



LWD MEMORY LOG

Gamma Ray

Scale: **Company: SRC Energy**

1:240 MID Well: Boomerang 25N-3B-L

Depth Reference:

Field: Weld County

Driller's Depth
County: Weld Country: United States

State:	Colorado	
Confidential Institution:		Other Institution:

Status:	Surface Location:	Other Services:
Final Print	Latitude: 040° 26' 00.730" N Longitude: 104° 48' 12.704" W	Directional

MT INO:	03-1234-3333-00	
Job ID:	8924888	
SEC:	5	TWN: 5N RGE: 66W

Permanent Datum (P.D.):	Ground Level	Elevation:	4769.00 ft	Elev. KB:	N/A
Log Measured From:	Rig Floor	Above P.D.	20.00 ft	Elev. DF:	4789.00 ft
				Elev. GL:	4769.00 ft

Dates	Interval Logged	Magnetic Field Reference
Date From: 2018-03-25	Top: (ft) 1831.00	Azi Reference North: True Dip Angle: (deg) 66.65

Date To:	2018-03-28	Bottom: (ft)	17712.00	Total Magnetic Field Strength: (nT)	52427
Spud Date:	2017-12-30			Mag to Reference North Correction: (deg)	7.48 E

Borehole Record Casing Record

Hole Size (in)	From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)
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13.500	20.00	1831.00	9.625	36.00	20.00	1821.00
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8.500	1831.00	11125.00				
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Mud Record		Deviation Record	
H	L (S)	H	L (S)
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
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88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

type	1000 (ii)	1000 (iii)	1000 (iv)	1000 (v)	1000 (vi)
Water-Bedded M.	1000	1000	1000	1000	1000

Diesel-Oil Based Mud	1831.00	17725.00	8.500	15894.00	8.07	355.51	89.94	89.17
Water Based Mud	20.00	1001.00	10.000	1011.00	0.00	0.00	0.01	000.00

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Acquisition System	Software Version	Other			

Baker Hughes Cadence	RT4.1	Rig:	Precision Drilling 462
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PlotStudio	4.1.7763.3	Contractor: Precision Drilling
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District:	RMD	Unit:	D&E
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Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	13.500	PDC	6.00	Steerable	0.00	0.00	20.00	1831.00	2017-12-30 22:19	2017-12-31 08:29	12.59
2	2	8.500	PDC	3.00	AutoTrak Curve	1831.00	13484.00	1831.00	13496.00	2018-03-25 06:18	2018-03-27 06:45	40.49
3	3	8.500	PDC	3.00	AutoTrak Curve	13484.00	17712.00	13496.00	17725.00	2018-03-28 00:00	2018-03-28 20:23	19.47

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
John Moisan	2017-12-30	2017-12-31	James Himes	2018-03-25	2018-03-29	John Bryson	2018-03-25	2018-03-29

Mud Properties Record

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2017-12-30 12:05	1	20.00	Water Based Mud	8.4	N/A	N/A	N/A	0/100	Flow Line	500	0.00

2018-03-25 16:00	2	4200.00	Diesel-Oil Based Mud	9.7	14	N/A	12.8	77/23	Suction	42000	0.00
2018-03-26 04:00	2	7088.00	Diesel-Oil Based Mud	9.8	16	N/A	8.8	77/23	Suction	38000	0.00
2018-03-26 16:00	2	9892.00	Diesel-Oil Based Mud	9.9	19	N/A	9.1	77/23	Suction	38000	0.00
2018-03-27 04:00	2	12874.00	Diesel-Oil Based Mud	9.9	20	N/A	9.0	76/24	Suction	39000	0.00
2018-03-27 15:30	2	13597.00	Diesel-Oil Based Mud	9.9	19	N/A	9.0	76/24	Suction	39000	0.00
2018-03-28 04:00	3	14297.00	Diesel-Oil Based Mud	10.0	17	N/A	9.0	77/23	Suction	50000	0.00
2018-03-28 16:00	3	16887.00	Diesel-Oil Based Mud	10.1	17	N/A	9.7	77/23	Suction	50000	0.00

Equipment and Service Data							
Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	Sensor Sub	ZAPS230925	Gamma (single)	8.52	58.70	8.000	3.250
1	Sensor Sub	ZAPS230925	Directional (mag)	9.93	60.11	8.000	3.250
1	Sensor Sub	ZAPS230925	VSS	9.93	60.11	8.000	3.250
1	Sensor Sub	ZAPS230925	Pressure	30.52	80.70	8.000	3.250
2	ATC_SU	12536524	Near Bit VSS	5.93	6.73	7.000	4.330
2	ATC_SU	12536524	Near Bit Inclination	5.93	6.73	7.000	4.330
2	ATC_MWD	14313857	Gamma (single)	2.19	12.35	7.000	3.250
2	ATC_MWD	14313857	Directional (mag)	12.26	22.42	7.000	3.250
3	ATC_SU	14169980	Near Bit Inclination	5.93	6.73	7.000	4.330
3	ATC_SU	14169980	Near Bit VSS	5.93	6.73	7.000	4.330
3	ATC_MWD	14270075	Gamma (single)	2.76	12.90	7.000	3.250
3	ATC_MWD	14270075	Directional (mag)	12.26	22.40	7.000	3.250

Service and Tool Mnemonics		
Mnemonic	Name	Description
GAM	APS	APS EM Module
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

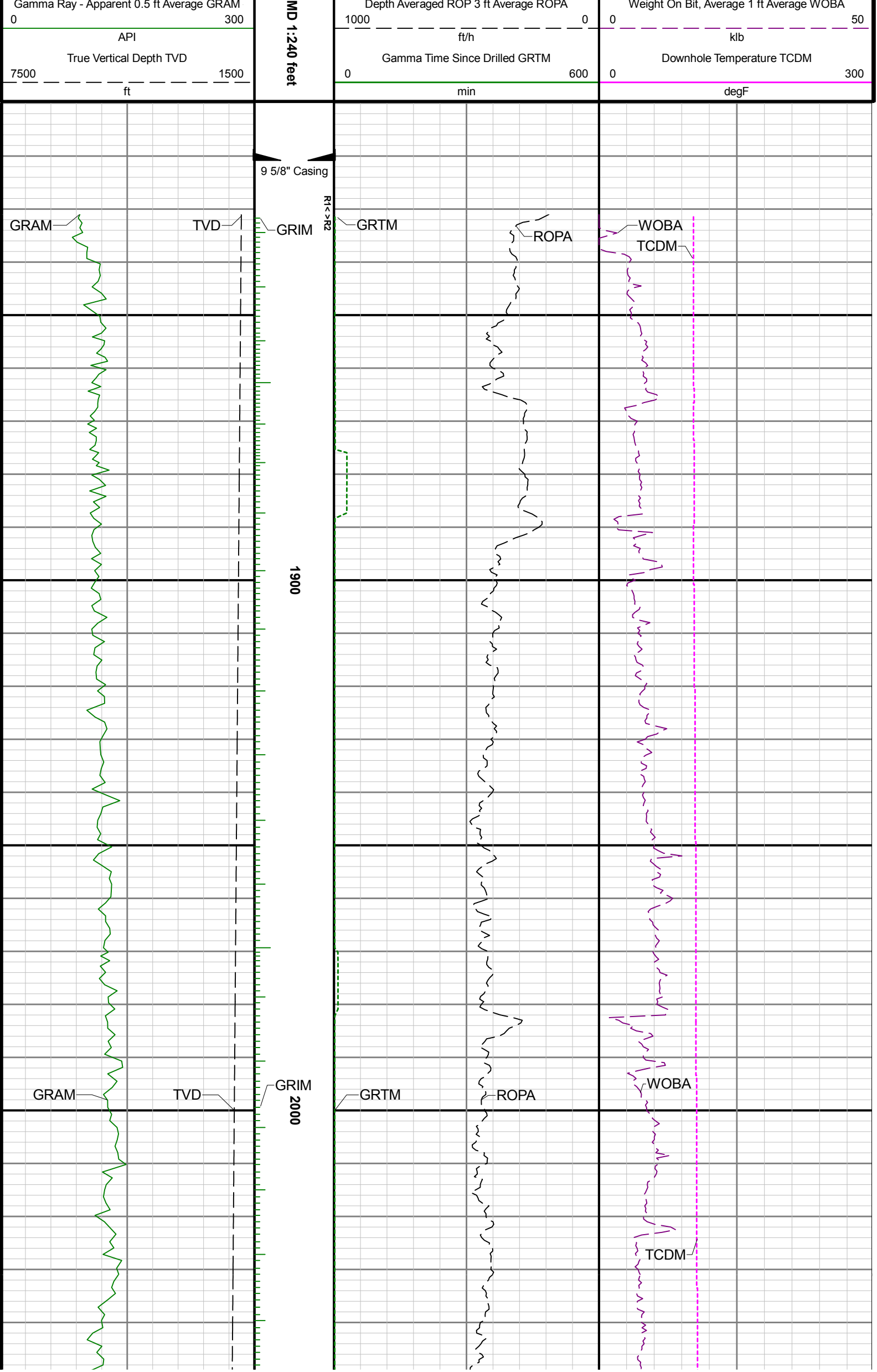
Comments				
1	Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.			
2	Baker Hughes LWD Run 1 utilized 8 inch APS EM Services (Directional only) behind a 13 1/2 inch bit and steerable assembly from surface to 1831 feet MD (surface to 1809 feet TVD). No logging data was acquired during this run.			
3	Baker Hughes LWD Runs 2 and 3 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1831 to 17725 feet MD (1809 to 7074 feet TVD).			
4	Gamma Ray Curve (GRAM) is presented 0 to 300 API per customer request.			

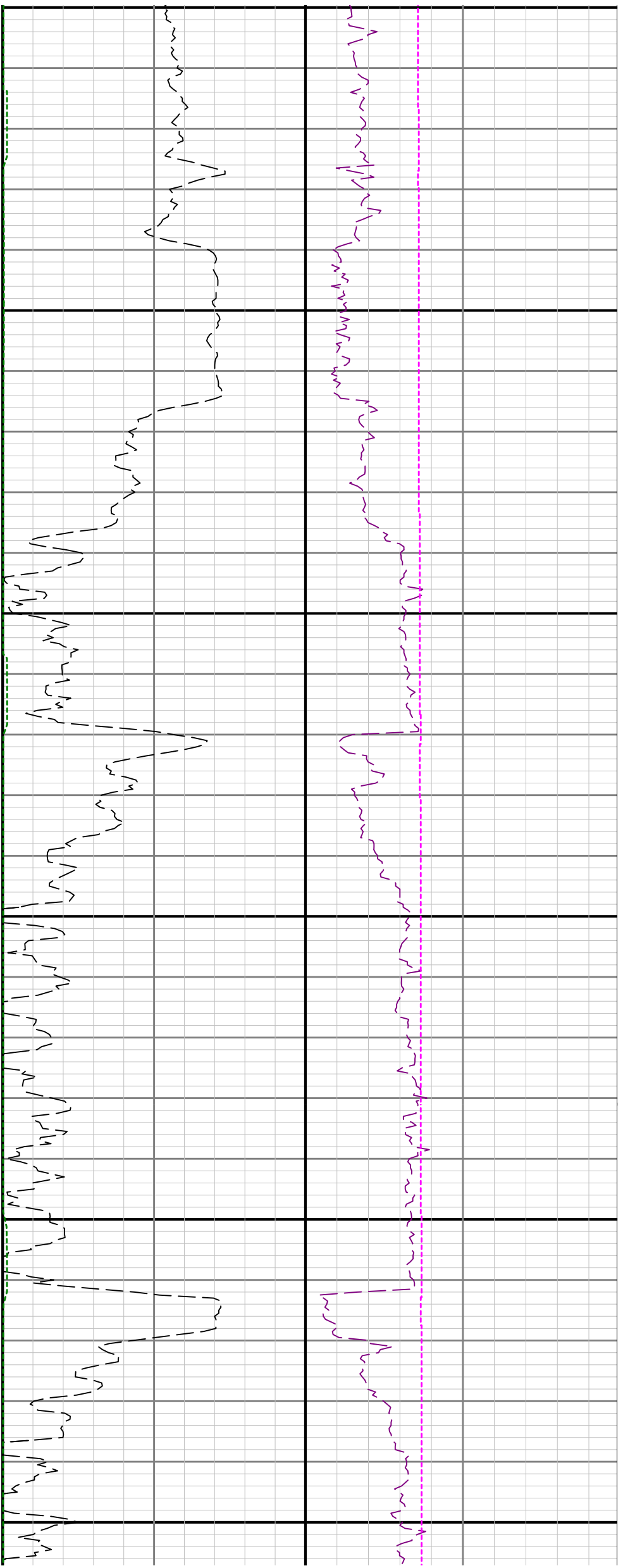
Remarks				
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	13484.00	8.500	3	The interval from 13484 to 13496 feet MD (7084 feet TVD) was logged up to 18 hours after being drilled due to a trip out of the hole for a tool failure.
2	17712.00	8.500	3	The interval from 17712 to 17725 feet MD (7074 feet TVD) was not logged due to sensor to bit offset at well TD.

Curve Mnemonics		
Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	Gamma Ray - Time Since Drilled - Memory	min
TCDM	Downhole Temperature	degF

<div><div>BAKER HUGHES</div><div>a GE company</div></div>	Company	SRC Energy	
	Well	Boomerang 25N-3B-L	
	Interval	Date From: 2018-03-25 03:21:00	Top: 1831.00
	Created	Date To: 2018-03-28 14:22:51	Bottom: 17725.00
		2018-03-29 11:12:49	

Gamma Ray - Apparent 0.5 ft Average GRAM	—	Depth Averaged ROP 3 ft Average ROPA	Weight On Bit - Average 1 ft Average WOBA
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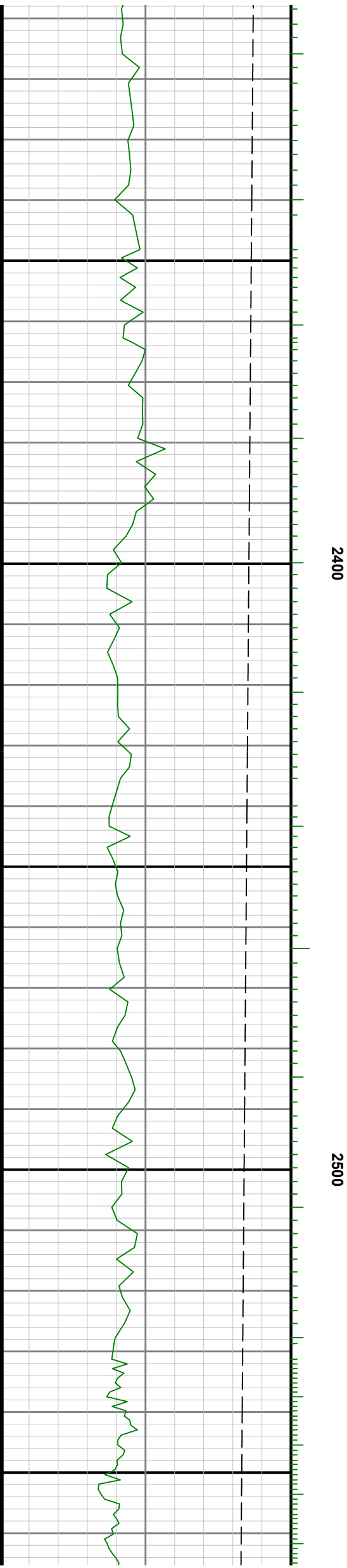
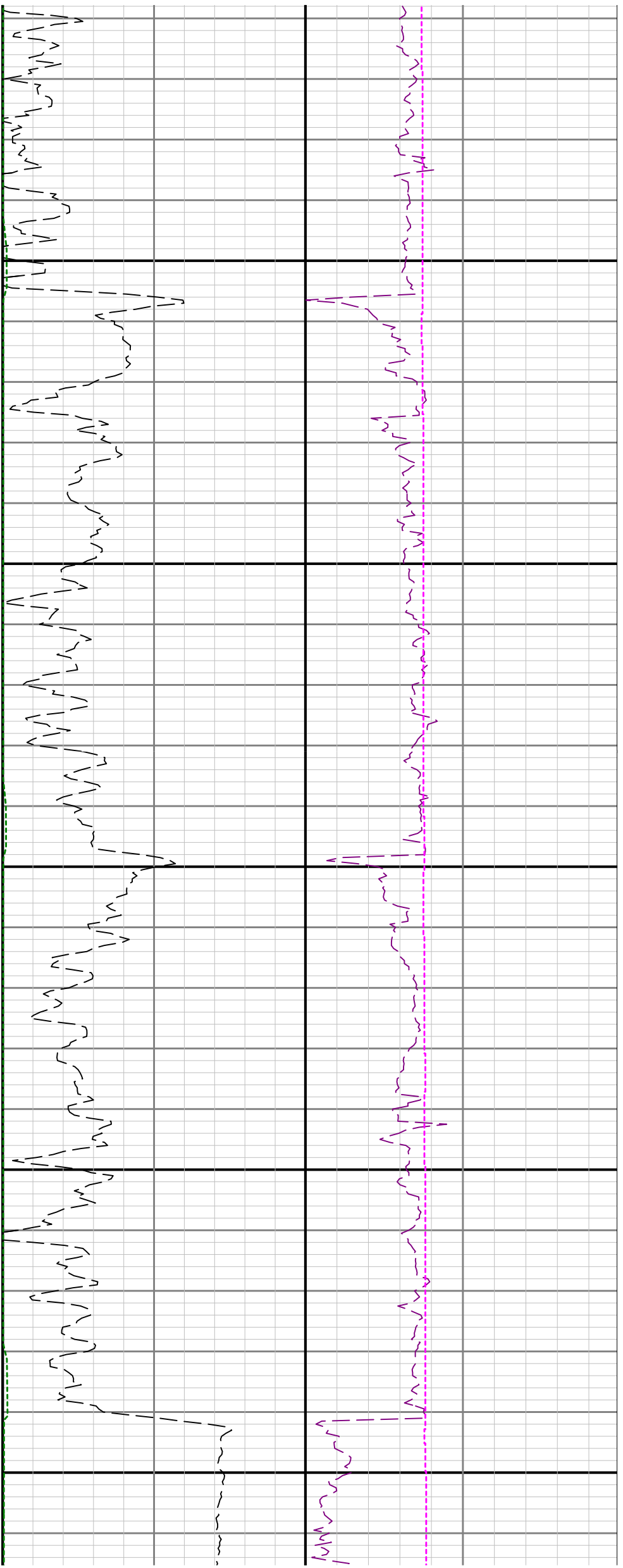


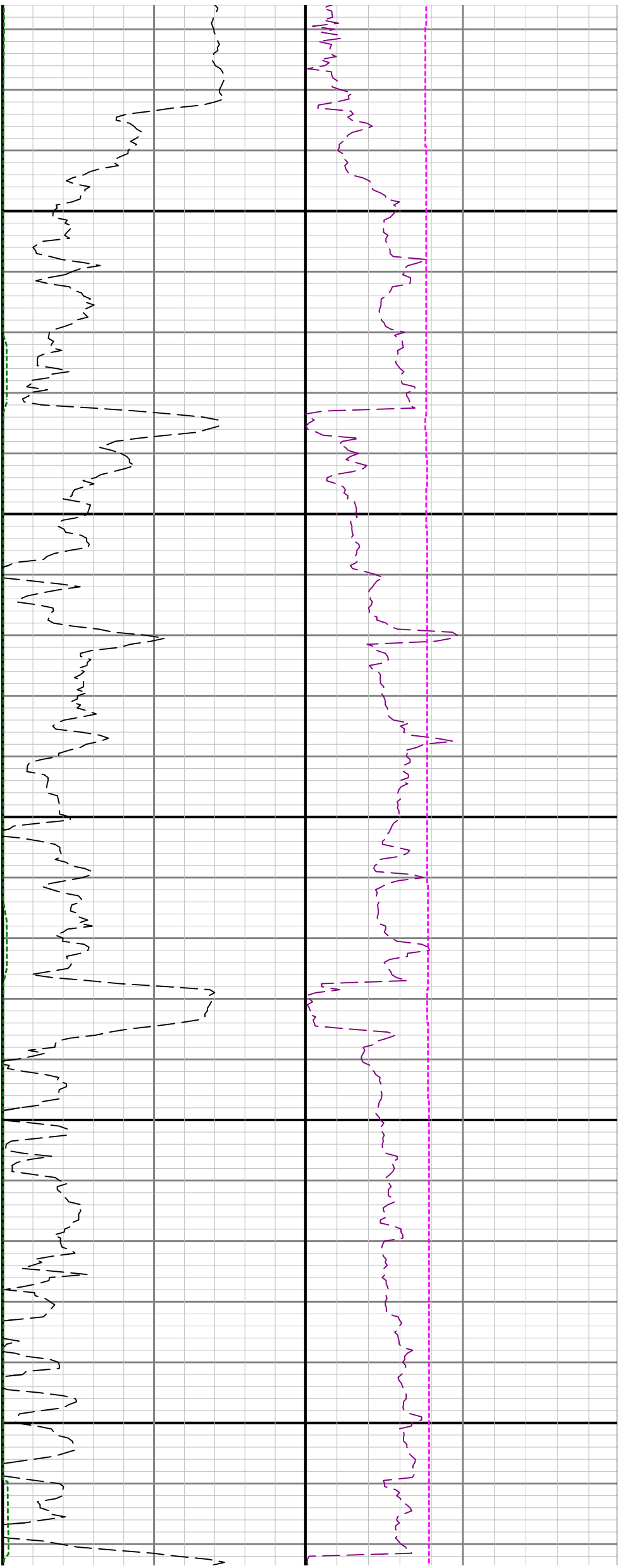


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2300

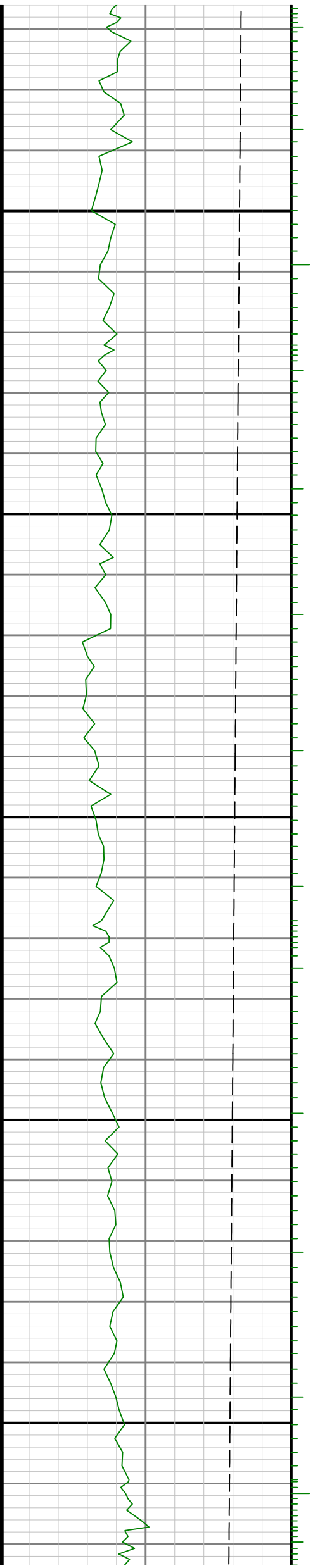


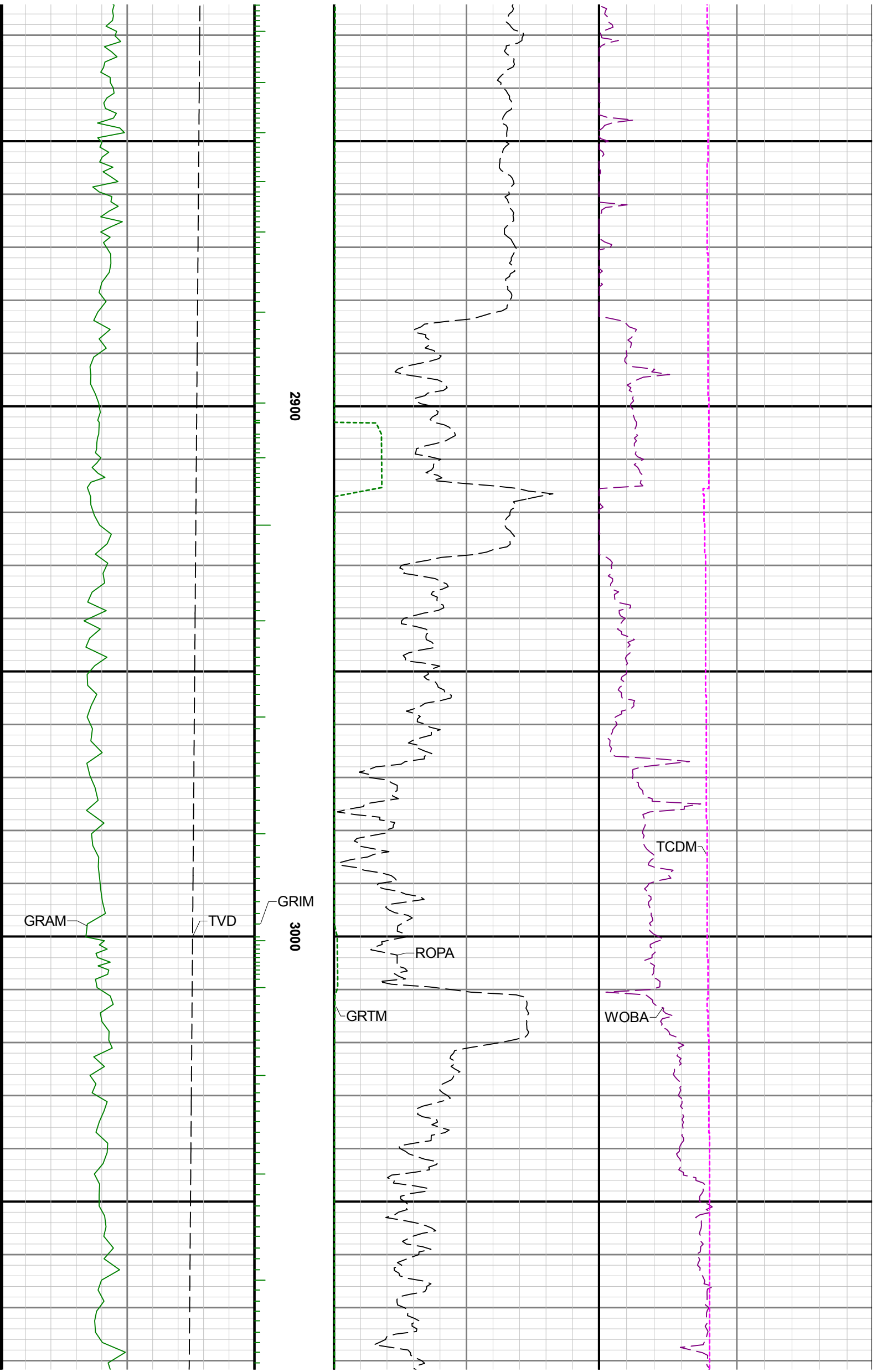


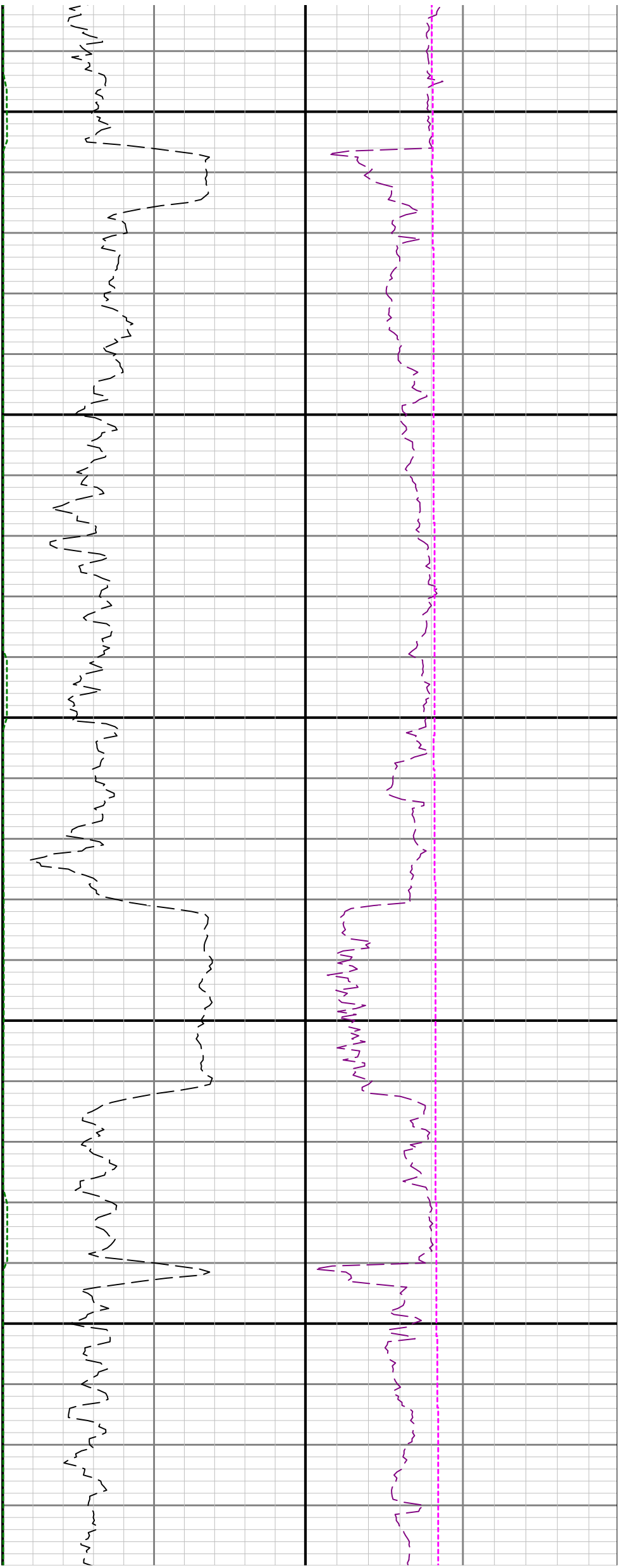
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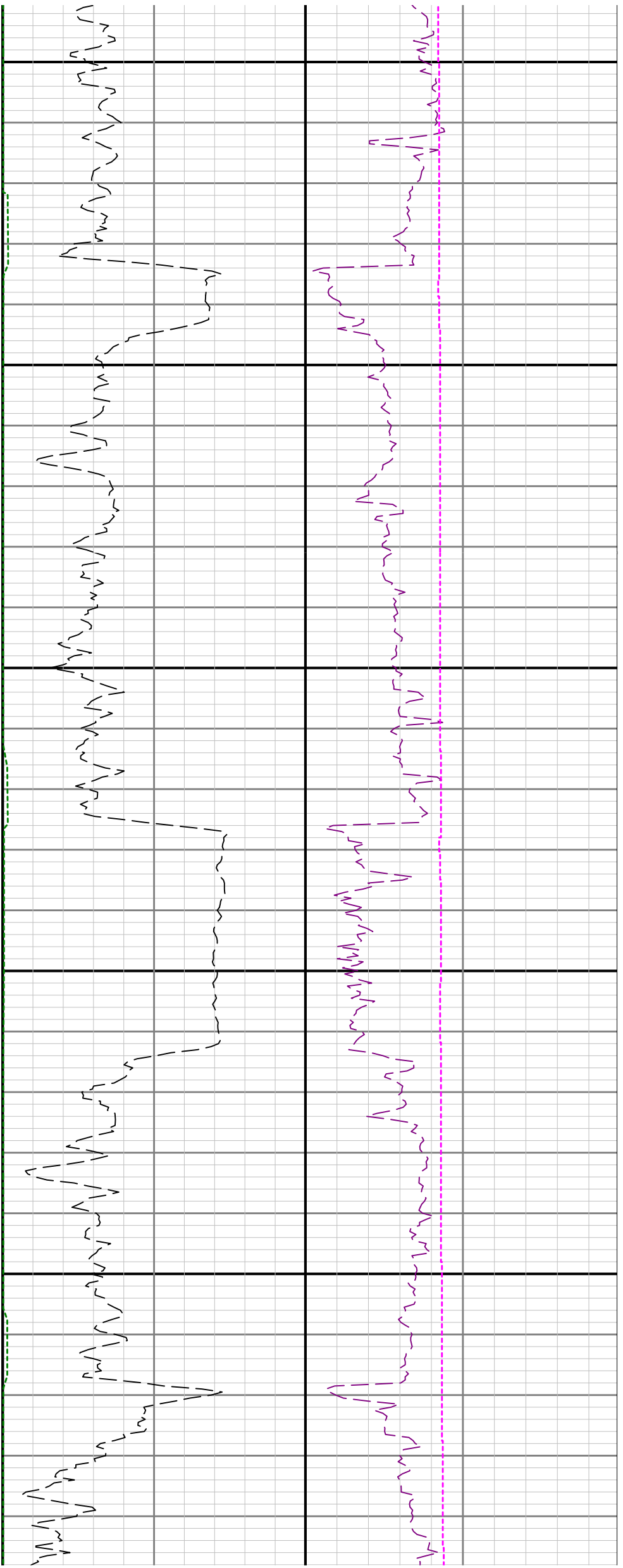




