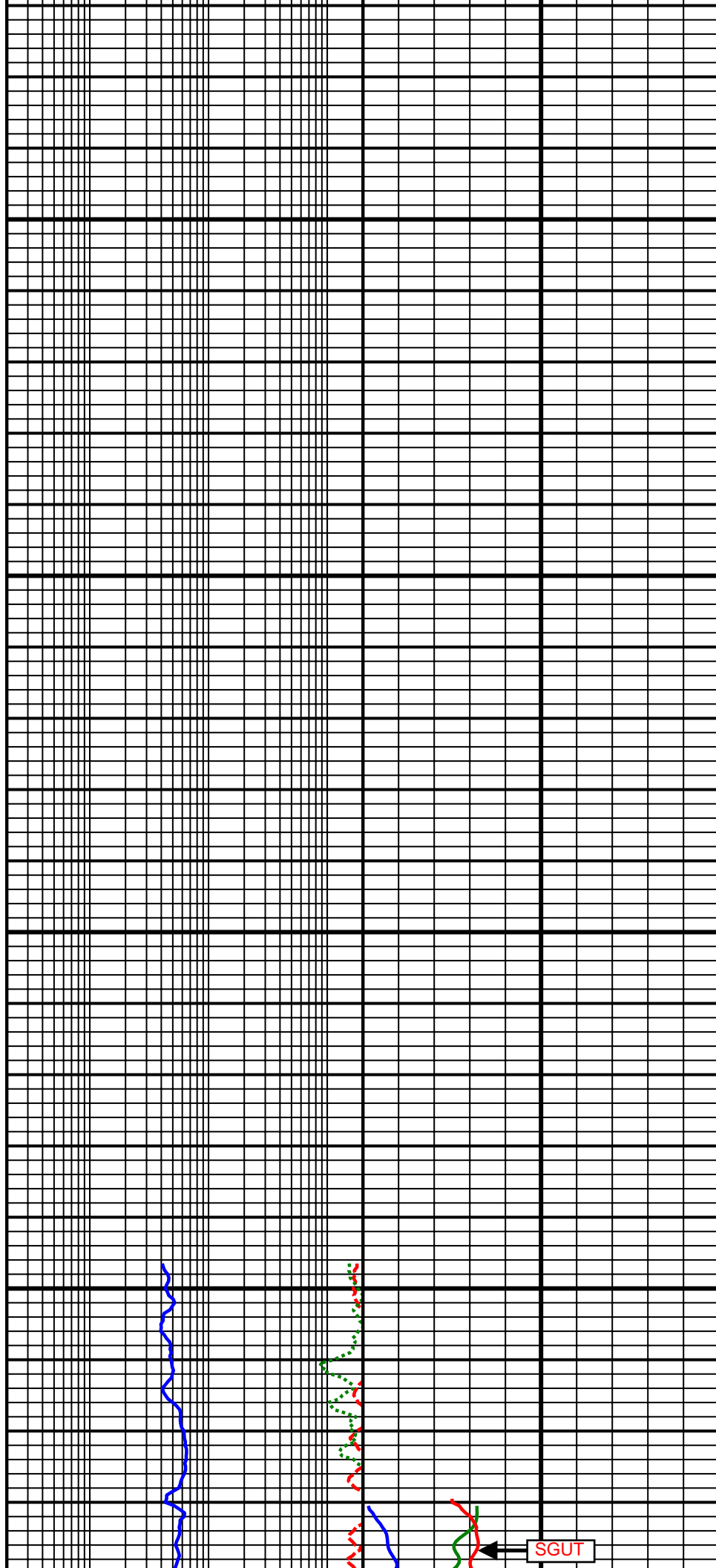
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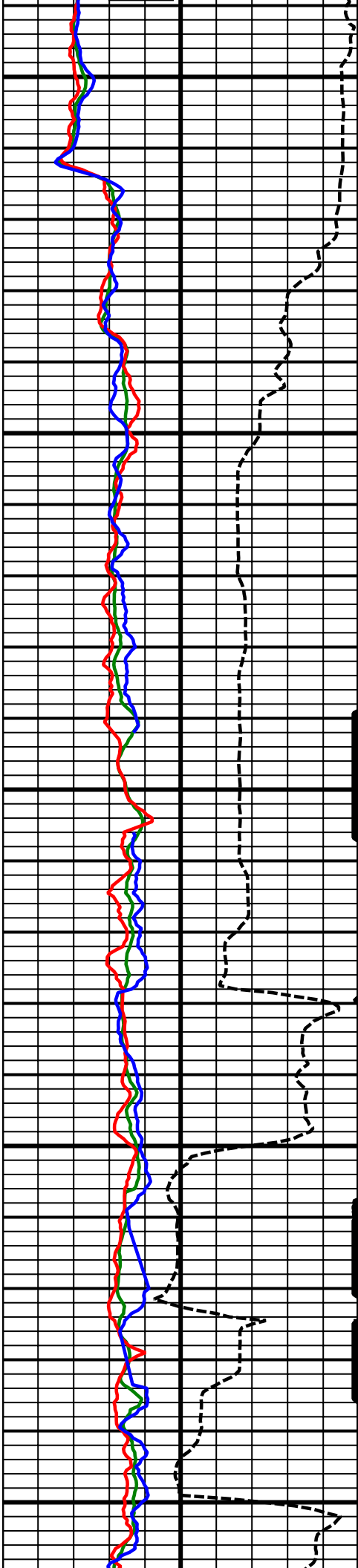
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7900
MD

8000
MD





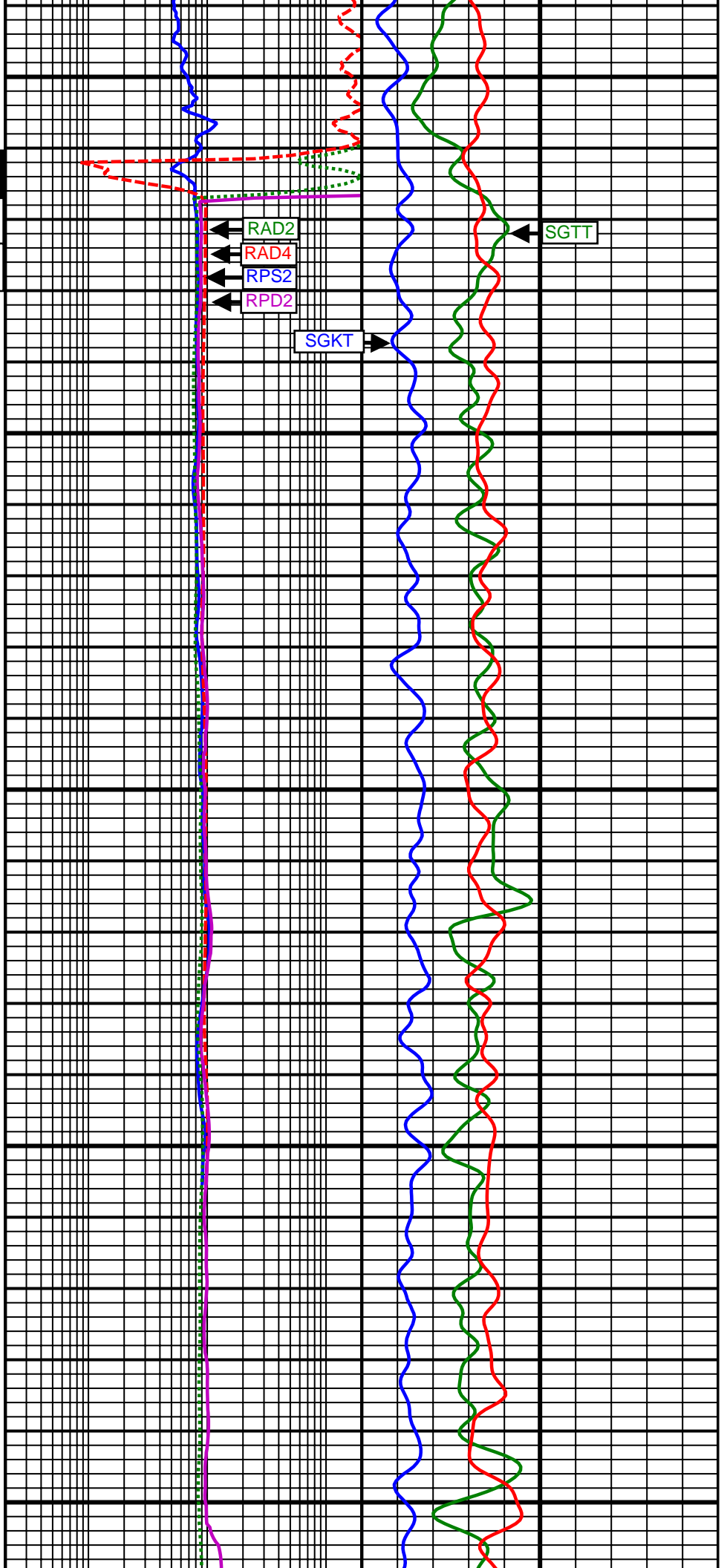
CASING

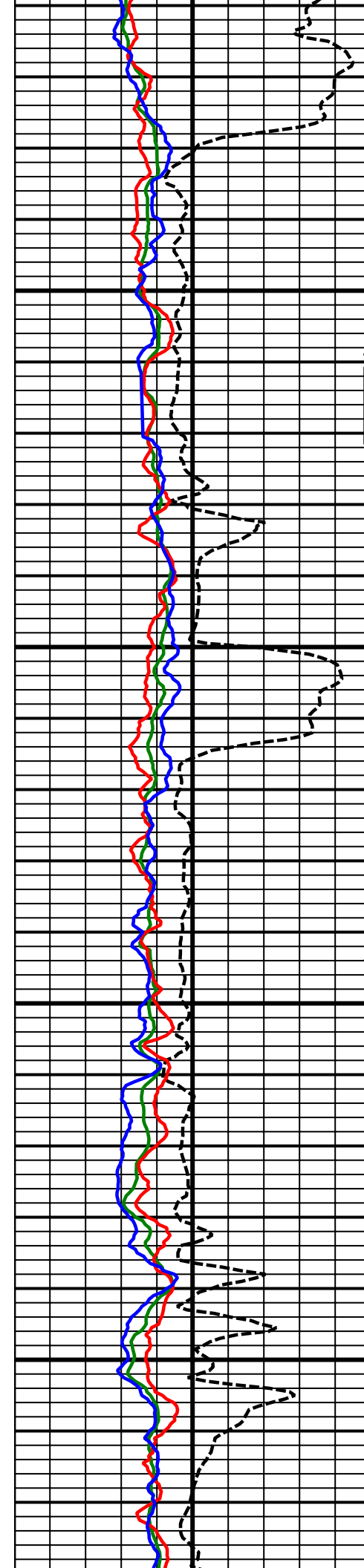
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3-2

Comment
4-1

8100
MD

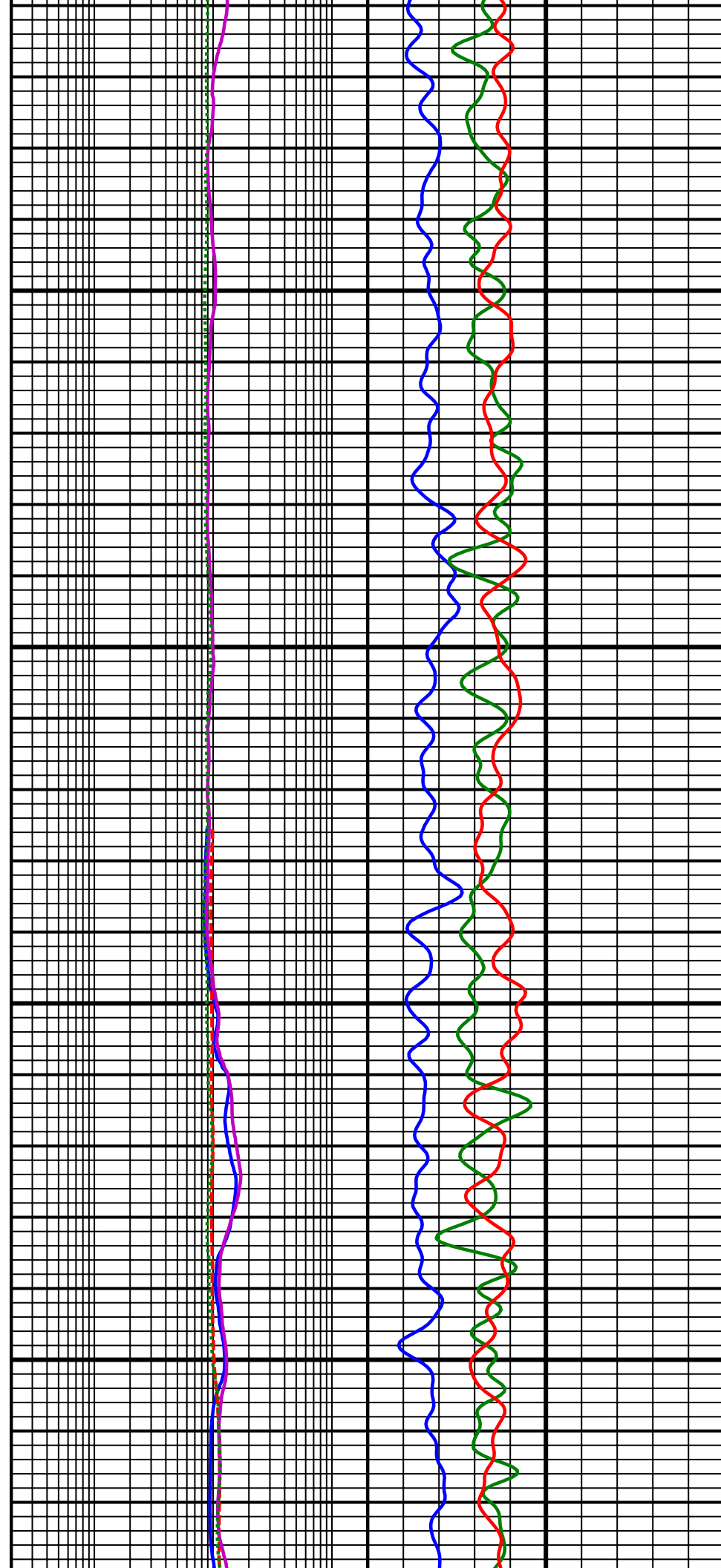
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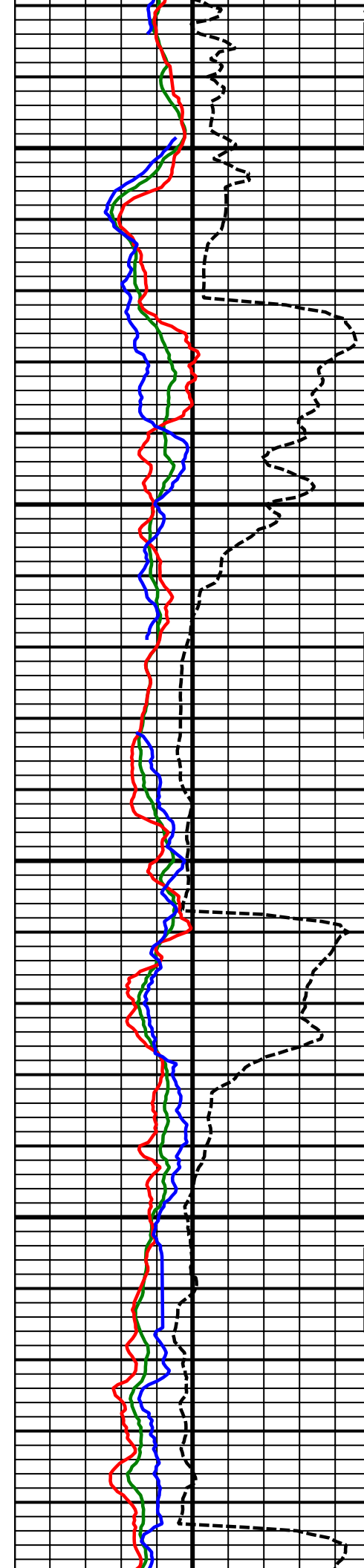




