



Realtime Logs

Natural Fomation Evaluation
Gamma Ray

Scale:

1:240

TRUE VERTICAL DEPTH

Company: Kerr-McGee Oil & Gas Onshore LP

Well: Butterball 30C-15HZ

Field: Weld County (Kerr McGee)

County Weld County State Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 8' 48.019" N

Longitude: 104° 53' 2.216" W

Other Services:

API Number: 05-123-3787000

Section: 10

TWN: 2N

Range: 67W

Permanent Datum (P.D.): Mean Sea Level Elevation: 5013.00 ft.

Elevations:

17.00 ft.

Log Measured From: Kelly Bushing

17.00 ft.

Above P.D.

KB:

5013.00 ft.

Depth Reference: Driller's Depth

GL:

4986.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 7020.0 ft. Date From: 04/Nov/13 Dip Angle: 66.85° Azi Reference North: True

Bottom: 12517.0 ft. Date To: 10/Nov/13 Total Mag to Reference

Spud Date: 03/Nov/13 Field Strength: 52863.0 nT North Correction: 8.75°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1017.0 ft.	9.625 in.	36.00 lb/ft	Surface	1009.0 ft.
8.750 in.	1017.0 ft.	7880.0 ft.	7.000 in.	26.00 lb/ft	Surface	7773.0 ft.
6.125 in.	7880.0 ft.	12568.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based Mud	Surface	12568.0 ft.	13.500 in.	Surface	0.0° / 0.0°	0.2° / 285.2°
			8.500 in.	Vertical/Curve	0.2° / 285.2°	84.0° / 176.5°
			6.125 in.	Lateral	84.0° / 176.5°	90.1° / 181.2°
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig / Contractor: XTREME8	/ Xtreme Drilling
PATS	6.4.1.34	Job No: 5828794	
		District / Unit: Rocky Mountains	/ D&E

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Log Run Summary

LWD	BHA	Bit	Bit	Bit	Bit	Assembly	Logged Interval		Bit Depth Interval		Date / Time				Circ.
Run No.	Run No.	Run No.	Size (in.)	Type	Gauge Length (in.)	Type	Top	Bottom	From	To	Start		End		Time (hrs.)
							(m.)	(m.)	(m.)	(m.)					
1	1	2	8.750	PDC	N/A	Mud Motor	7020.0	7416.0	1017.0	7461.0	04/Nov/13	14:35	04/Nov/13	22:44	29.9
2	2	3	8.750	PDC	N/A	Mud Motor	7416.0	7841.0	7461.0	7880.0	05/Nov/13	14:18	06/Nov/13	08:23	12:45
3	3	4	6.125	PDC	N/A	Mud Motor	7841.0	12517.0	7880.0	12568.0	08/Nov/13	04:45	10/Nov/13	06:08	49.42

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Andrew Overbey	02/Nov/13	04/Nov/13	Nick Roosen	04/Nov/13	07/Nov/13	Shirley Arimah	07/Nov/13	10/Nov/13
Kevin Sheridan	02/Nov/13	10/Nov/13						

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (m.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
11/04/13 10:20	1	7400.0	Water Based Mud	8.5	27	9.0	N/A	0/100	Pits	1600	N/A
11/06/13 22:30	2	7790.0	Water Based Mud	10.0	41	9.0	N/A	0/100	Pits	1900	N/A
11/09/13 21:52	3	12120.0	Water Based Mud	9.6	40	9.0	N/A	4/100	Pits	2600	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg	API
TCDX	Downhole Temperature	degF
ROP_AVG	Rate of Penetration, 3.0 ft. Avg	ft/hr
WOB_AVG	Weight on Bit, 1.0 ft. Avg	klbs

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12546374	Directional	46.81	6.750	3.250
1	SRIG	12613300	Gamma	43.43	6.750	3.250
2	DIR	12546374	Directional	43.34	6.750	3.250
2	SRIG	12613300	Gamma	39.96	6.750	3.250
3	DIR	12617354	Directional	54.93	4.750	2.480
3	SRIG	12578112	Gamma	51.55	4.750	2.480