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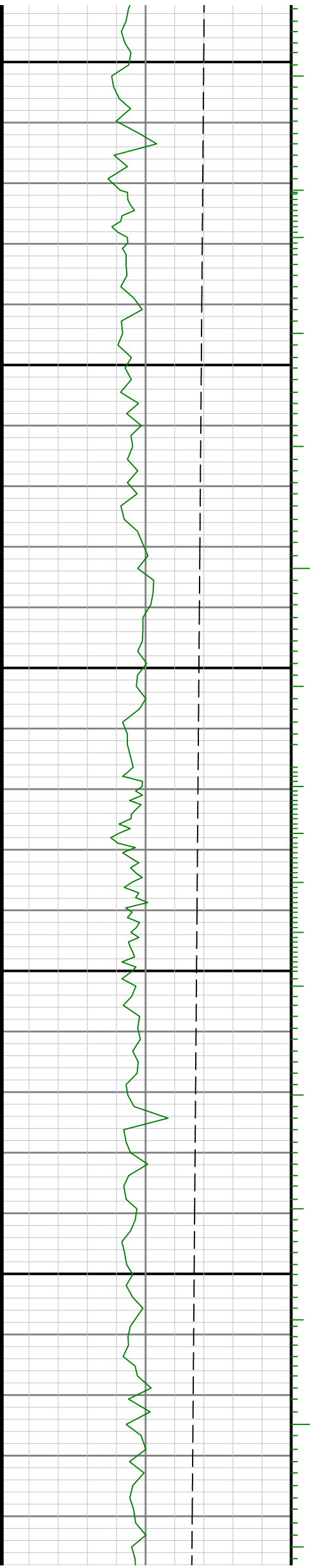
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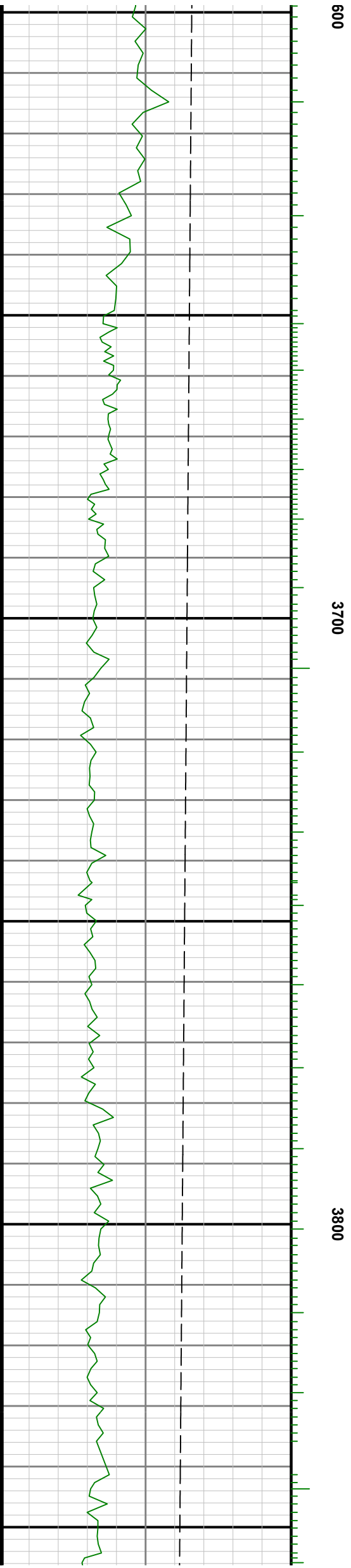
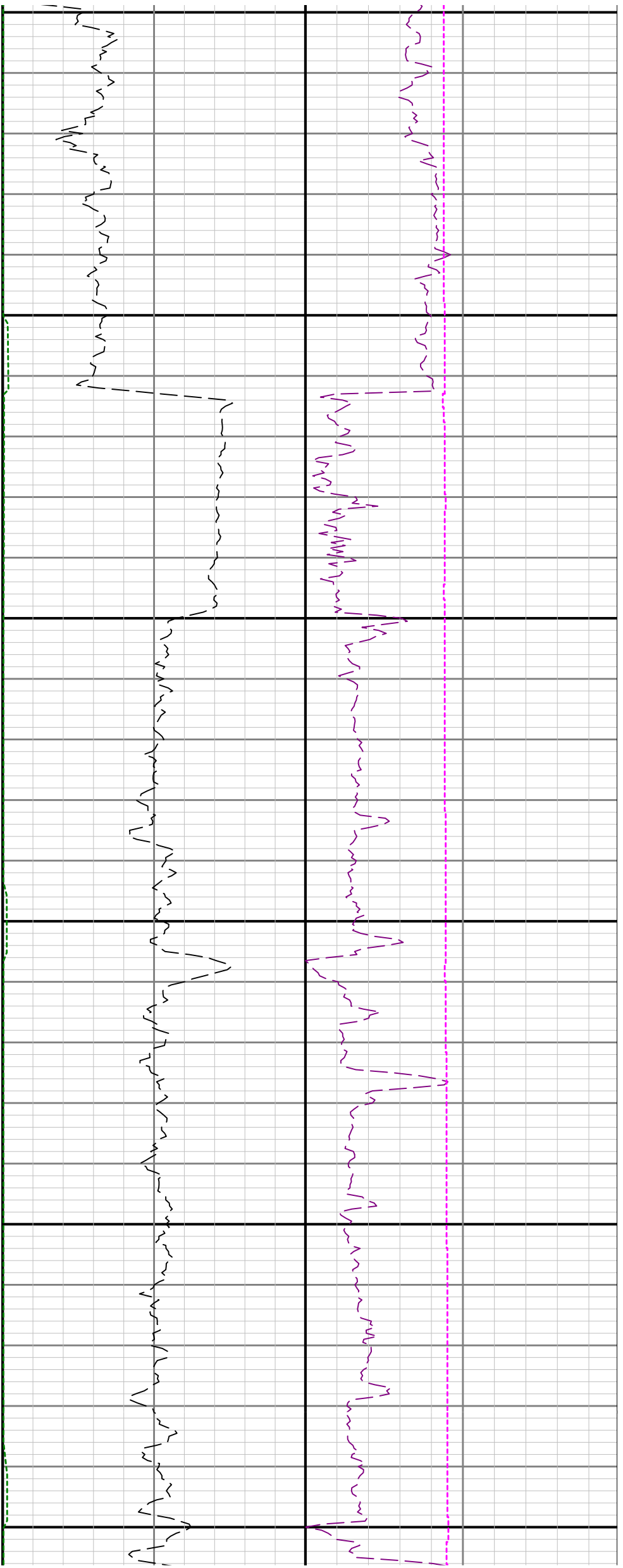


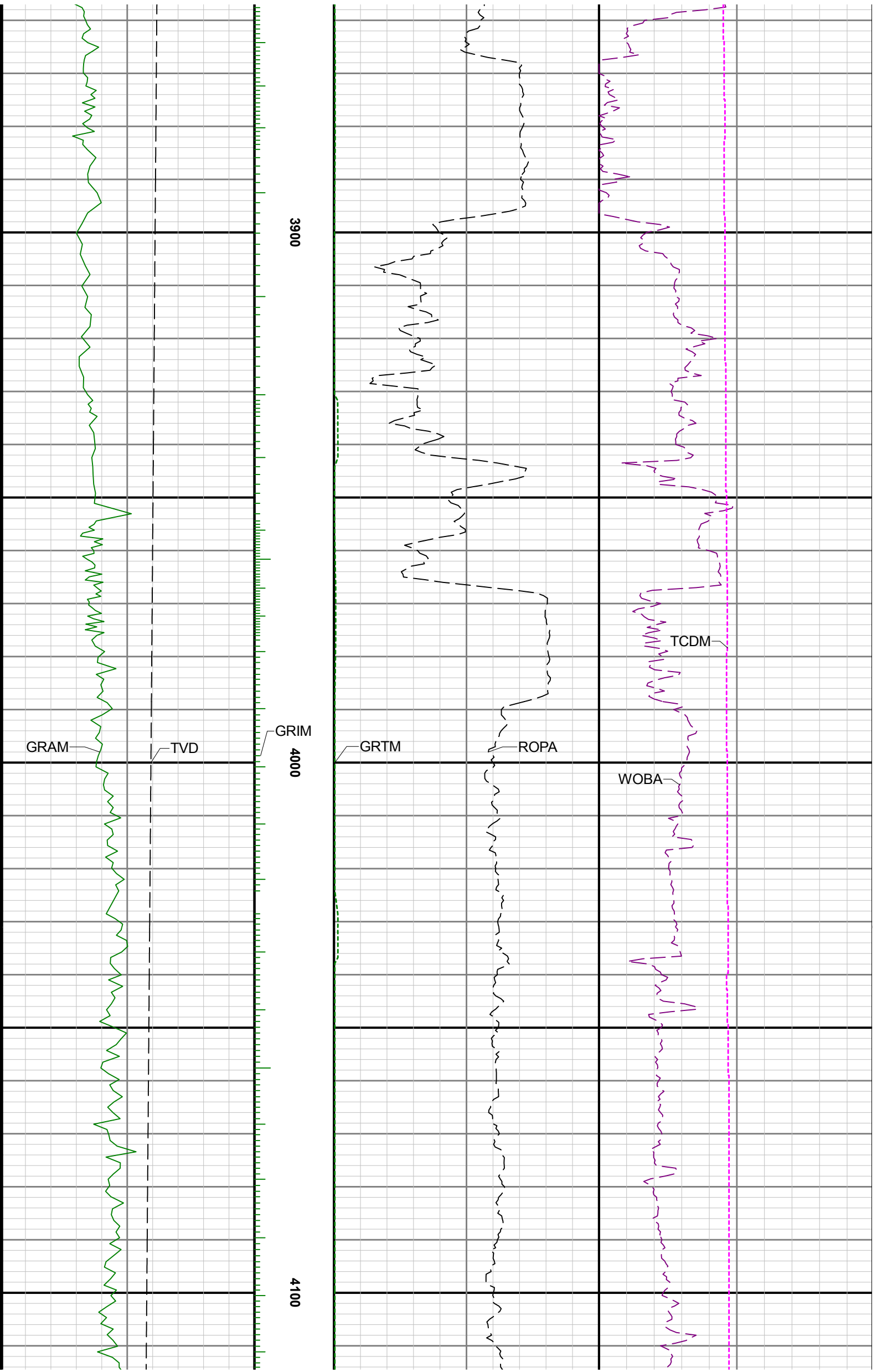
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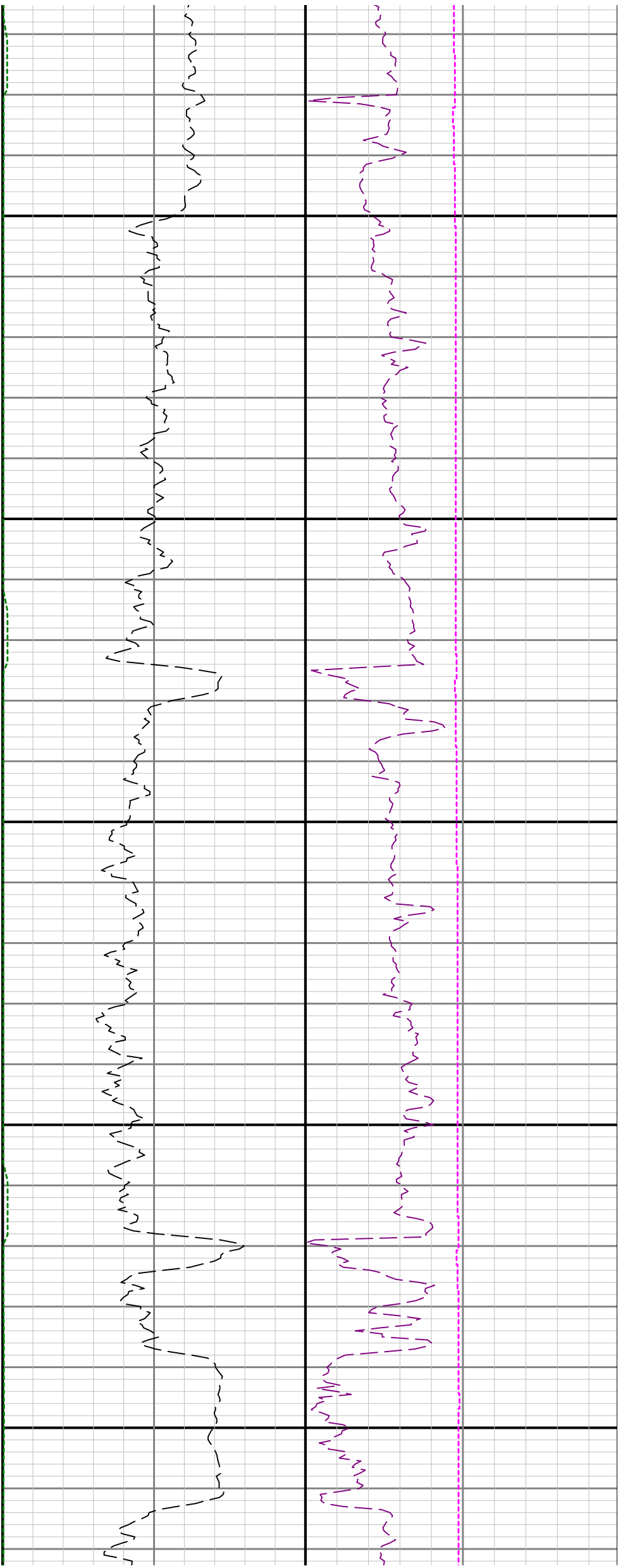
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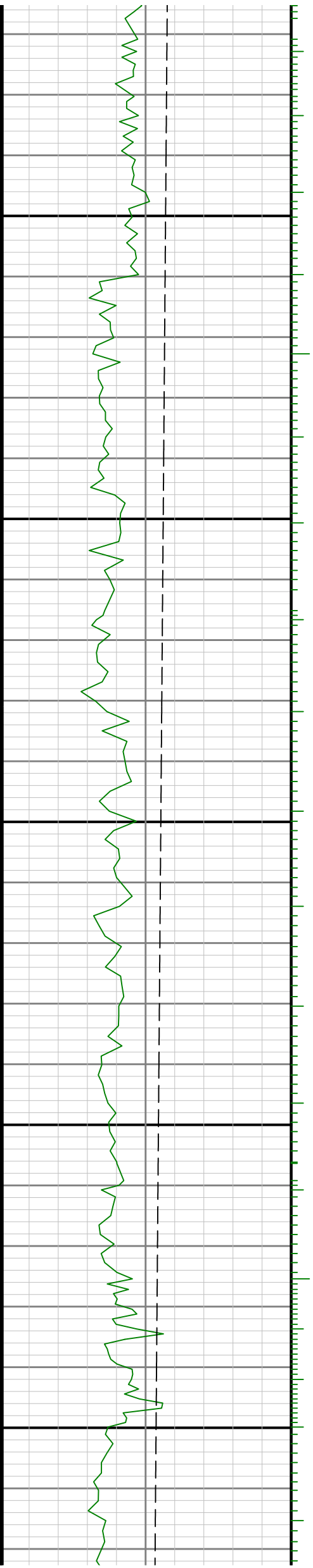


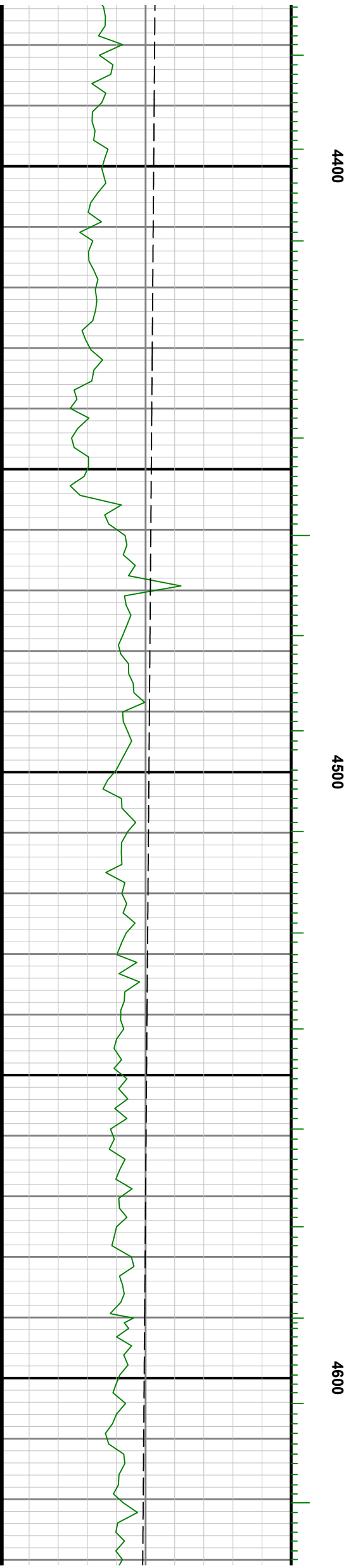
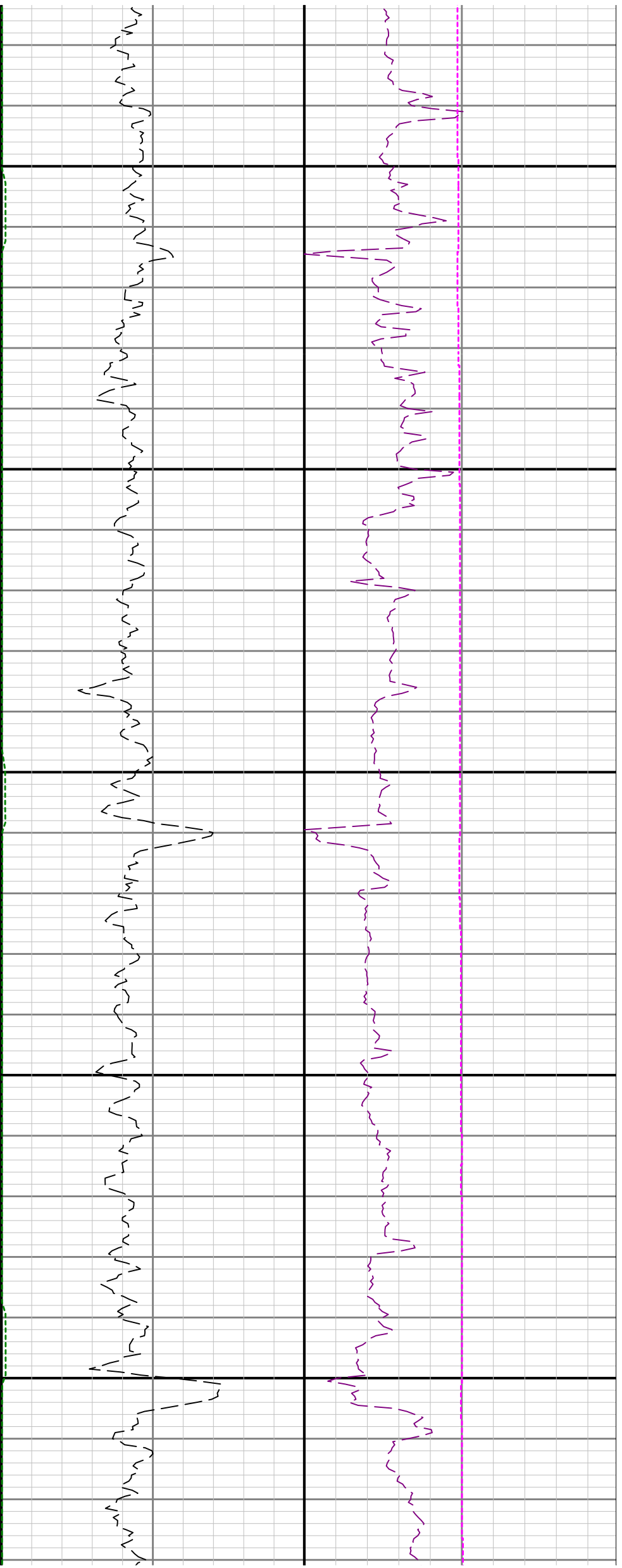


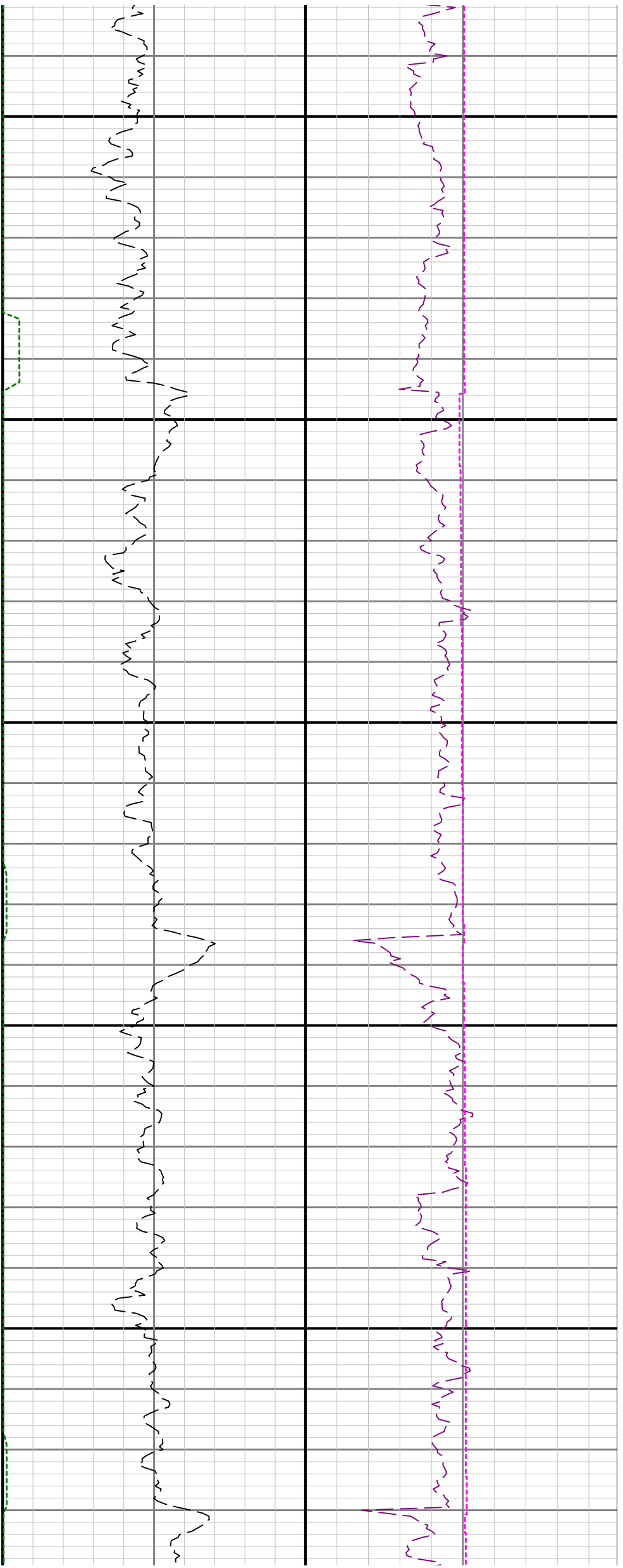


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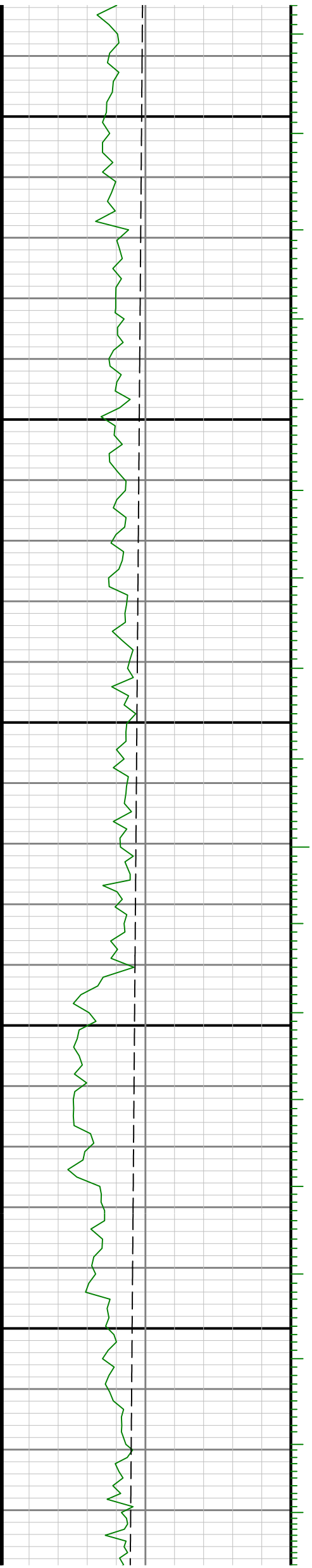


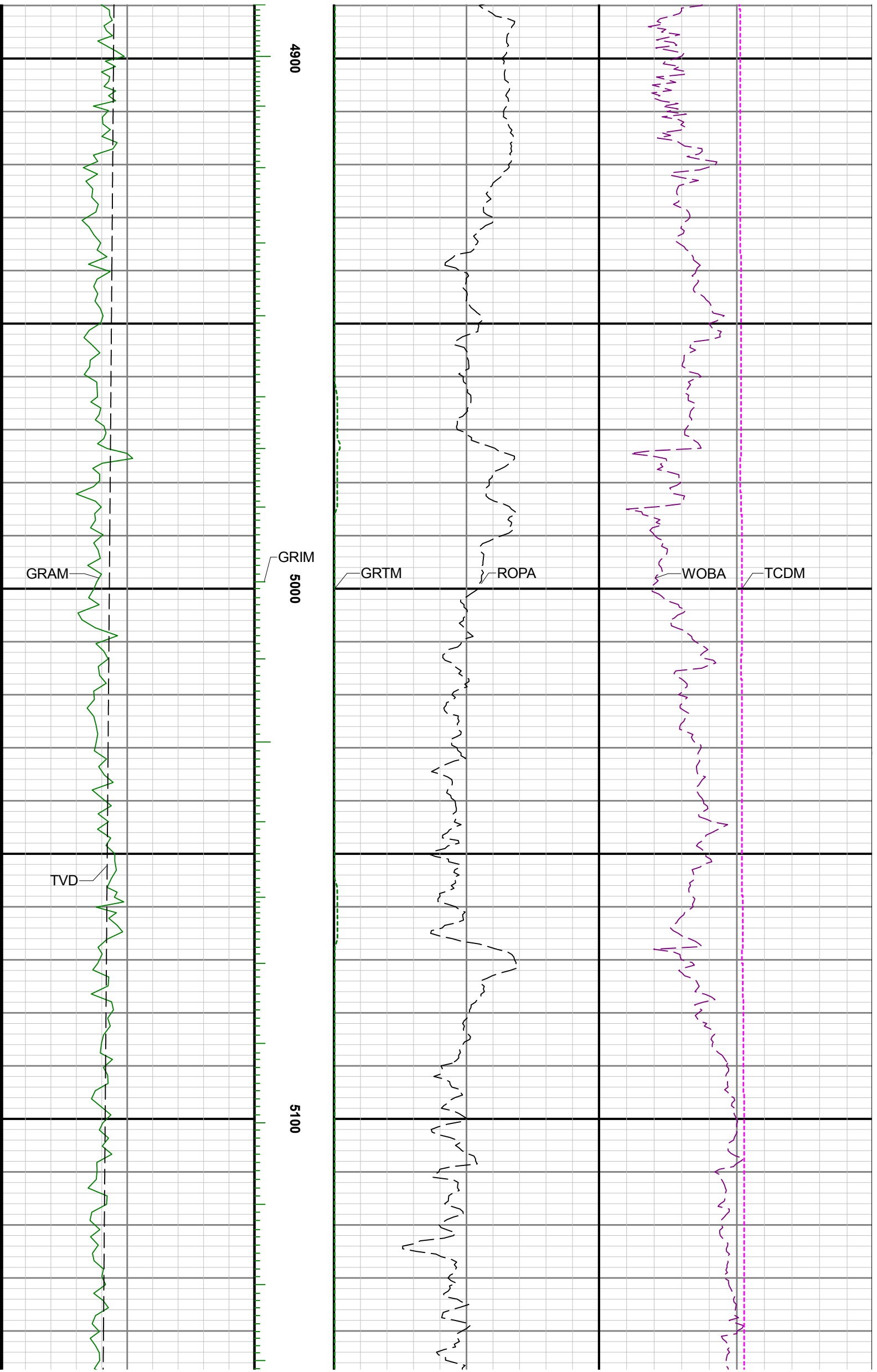


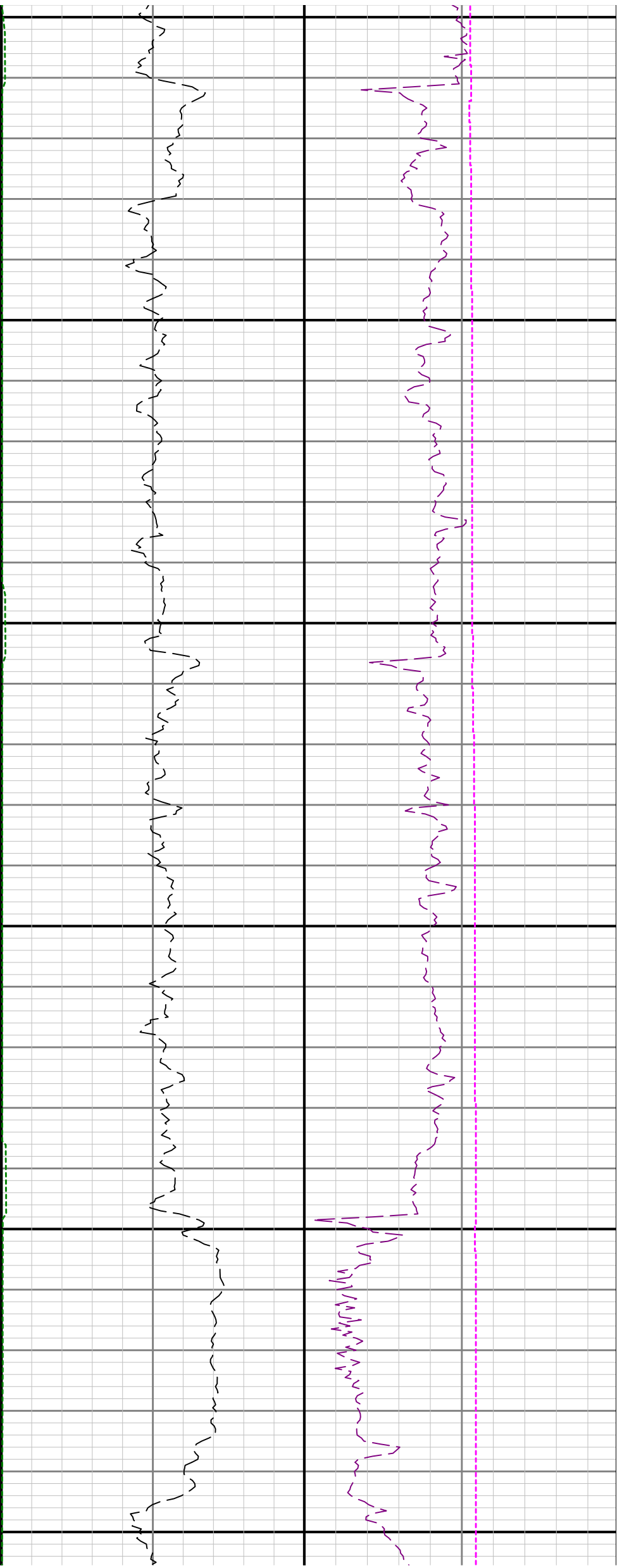


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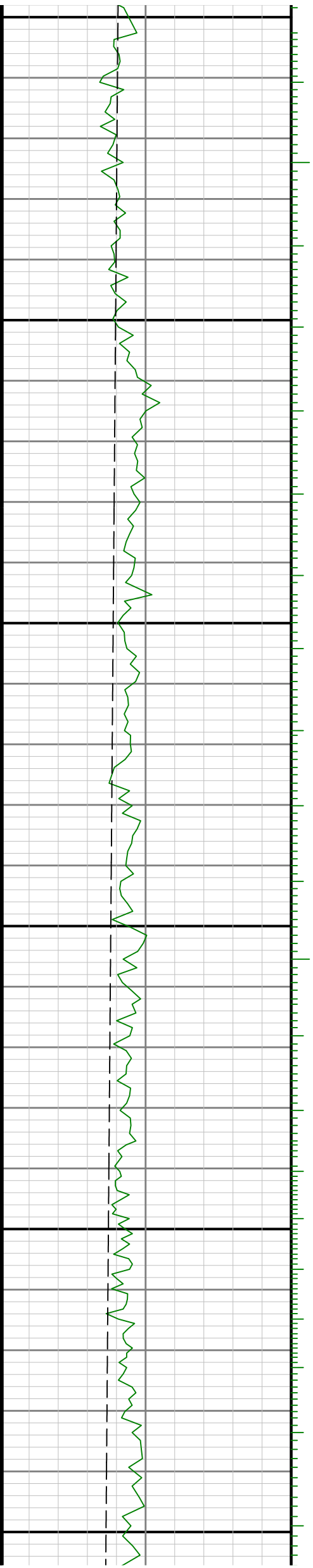