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MD

8400
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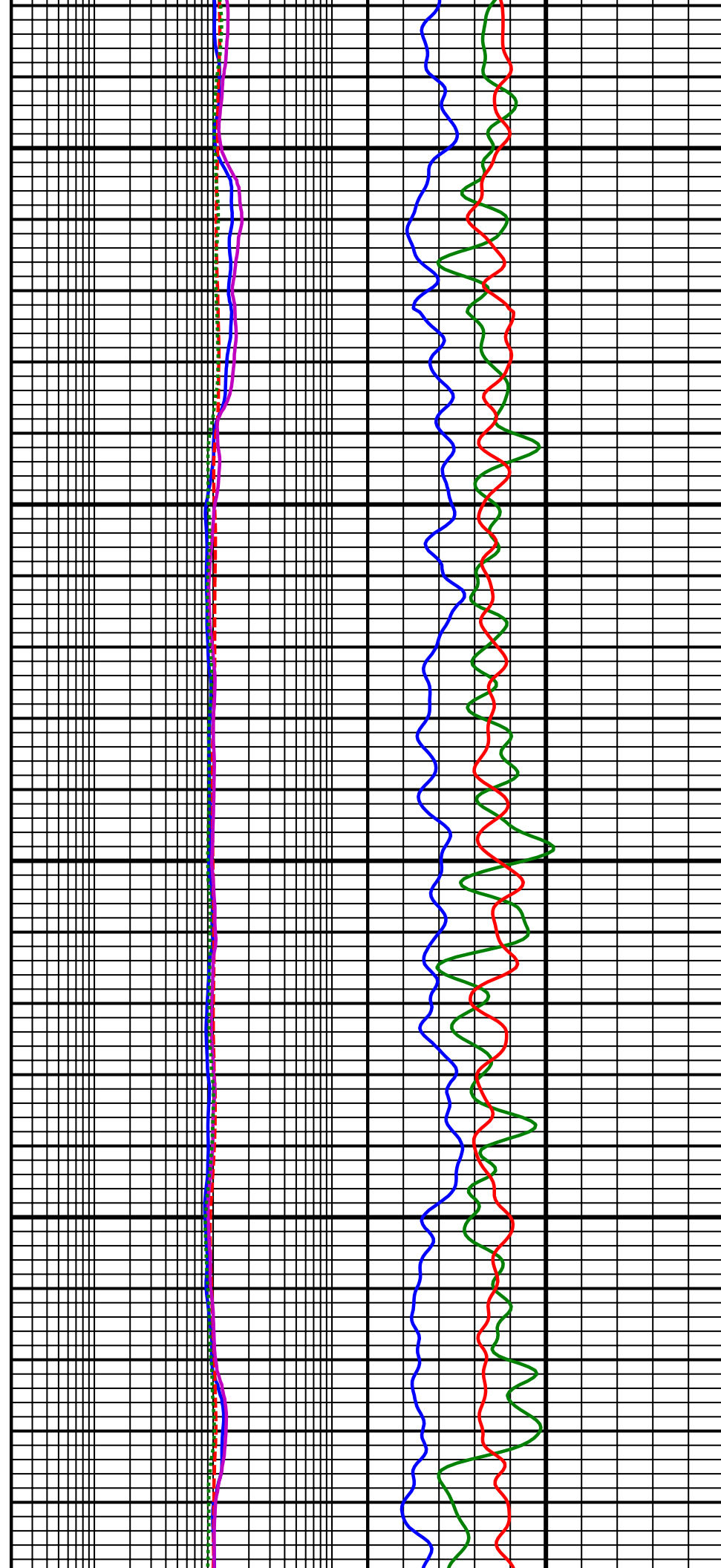




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MD

8600
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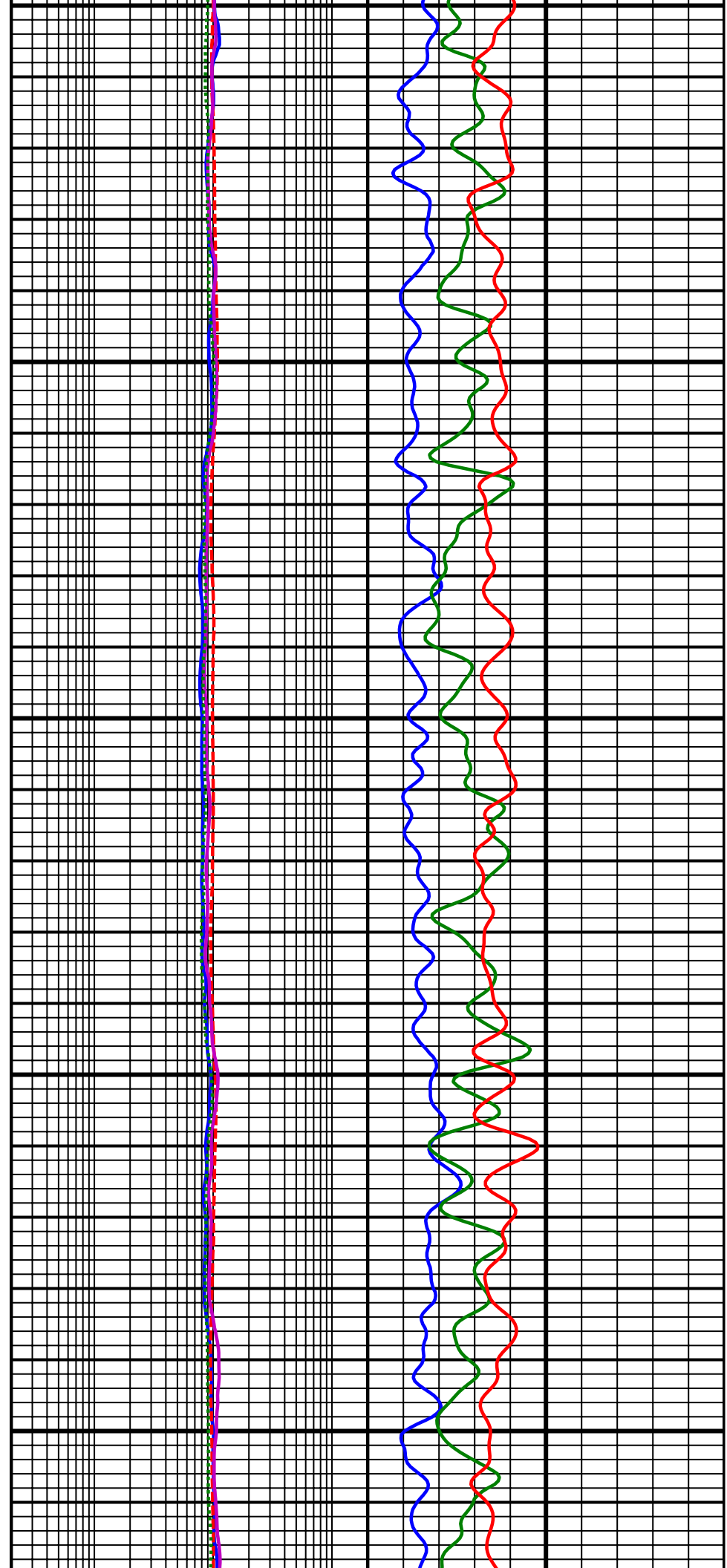
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MD

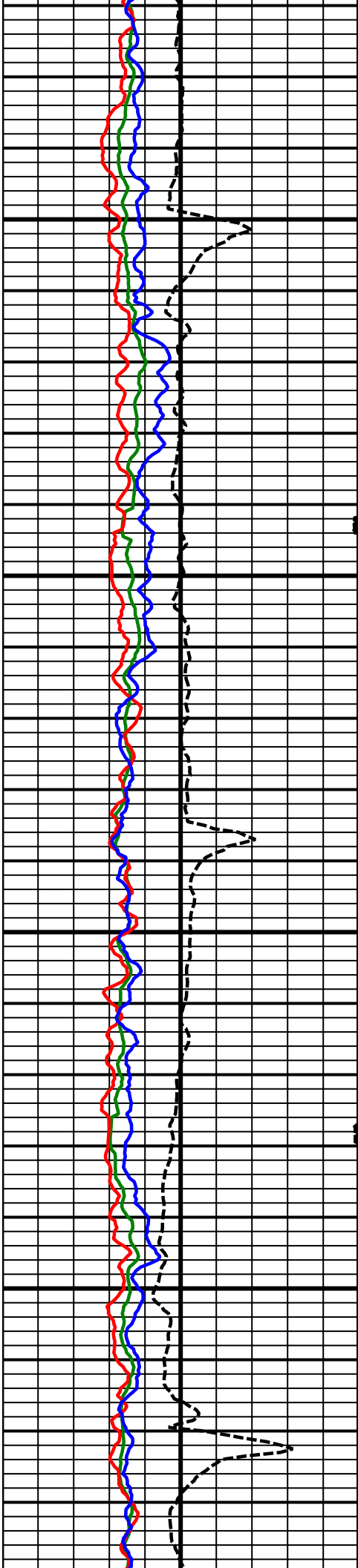


8700
MD

8800
MD

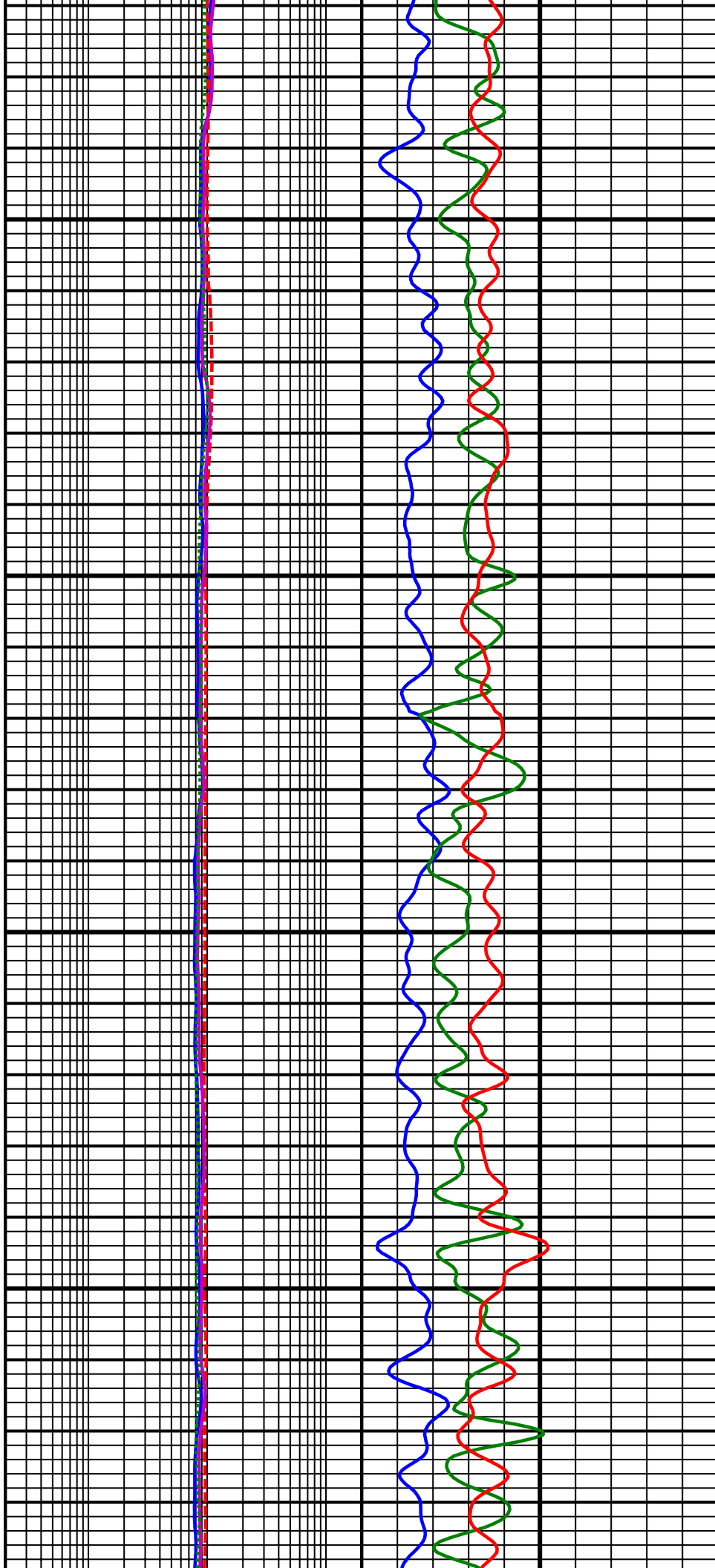
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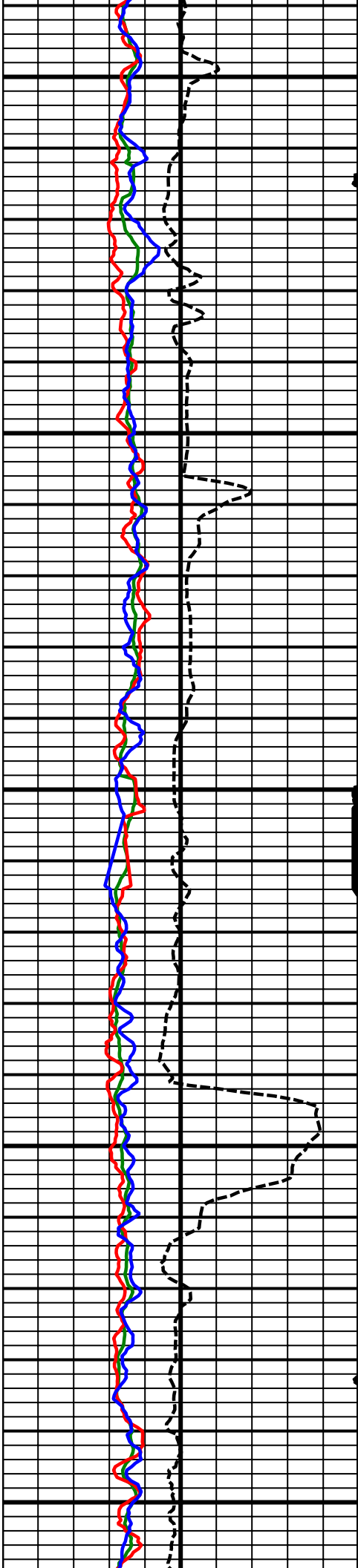