Service and Tool Mnemonics

Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

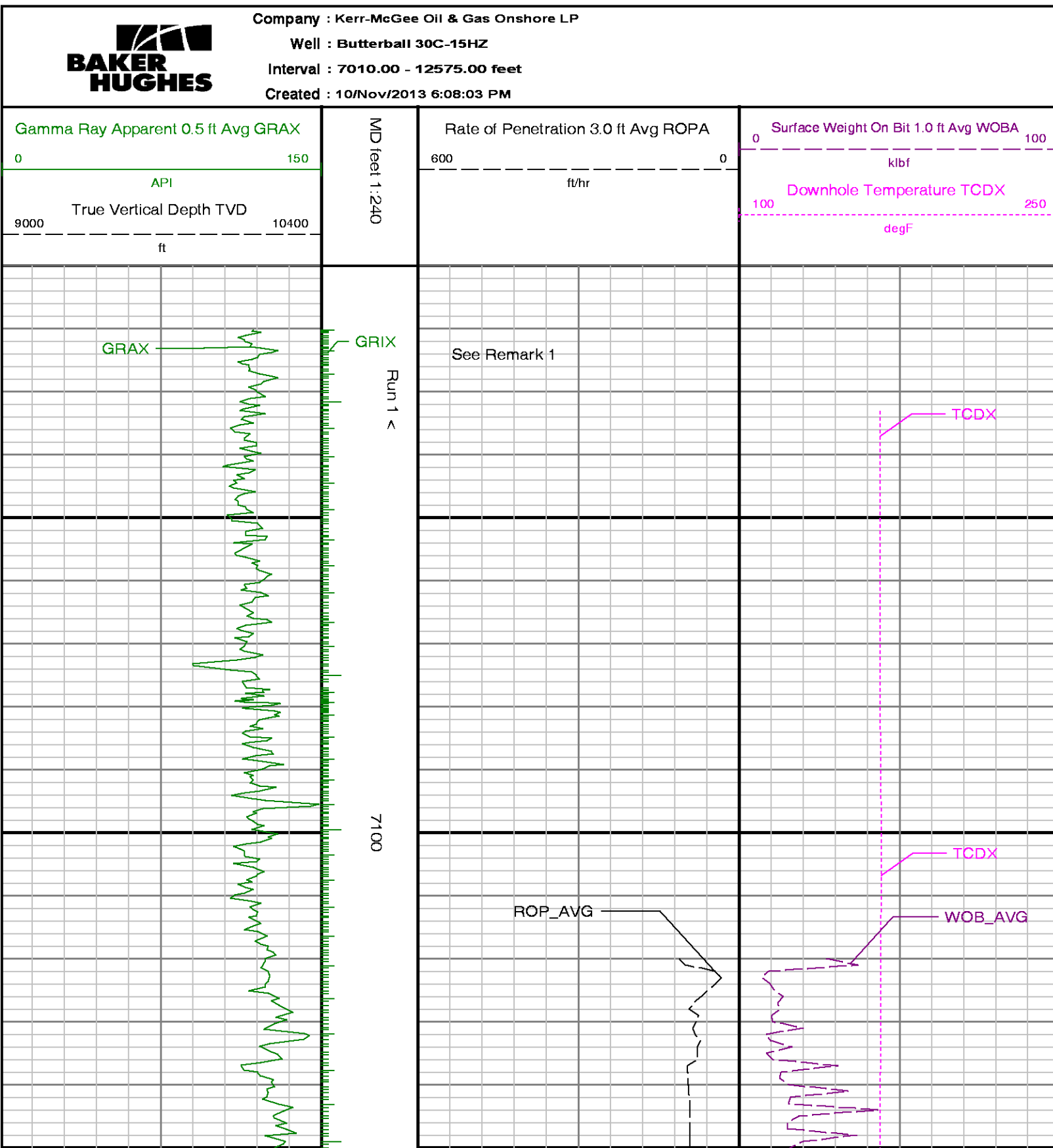
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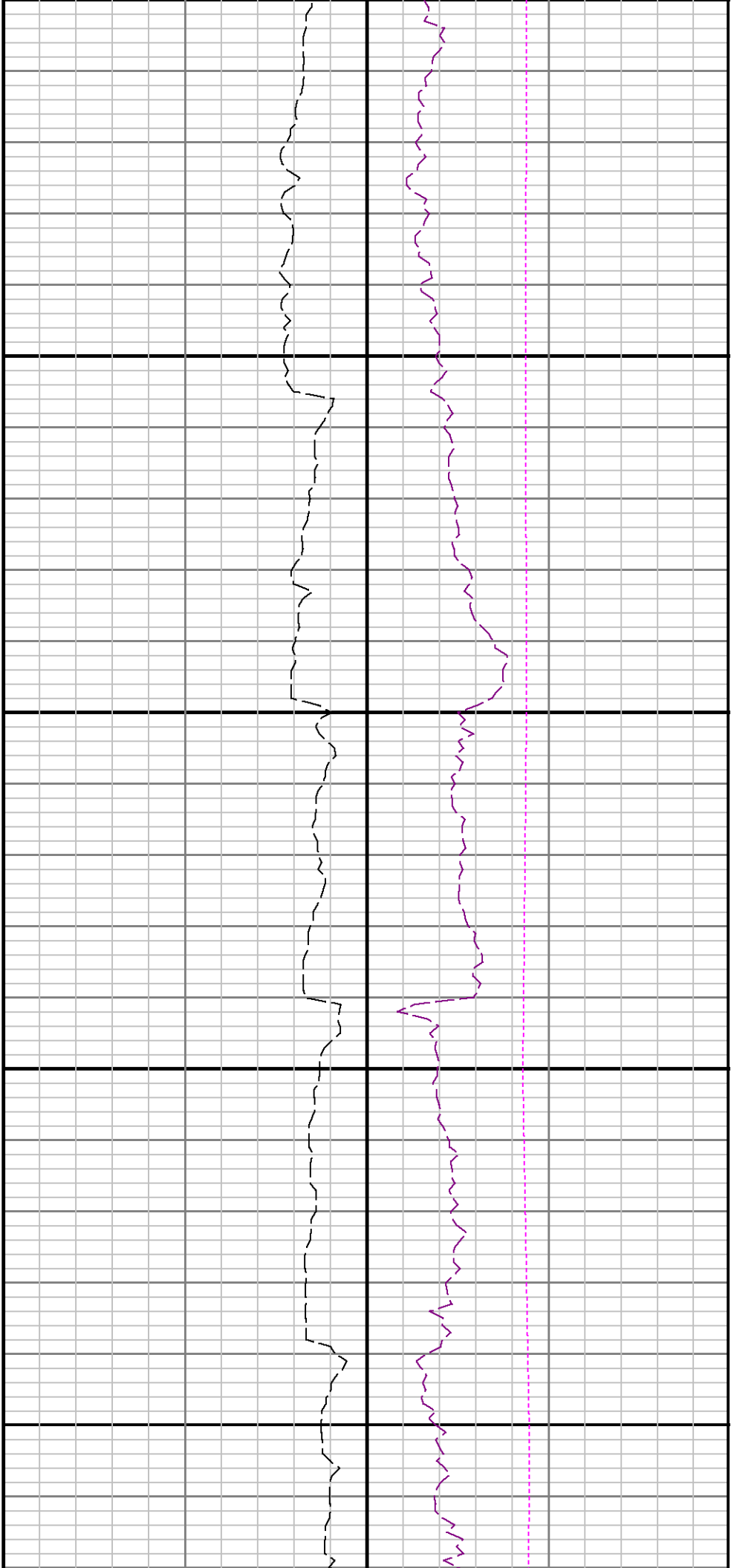
(1) Baker Hughes INTEQ run 1 and run 2 utilized 6 1/2 inch NaviTrak services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1017 to 7880 feet MD (1017 to 7575 feet TVD)
(2) Baker Hughes INTEQ run 3 utilized 4 3/4 inch NaviTrak services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7880 to 12568 feet MD (7575 to 7589 feet TVD)