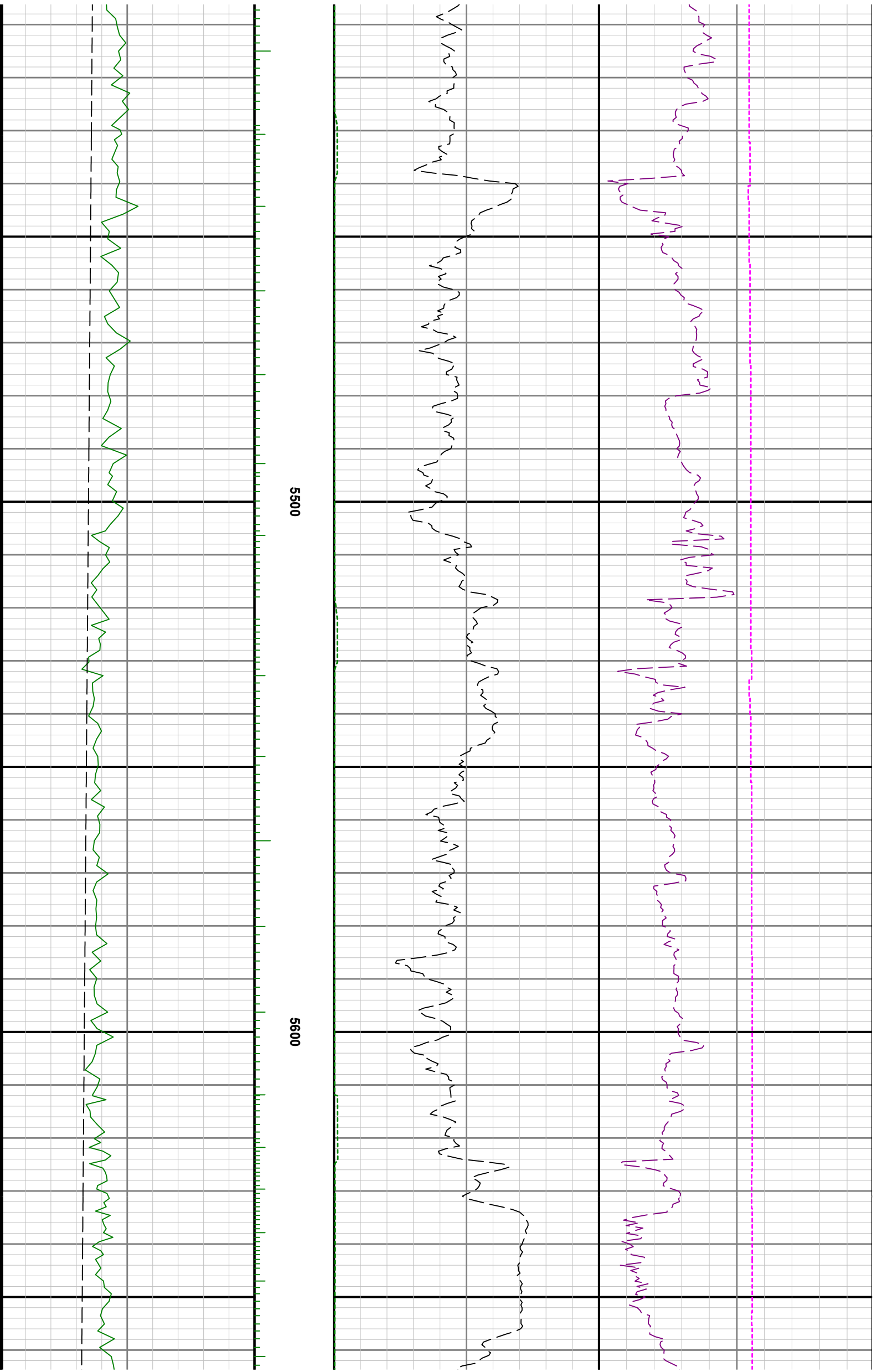


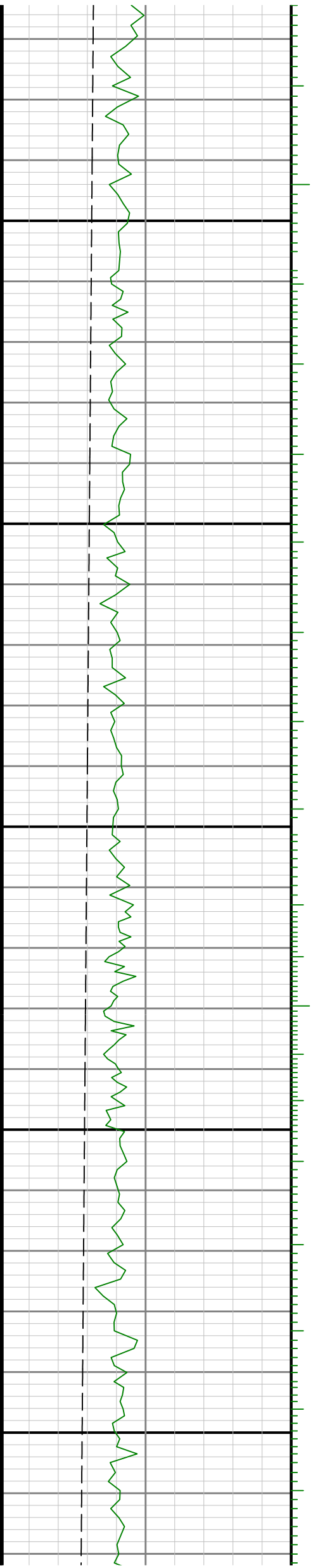
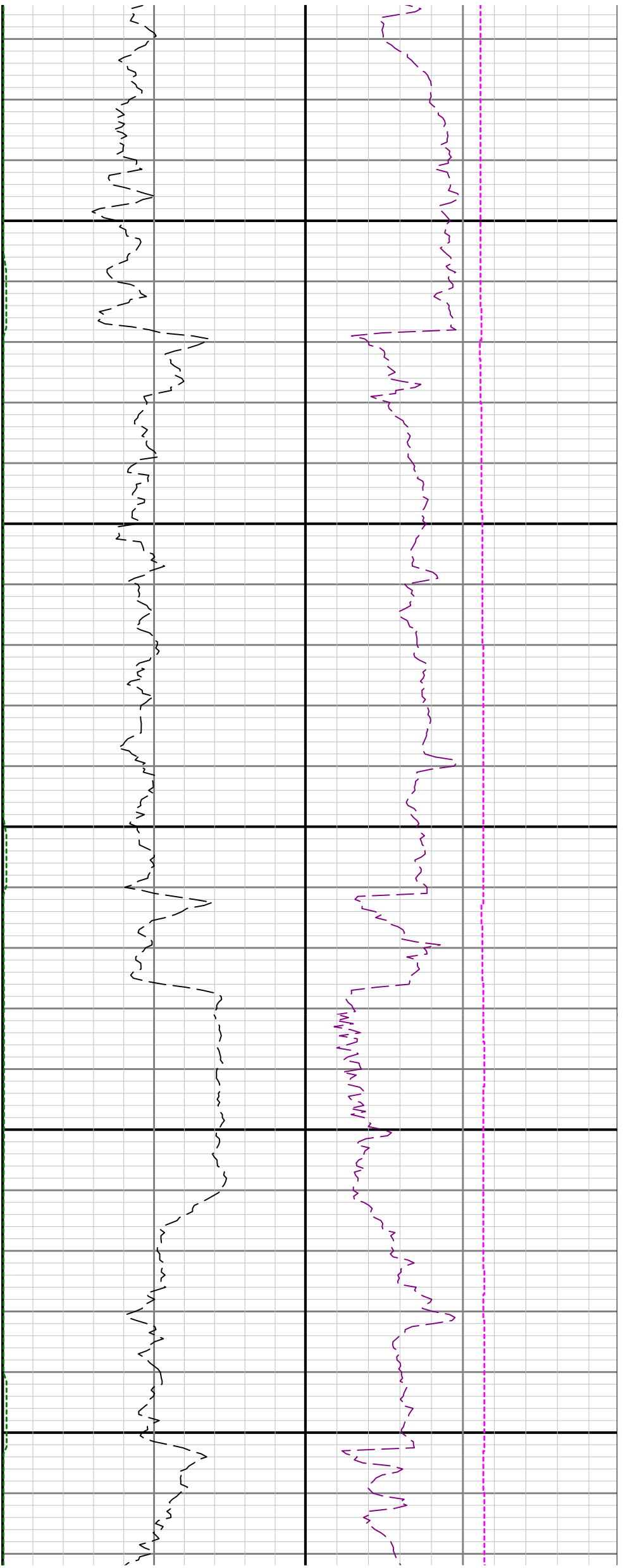
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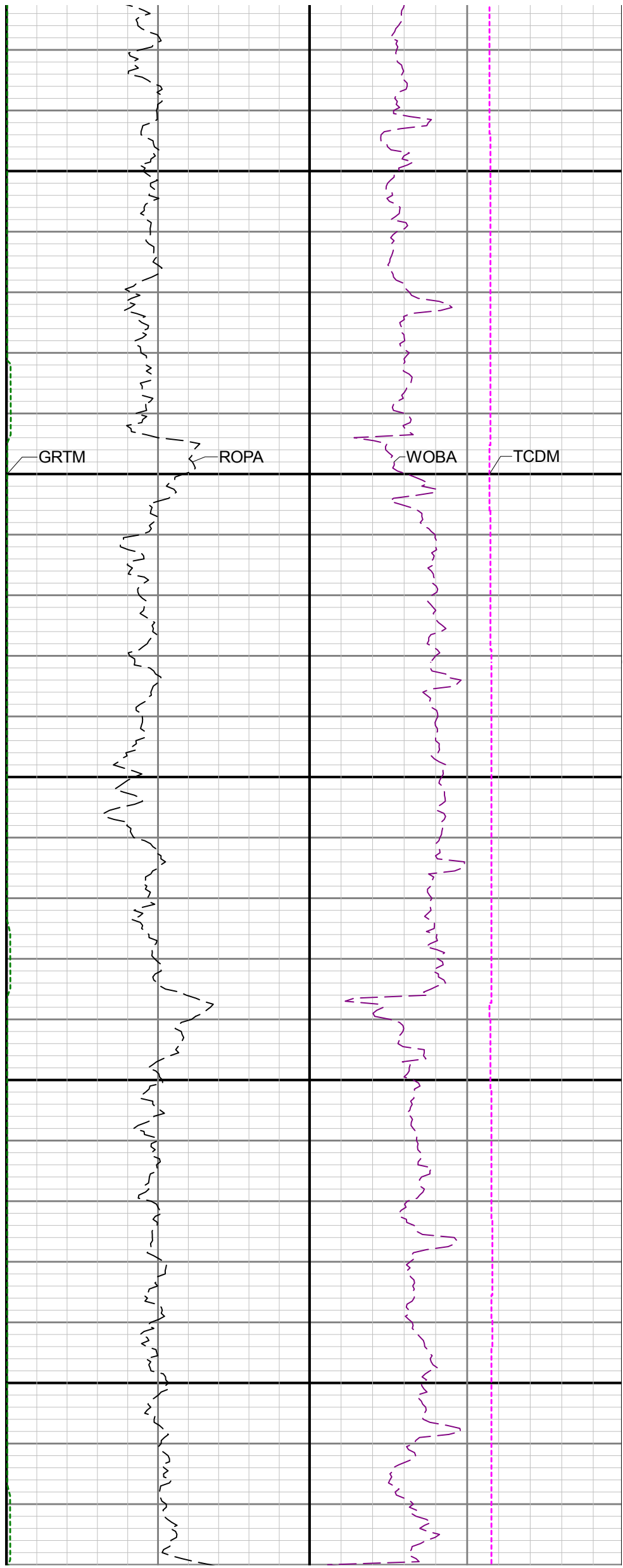
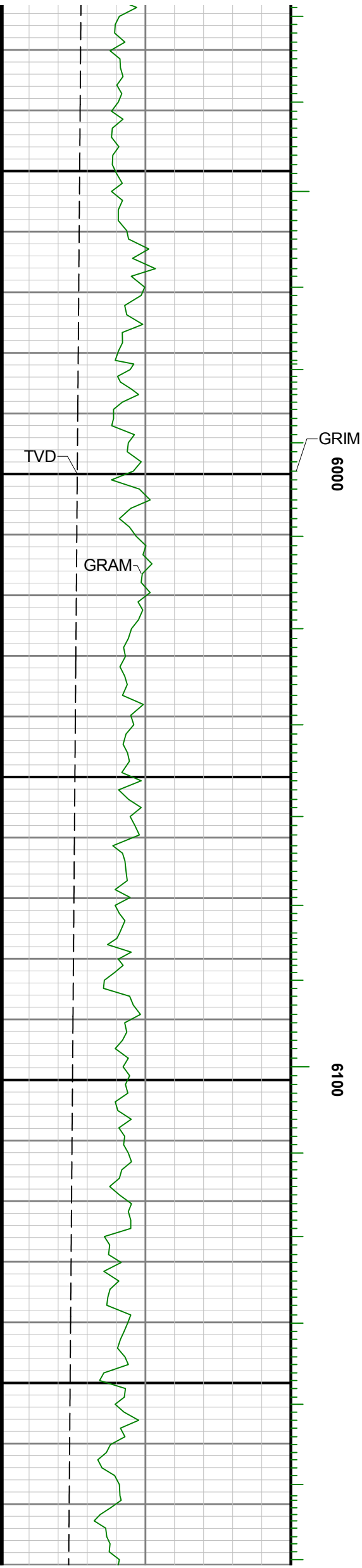
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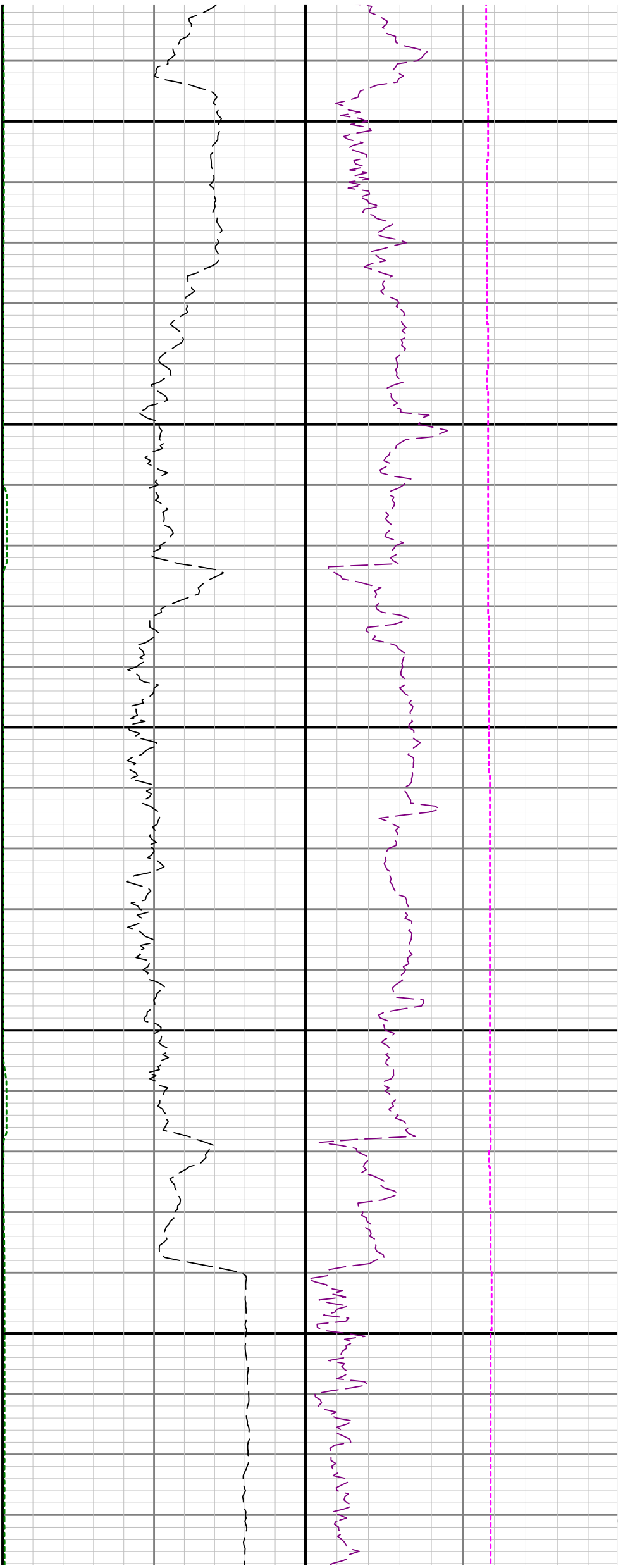
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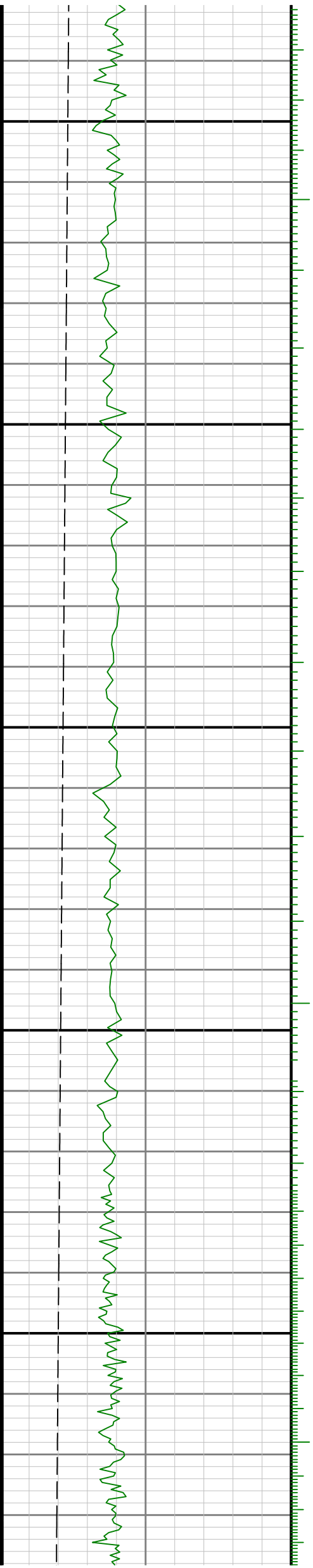


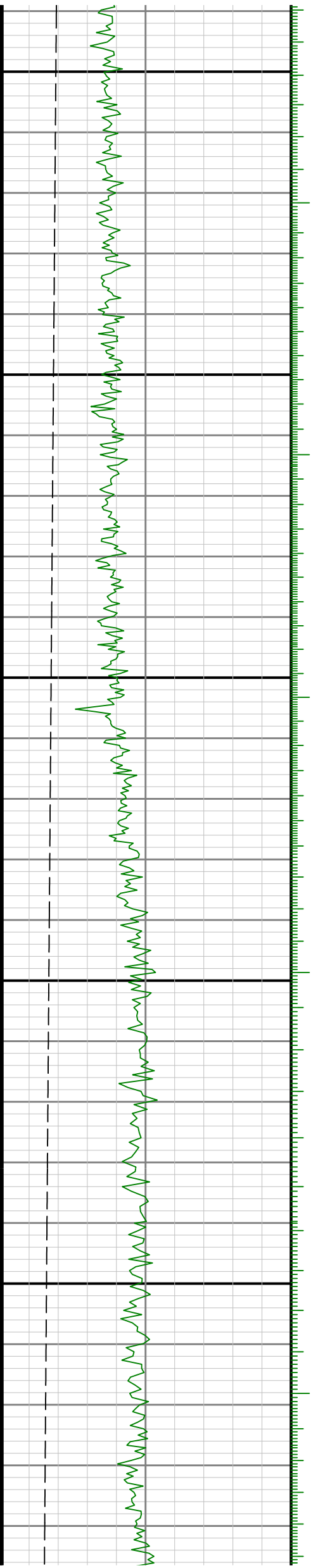


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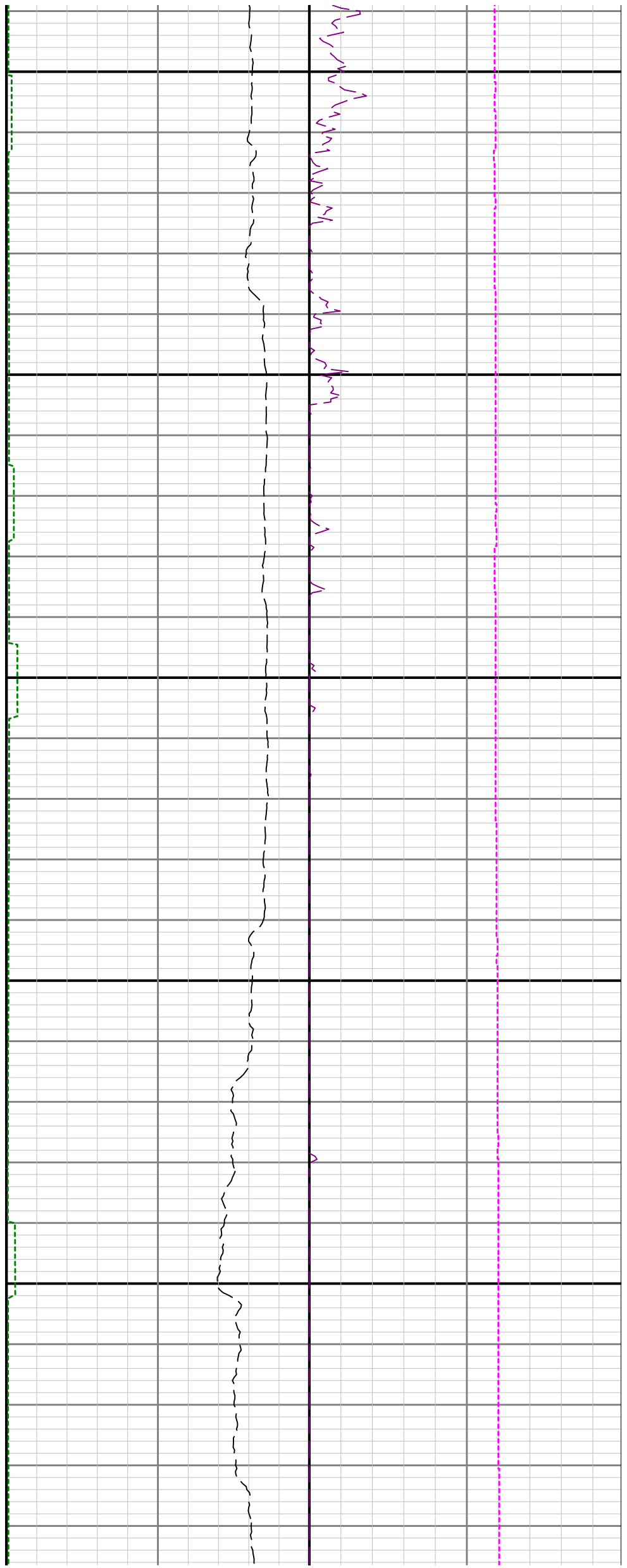
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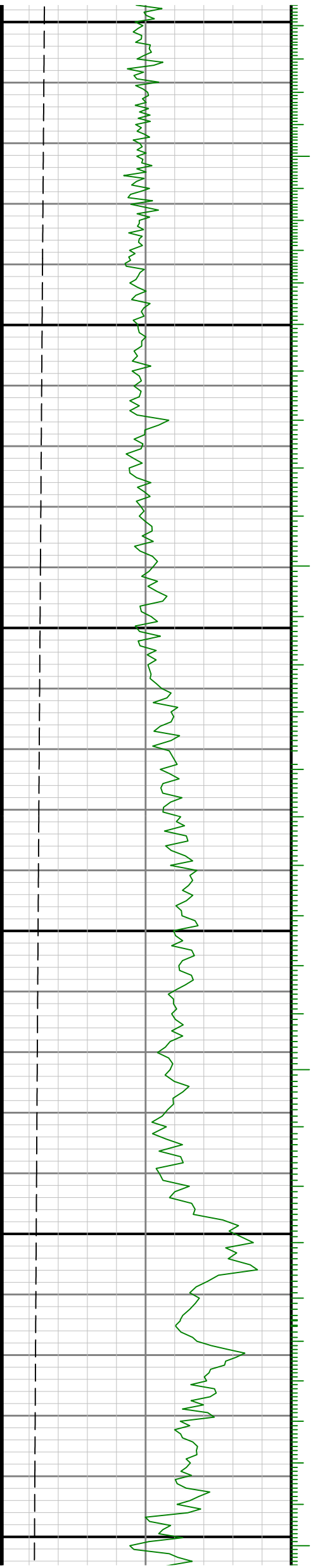




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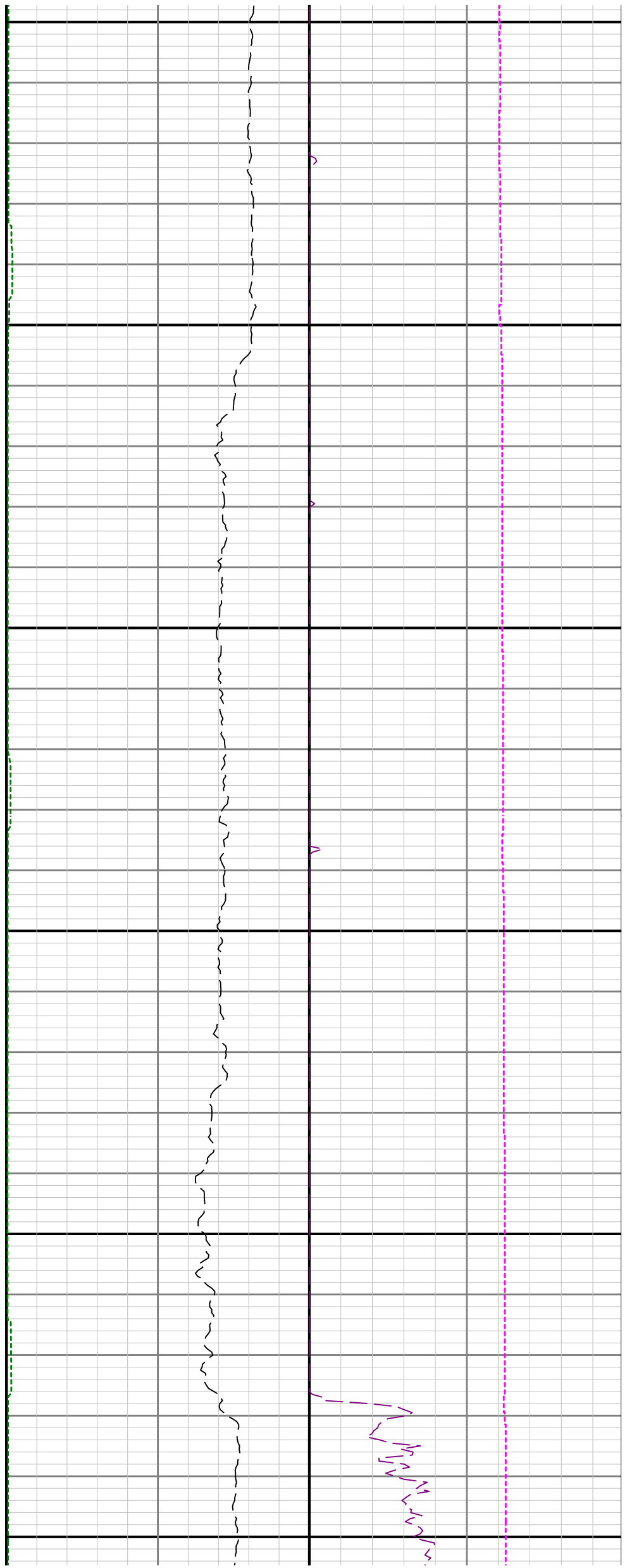