9000
MD

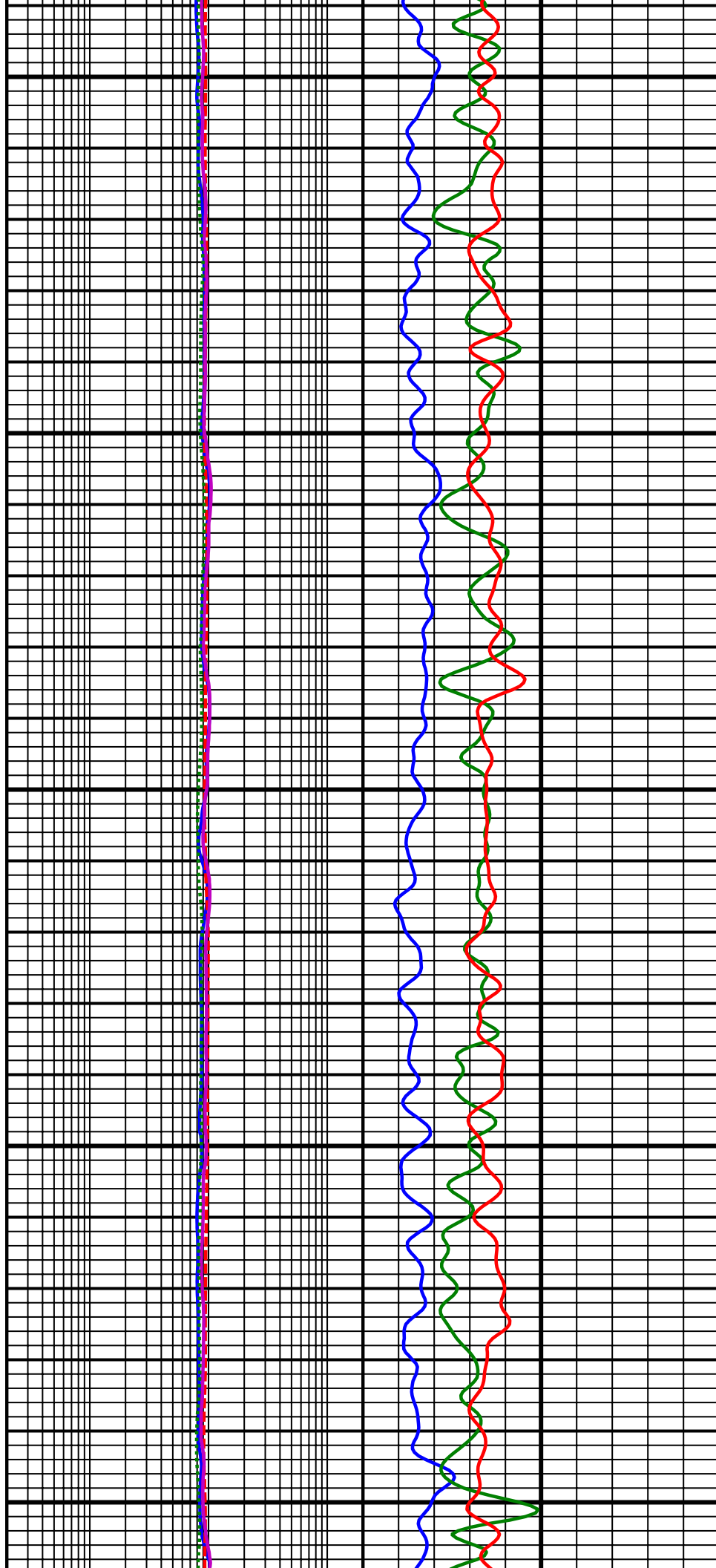
9100
MD

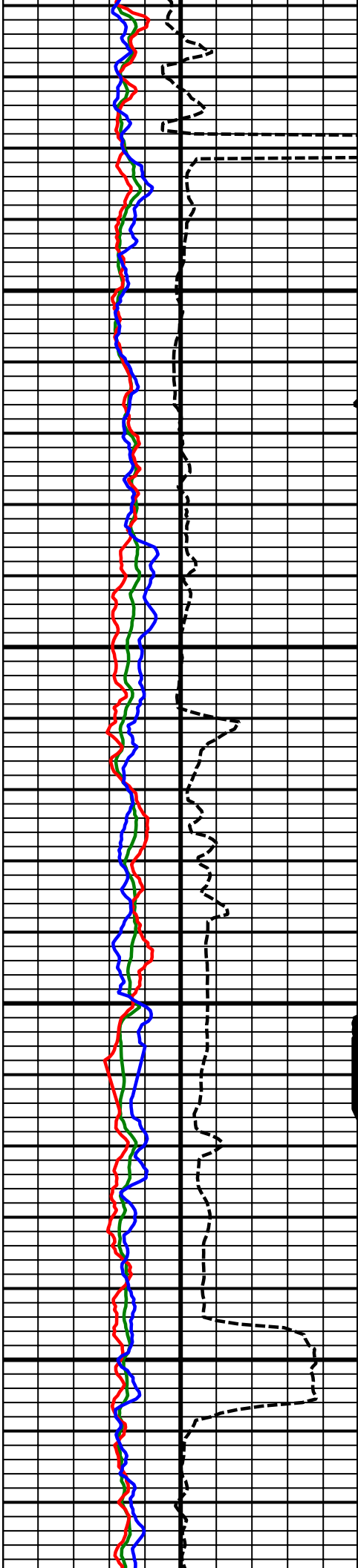




9200
MD

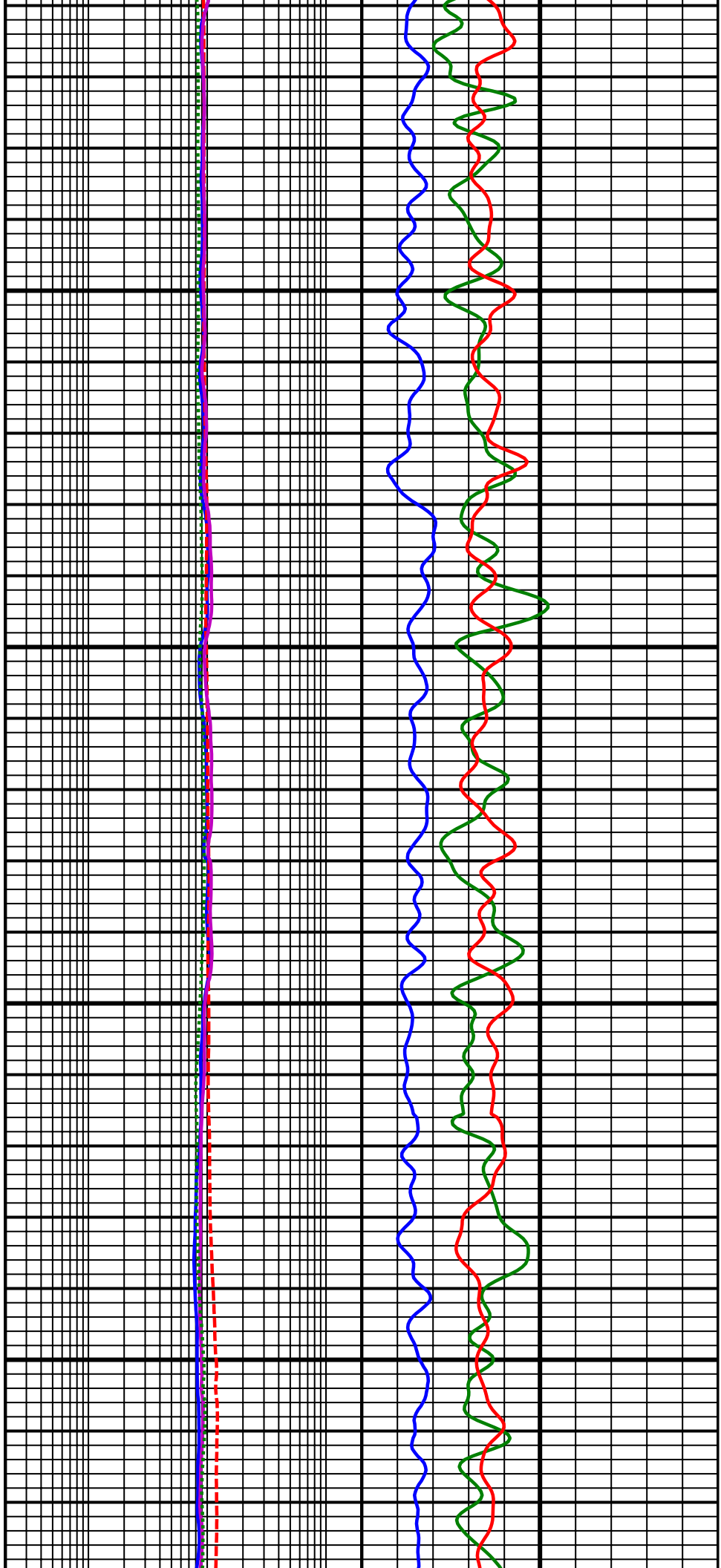
9300
MD

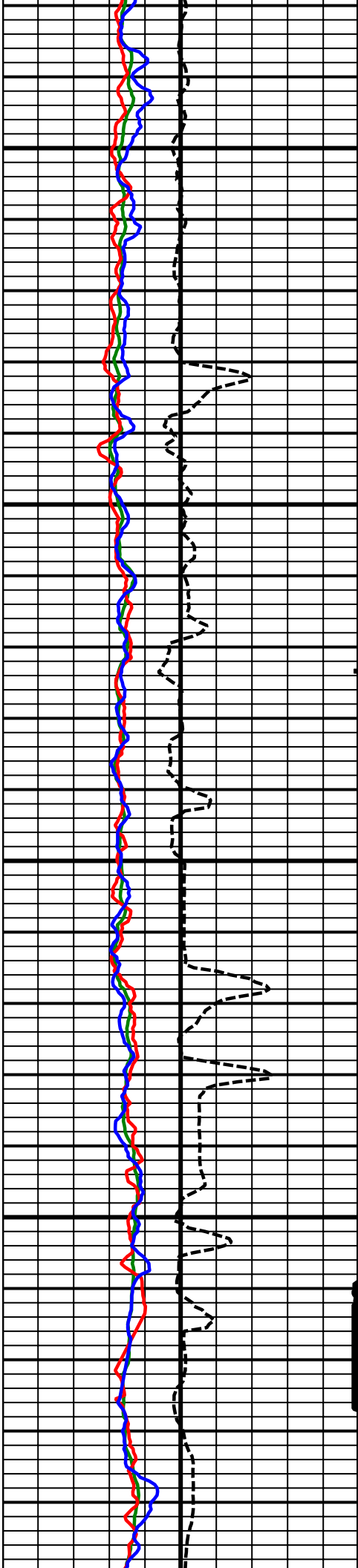




9400
MD

9500
MD

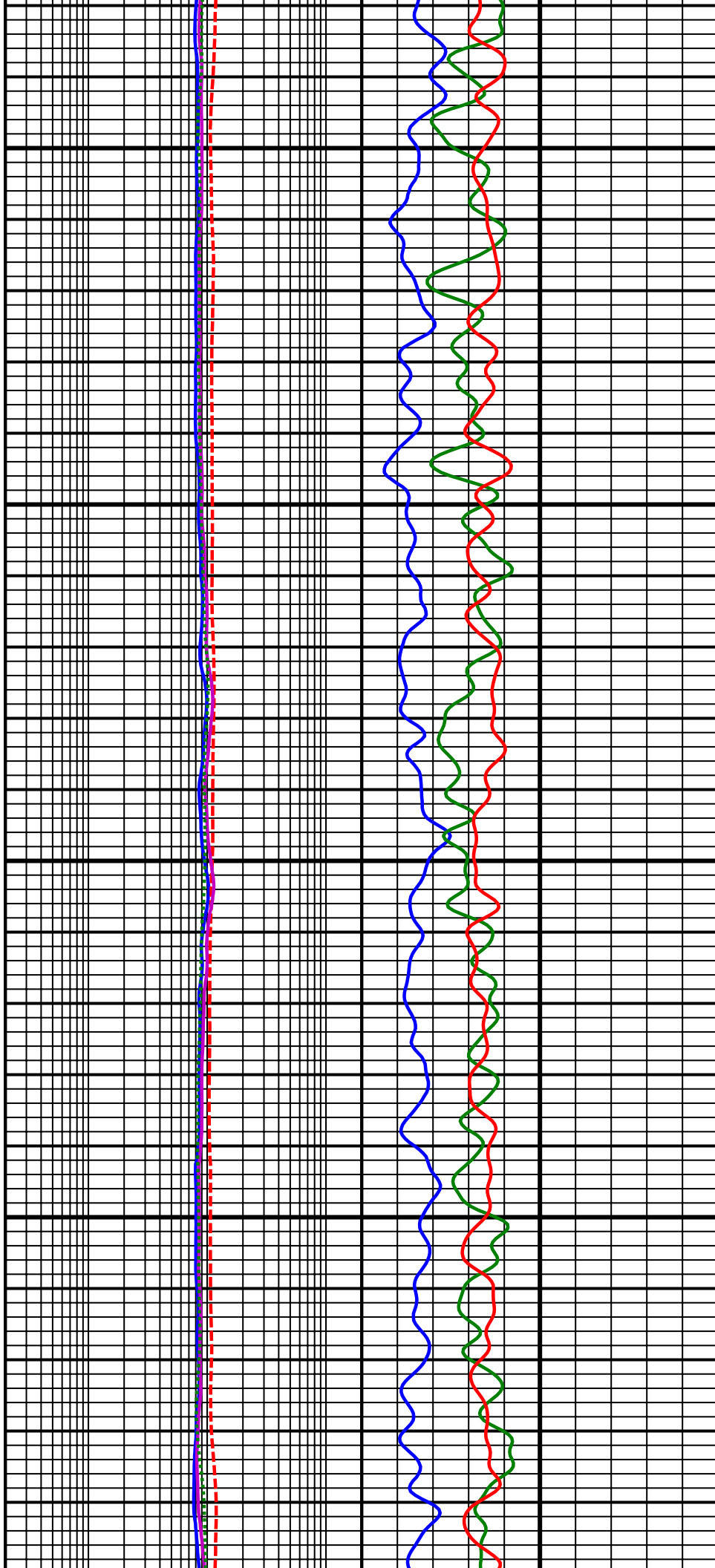




9600
MD

9700
MD

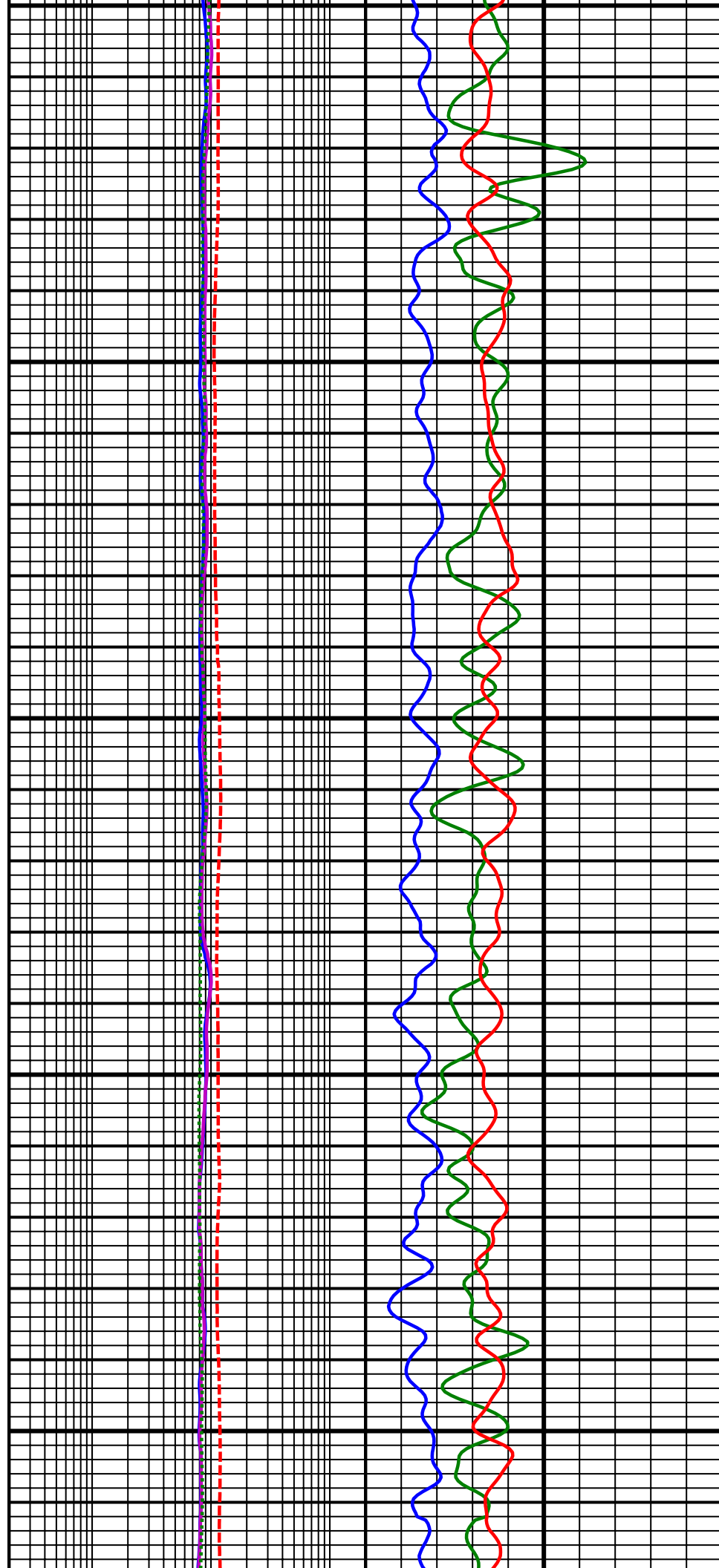
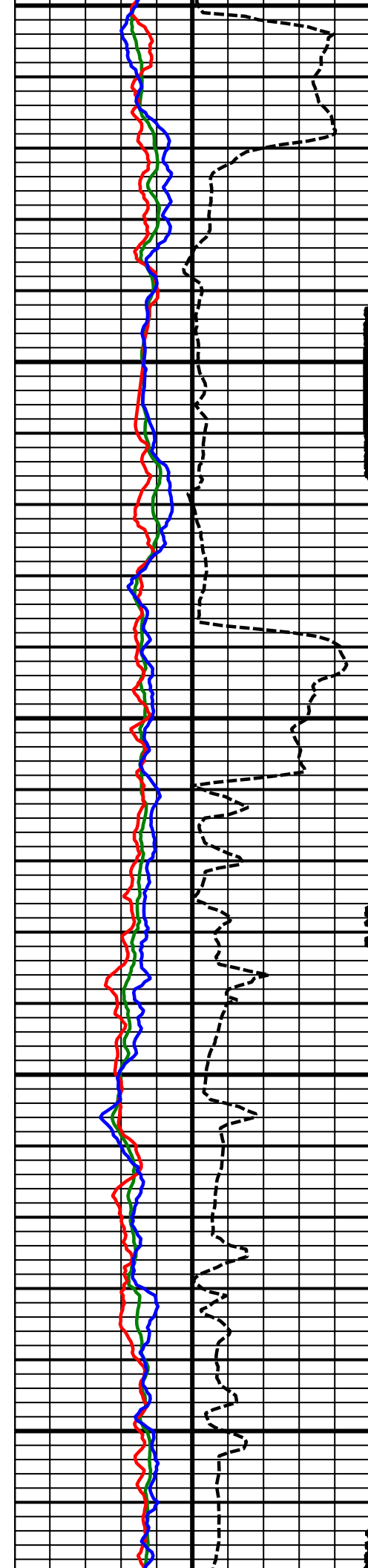
9800
MD