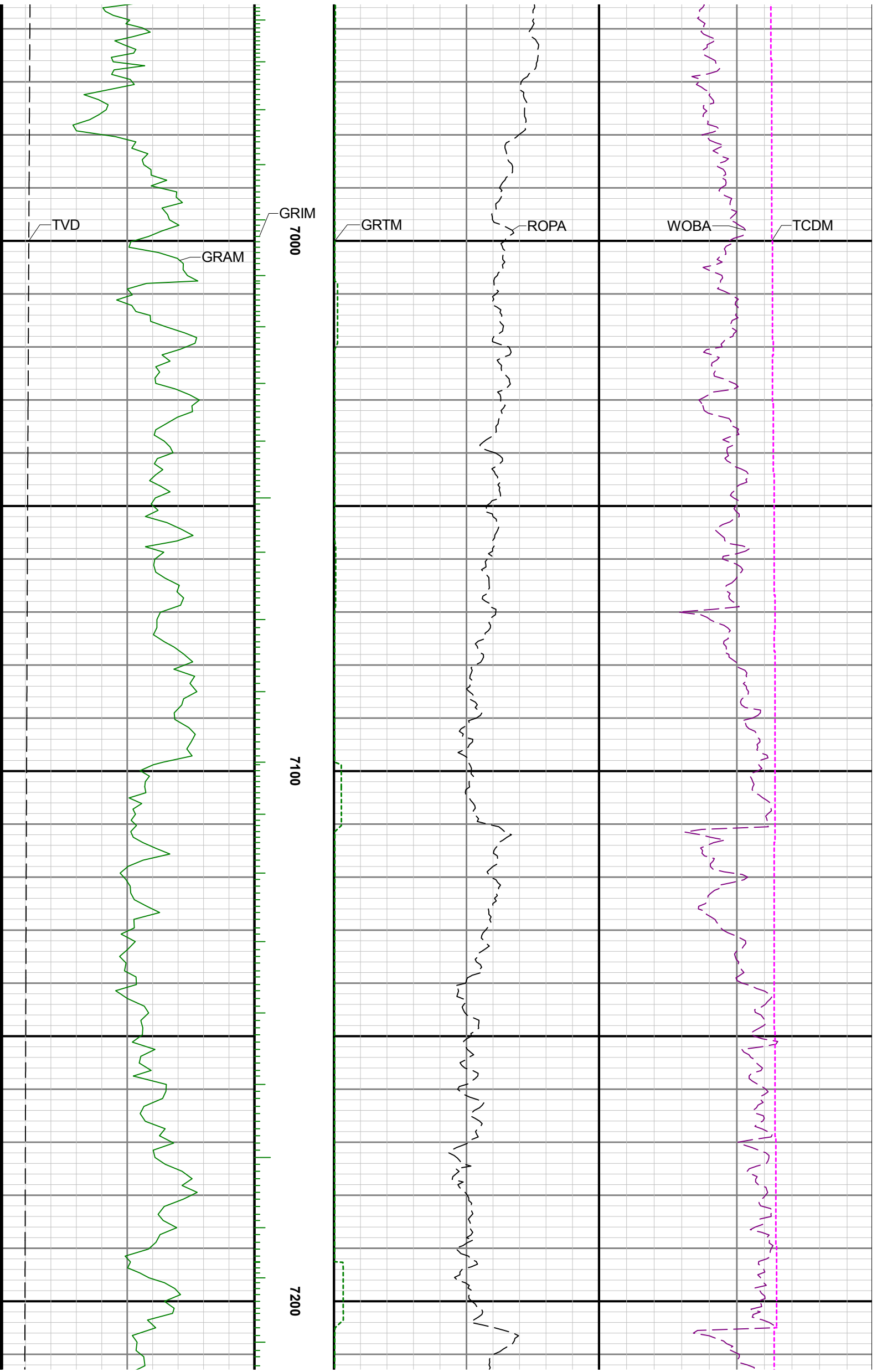


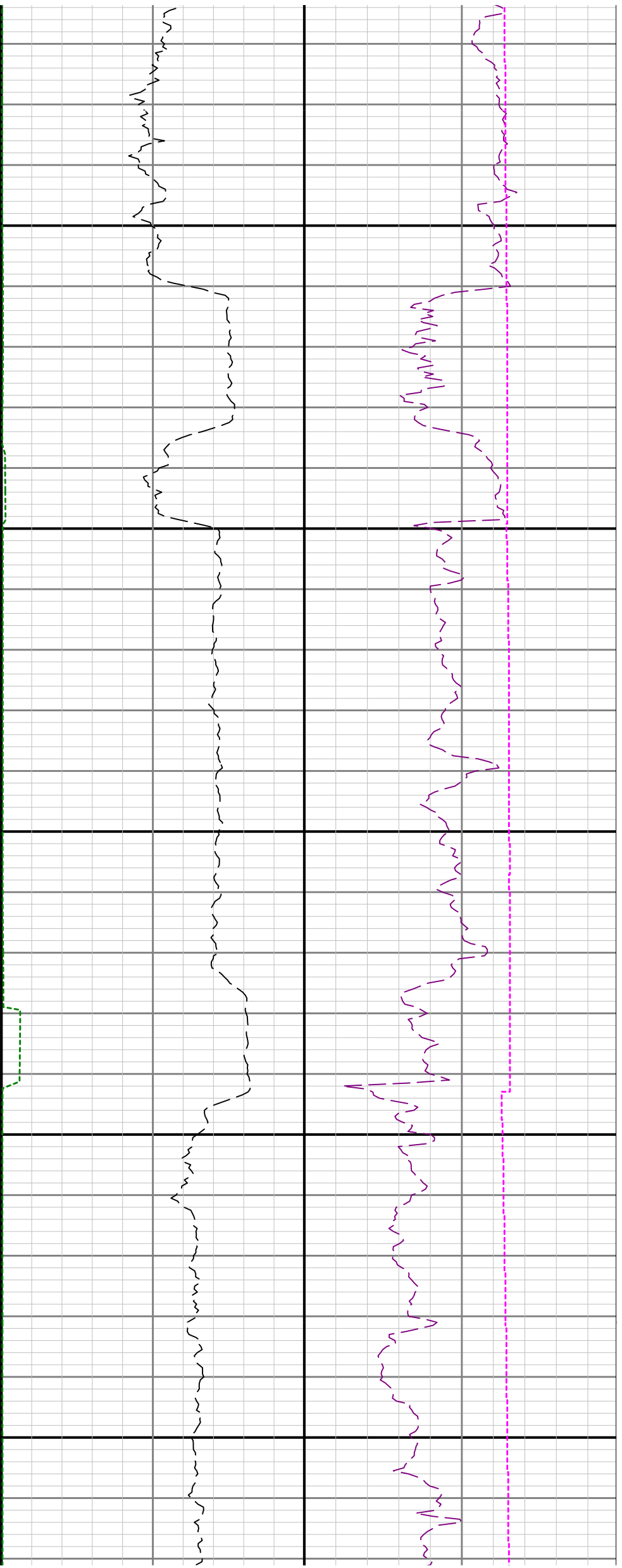
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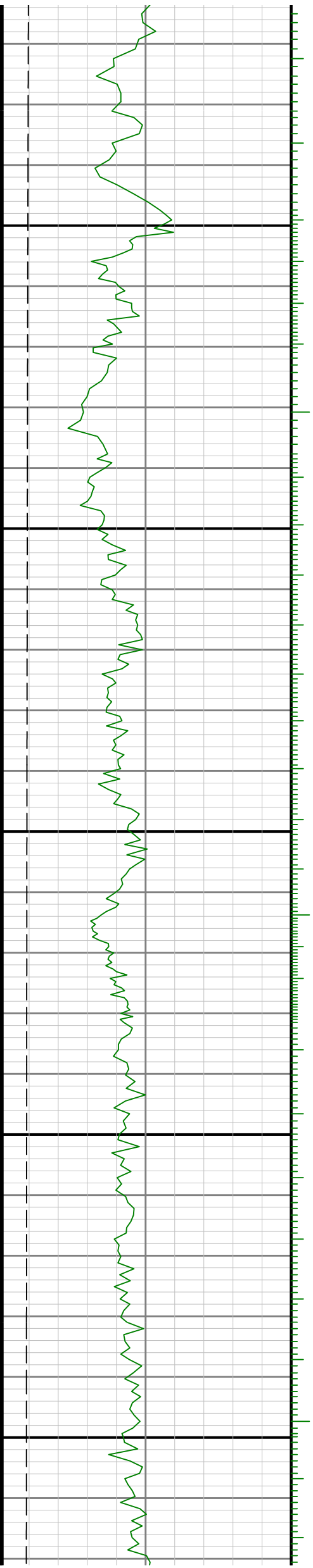


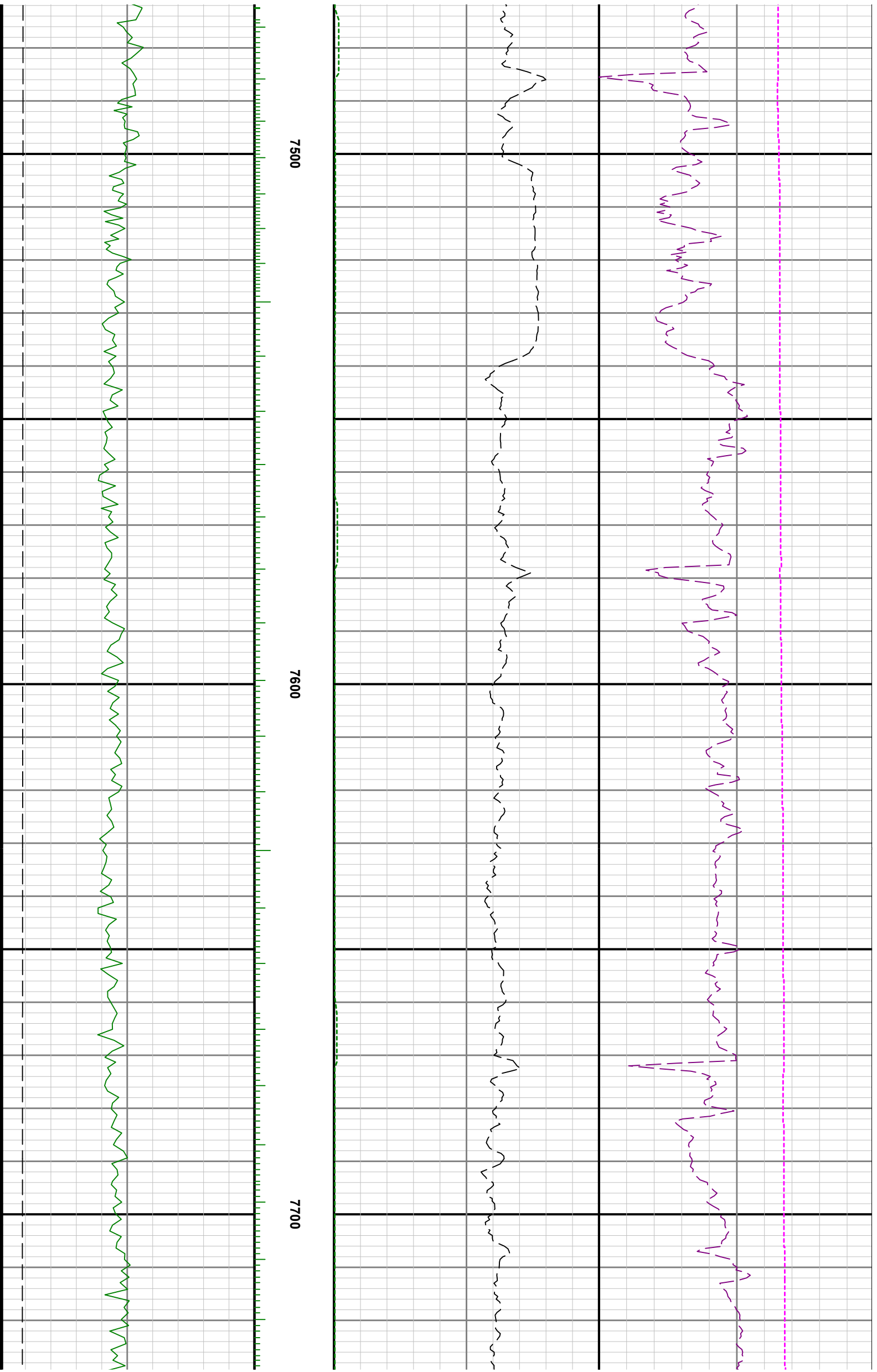


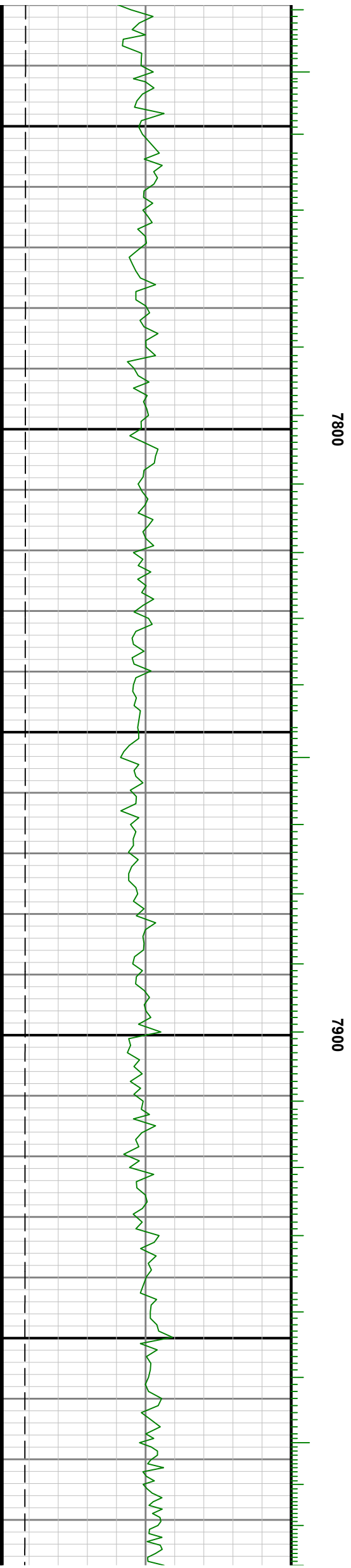
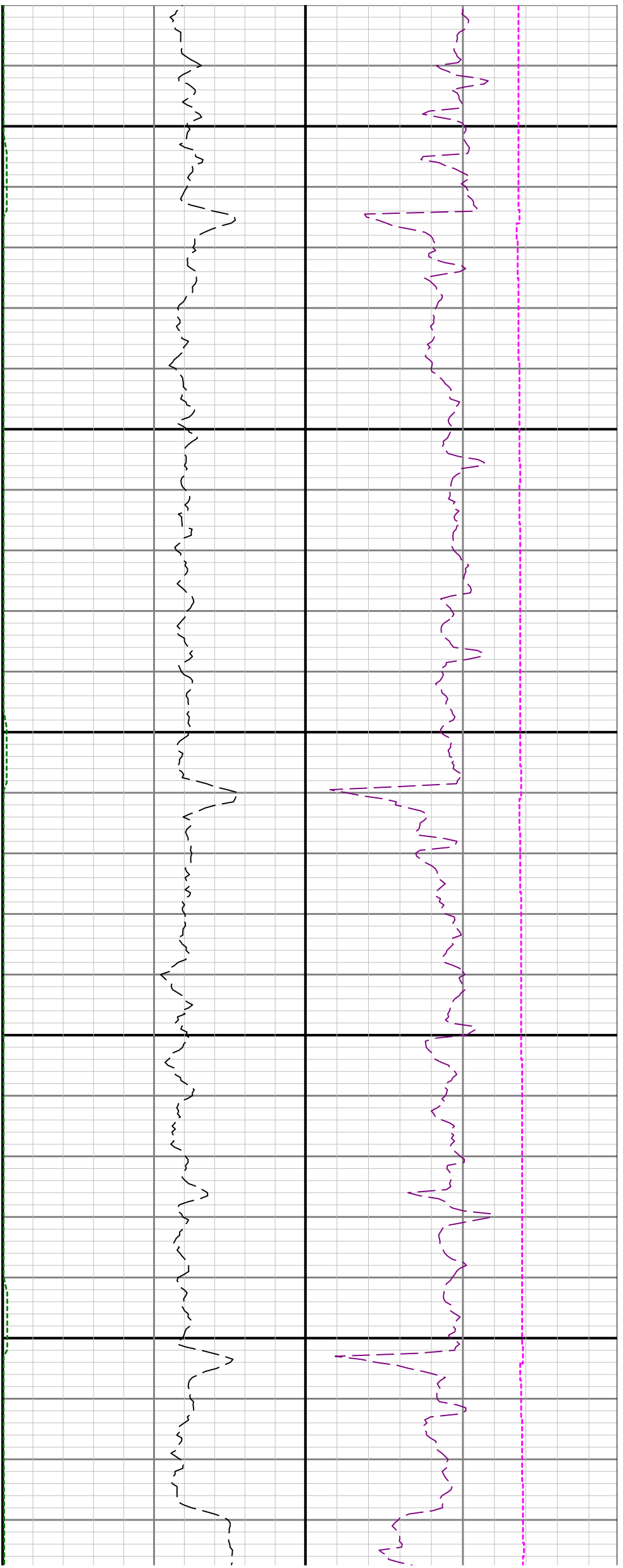


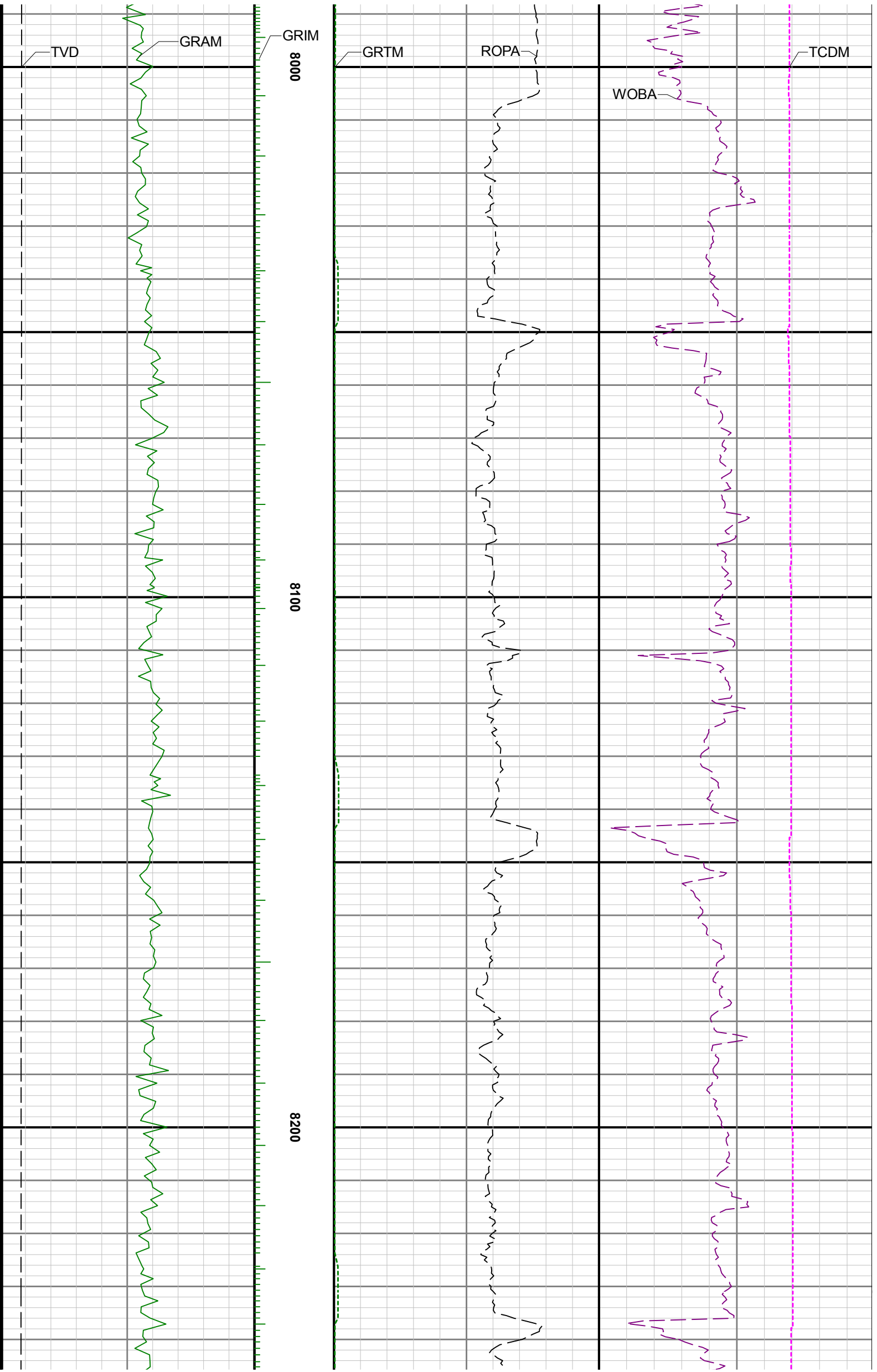
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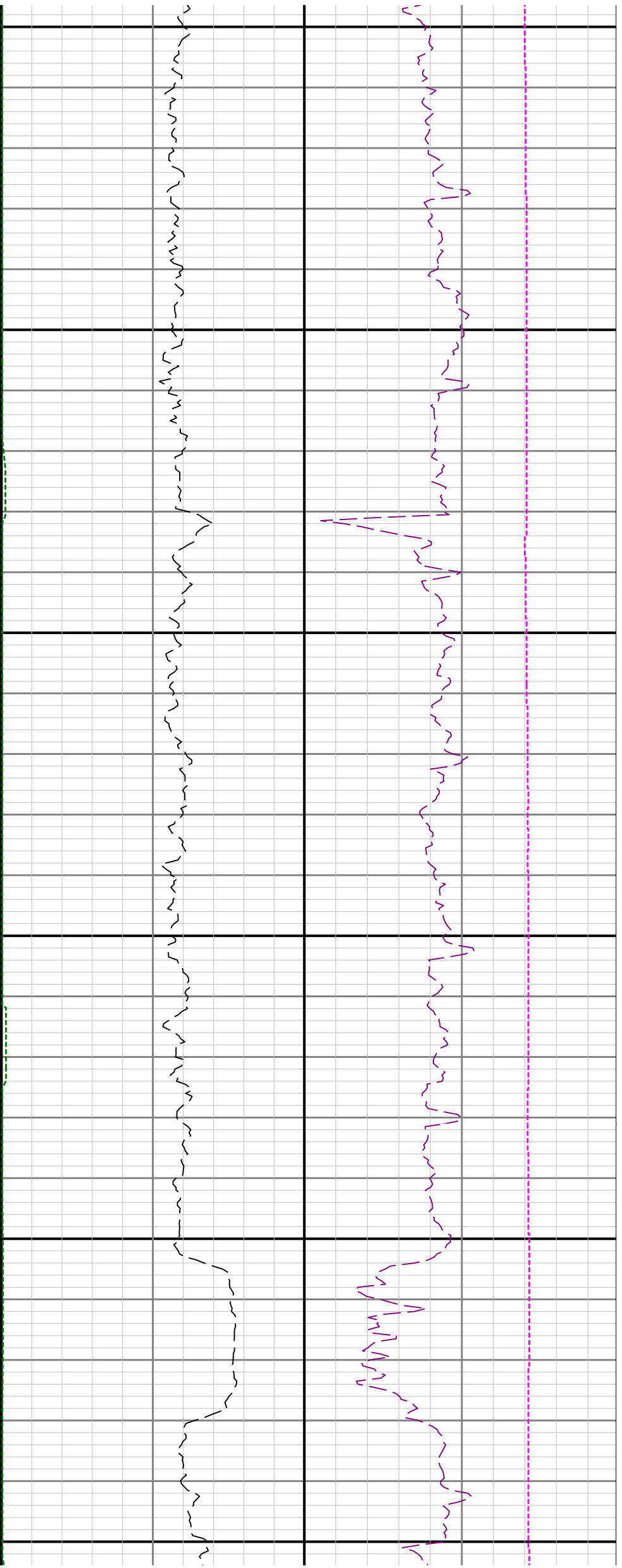
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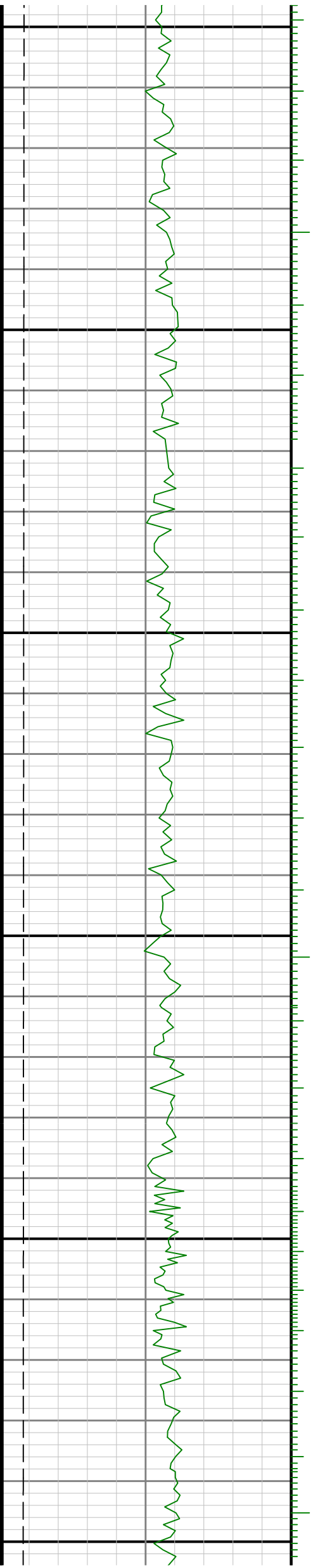


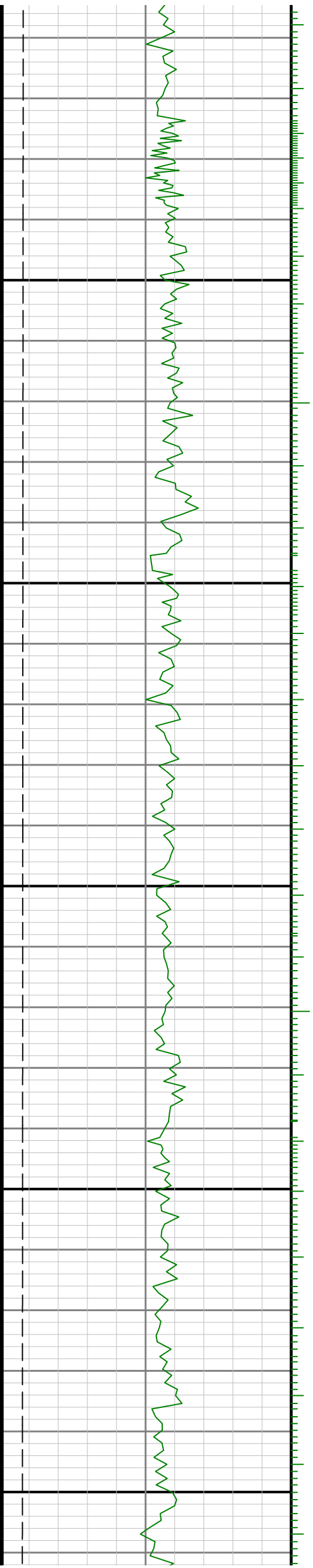


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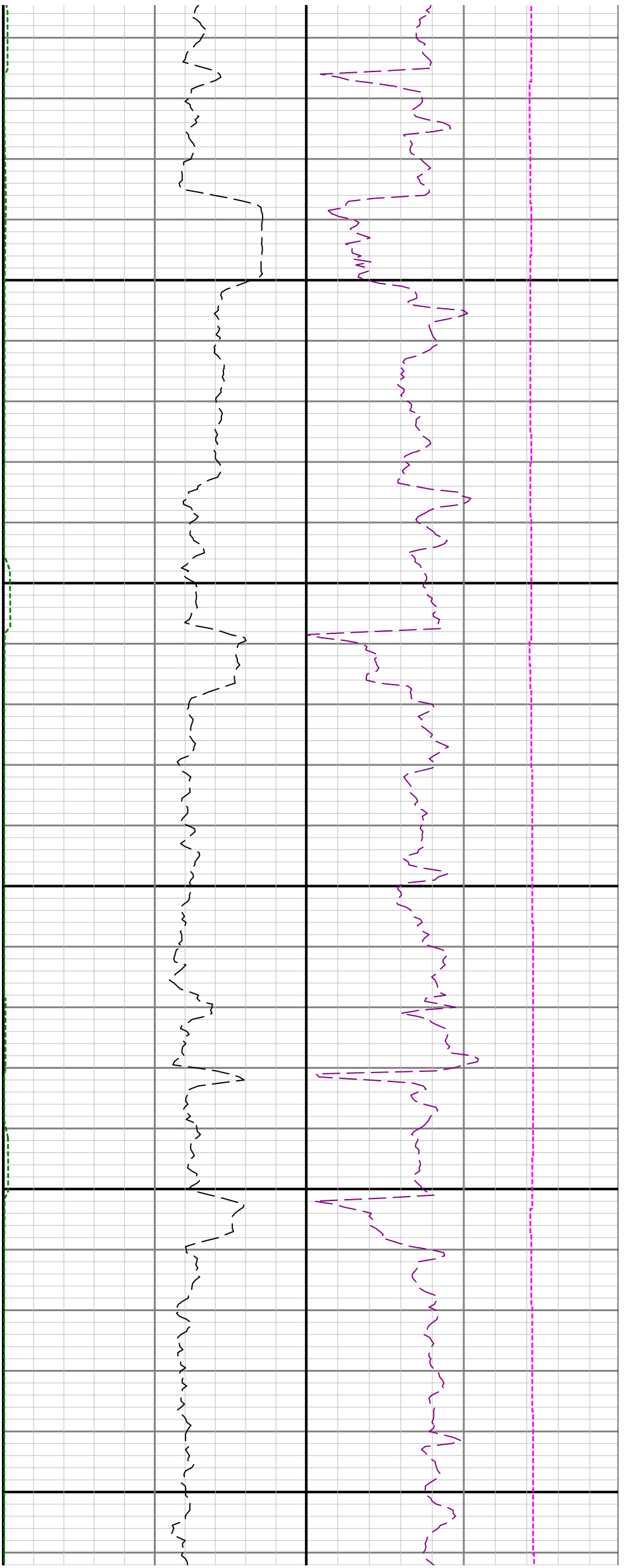
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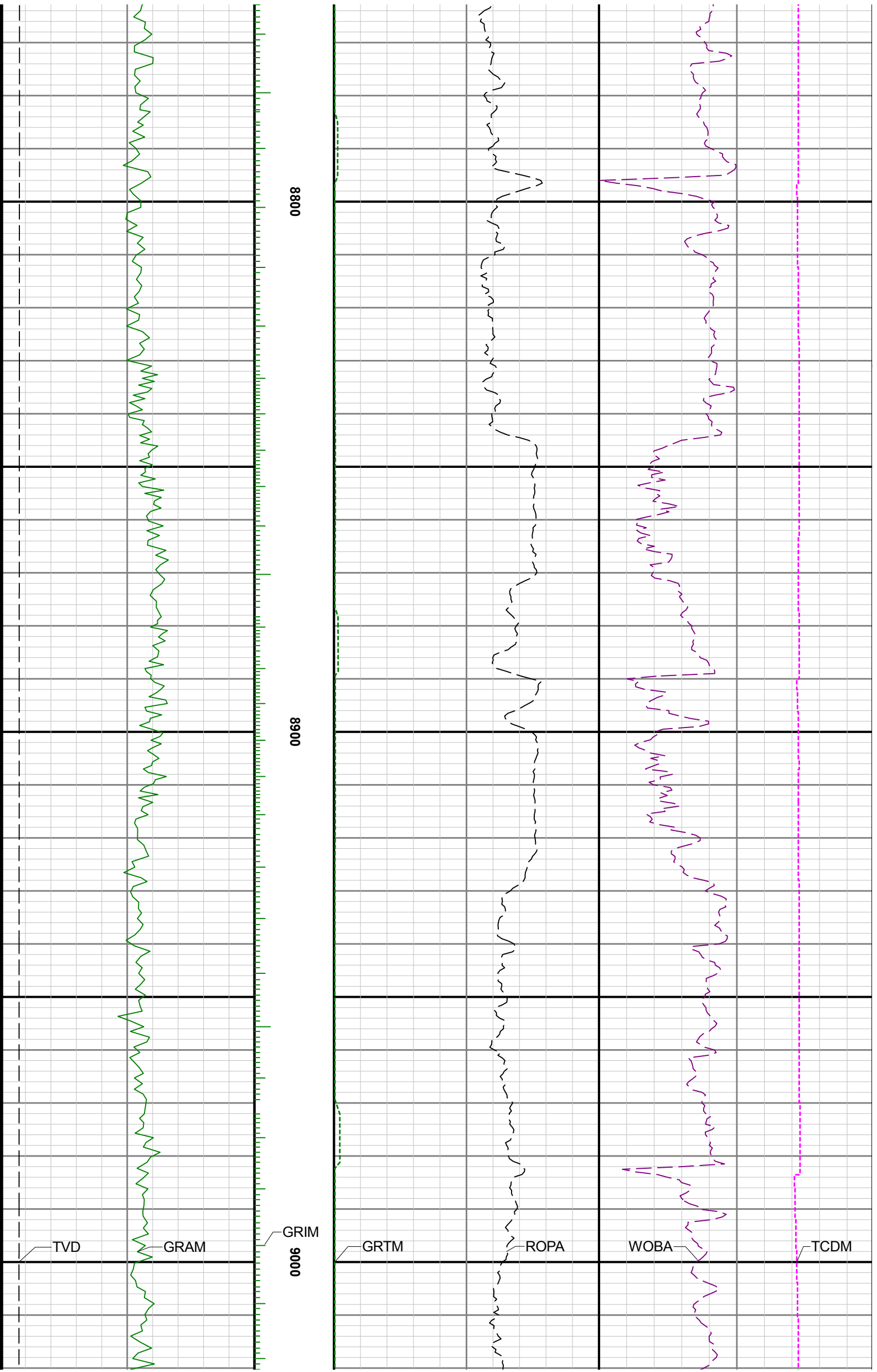


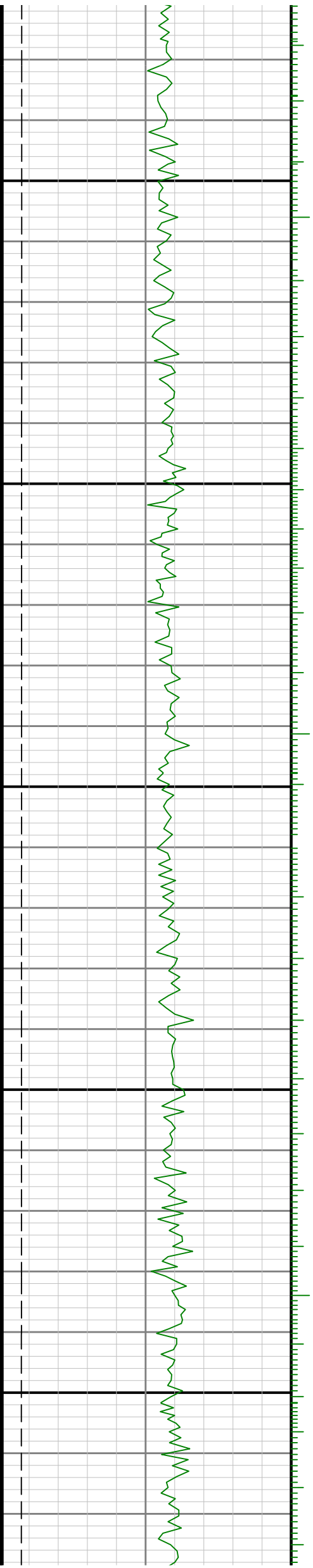
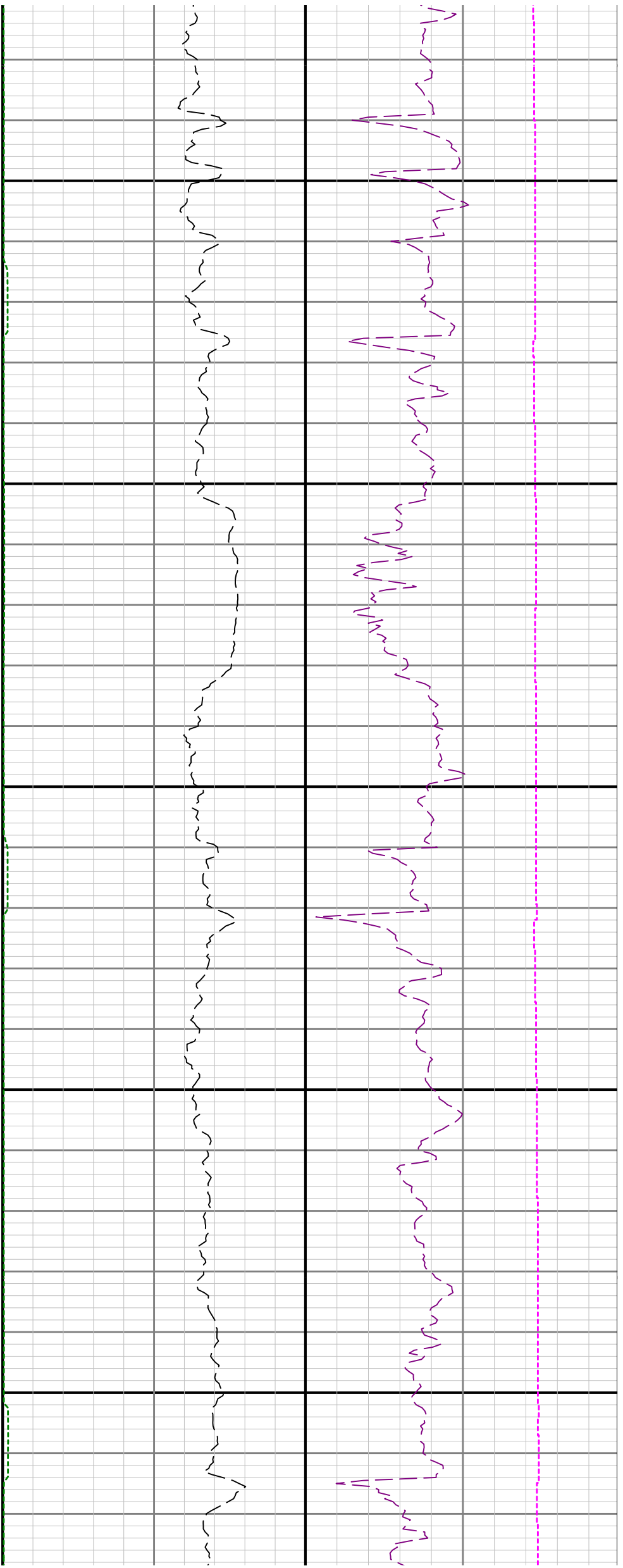


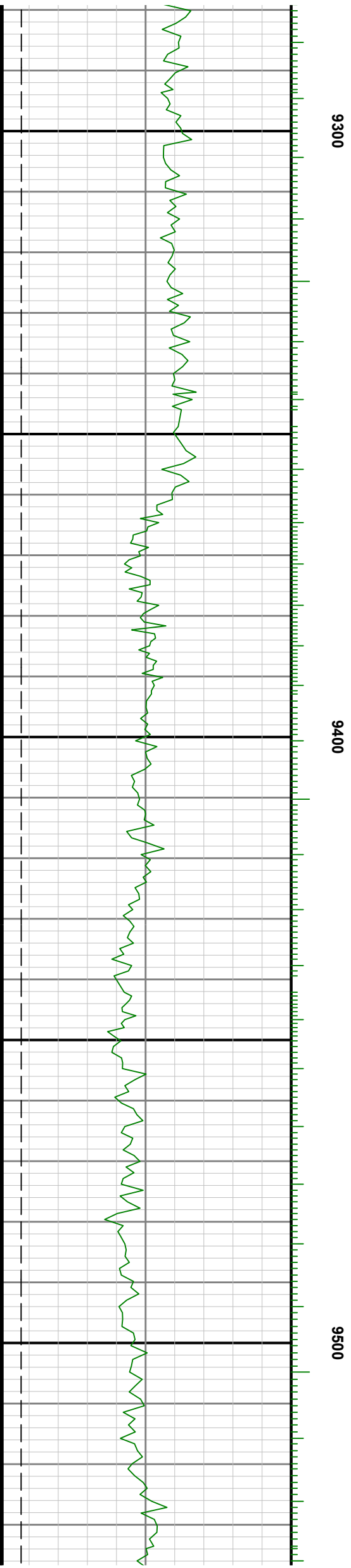
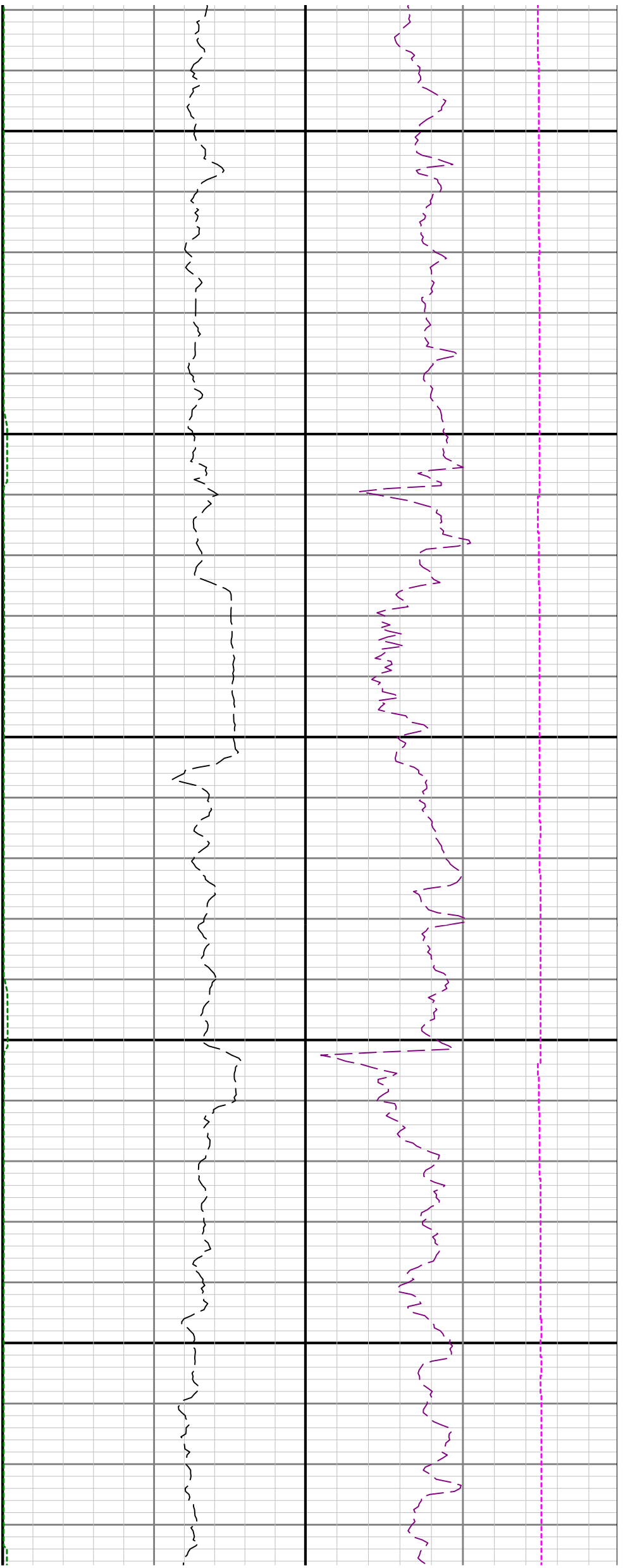
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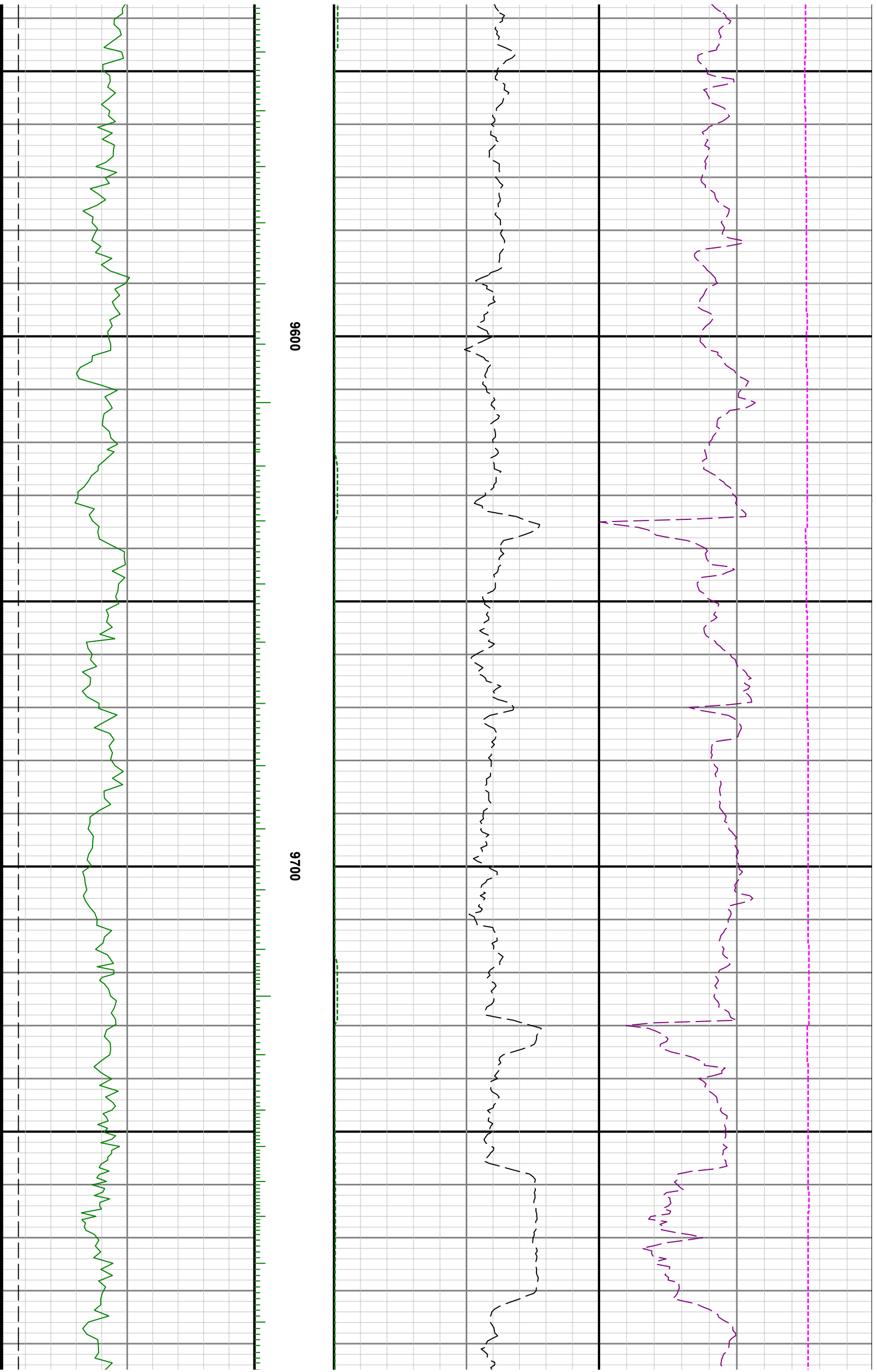
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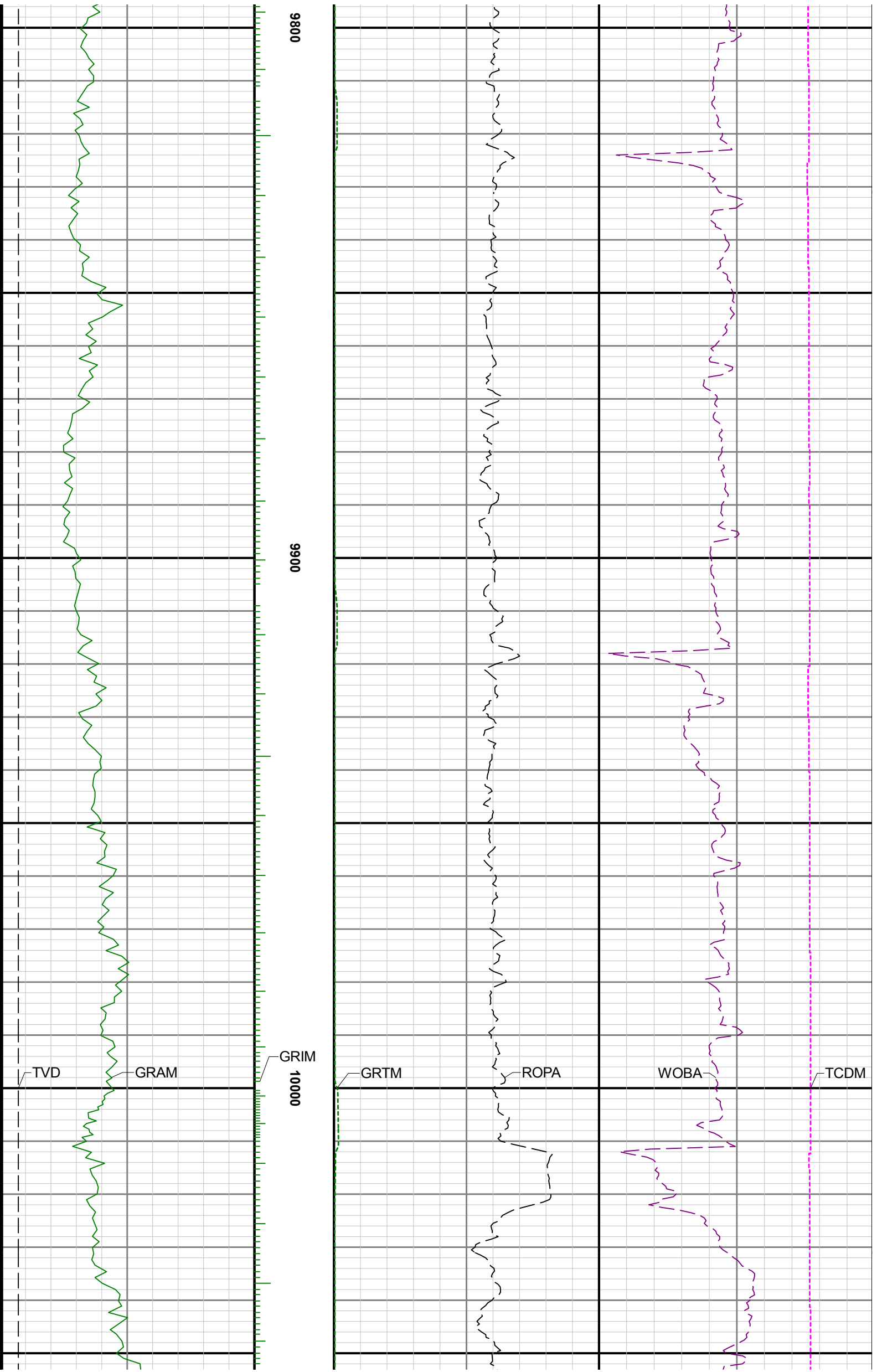


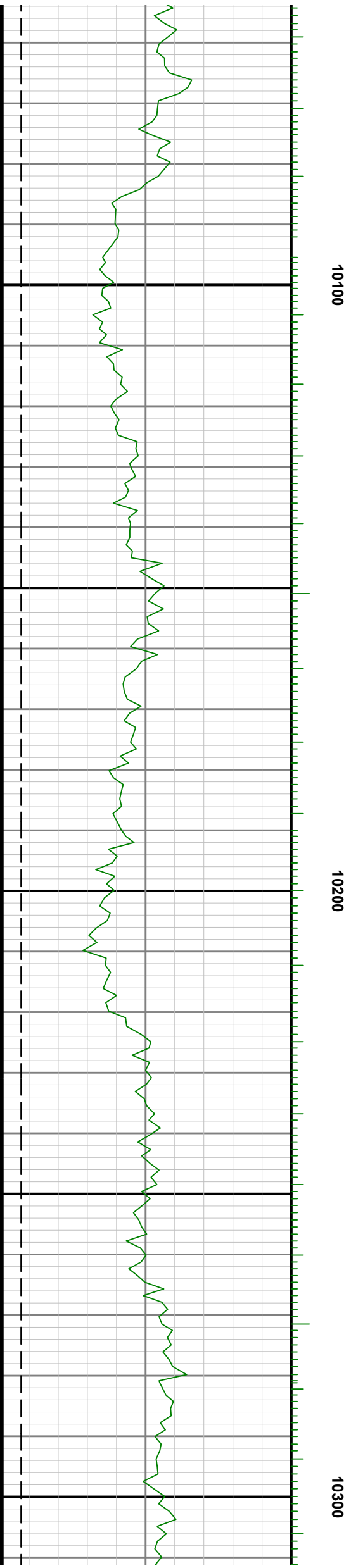


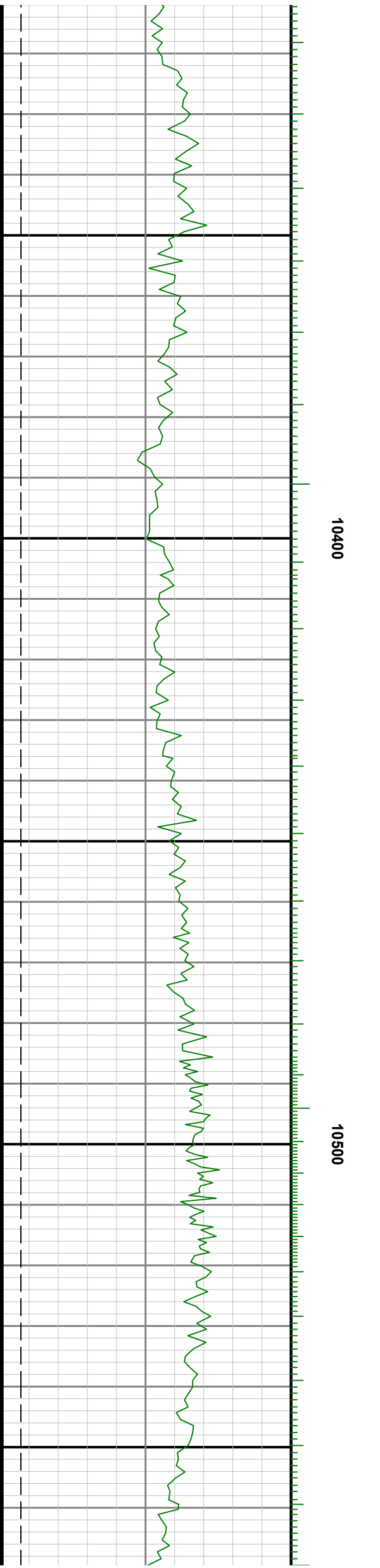
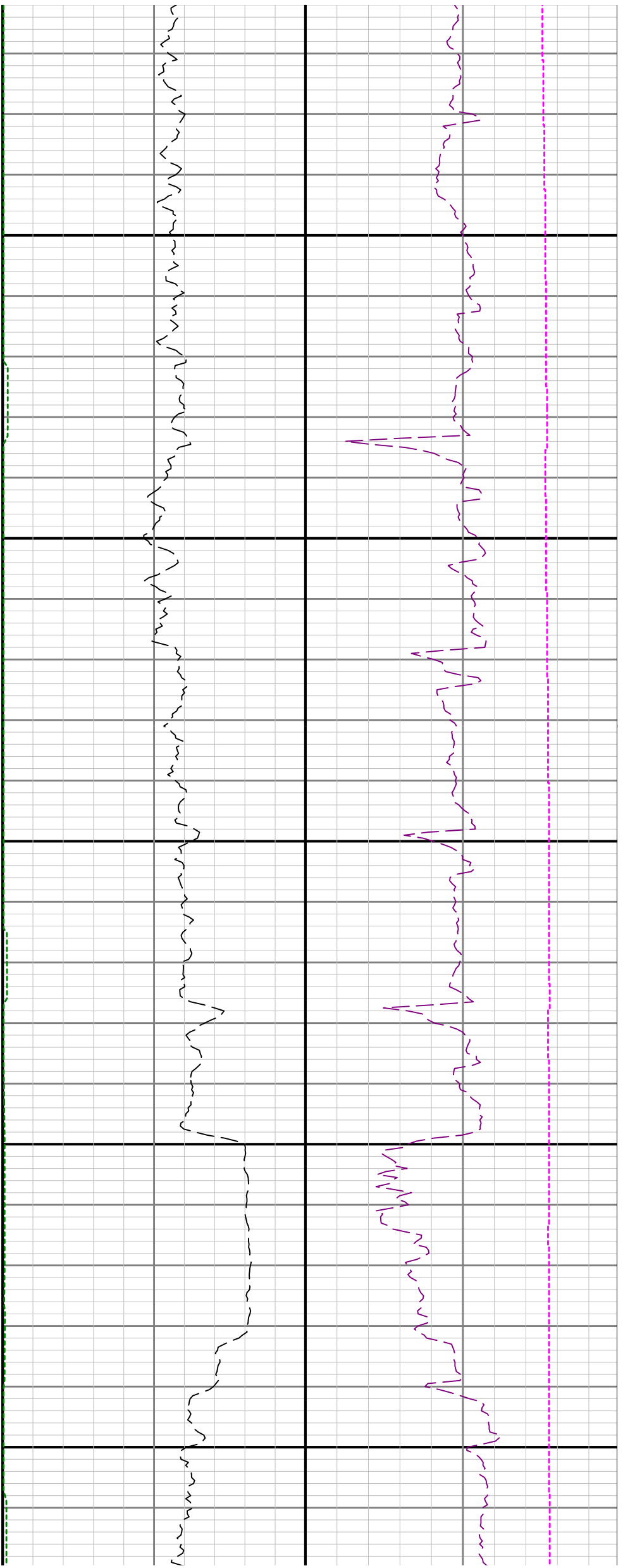


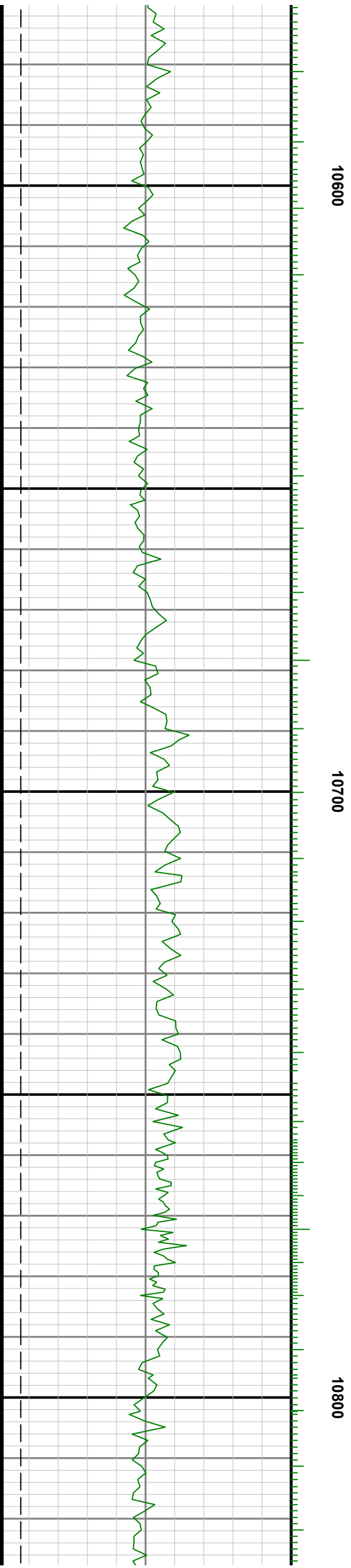
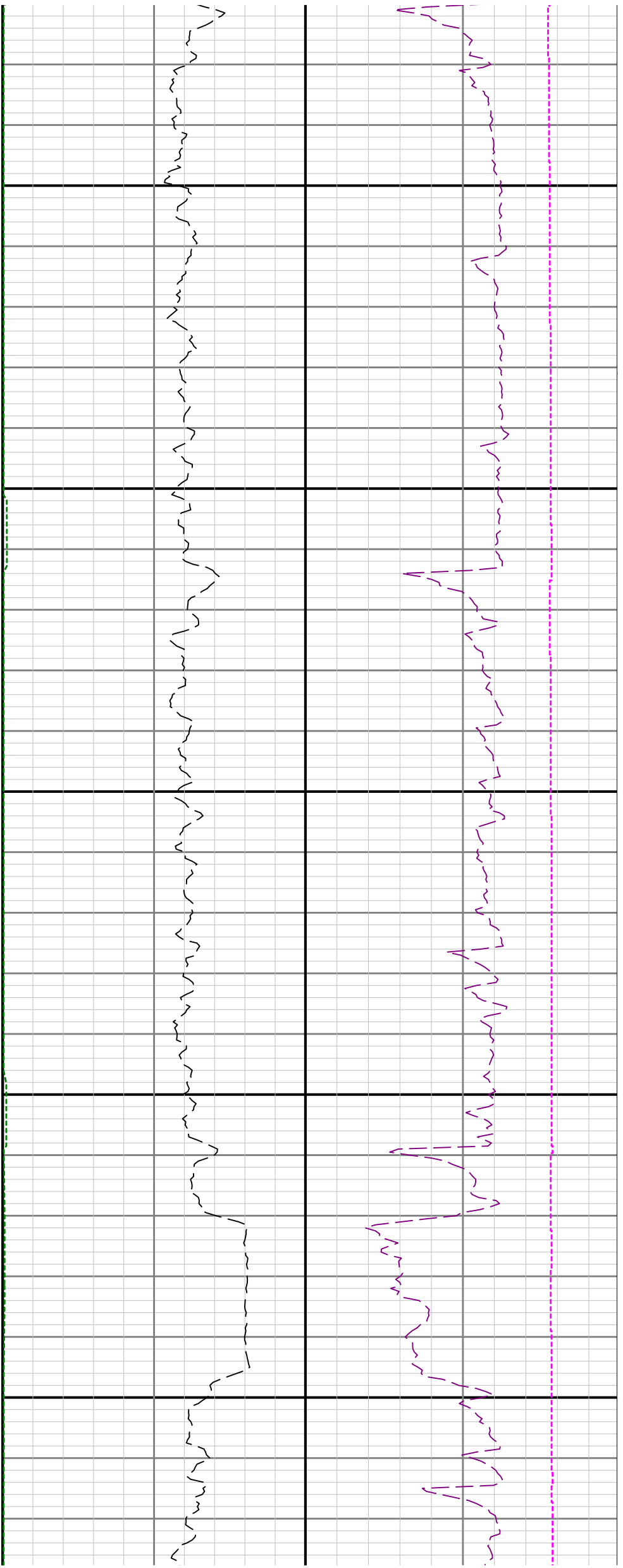