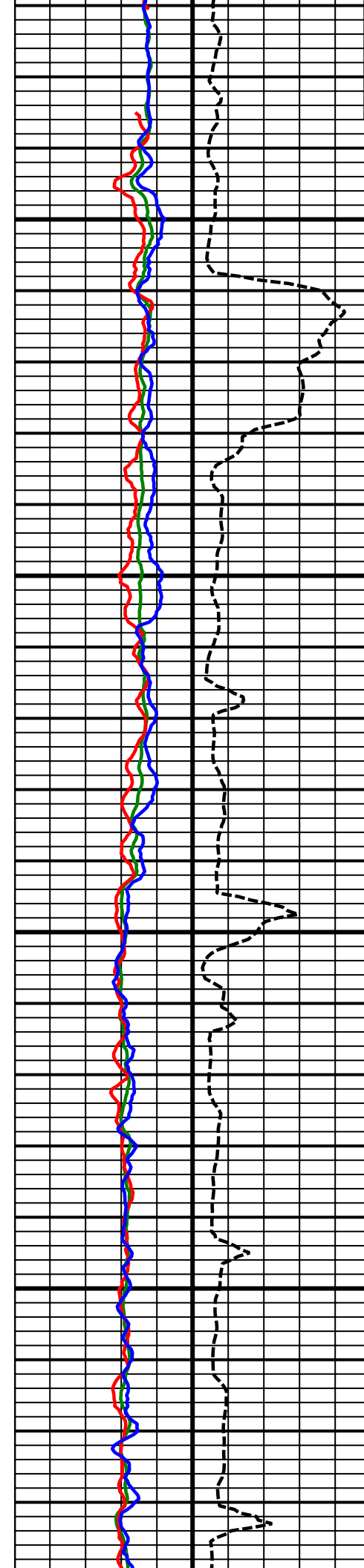


9800
MD

9900
MD

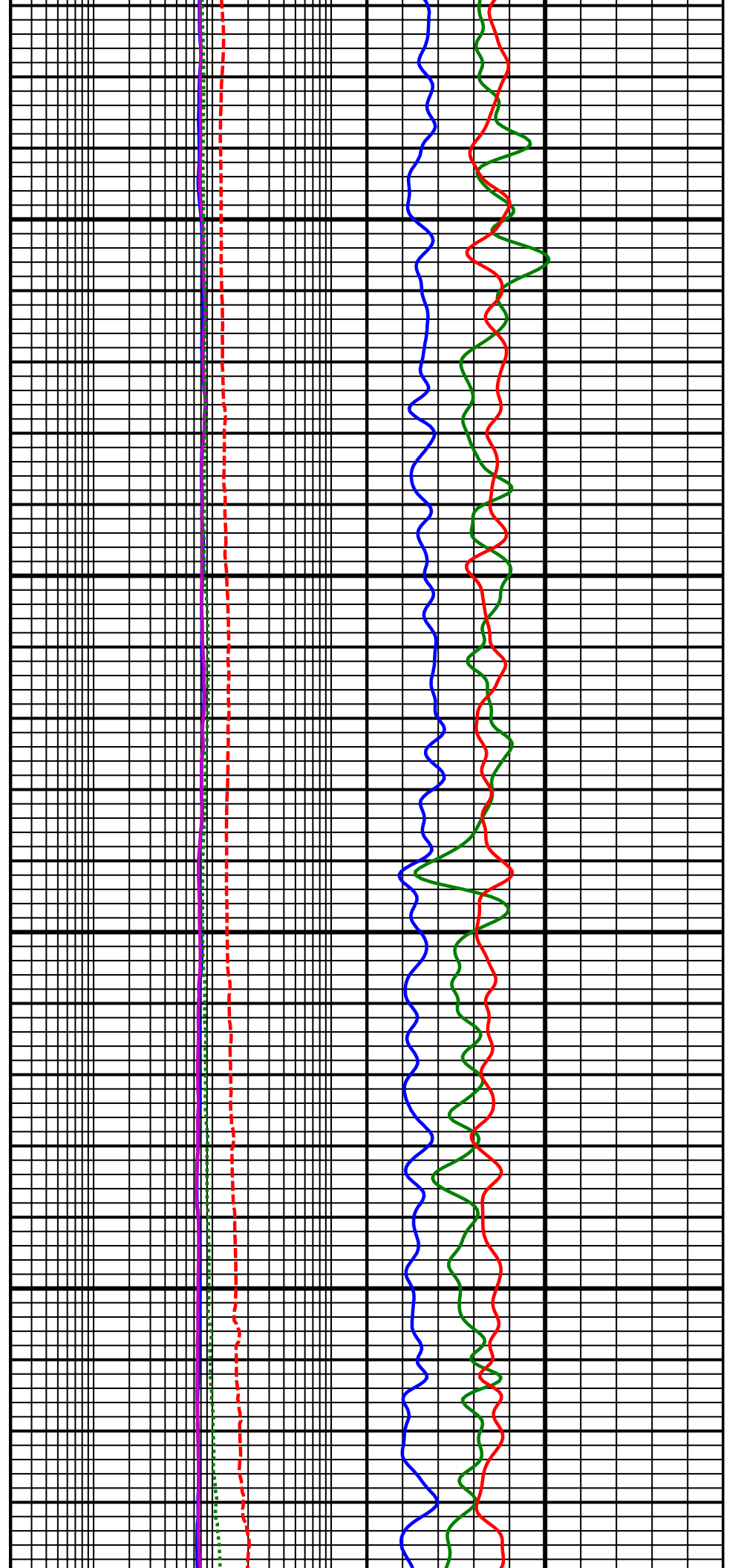
10000
MD

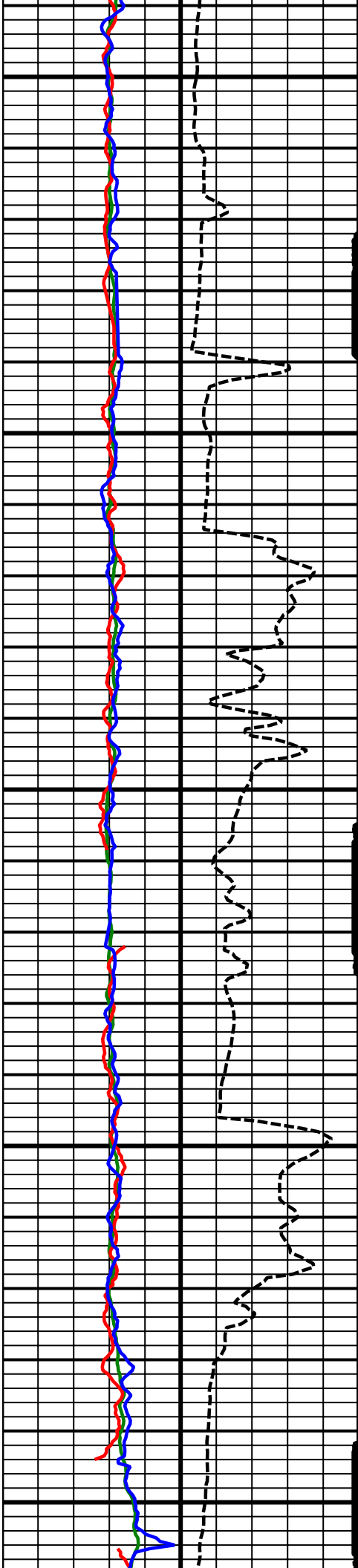




10100
MD

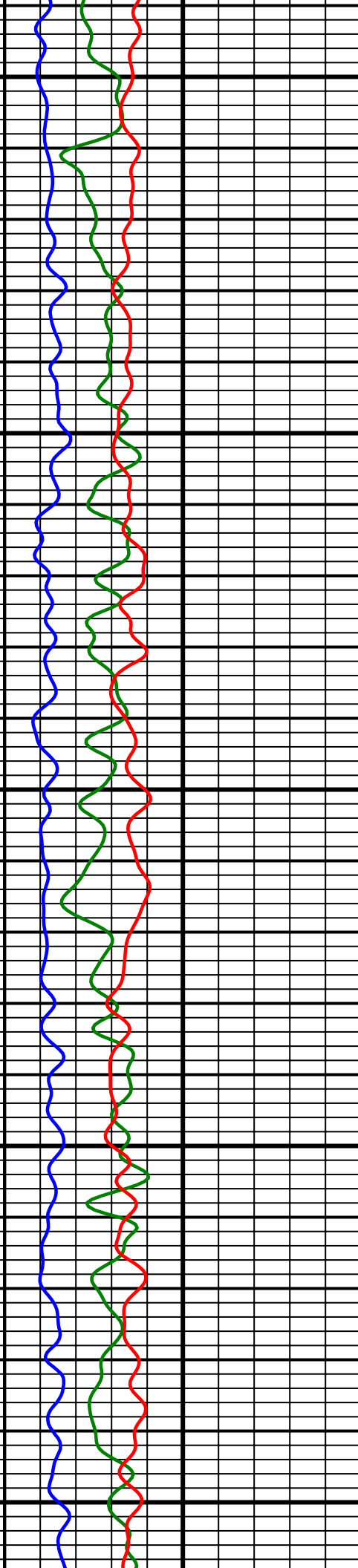
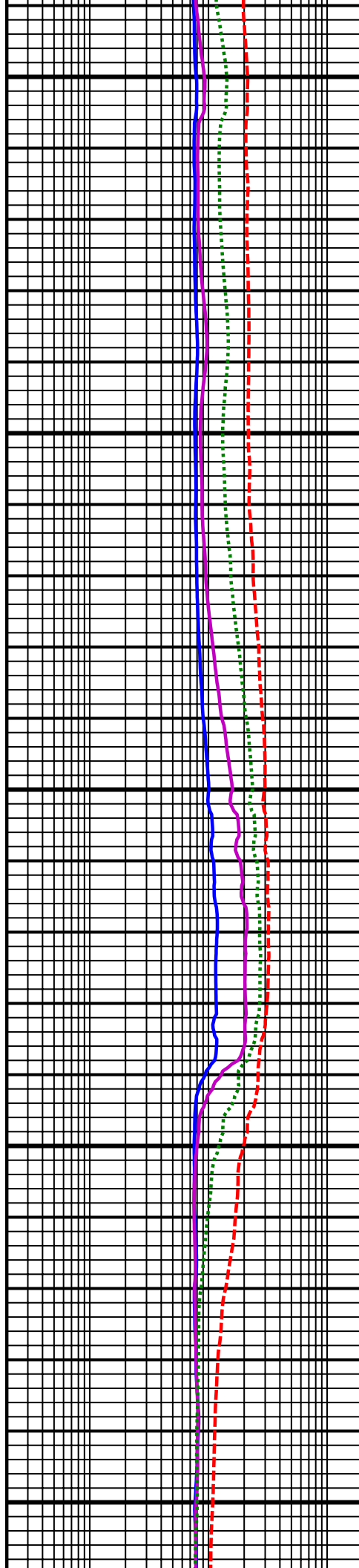
10200
MD