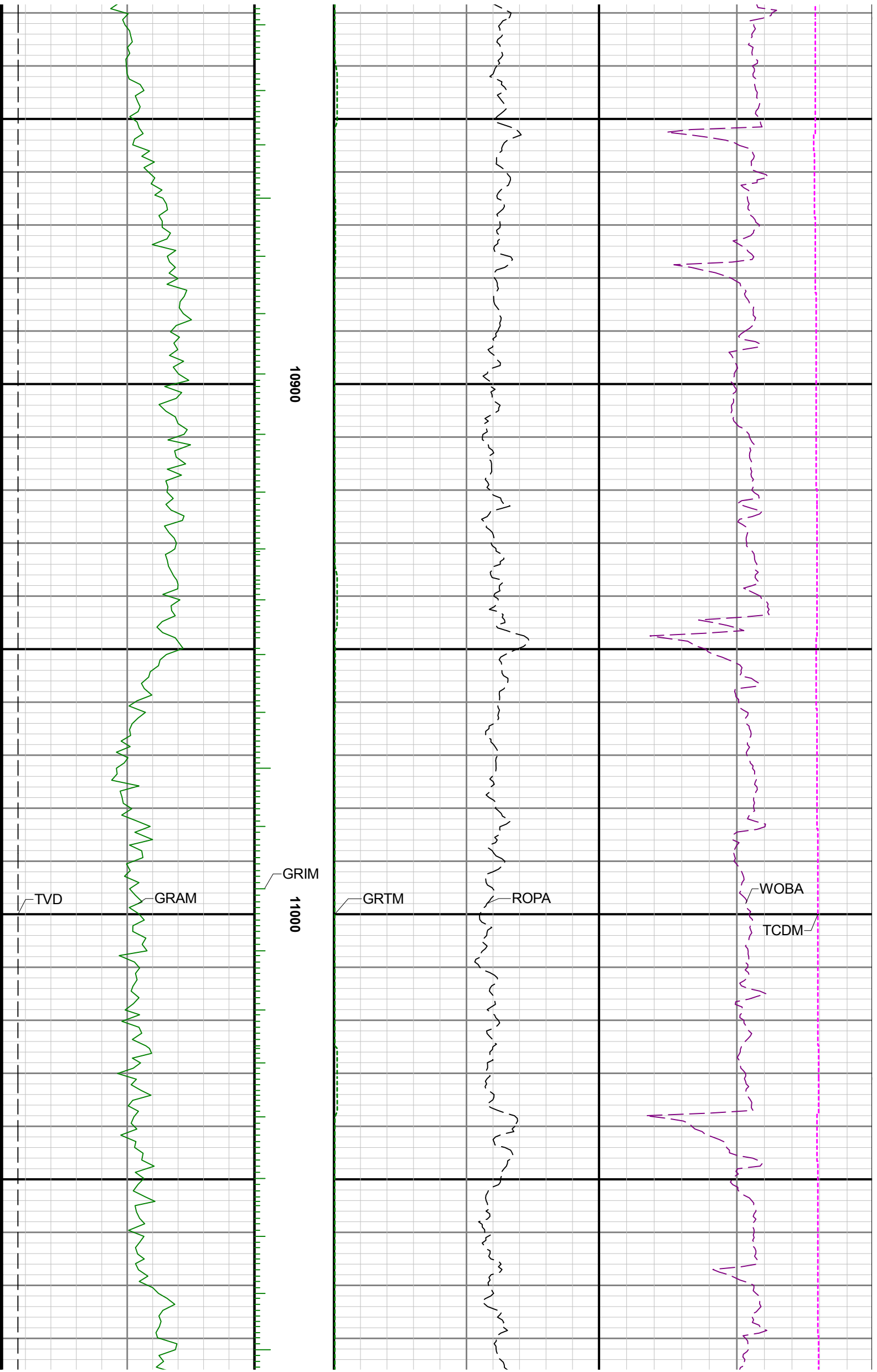


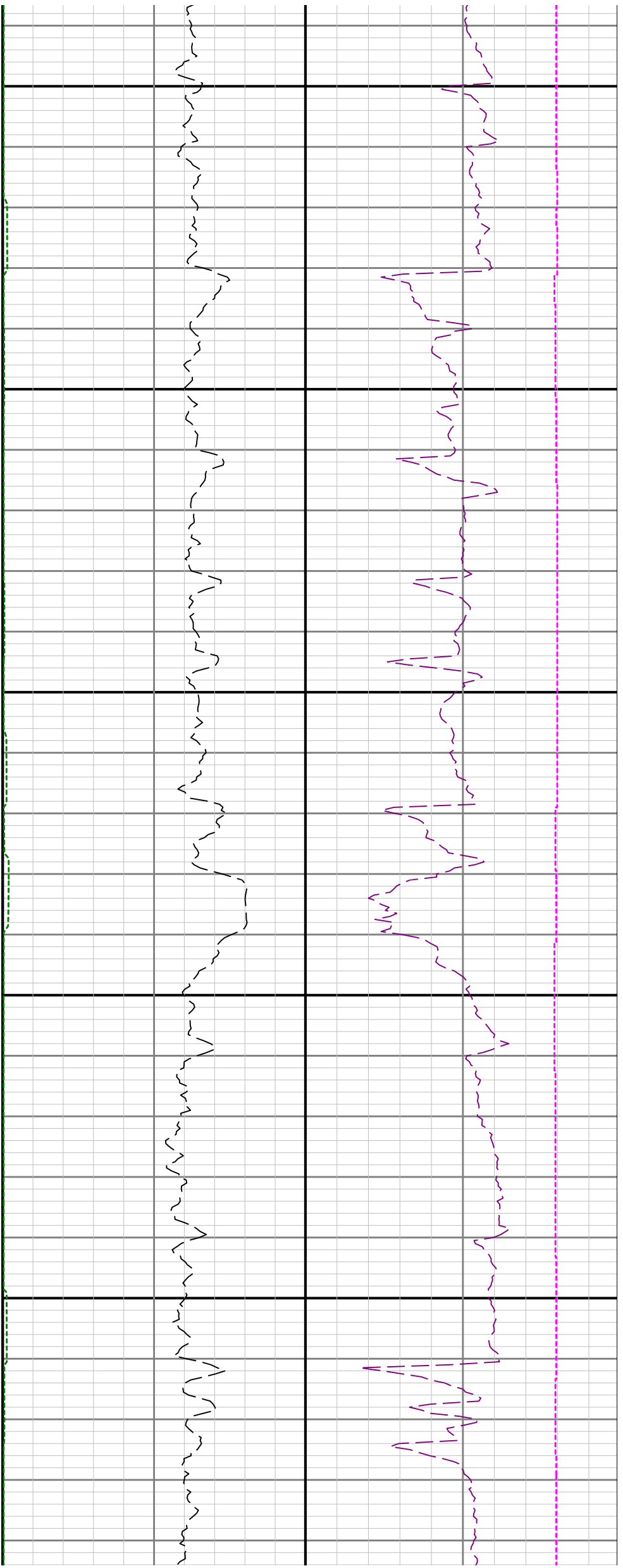








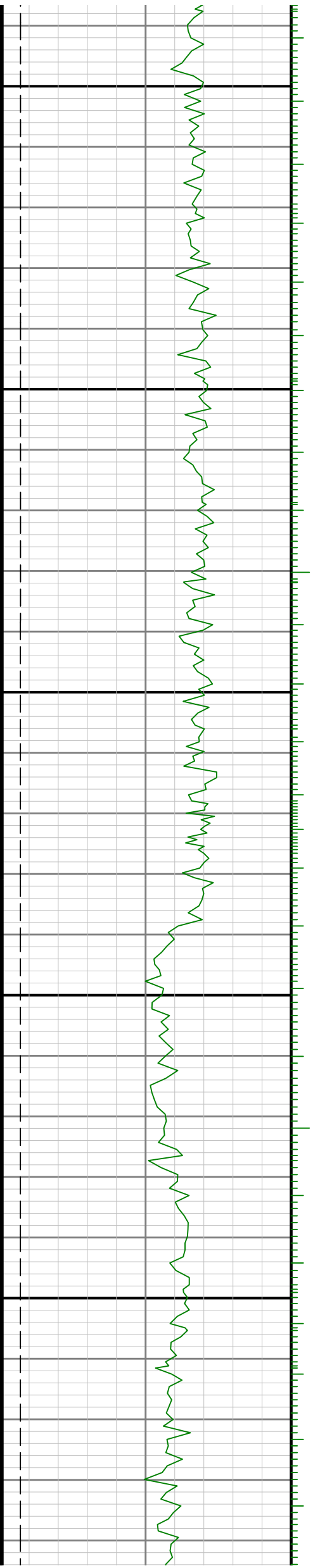


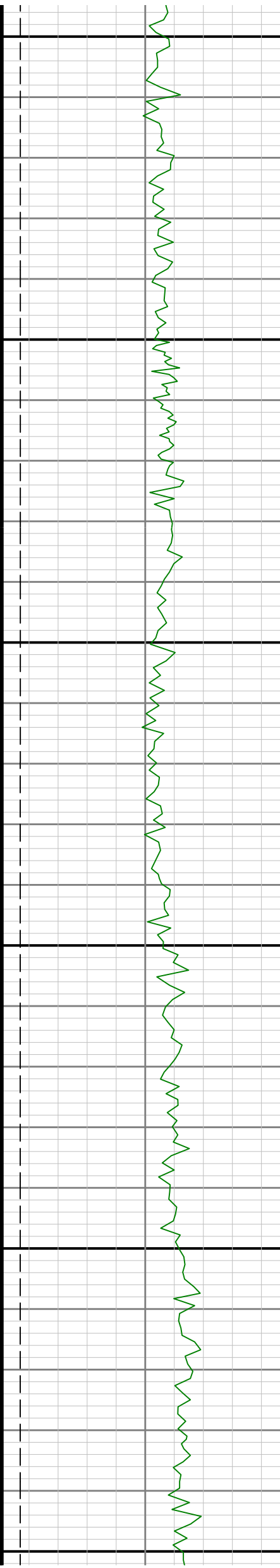
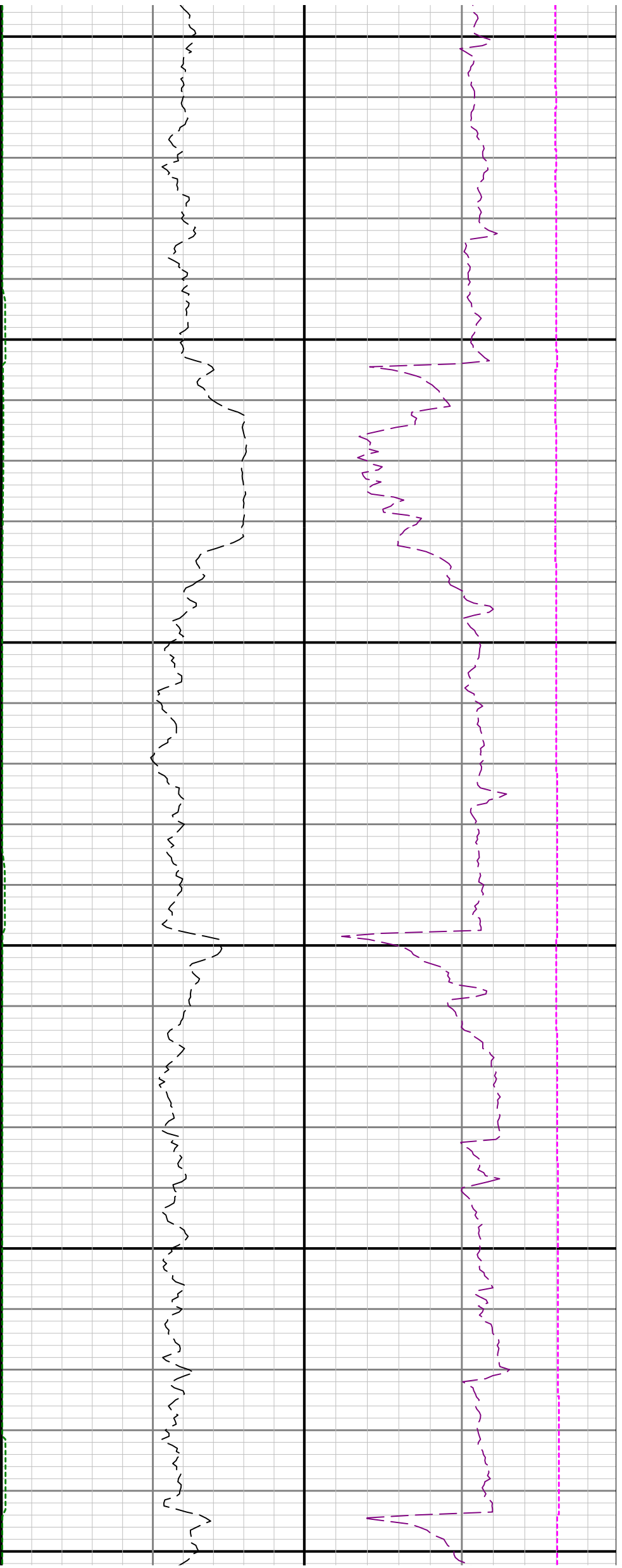


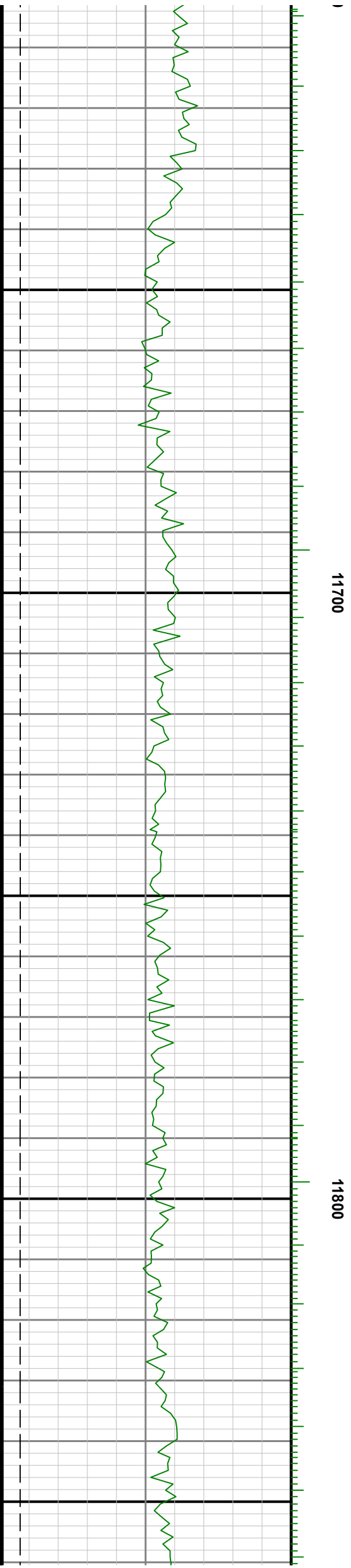
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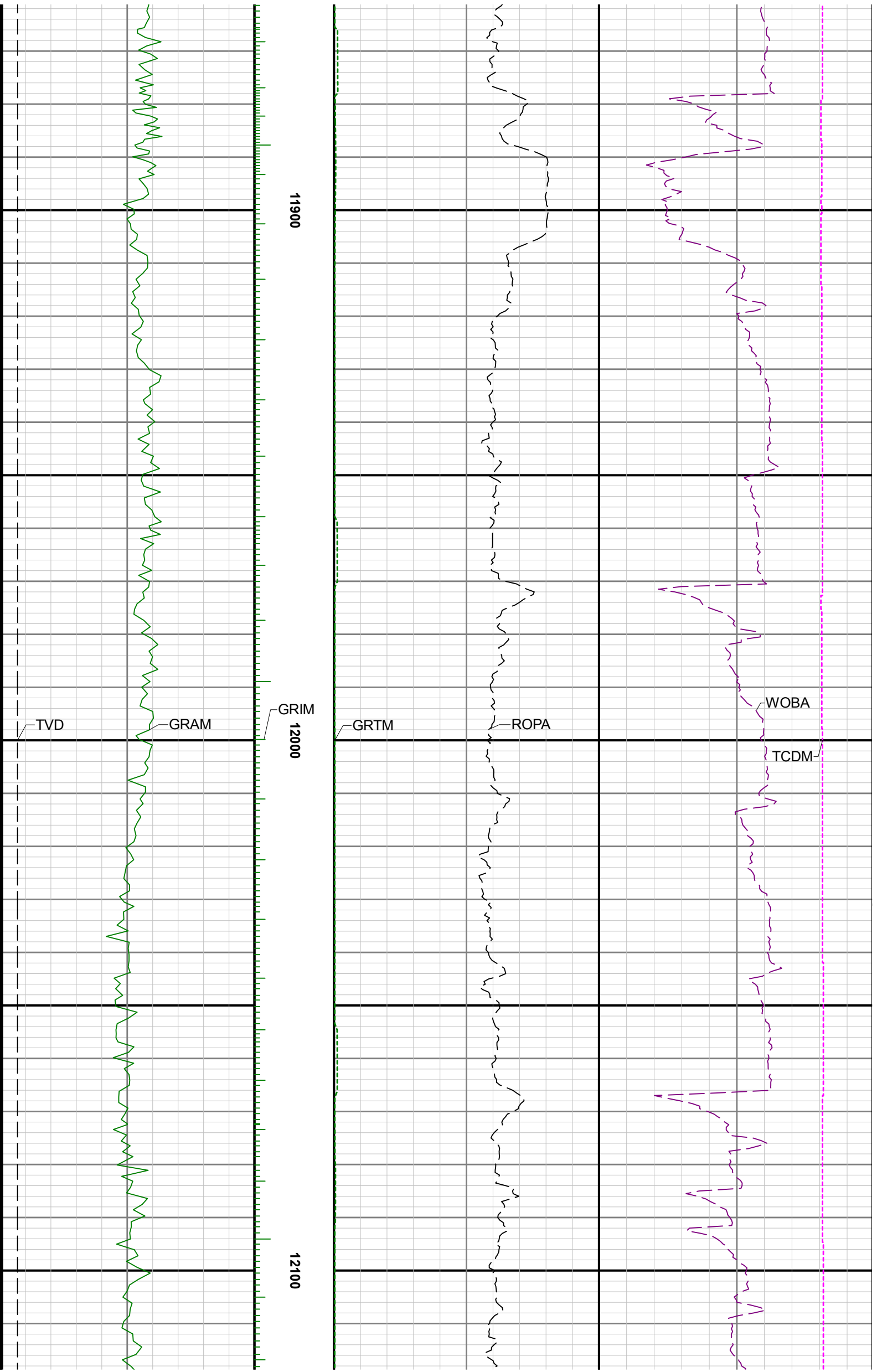
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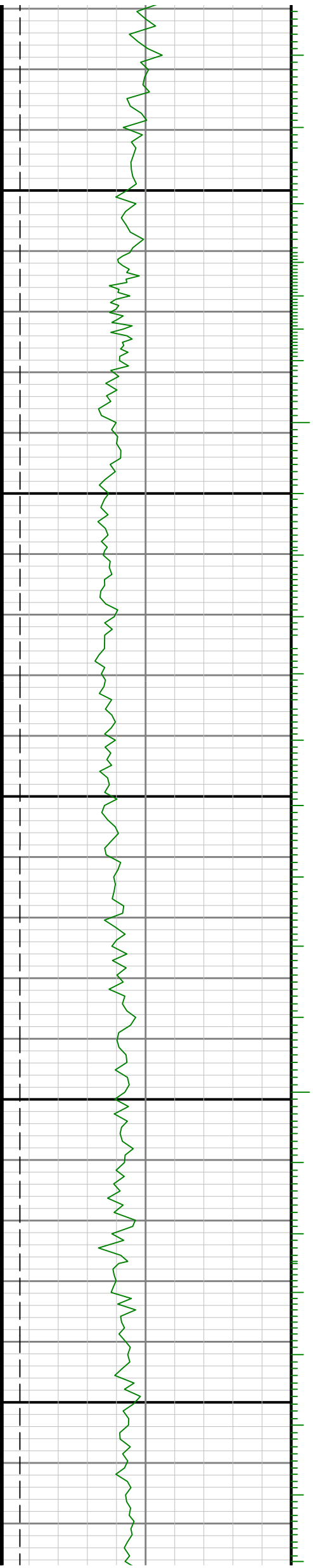
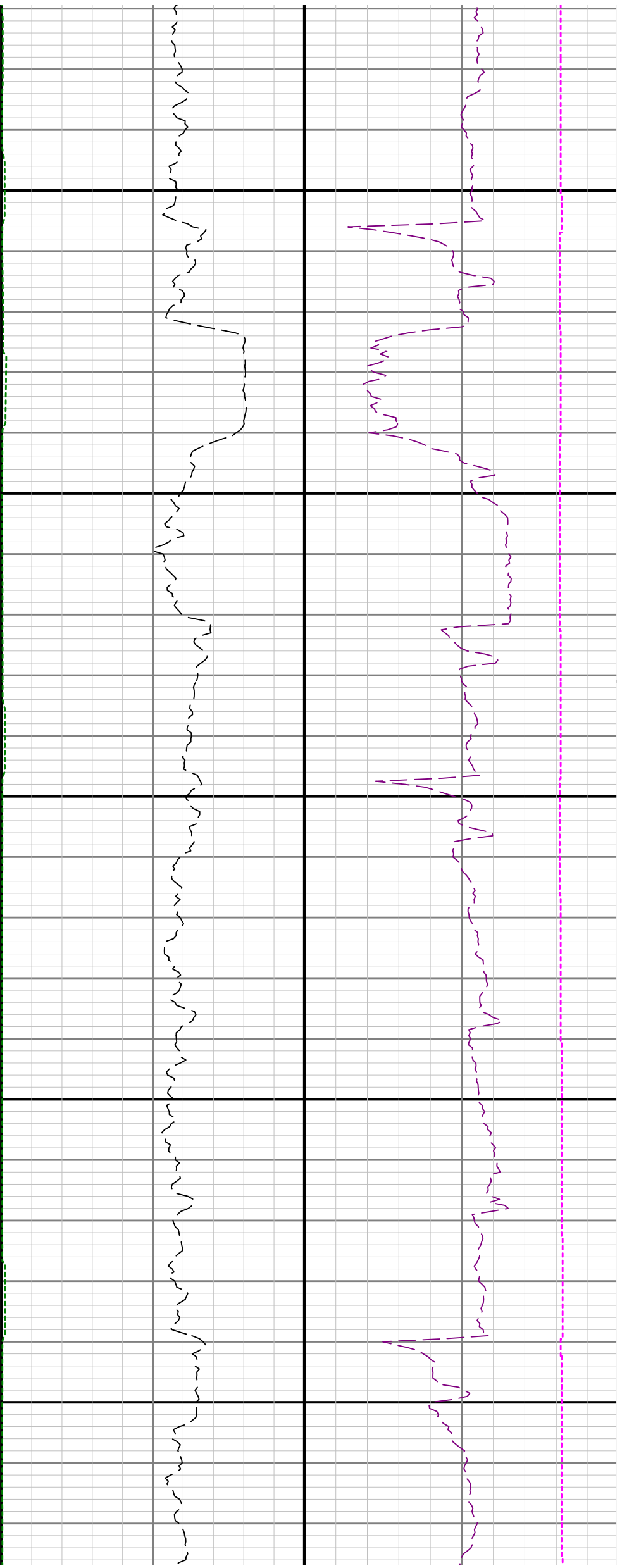
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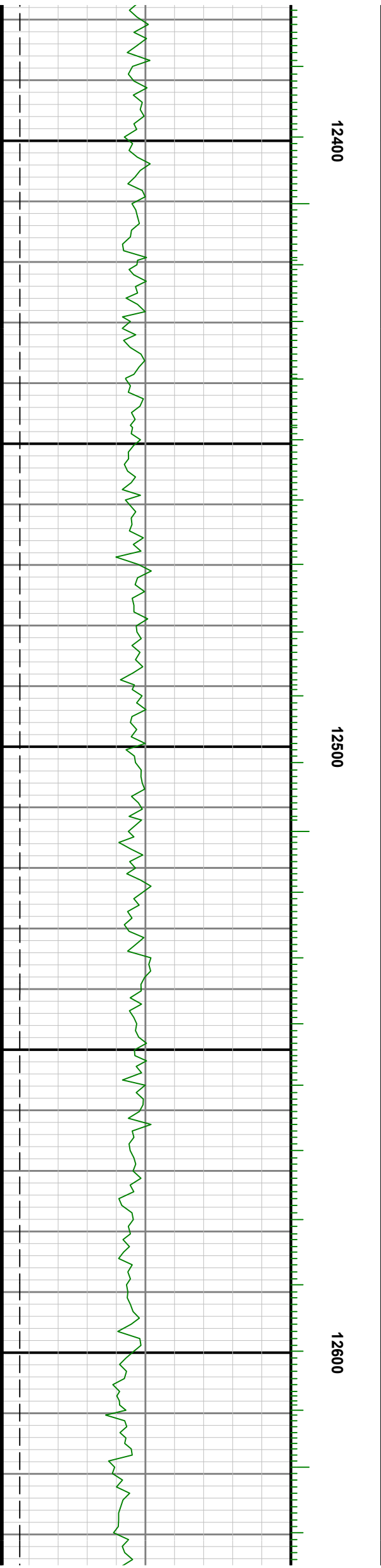
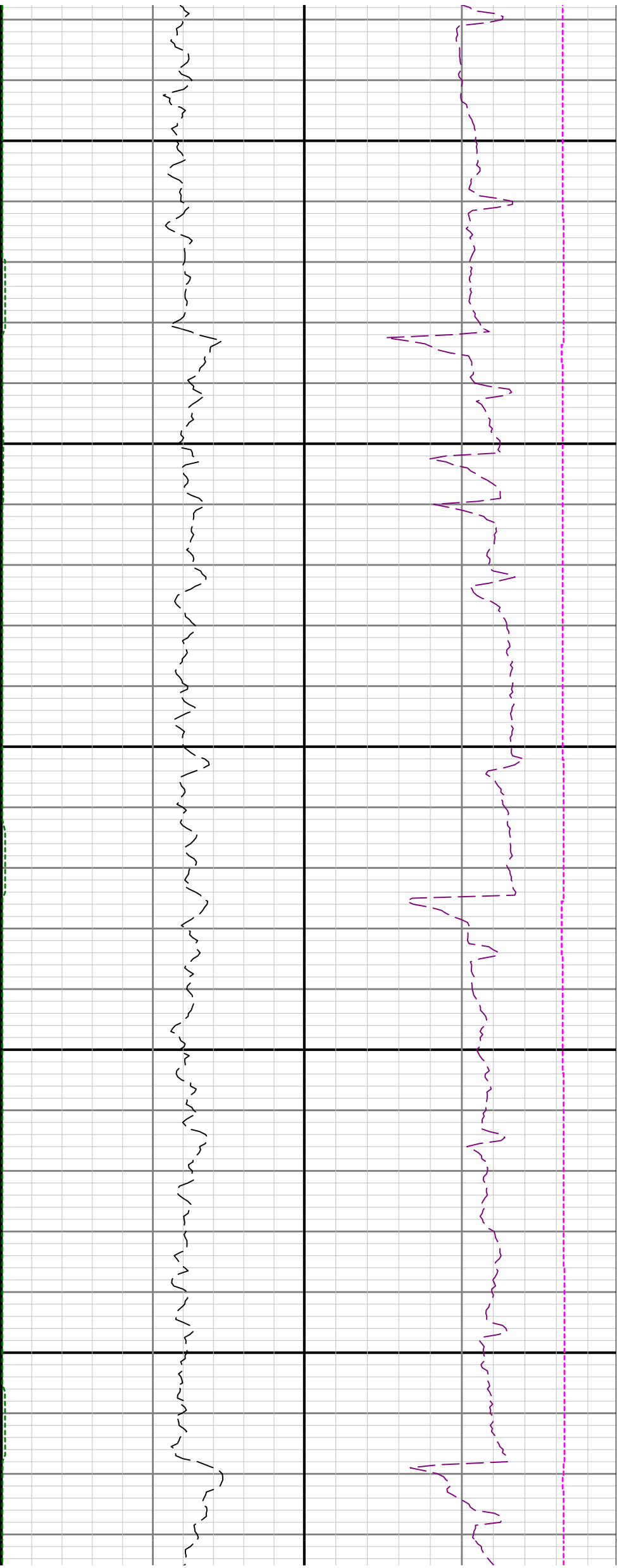


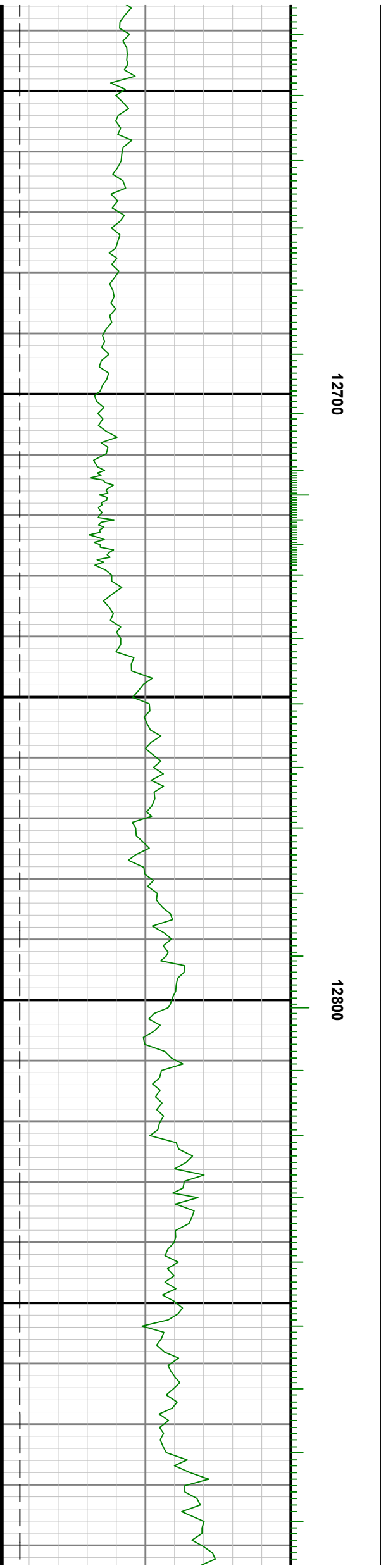
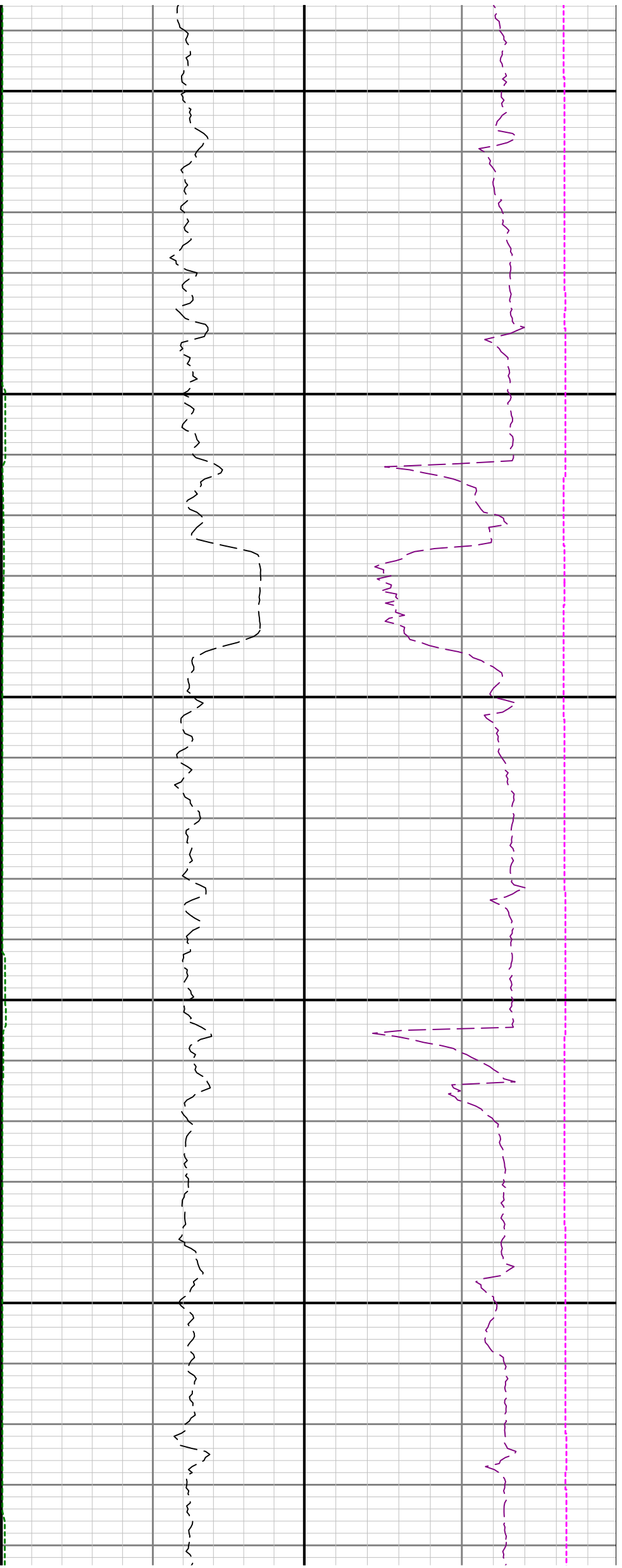


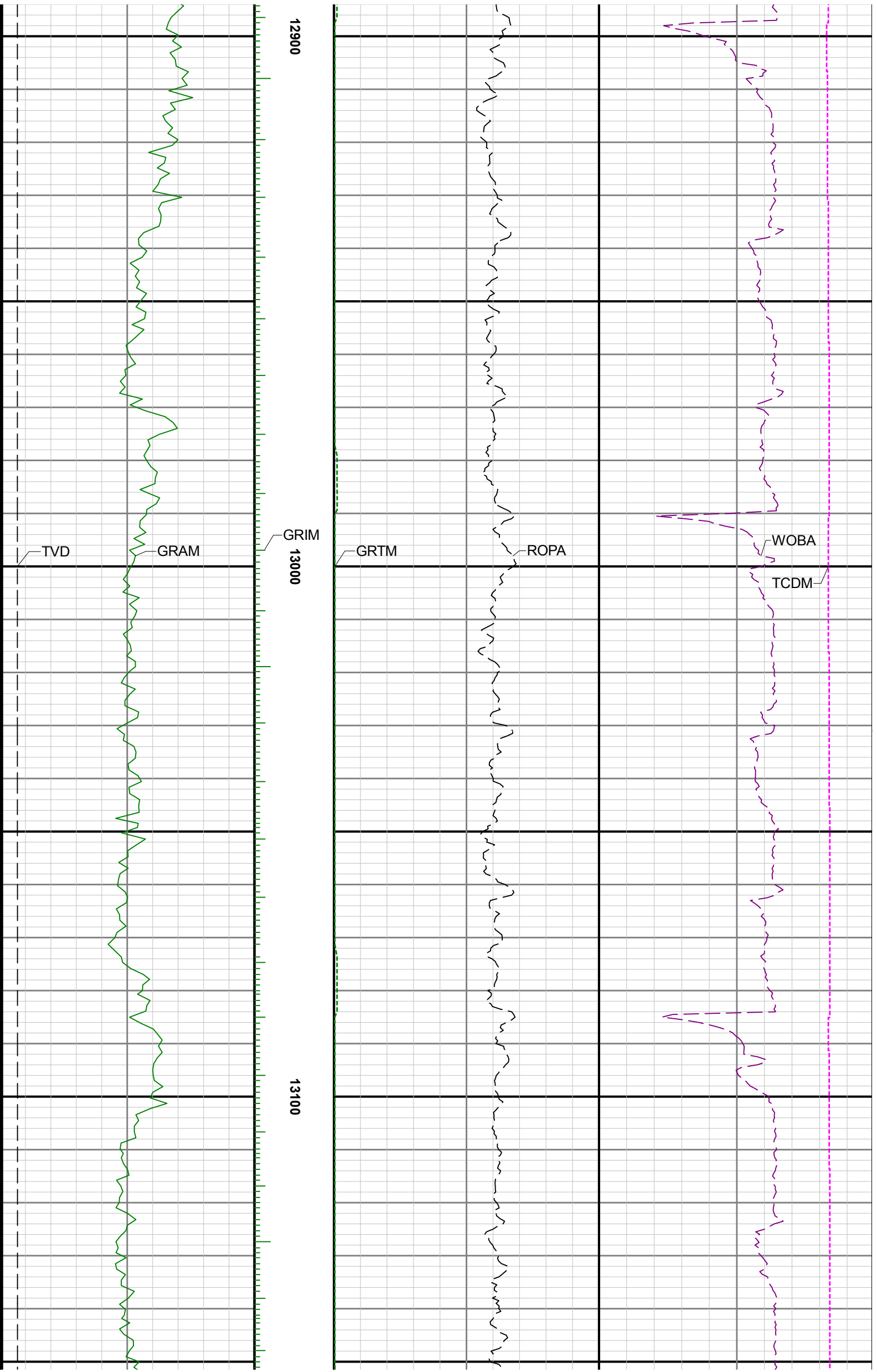


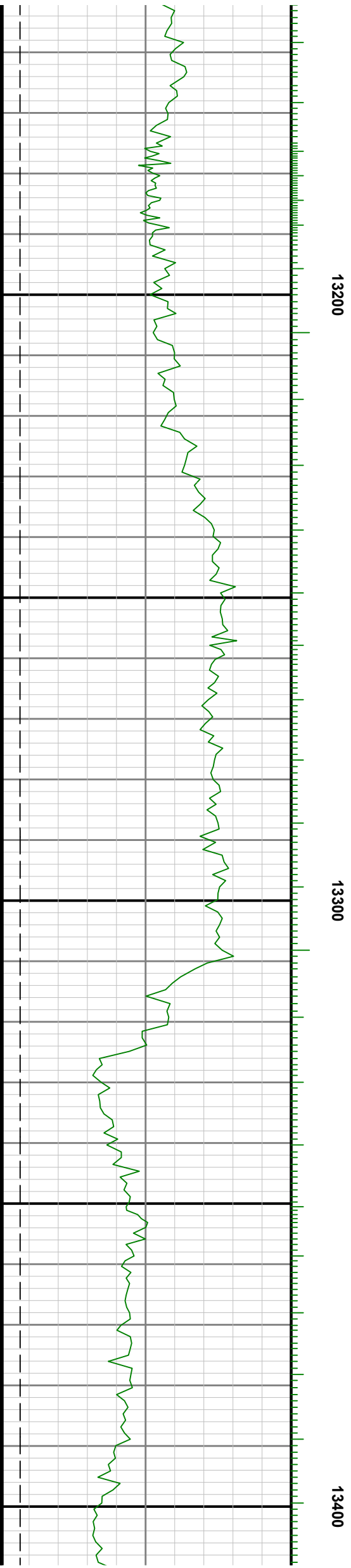
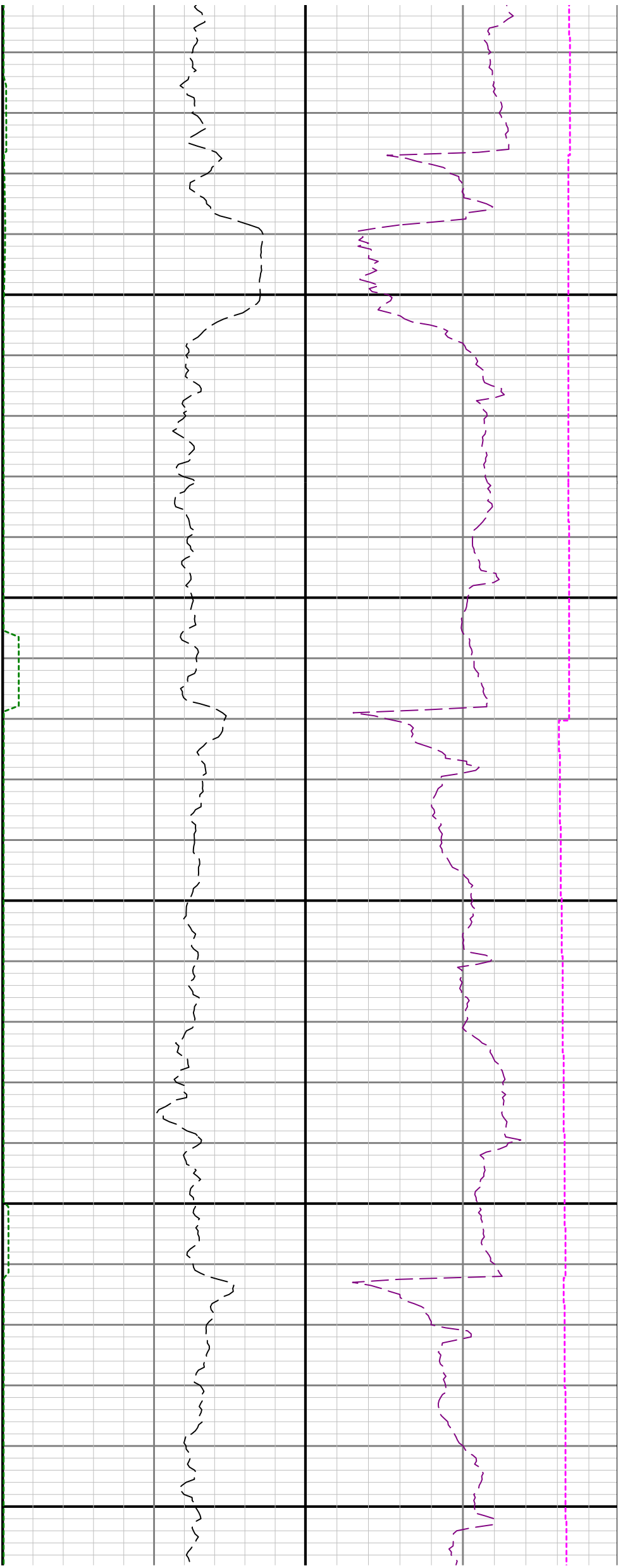