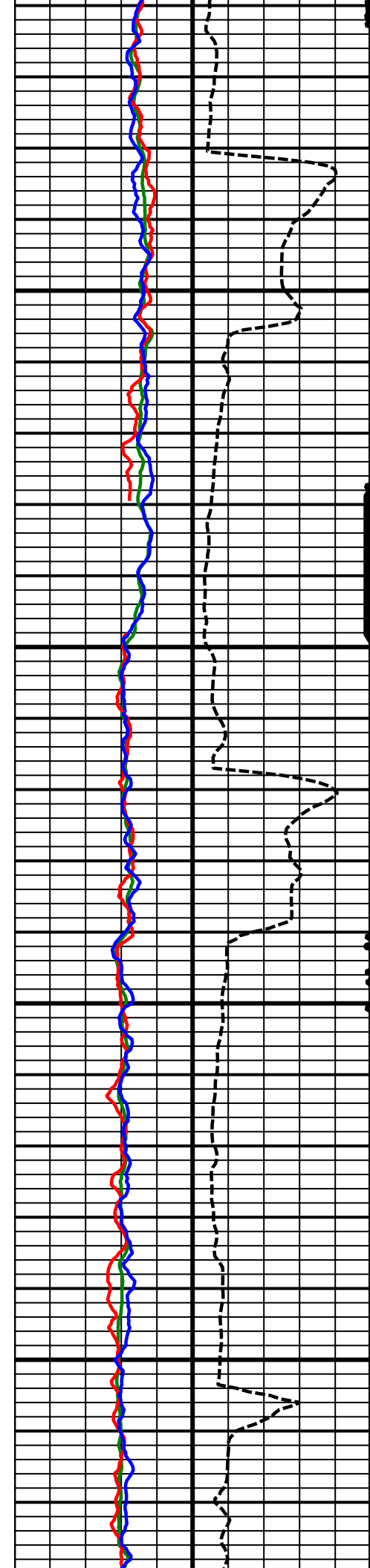




10300
MD

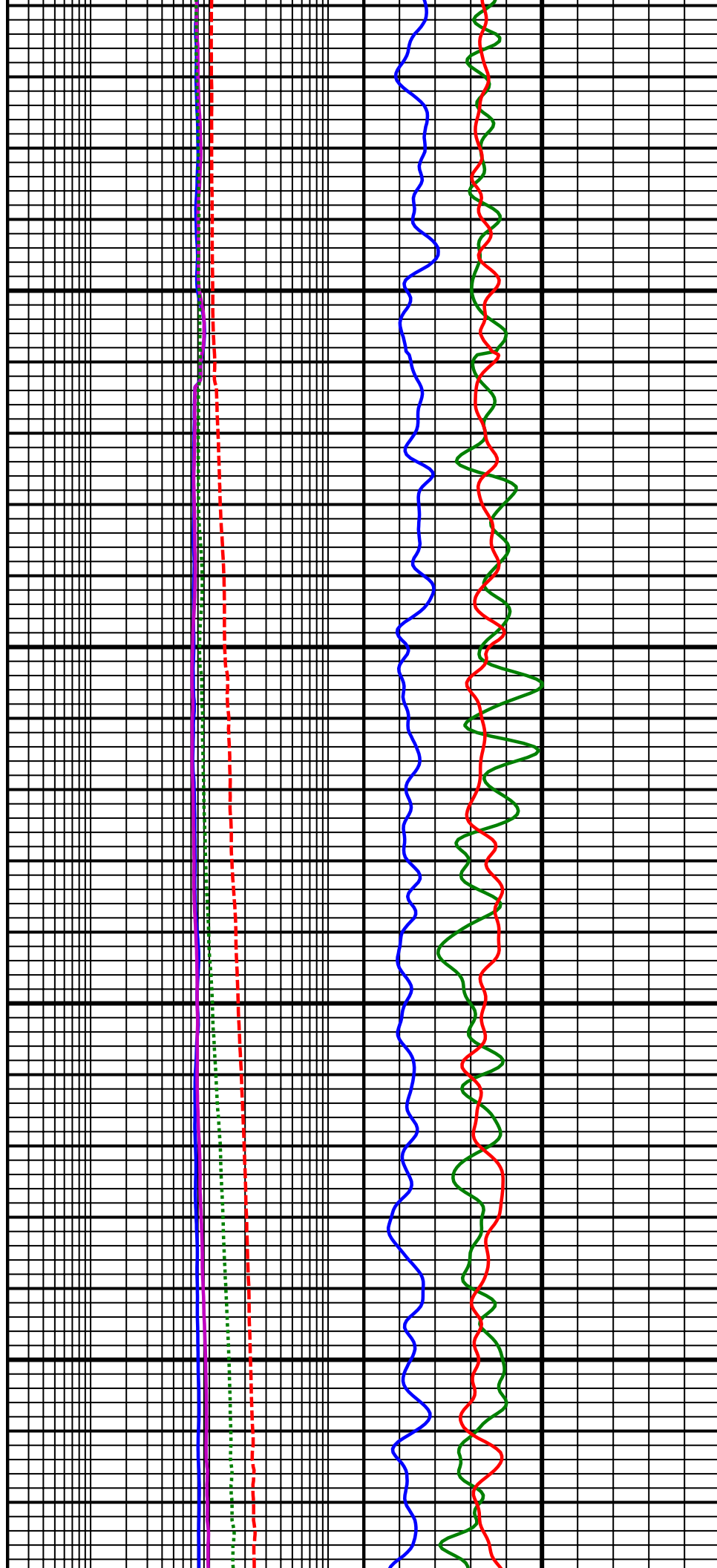
10400
MD

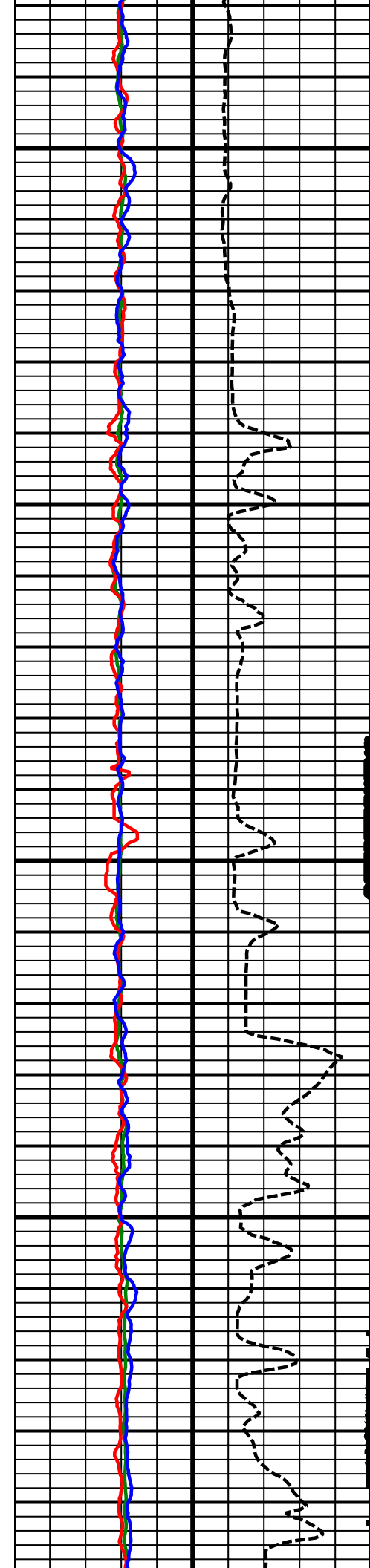




10500
MD

10600
MD

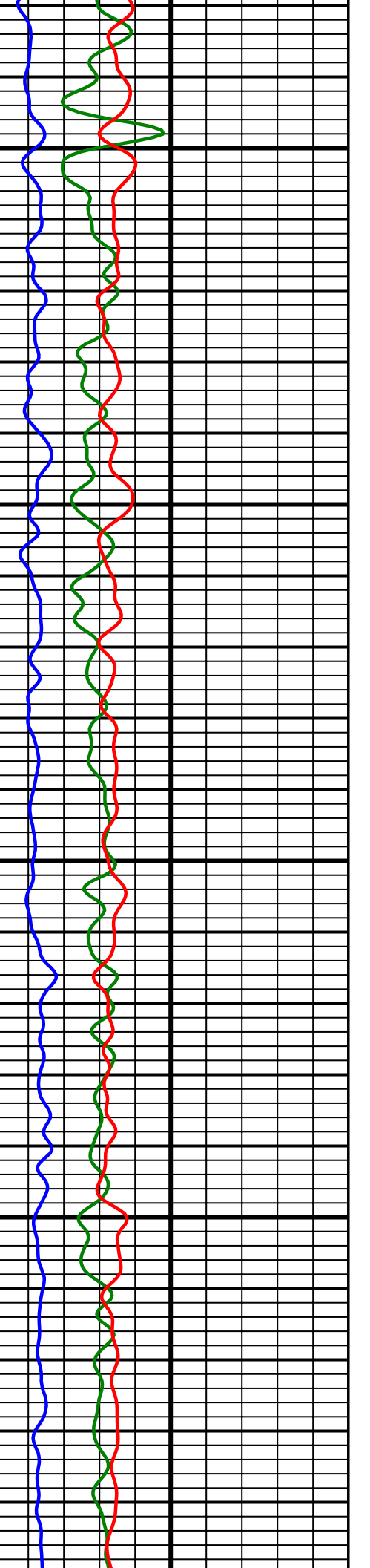
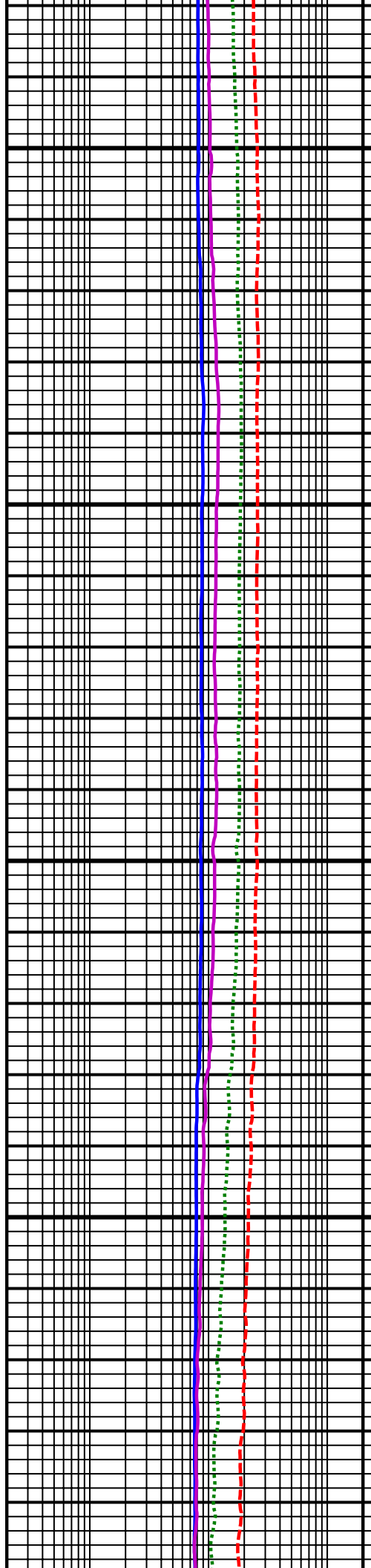


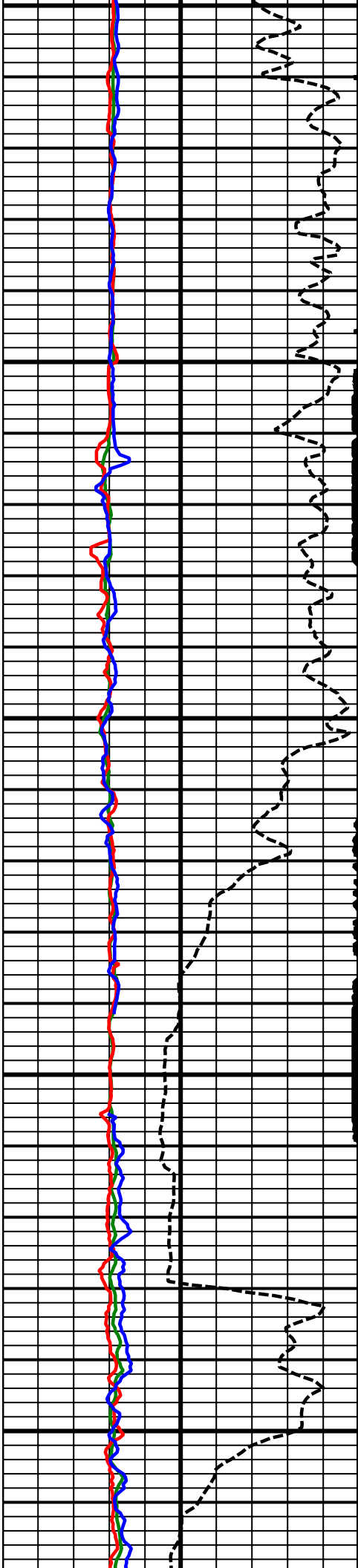


10700
MD

10800
MD

10900





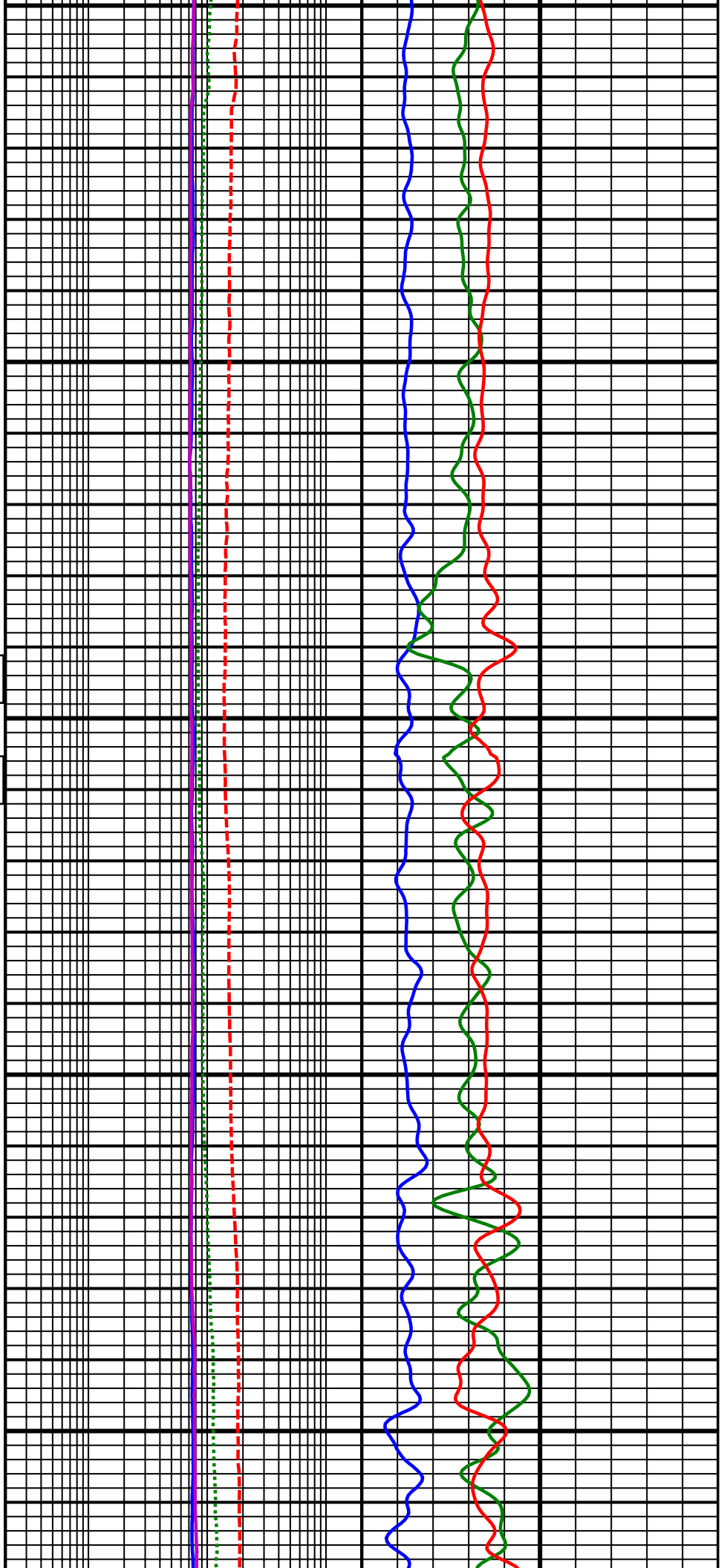
10900
MD

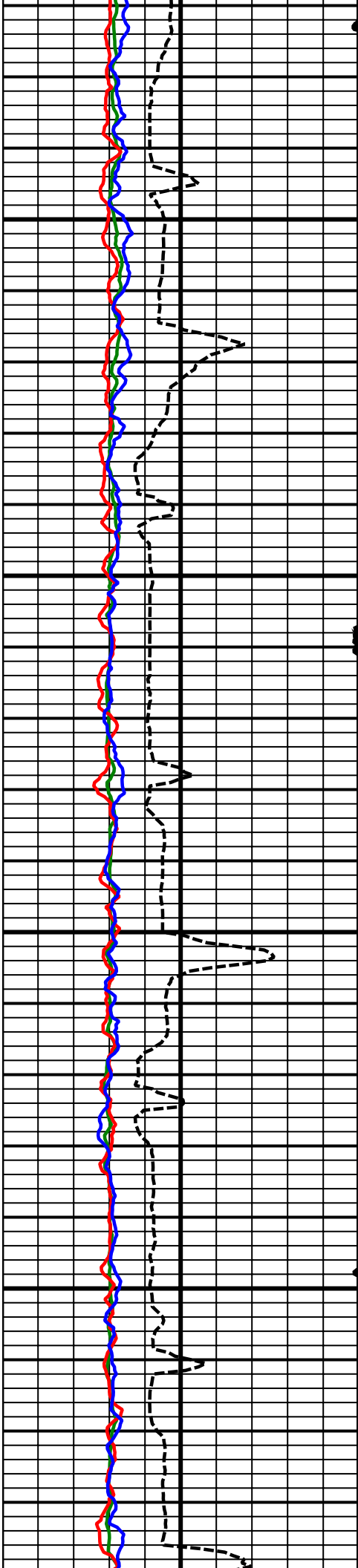
Comment
4-2

11000
MD

Comment
5-1

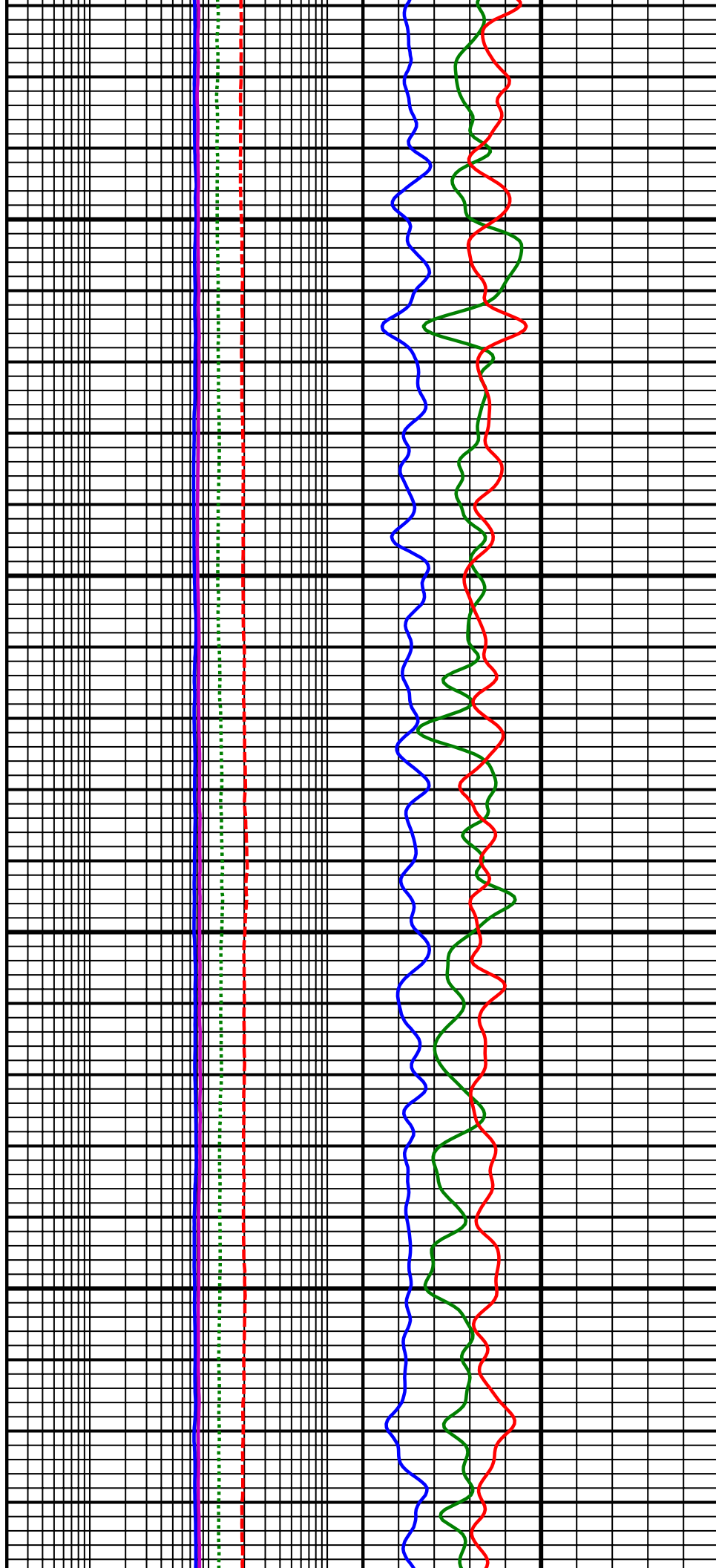
11100
MD

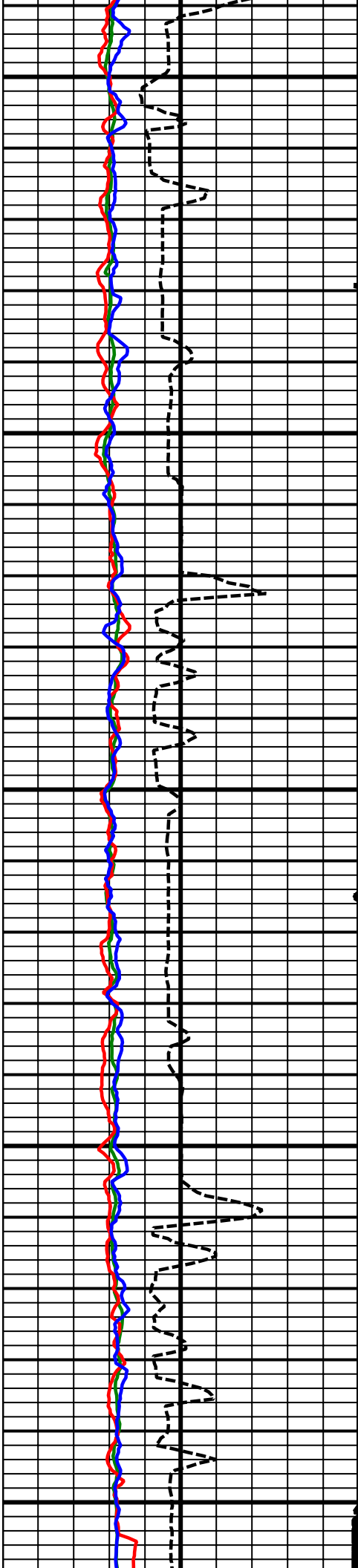




11200
MD

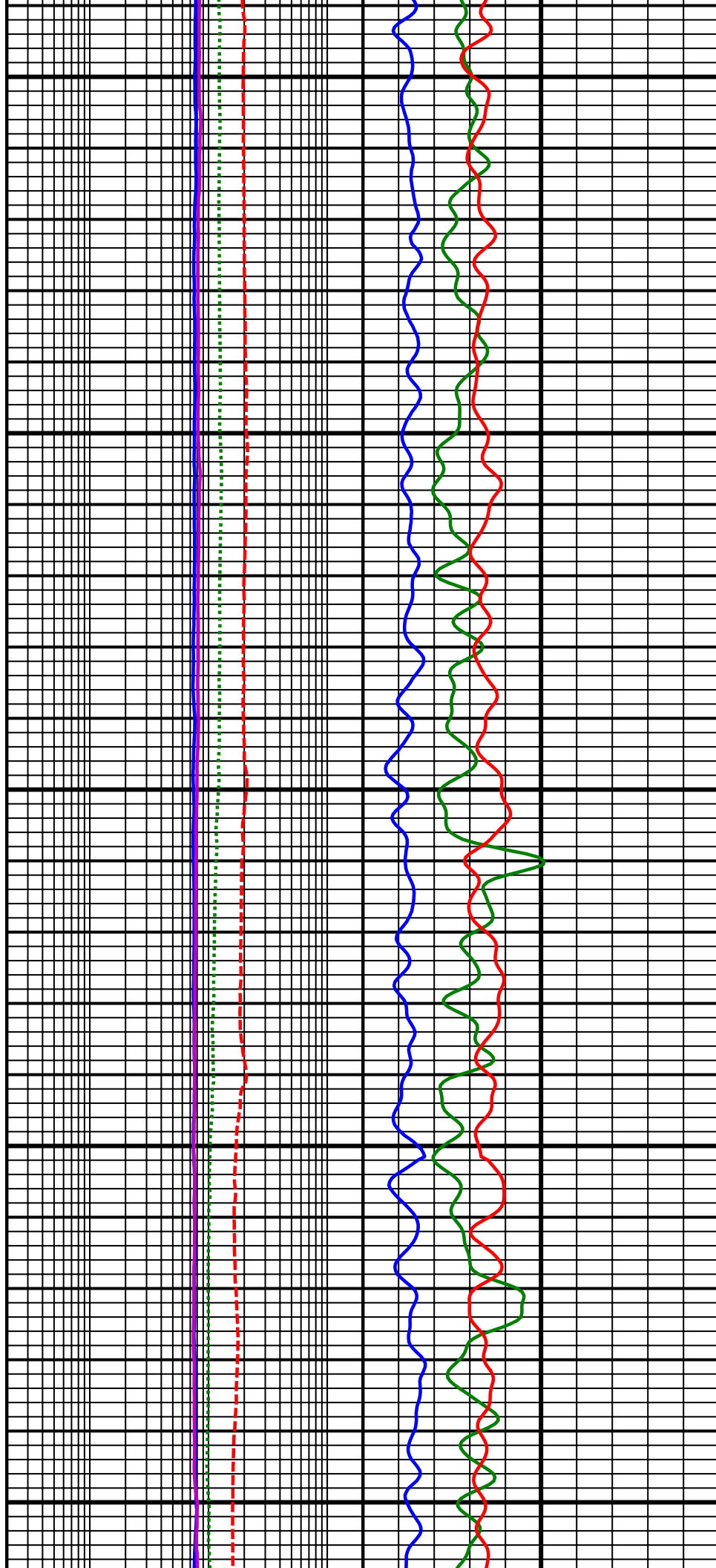
11300
MD

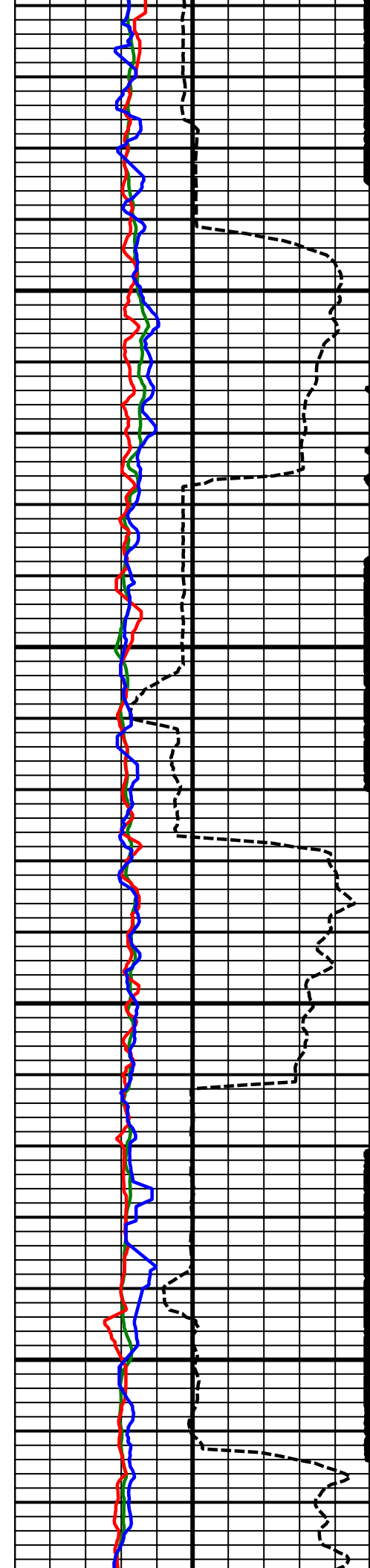




11400
MD

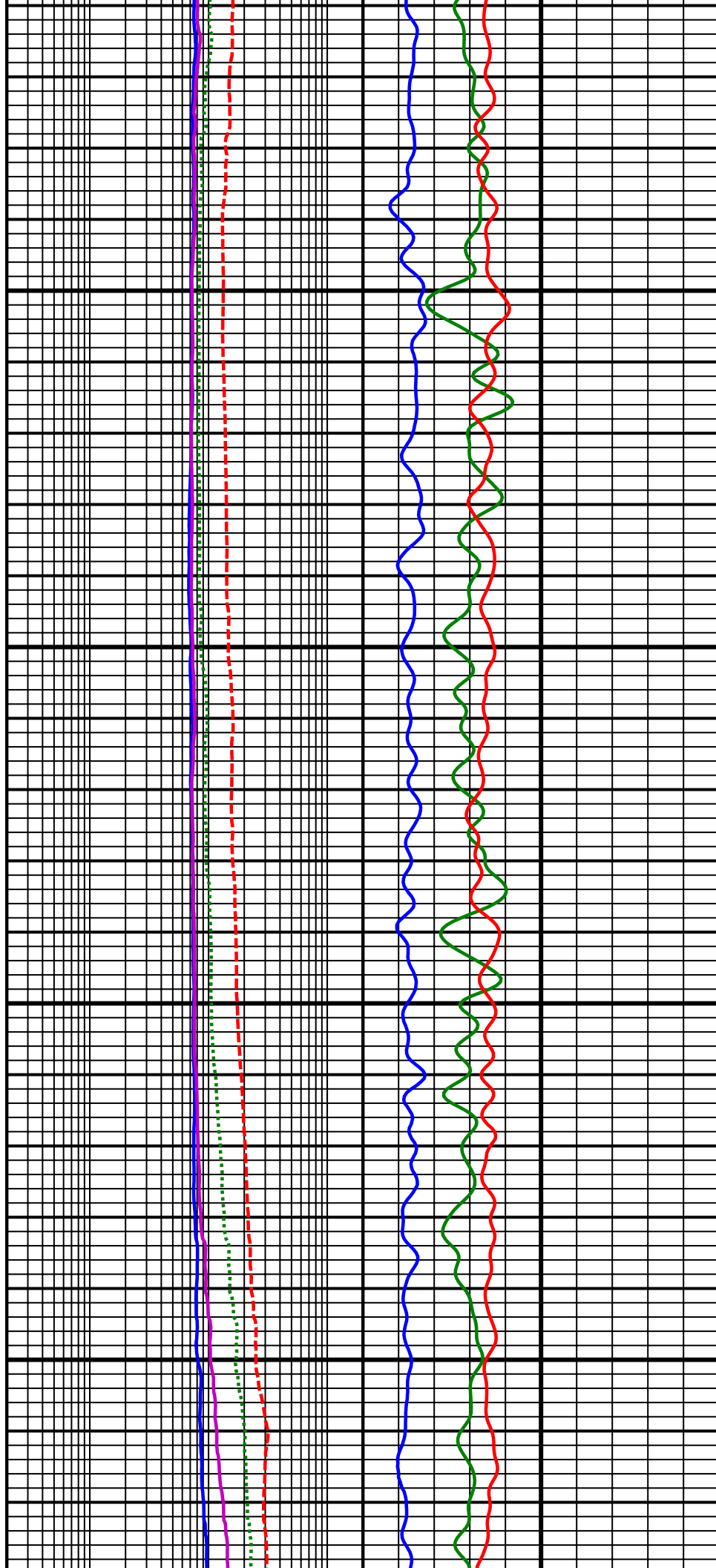
11500
MD

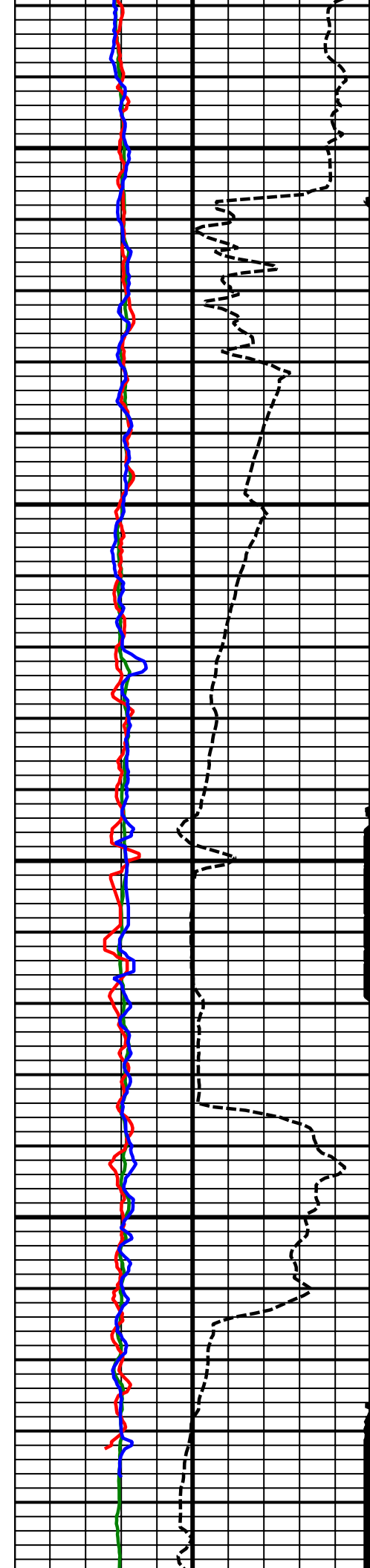




11600
MD

11700
MD

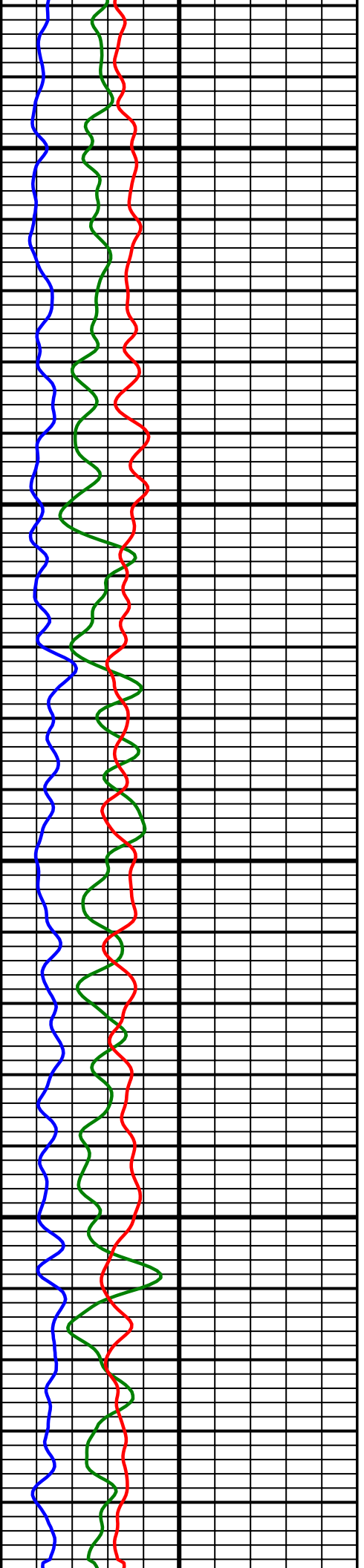
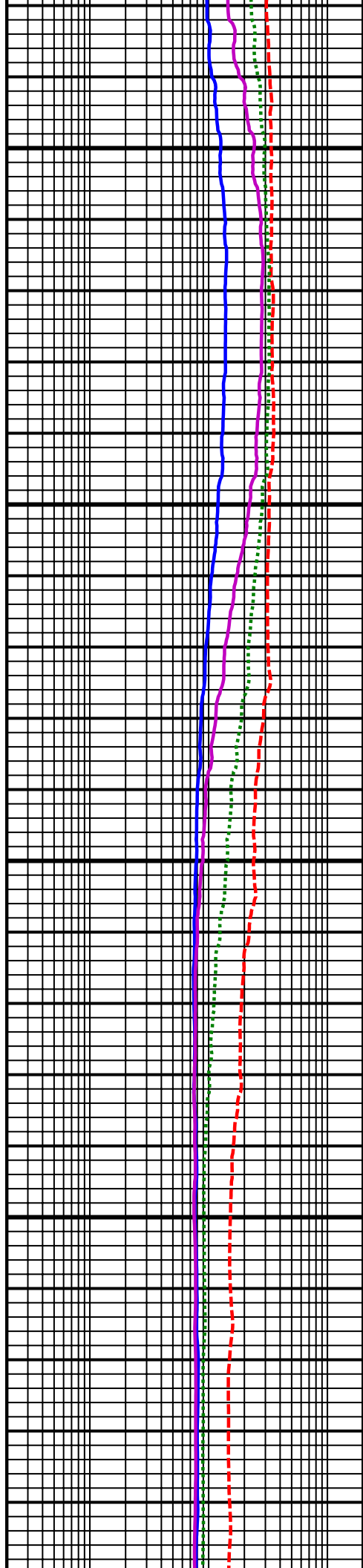