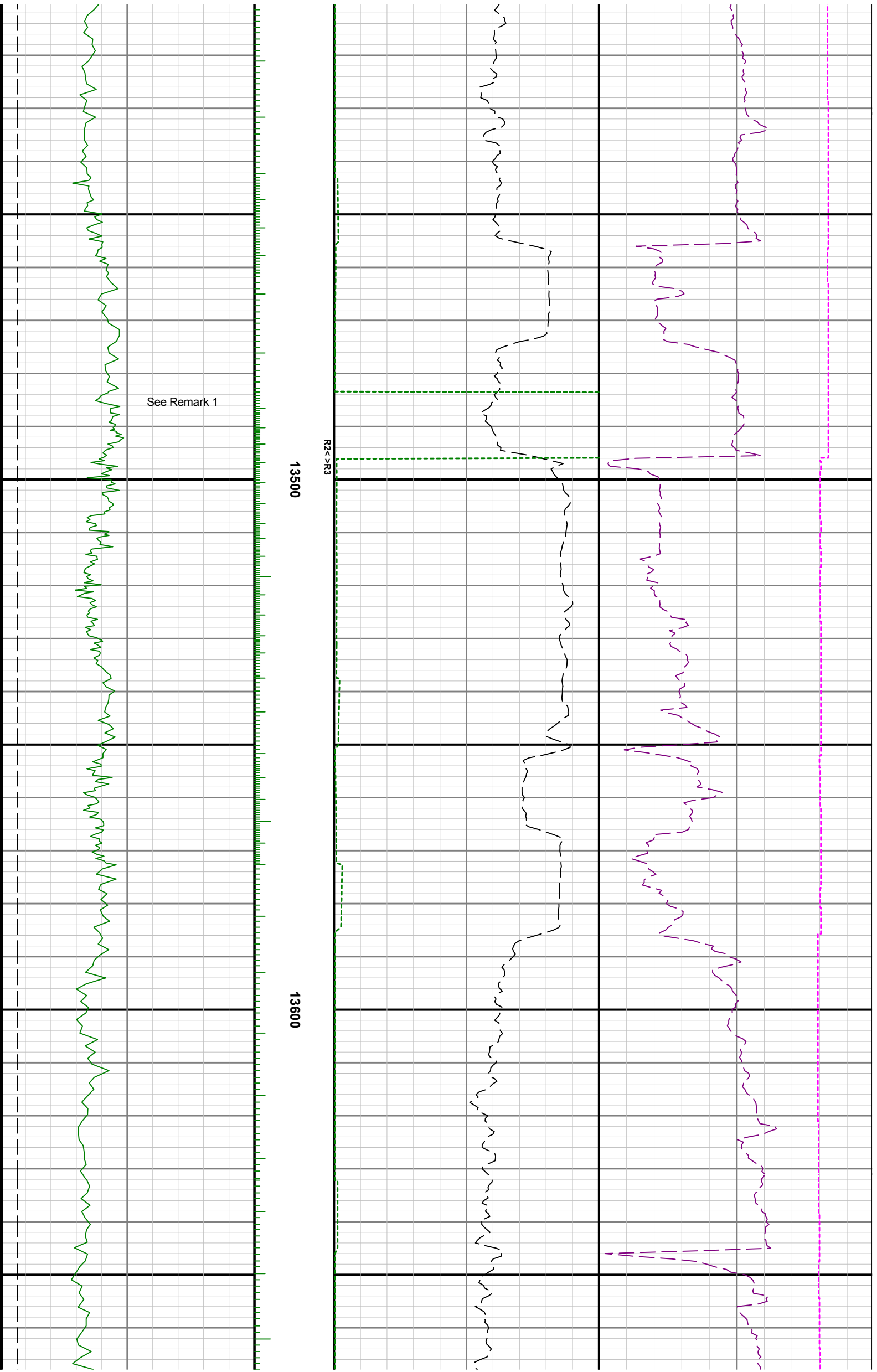


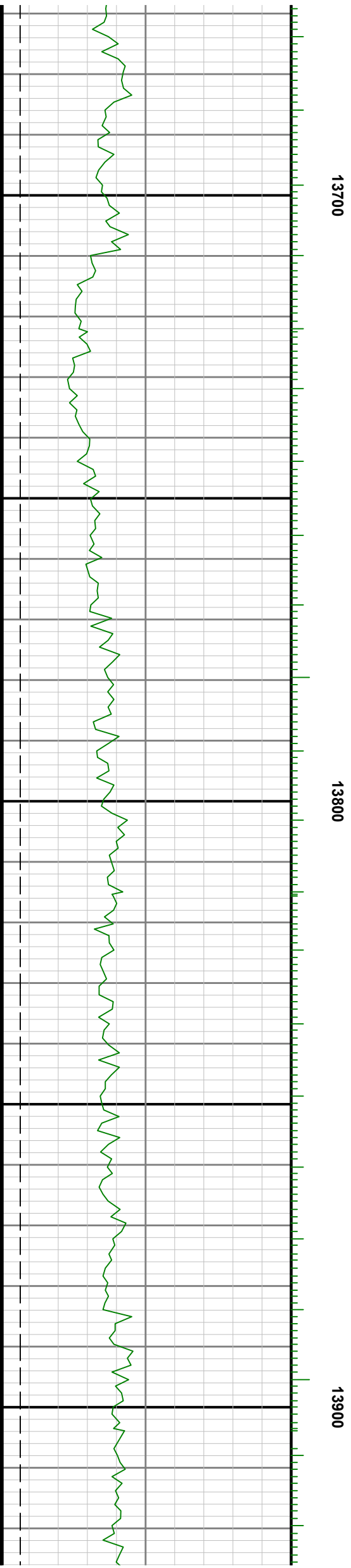
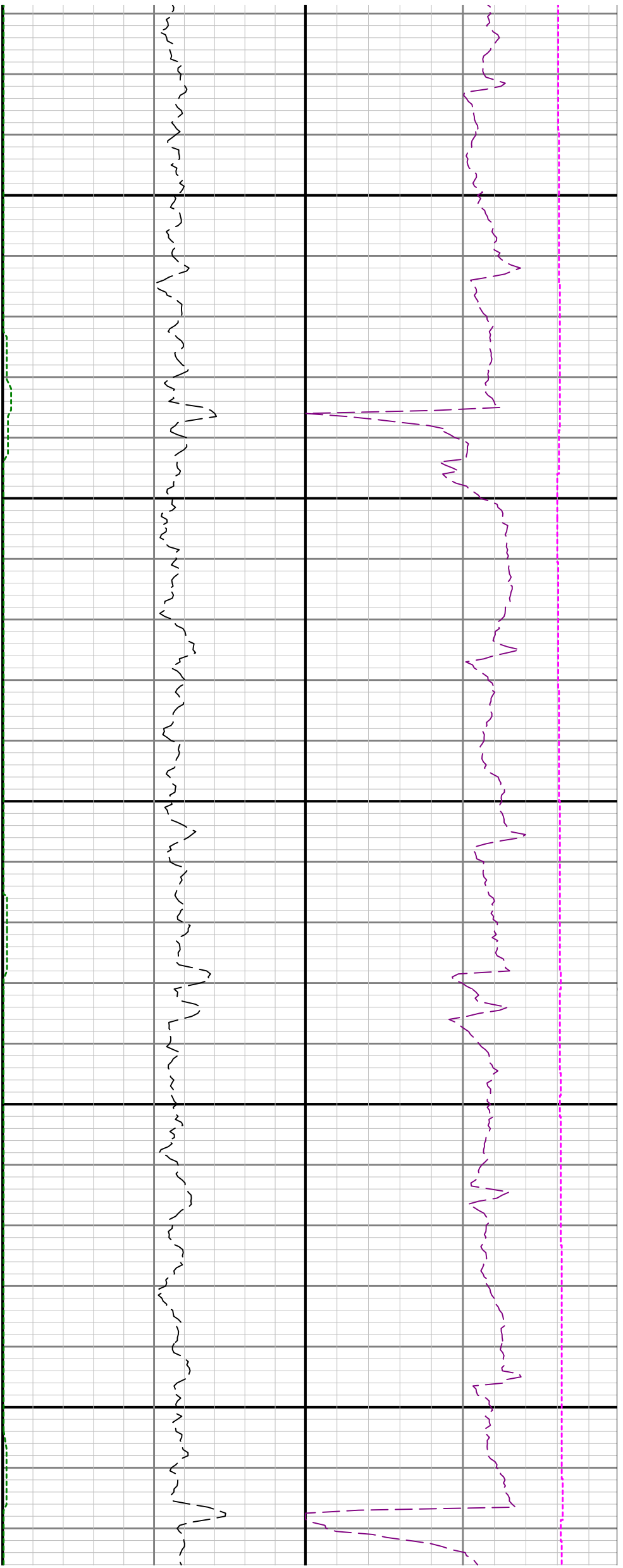


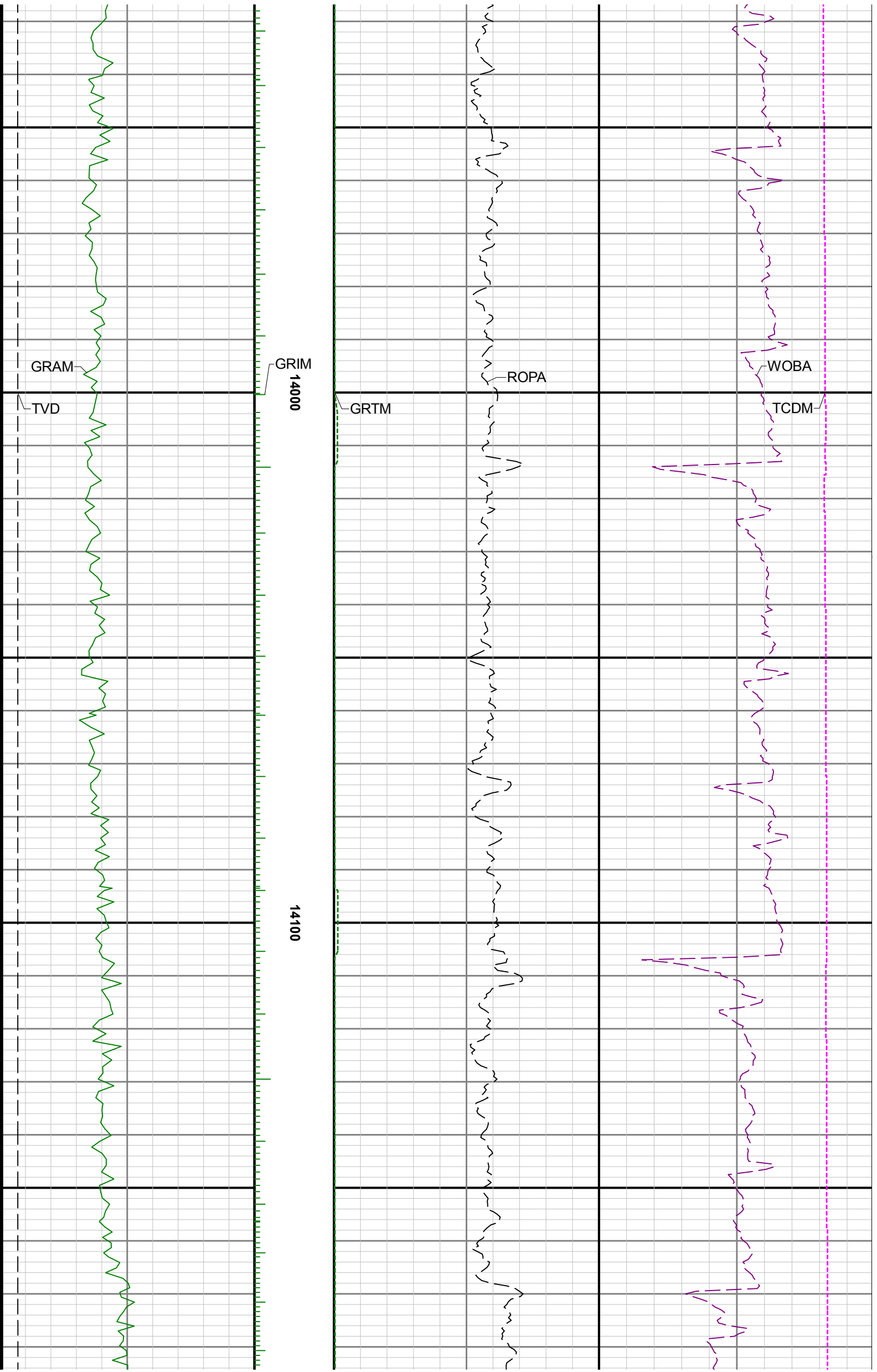


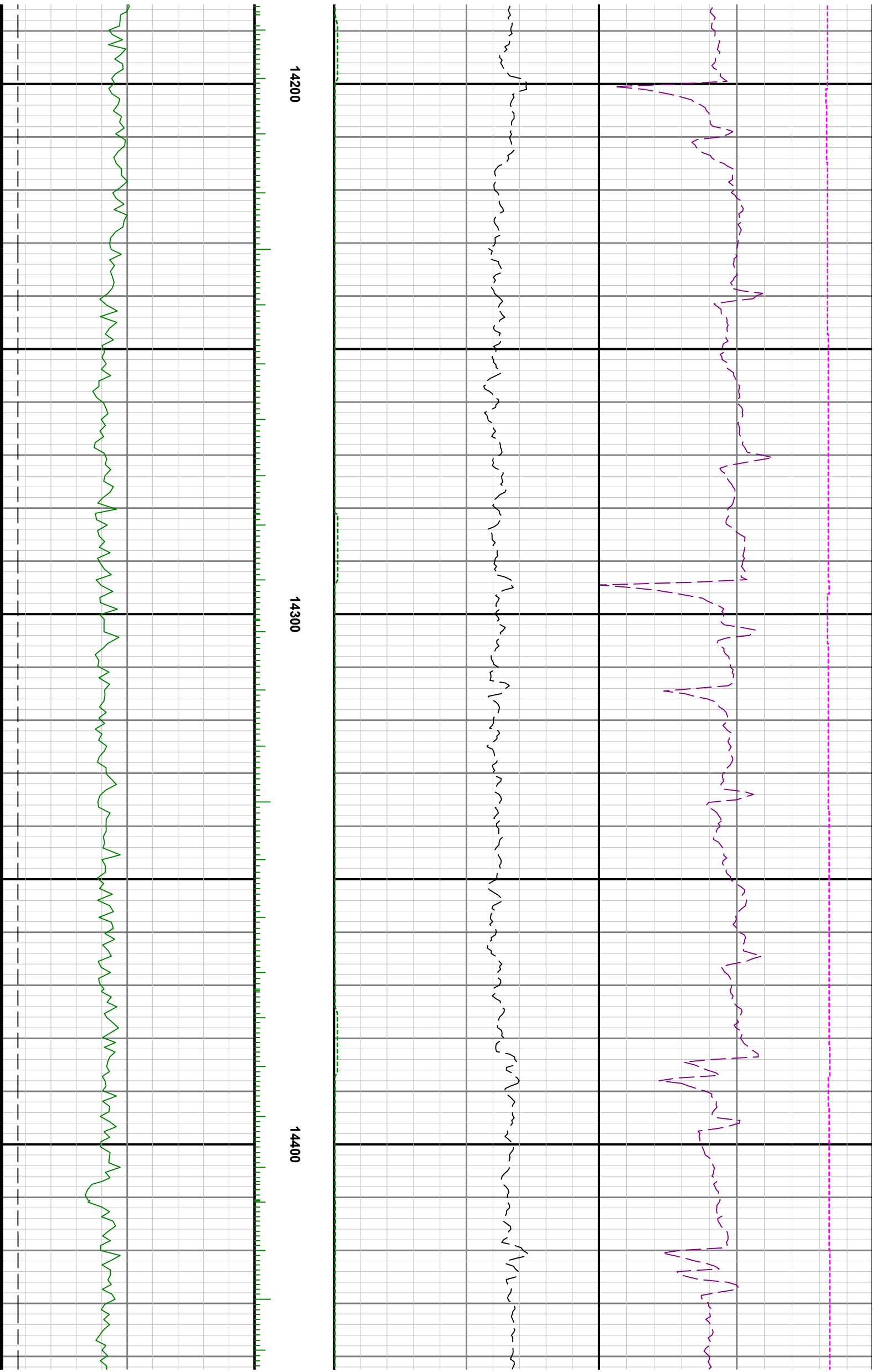


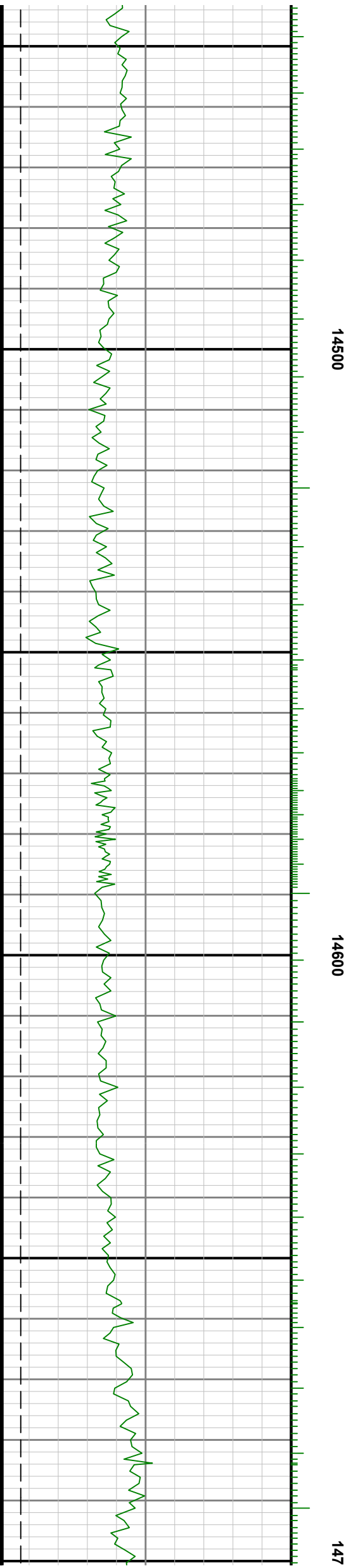
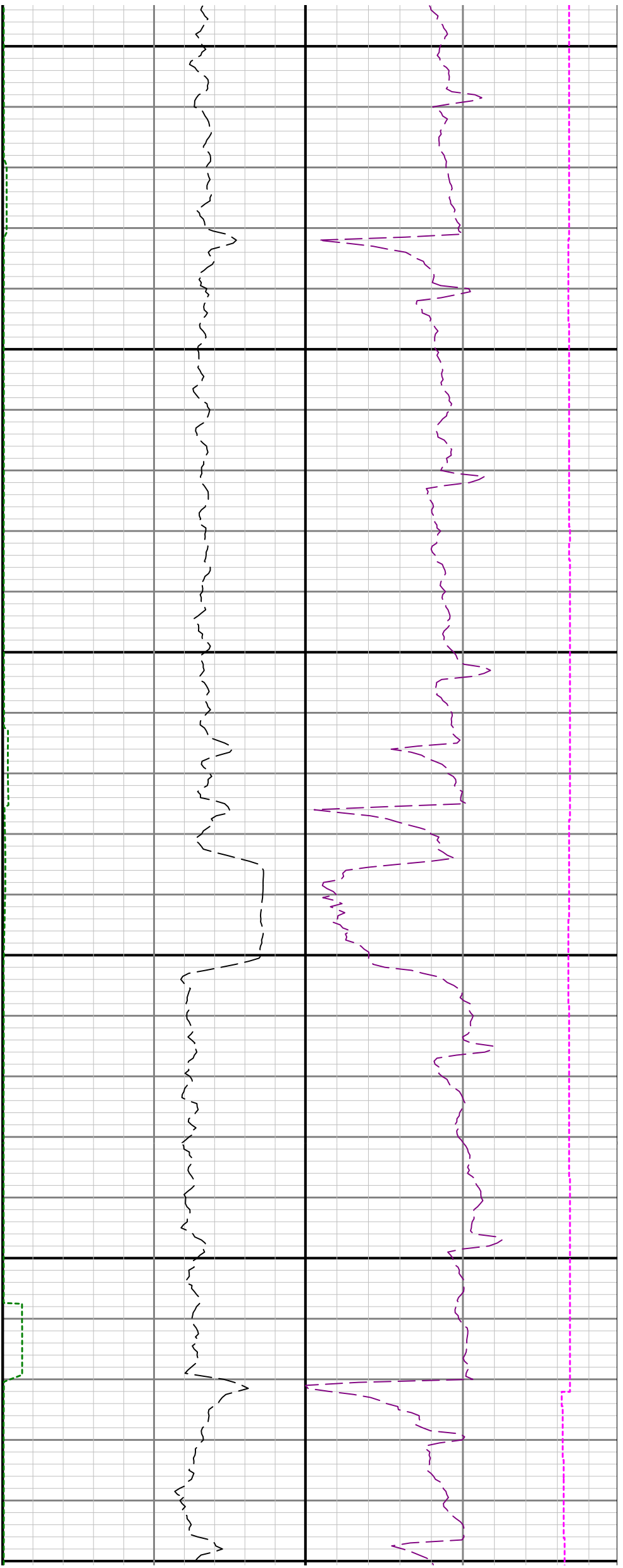


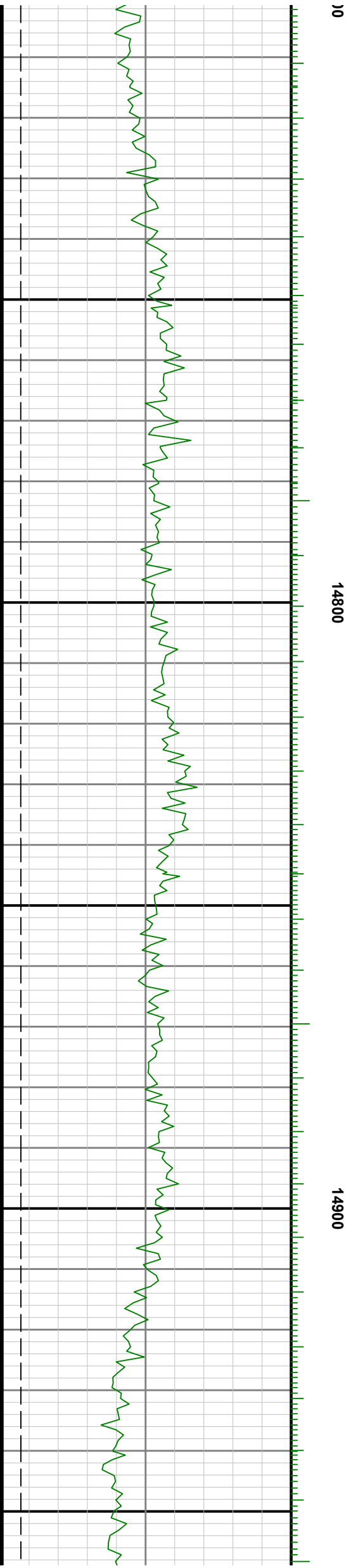
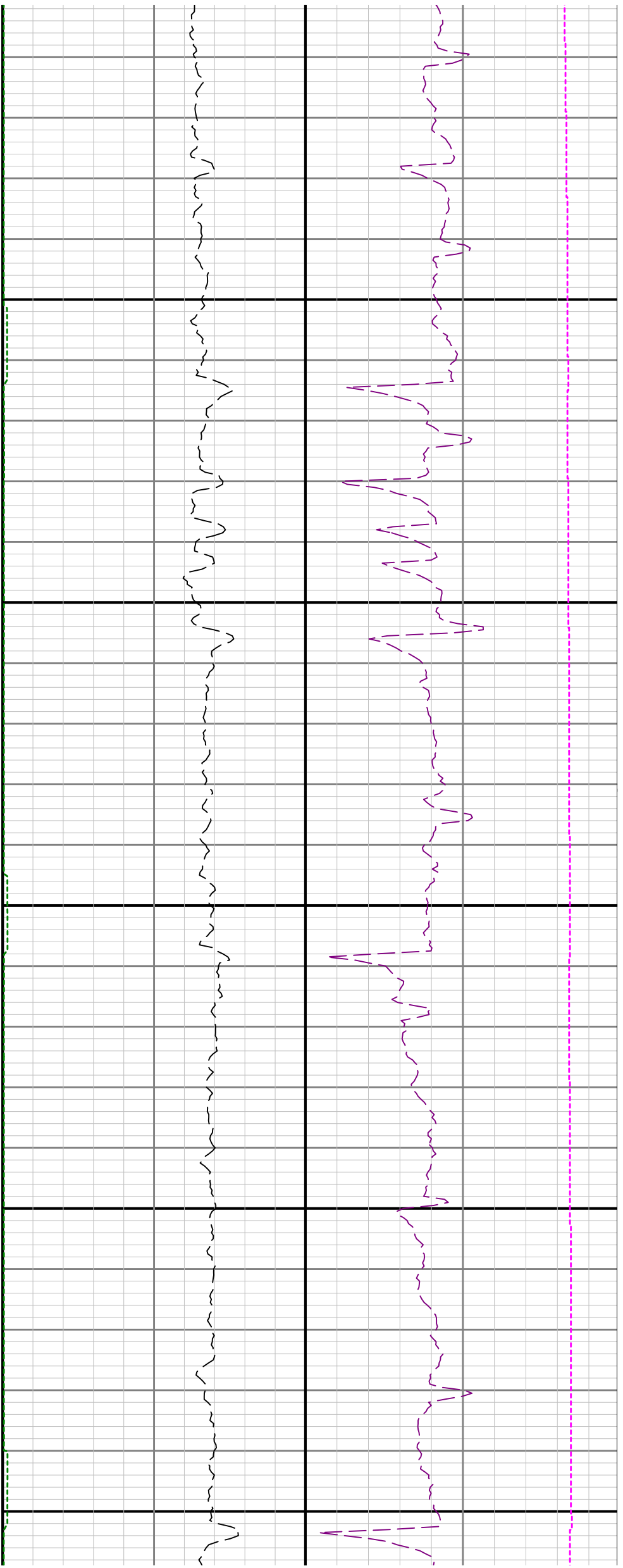


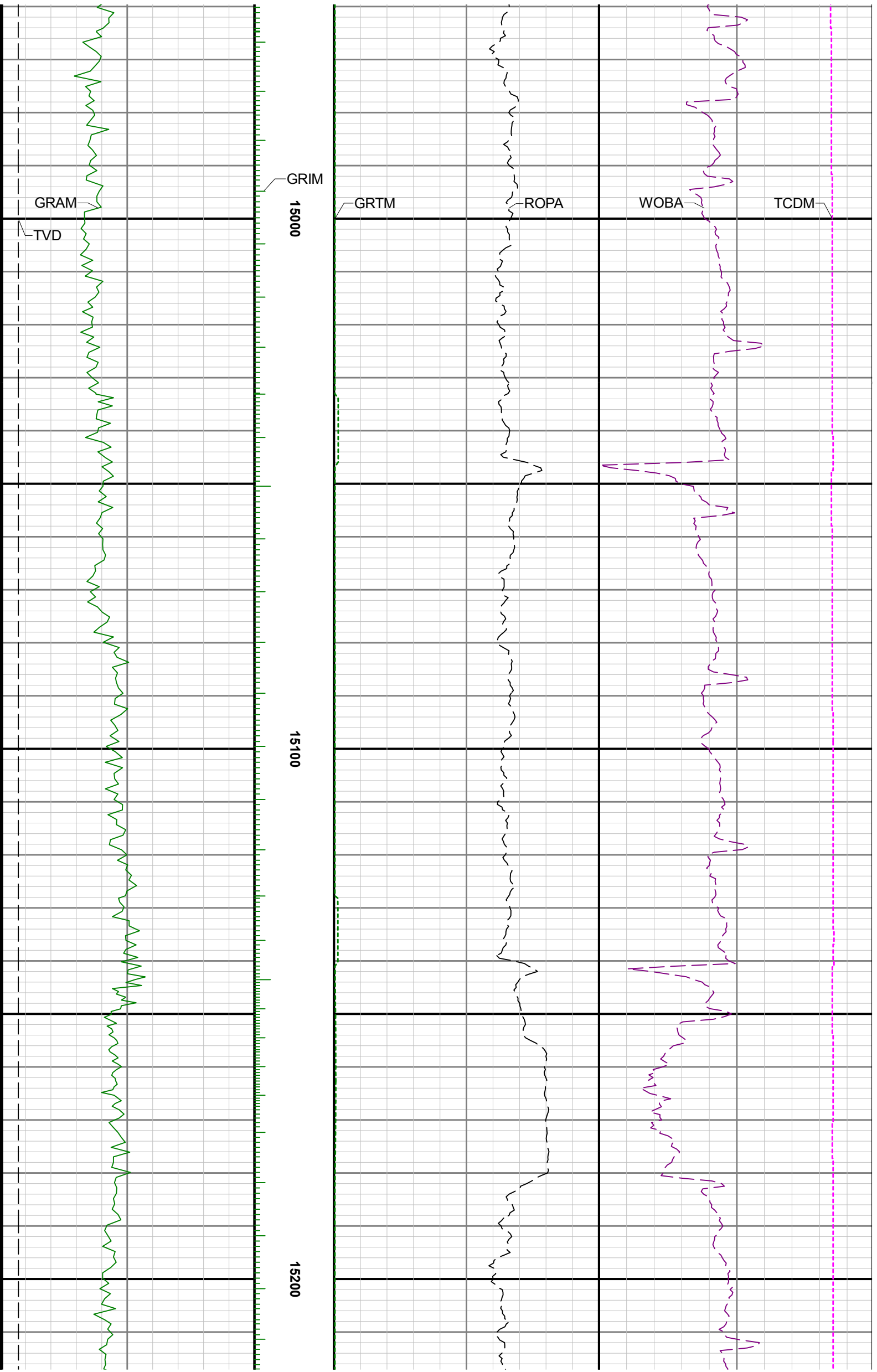


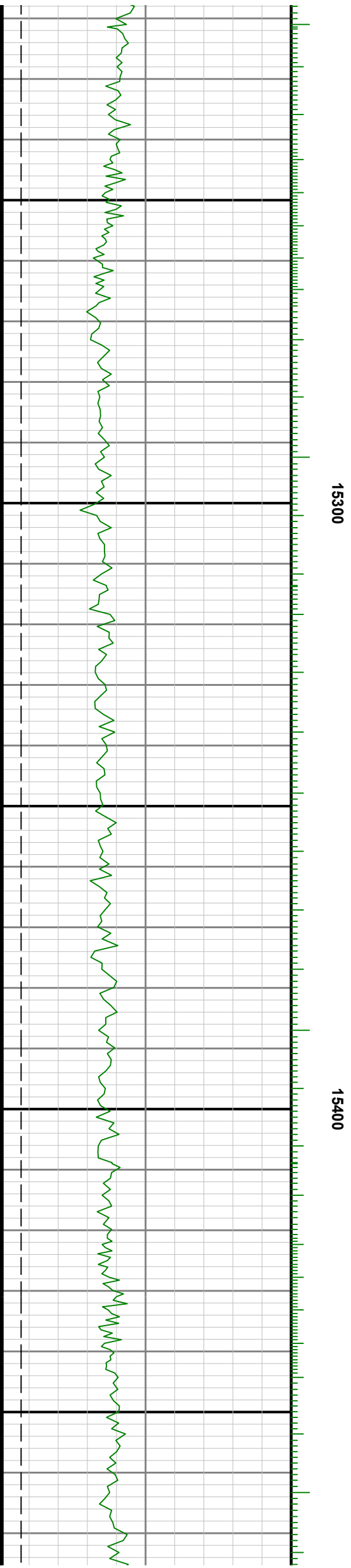
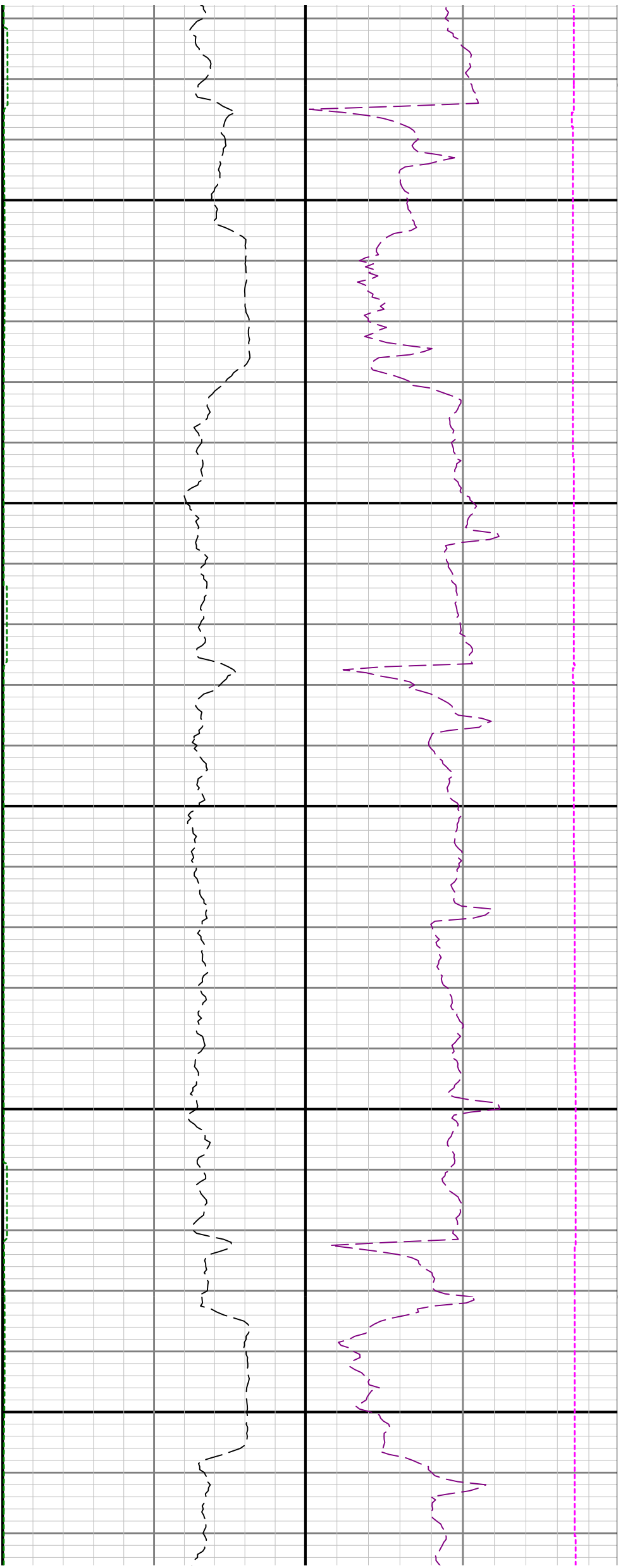


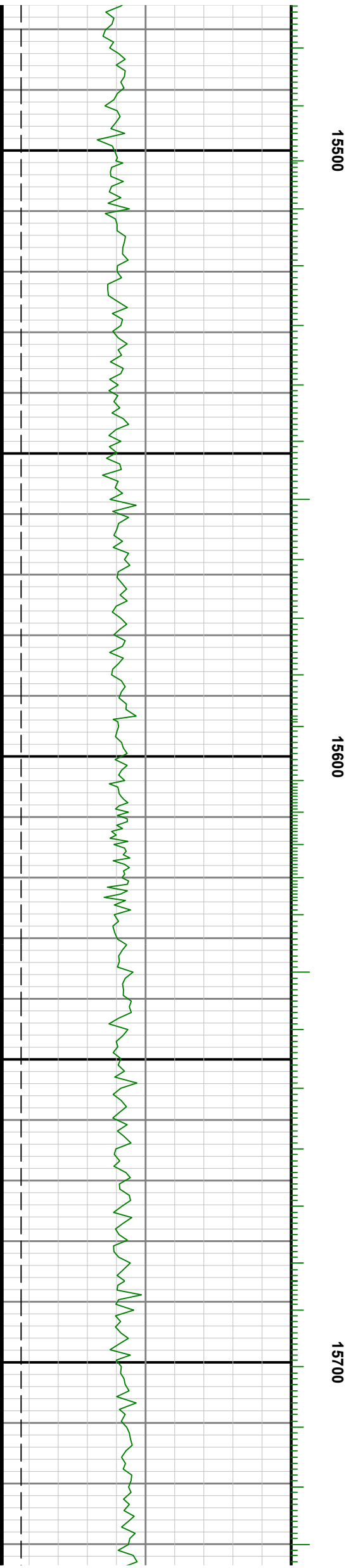
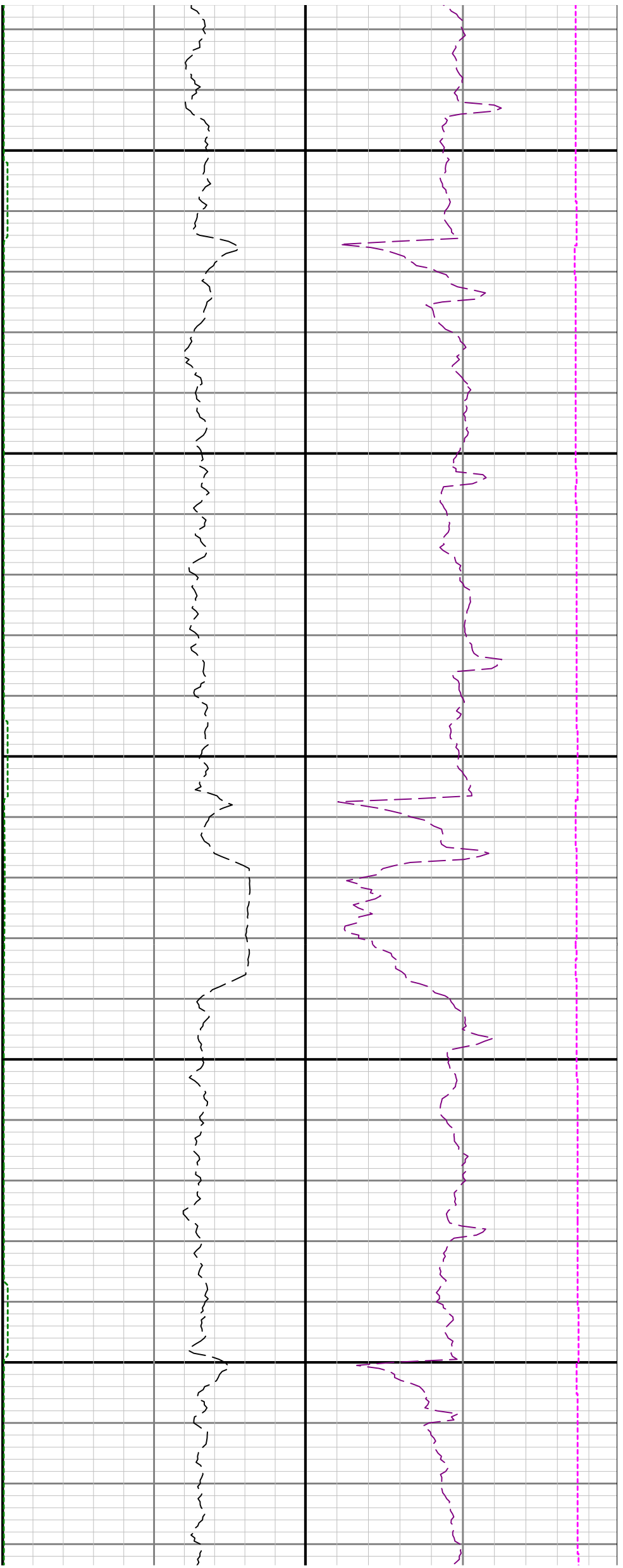


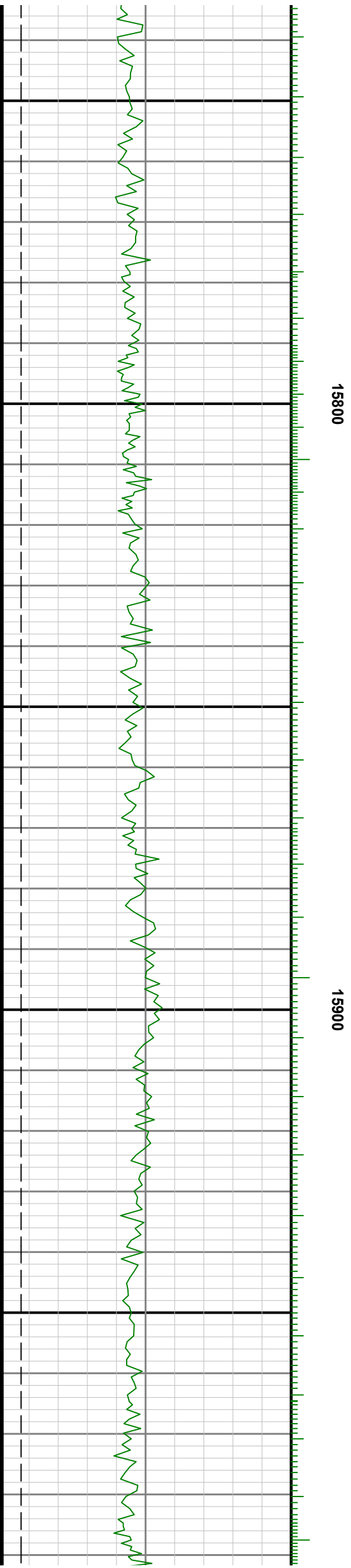
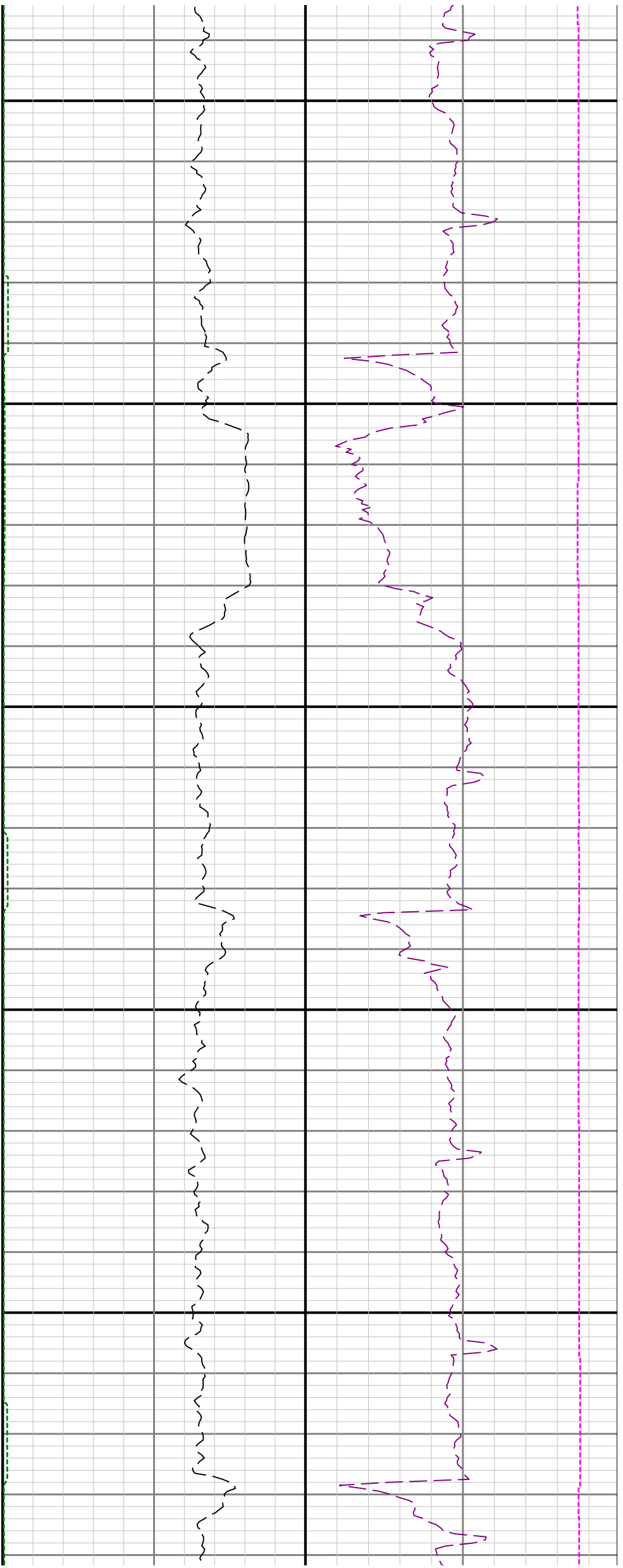


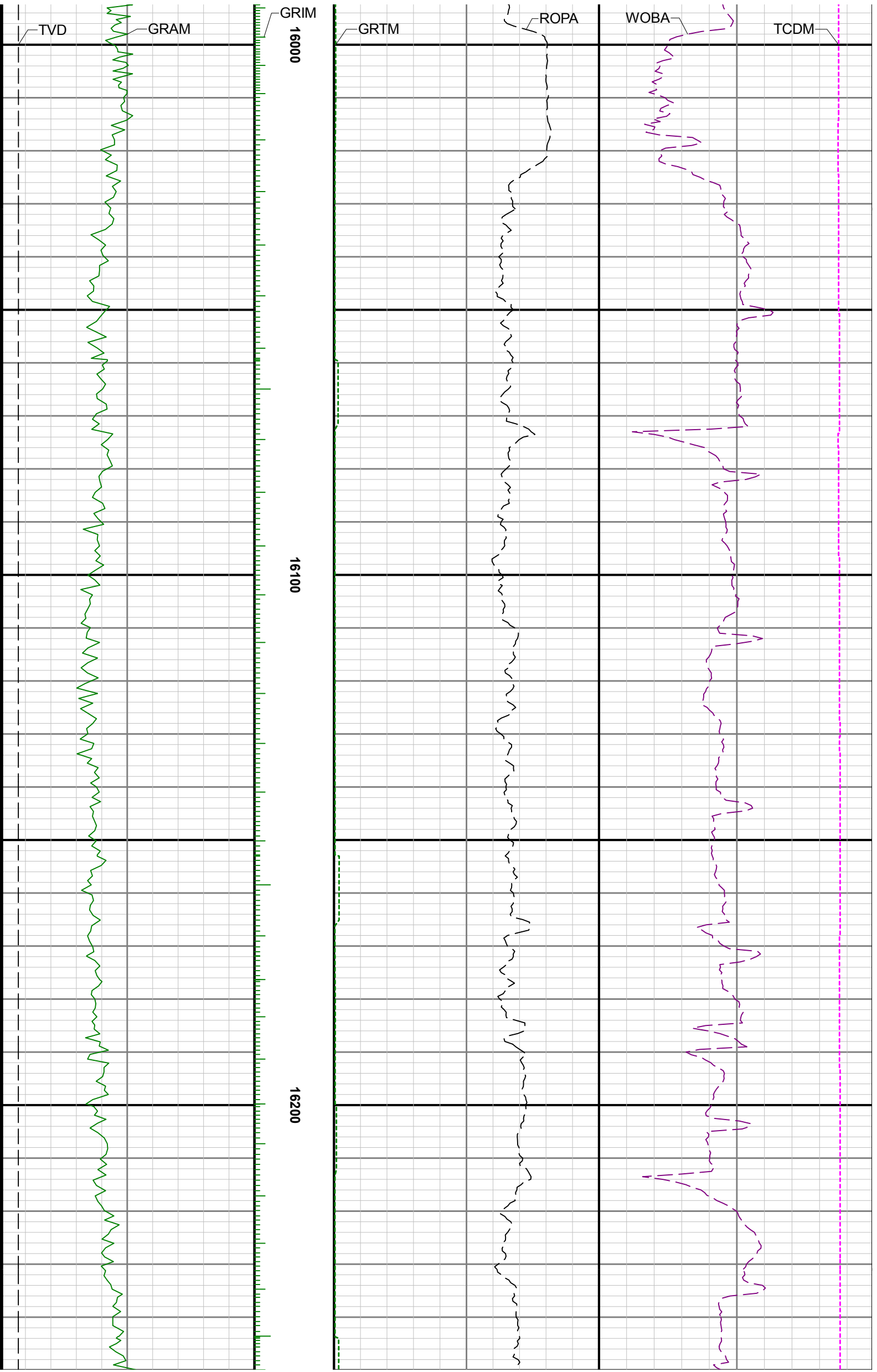


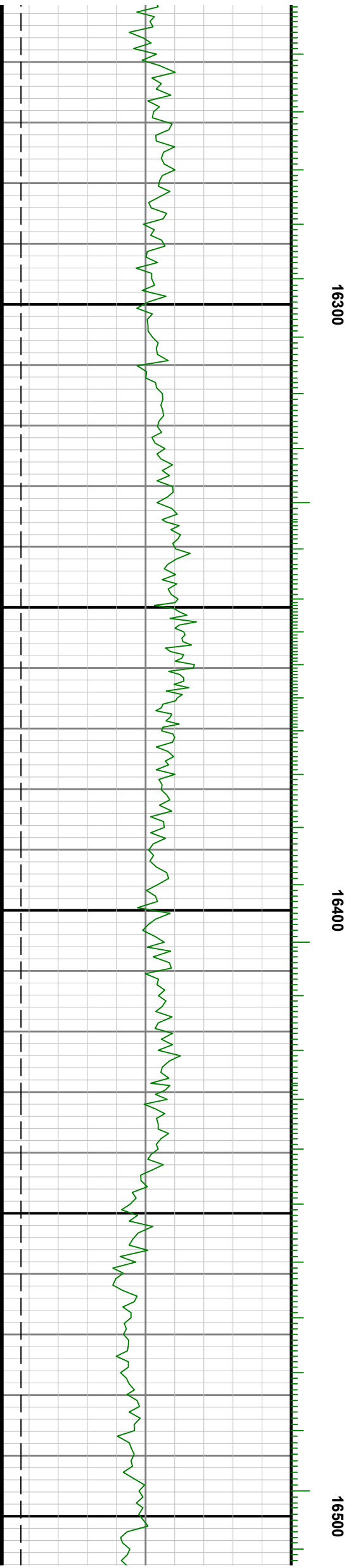
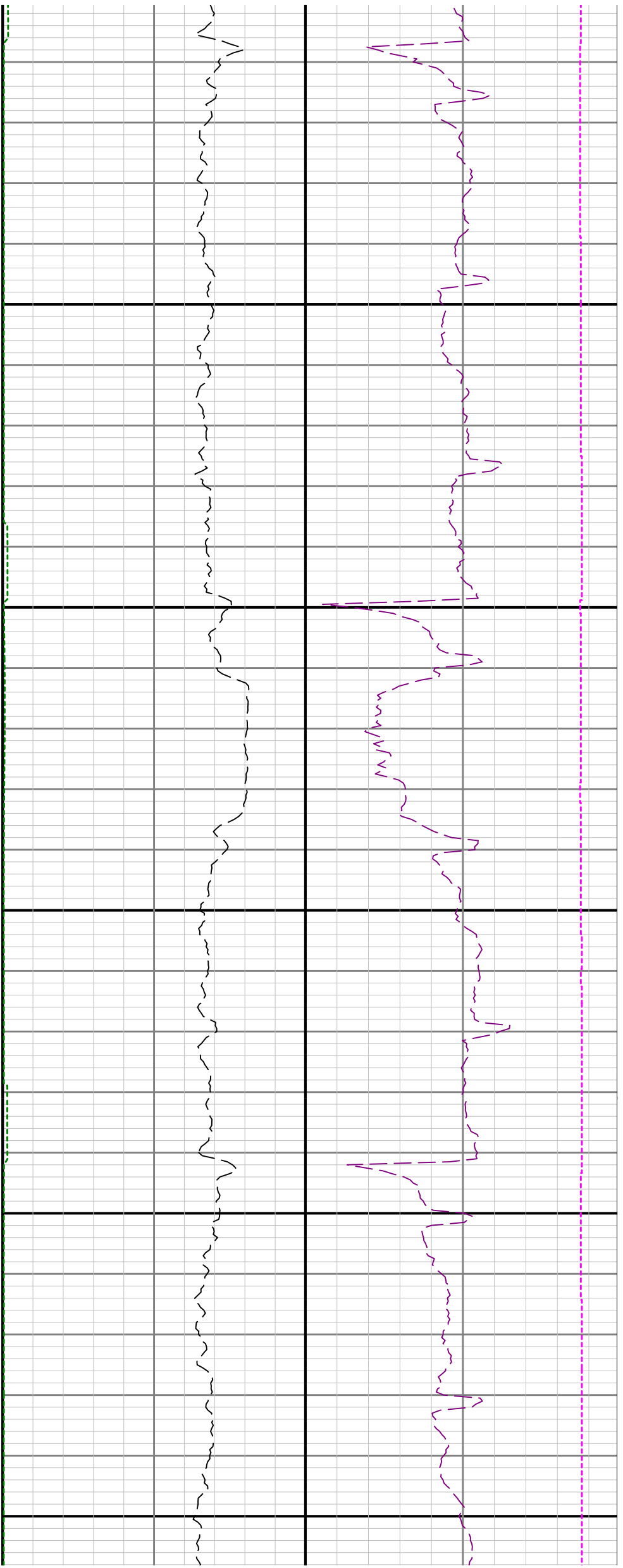


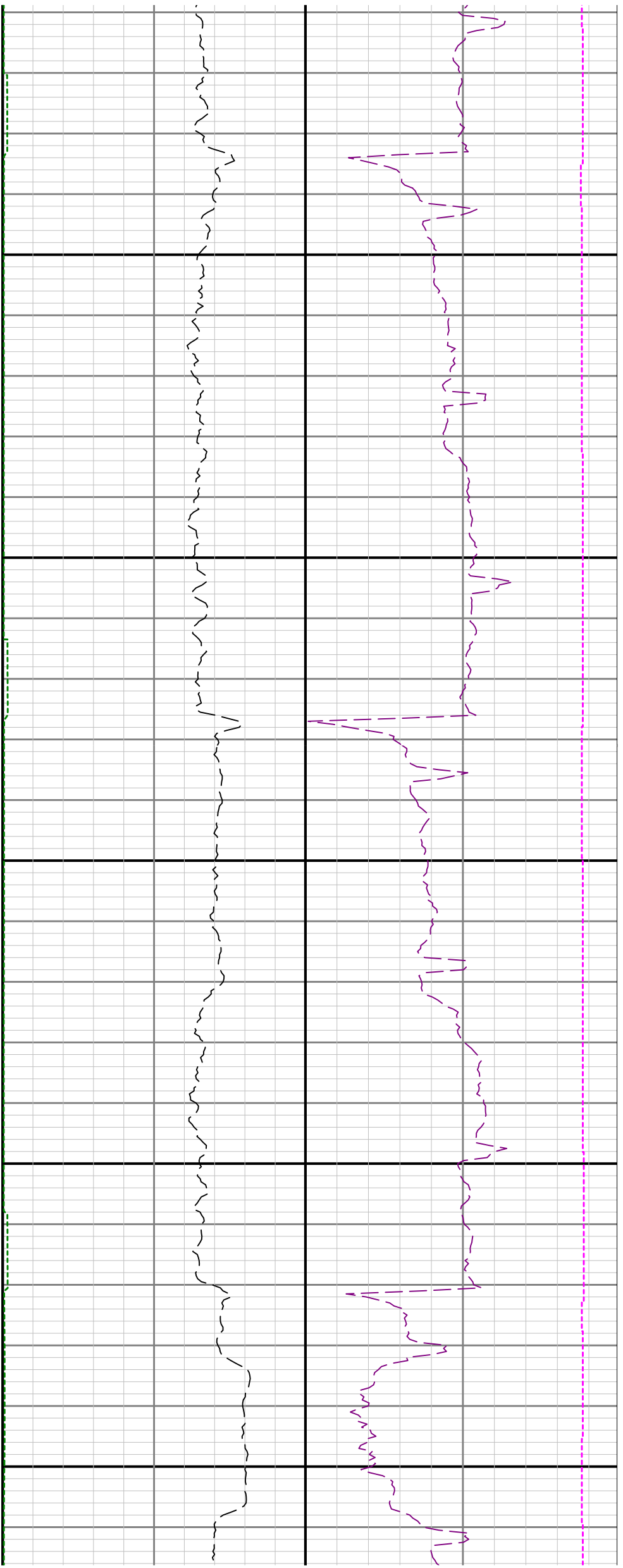






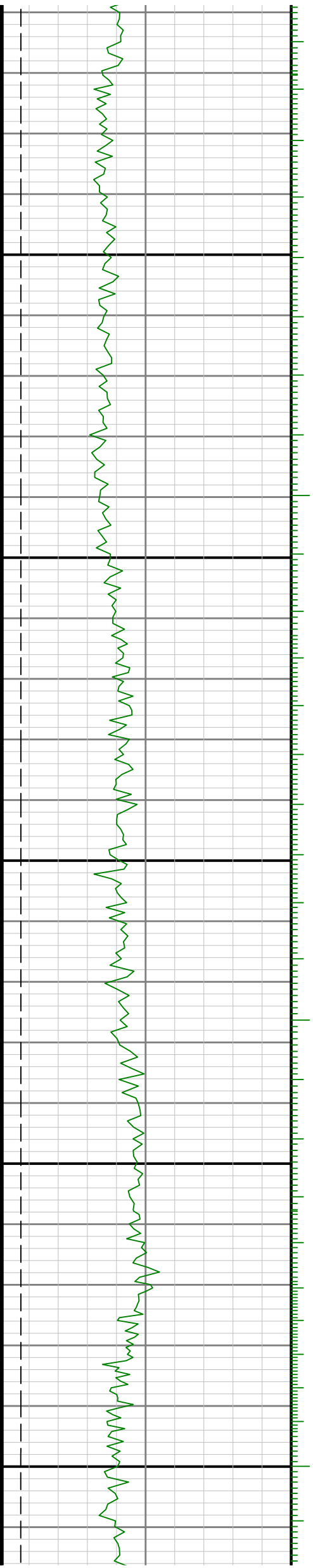




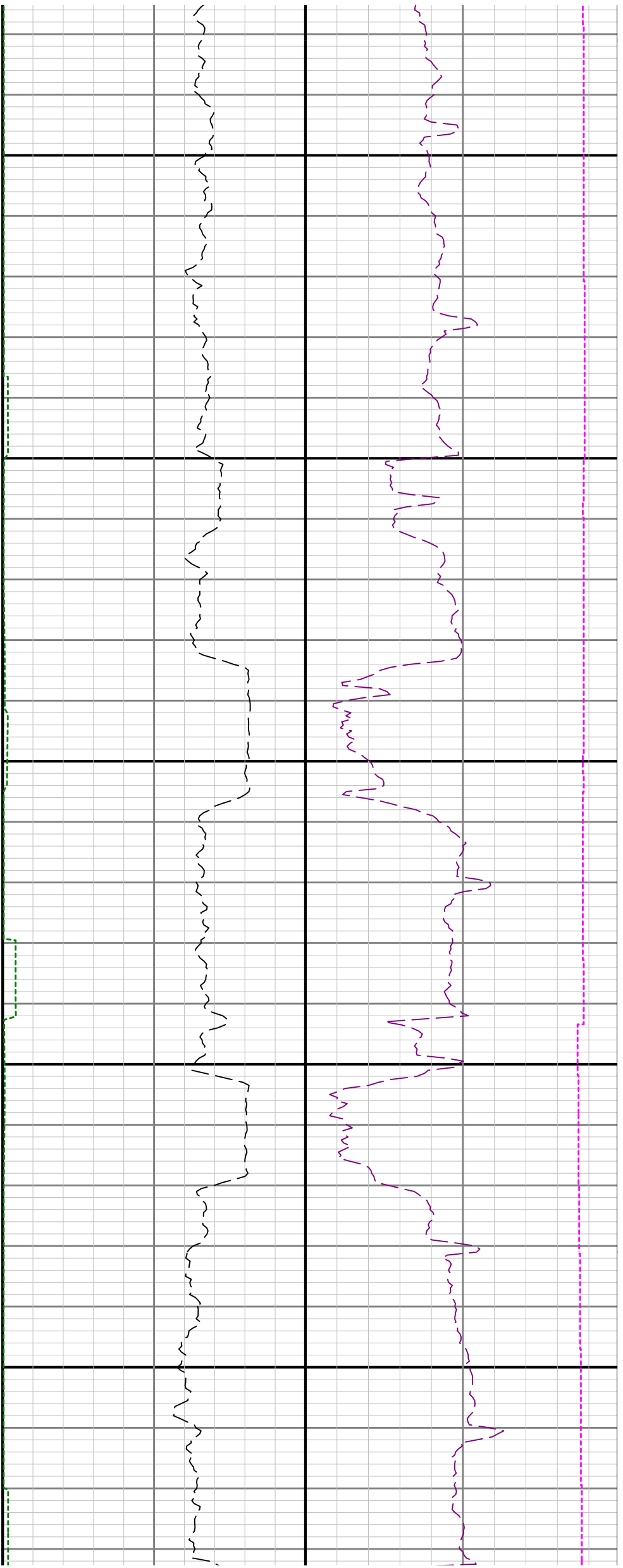


16600

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