11800
MD

11900
MD

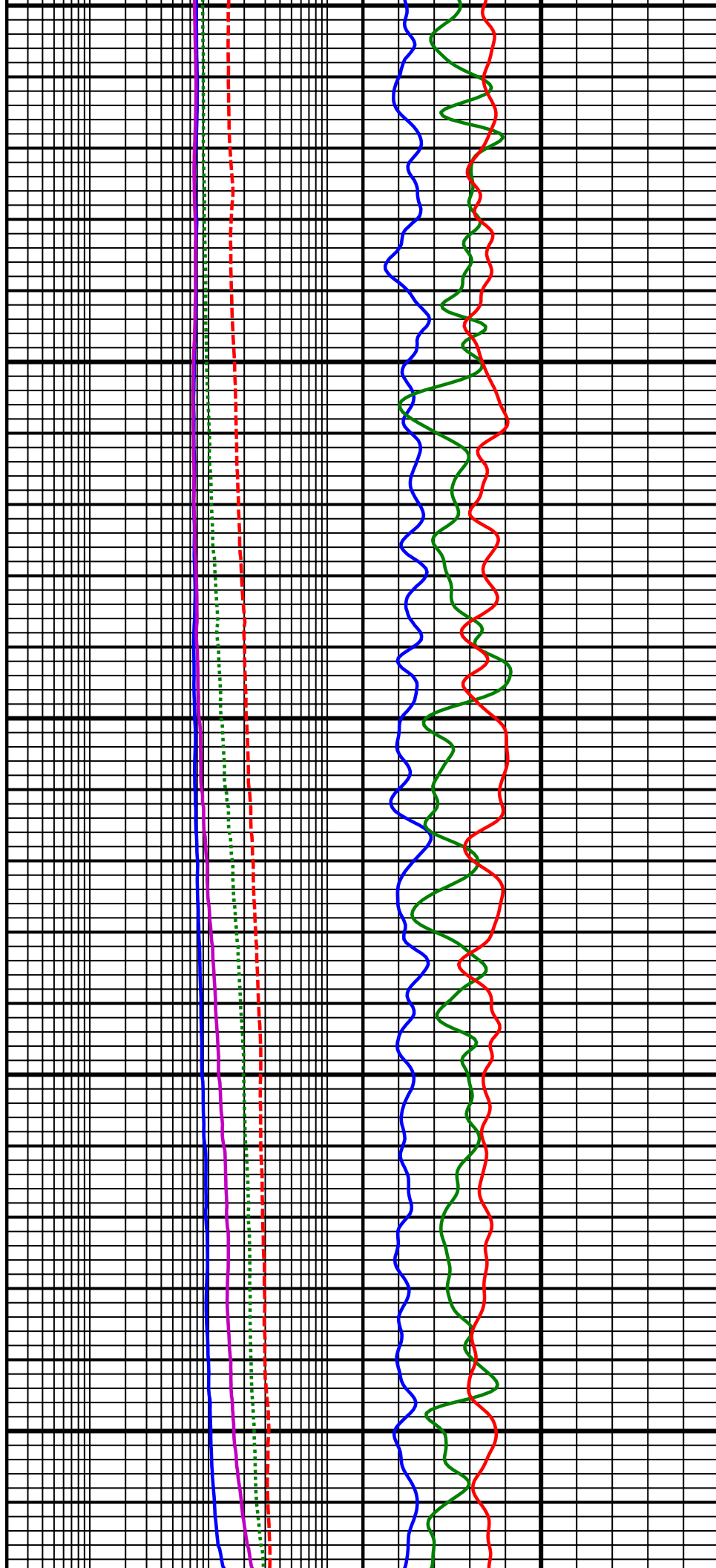
12000

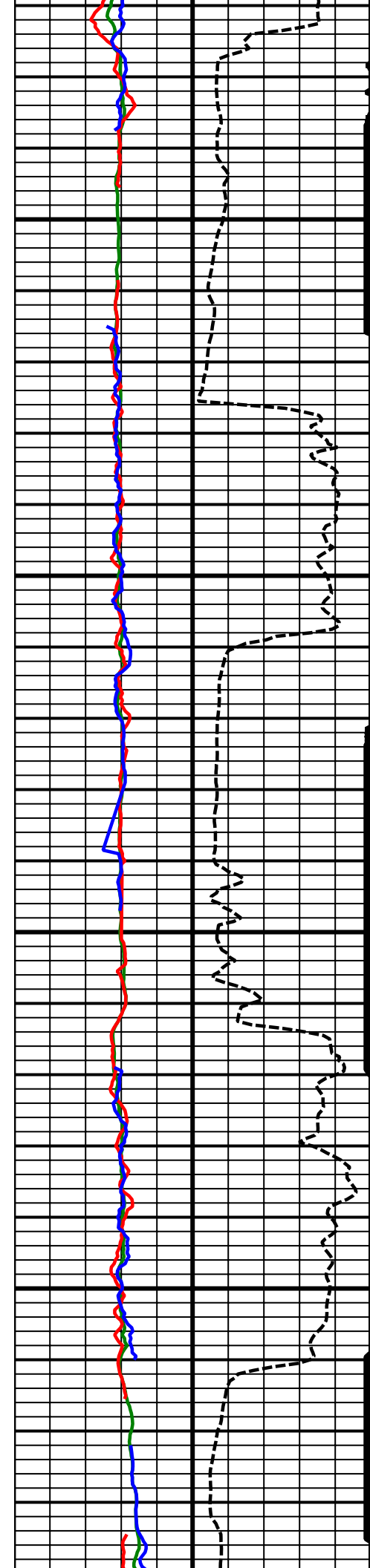


12000
MD

12100
MD

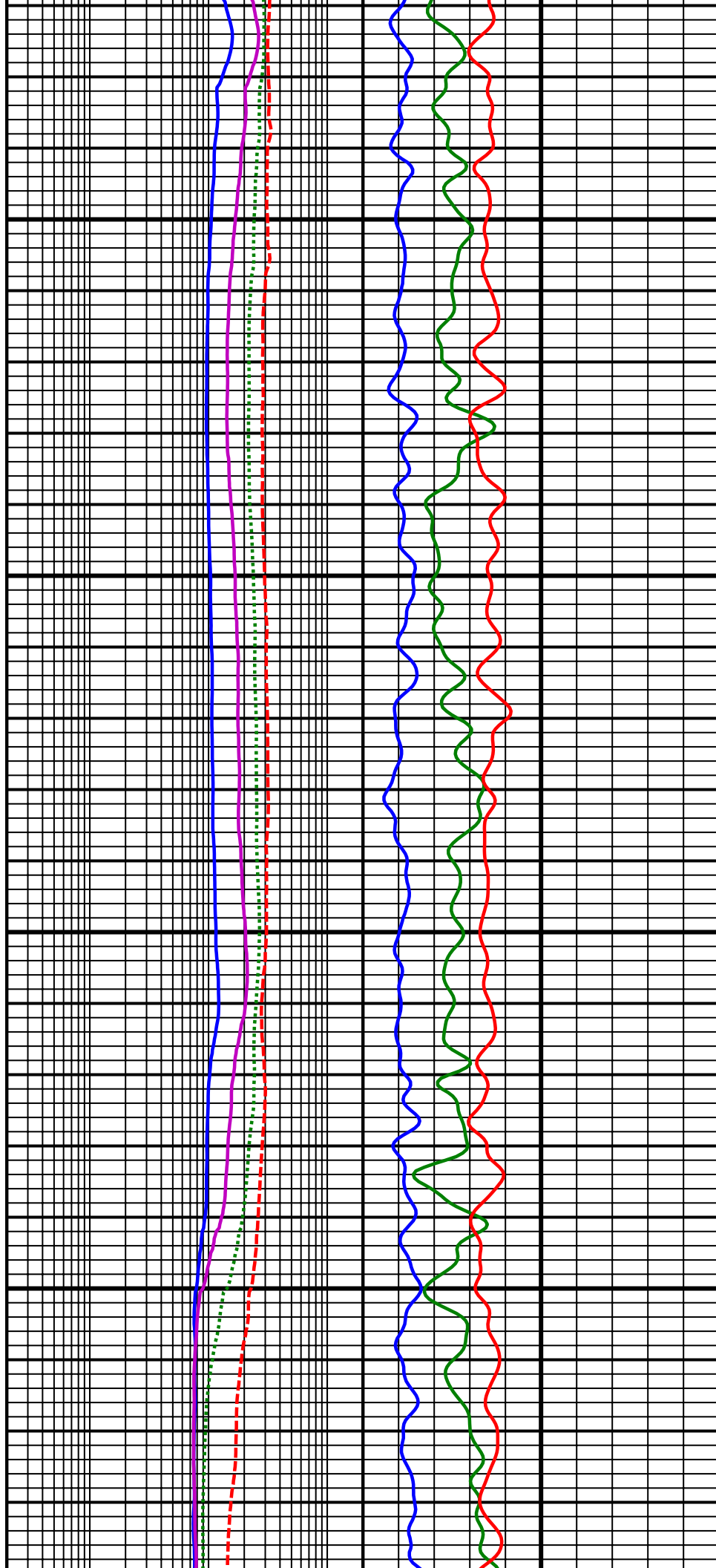
12200
MD

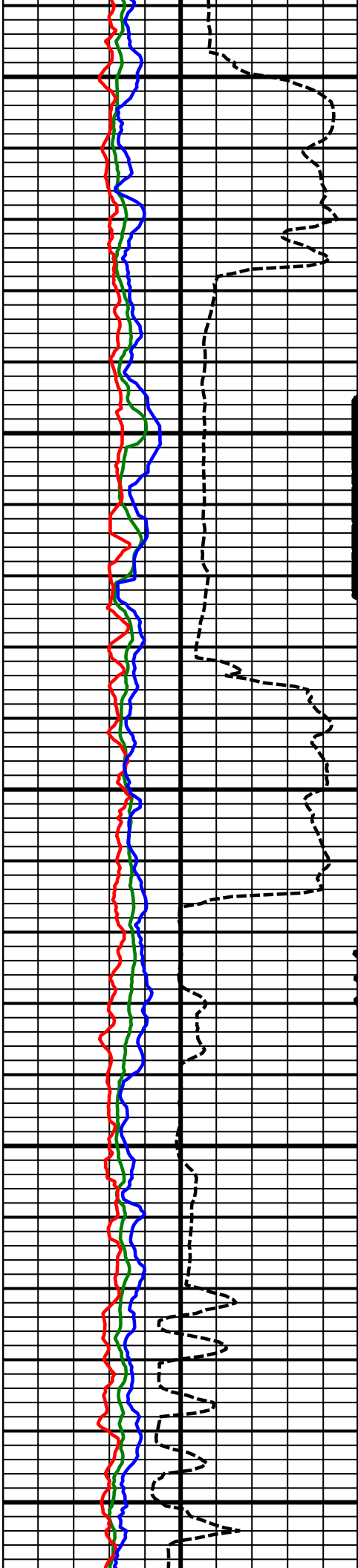




12300
MD

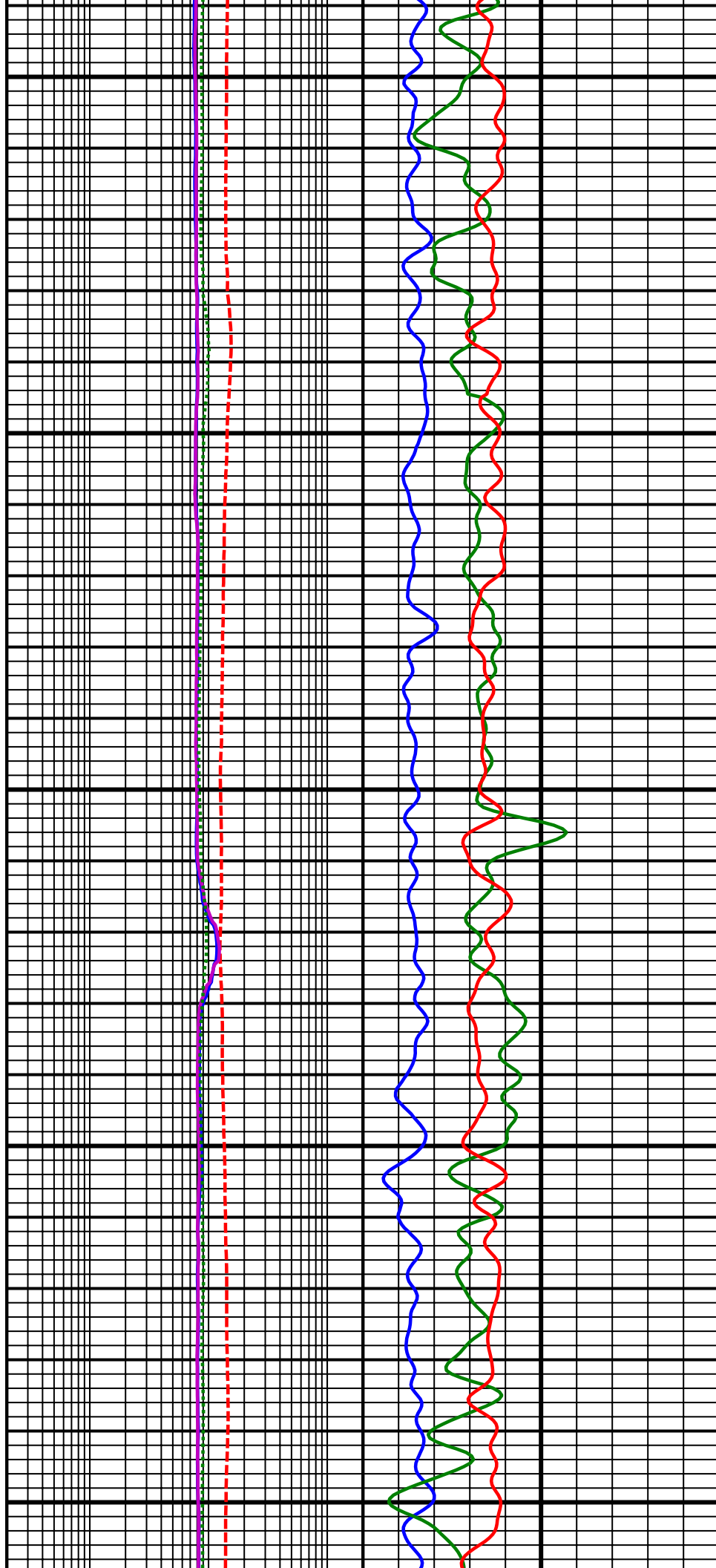
12400
MD

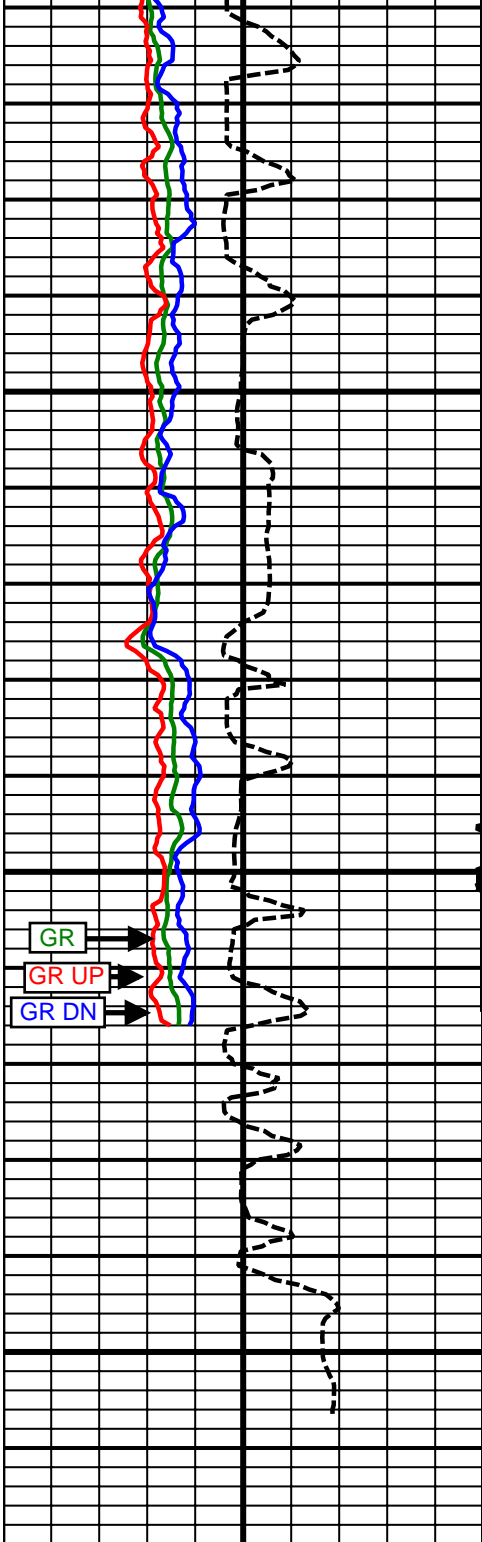




12500
MD

12600
MD



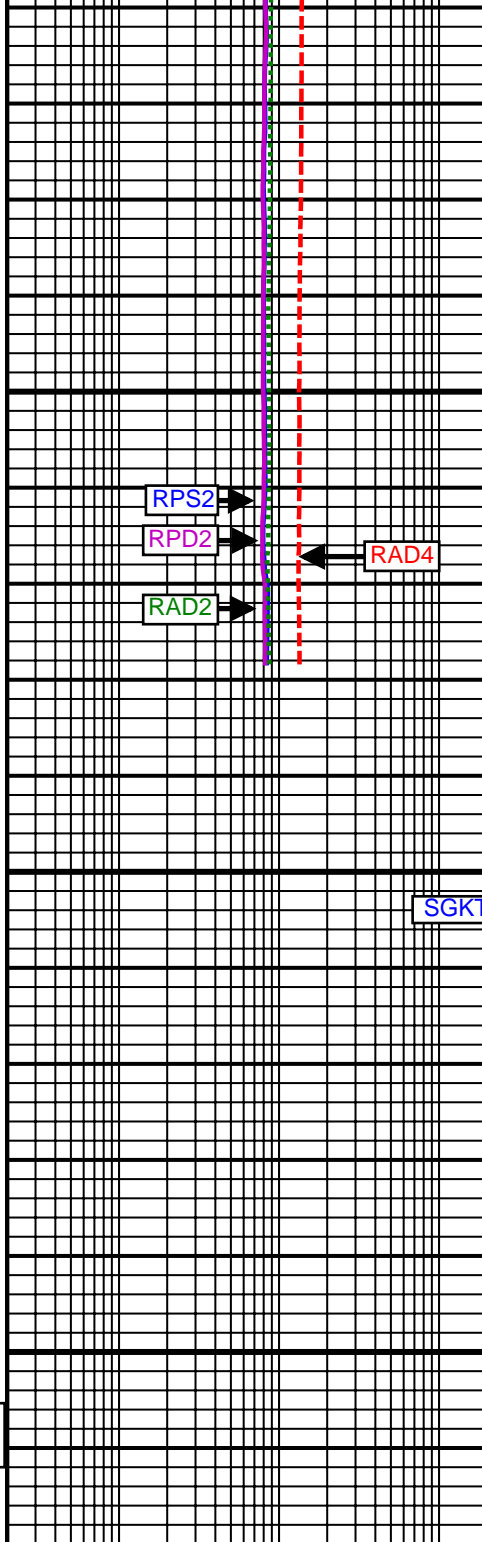


12700
MD

12800
MD

Comment
5-2

1000	ROP	0
	(fph)	
	GR	
0	(AAPI)	200
	GR UP	
0	(AAPI)	200
	GR DN	
0	(AAPI)	200



	RPS2	
0.2	(ohm-m)	200
	RAD4	
0.2	(ohm-m)	200
	RPD2	
0.2	(ohm-m)	200
	RAD2	
0.2	(ohm-m)	200

	SGKT	
0	(%)	10
	SGTT	
0	(ppm)	40
	SGUT	
-10	(ppm)	30

SURVEY						
Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
True North	359.65 deg	52617 nT	66.64 deg	8.65 deg	0.00 deg	8.65 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	946.00 ft	0.33 deg	8.67 deg	945.99 ft	2.58 ft	1.15 ft

Well Head							
Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	NS (ft)	EW (ft)	VSect (ft)	Dogleg (deg/100ft)
1052.00	0.35	348.91	1051.99	3.20	1.13	3.19	0.11
1144.00	0.99	324.25	1143.98	4.12	0.62	4.12	0.75
1235.00	0.99	260.06	1234.97	4.62	-0.62	4.63	1.16
1327.00	3.23	231.77	1326.90	2.88	-3.44	2.90	2.61
1417.00	4.71	241.91	1416.69	-0.43	-8.69	-0.37	1.81
1605.00	7.58	245.38	1603.59	-9.23	-26.78	-9.07	1.54
1880.00	11.61	231.35	1874.72	-34.08	-64.90	-33.68	1.68
1972.00	12.60	231.39	1964.67	-46.13	-79.97	-45.64	1.08
2096.00	13.78	236.27	2085.40	-62.77	-102.82	-62.14	1.31
2219.00	14.86	237.23	2204.58	-79.44	-128.26	-78.65	0.90
2342.00	13.16	236.50	2323.92	-95.71	-153.20	-94.77	1.39
2435.00	11.78	236.26	2414.72	-106.82	-169.93	-105.78	1.48
2559.00	11.33	236.55	2536.21	-120.57	-190.62	-119.40	0.37
2652.00	12.16	234.99	2627.26	-131.22	-206.26	-129.96	0.96
2744.00	13.35	235.83	2716.99	-142.75	-222.99	-141.38	1.31
2836.00	11.81	235.03	2806.78	-154.11	-239.49	-152.64	1.68
2960.00	9.68	232.42	2928.60	-167.74	-258.15	-166.16	1.76
3053.00	8.15	230.35	3020.47	-176.72	-269.43	-175.07	1.68
3148.00	8.73	233.09	3114.44	-185.34	-280.37	-183.63	0.74
3273.00	9.47	241.28	3237.87	-195.98	-296.98	-194.16	1.19
3358.00	8.37	244.31	3321.84	-202.02	-308.69	-200.13	1.41
3443.00	7.25	246.34	3406.05	-206.86	-319.17	-204.90	1.36
3572.00	5.20	255.05	3534.29	-211.63	-332.28	-209.60	1.75
3700.00	3.08	245.30	3661.95	-214.57	-341.01	-212.48	1.74
3871.00	4.16	225.83	3832.61	-220.81	-349.63	-218.67	0.95
4169.00	2.11	221.77	4130.15	-232.43	-361.04	-230.22	0.69
4340.00	1.82	214.16	4301.05	-237.03	-364.66	-234.80	0.23
4554.00	1.62	232.62	4514.96	-241.68	-368.97	-239.42	0.27
4810.00	0.95	254.14	4770.89	-244.45	-373.89	-242.17	0.32
4981.00	0.81	225.98	4941.87	-245.68	-376.12	-243.38	0.26
5151.00	1.24	62.26	5111.86	-245.66	-375.36	-243.36	1.19
5408.00	1.01	24.31	5368.82	-242.30	-371.97	-240.02	0.30
5578.00	1.22	108.29	5538.79	-241.50	-369.63	-239.24	0.88
5749.00	0.56	56.47	5709.77	-241.61	-367.21	-239.37	0.57
5877.00	0.66	7.60	5837.77	-240.54	-366.59	-238.29	0.40
6005.00	0.60	348.51	5965.76	-239.15	-366.62	-236.91	0.17
6133.00	0.28	25.52	6093.76	-238.21	-366.62	-235.97	0.32
6219.00	0.56	60.62	6179.75	-237.81	-366.16	-235.57	0.43
6304.00	0.56	35.39	6264.75	-237.27	-365.56	-235.03	0.29
6432.00	0.31	14.61	6392.75	-236.43	-365.11	-234.19	0.23
6518.00	0.60	5.20	6478.74	-235.75	-365.01	-233.52	0.35
6646.00	0.35	273.31	6606.74	-235.06	-365.34	-232.83	0.55

6732.00	0.40	113.65	6692.74	-235.17	-365.33	-232.93	0.86
6860.00	0.70	56.03	6820.73	-234.91	-364.27	-232.68	0.46
6945.00	1.51	110.84	6905.72	-235.02	-362.79	-232.80	1.47
7030.00	1.55	105.68	6990.69	-235.73	-360.64	-233.52	0.17
7116.00	1.30	94.54	7076.66	-236.12	-358.55	-233.93	0.43
7174.00	1.35	75.54	7134.65	-236.00	-357.23	-233.82	0.76
7206.00	1.47	74.31	7166.64	-235.80	-356.47	-233.61	0.39
7291.00	6.03	3.95	7251.46	-231.04	-355.11	-228.87	6.71
7376.00	11.01	352.03	7335.50	-218.54	-355.93	-216.36	6.19
7462.00	16.05	358.60	7419.09	-198.51	-357.36	-196.32	6.12
7547.00	22.41	357.94	7499.31	-170.54	-358.23	-168.35	7.49
7594.00	26.73	358.37	7542.04	-151.02	-358.85	-148.82	9.20
7633.00	30.27	0.31	7576.31	-132.41	-359.05	-130.22	9.38
7718.00	39.57	7.00	7645.96	-83.99	-355.63	-81.82	11.82
7803.00	57.71	7.74	7701.89	-20.99	-347.42	-18.87	21.35
7889.00	66.17	0.92	7742.34	54.56	-341.88	56.65	12.07
7932.00	71.72	0.69	7757.79	94.67	-341.32	96.75	12.92
7974.00	80.31	2.03	7767.93	135.37	-340.34	137.45	20.68
8007.00	84.68	3.95	7772.24	168.04	-338.63	170.10	14.44
8122.00	88.77	3.77	7778.80	282.56	-330.90	284.58	3.56
8207.00	89.26	3.30	7780.27	367.39	-325.66	369.37	0.80
8293.00	90.56	2.18	7780.40	453.29	-321.55	455.24	2.00
8378.00	90.49	1.38	7779.62	538.24	-318.91	540.18	0.94
8463.00	89.94	1.32	7779.30	623.22	-316.91	625.14	0.65
8549.00	90.68	1.33	7778.84	709.19	-314.92	711.10	0.86
8634.00	90.12	359.73	7778.24	794.18	-314.14	796.09	1.99
8720.00	91.79	359.41	7776.81	880.17	-314.78	882.07	1.98
8805.00	90.99	359.27	7774.75	965.14	-315.76	967.05	0.96
8891.00	90.49	359.06	7773.64	1051.12	-317.01	1053.04	0.63
8976.00	90.62	0.02	7772.81	1136.11	-317.70	1138.03	1.14
9061.00	90.49	0.30	7771.99	1221.11	-317.46	1223.02	0.36
9146.00	90.31	359.79	7771.40	1306.10	-317.39	1308.02	0.64
9232.00	90.18	358.76	7771.03	1392.10	-318.48	1394.02	1.21
9317.00	91.79	357.89	7769.57	1477.04	-320.96	1478.98	2.15
9402.00	92.22	357.60	7766.60	1561.92	-324.31	1563.88	0.61
9488.00	92.35	357.79	7763.17	1647.79	-327.76	1649.76	0.27
9573.00	90.93	357.88	7760.73	1732.69	-330.97	1734.68	1.67
9659.00	90.74	357.17	7759.48	1818.60	-334.69	1820.61	0.85
9744.00	90.00	355.70	7758.93	1903.43	-339.97	1905.47	1.94
9829.00	91.05	355.40	7758.15	1988.17	-346.57	1990.25	1.28
9914.00	91.23	356.83	7756.46	2072.95	-352.32	2075.07	1.70
10000.00	90.62	356.40	7755.07	2158.79	-357.40	2160.94	0.87
10085.00	90.80	357.89	7754.02	2243.68	-361.63	2245.85	1.77
10171.00	90.86	357.74	7752.77	2329.61	-364.91	2331.79	0.19
10256.00	90.86	357.23	7751.50	2414.52	-368.64	2416.72	0.60
10341.00	91.91	357.14	7749.44	2499.39	-372.81	2501.62	1.24
10427.00	91.59	357.19	7746.82	2585.24	-377.07	2587.50	0.38
10512.00	91.30	358.46	7744.67	2670.15	-380.29	2672.42	1.53
10598.00	91.23	1.25	7742.78	2756.12	-380.51	2758.39	3.24
10683.00	90.86	0.40	7741.22	2841.10	-379.29	2843.36	1.09
10768.00	90.12	359.43	7740.50	2926.09	-379.41	2928.36	1.44
10854.00	89.53	0.56	7740.76	3012.09	-379.42	3014.35	1.48
10939.00	90.12	359.30	7741.02	3097.09	-379.52	3099.35	1.64
11025.00	91.54	358.69	7739.77	3183.06	-381.03	3185.33	1.80
11110.00	90.80	0.26	7738.04	3268.04	-381.81	3270.31	2.04
11195.00	90.68	0.49	7736.94	3353.03	-381.25	3355.30	0.31
11281.00	90.43	359.82	7736.11	3439.02	-381.02	3441.29	0.83
11366.00	90.43	358.91	7735.47	3524.02	-381.96	3526.28	1.07
11452.00	90.31	358.04	7734.91	3609.98	-384.25	3612.26	1.02
11537.00	90.18	357.62	7734.55	3694.92	-387.47	3697.22	0.52
11622.00	90.99	358.42	7733.68	3779.86	-390.41	3782.18	1.34

11708.00	91.54	358.74	7731.78	3865.82	-392.54	3868.14	0.74
11794.00	91.06	0.72	7729.83	3951.79	-392.94	3954.12	2.37
11879.00	88.39	358.46	7730.24	4036.77	-393.55	4039.10	4.12
11965.00	90.49	358.50	7731.08	4122.73	-395.83	4125.07	2.44
12050.00	91.98	359.79	7729.25	4207.70	-397.10	4210.05	2.32
12135.00	91.85	358.78	7726.41	4292.64	-398.16	4295.00	1.20
12221.00	92.04	358.80	7723.49	4378.58	-399.97	4380.94	0.22
12306.00	90.86	359.70	7721.34	4463.54	-401.09	4465.91	1.75
12391.00	88.77	358.91	7721.61	4548.53	-402.12	4550.90	2.63
12477.00	90.12	1.21	7722.45	4634.52	-402.03	4636.88	3.10
12562.00	90.88	1.95	7721.71	4719.48	-399.68	4721.83	1.25
12648.00	91.36	2.55	7720.02	4805.40	-396.31	4807.73	0.89
12748.00	91.72	2.60	7717.34	4905.26	-391.82	4907.56	0.36
Projected to Total Depth:							
12805.00	91.72	2.60	7715.63	4962.17	-389.23	4964.46	0.00

Weatherford surveys from 1052 ft MD to 12748 ft MD.

Well TD'd at 12805 ft MD.

The total correction is 8.65 deg relative to True North.



Weatherford®

Final Print

COMPANY	<u>Anadarko Petroleum Corporation</u>		
WELL	<u>Howard 29C-28HZ</u>		
FIELD	<u>Wattenberg</u>		
RIG	<u>Xtreme 23</u>		
LOC.	<u>Colorado</u>	COUNTY	<u>Weld</u>