Remarks

Number	Measured Depth (m.)	Hole Section (in.)	LWD Run No.	Remark
1	7020	8.750	1	The interval from Surface to 7020 feet MD (6972 feet TVD) was logged not logged due to Baker Hughes logging services began at the top of the curve section.
2	7481	8.750	2	The interval from 7841 to 7880 feet MD (7571 to 7575 feet TVD) was logged up to 16 hours after being drilled due to a trip out of

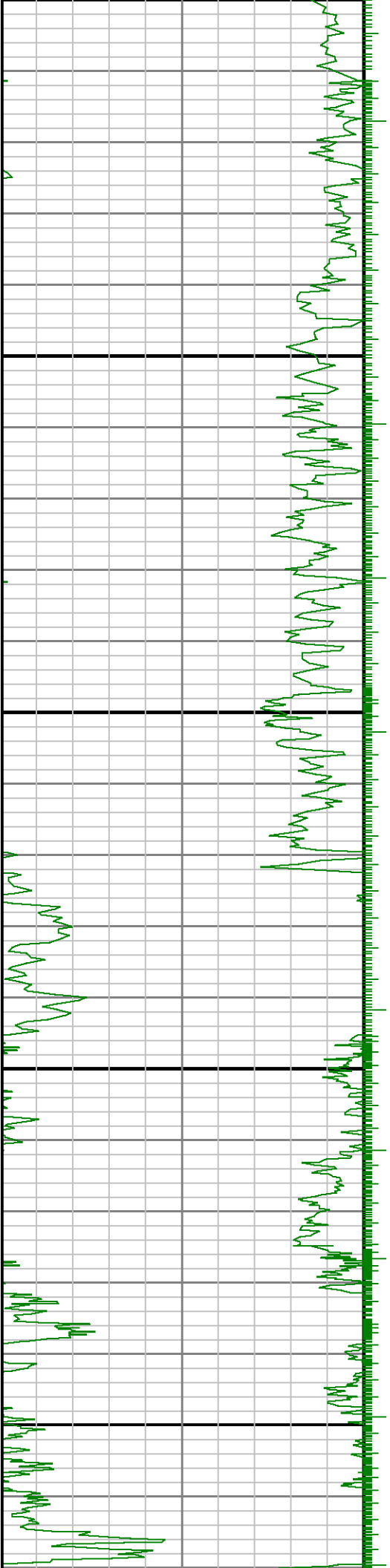
2	7481	8.750	2	the hole to pick up curve BHA assembly.
3	7571	8.750	3	The interval from 7841 to 7880 feet MD (7571 to 7575 feet TVD) was logged up to 45 hours after being drilled due to a trip out of the hole for casing and cement operations.
4	11956	6.125	3	The interval from 12517 to 12568 feet MD (7589 to 7589 feet TVD) was not logged due to sensor offsets to bit at TD.

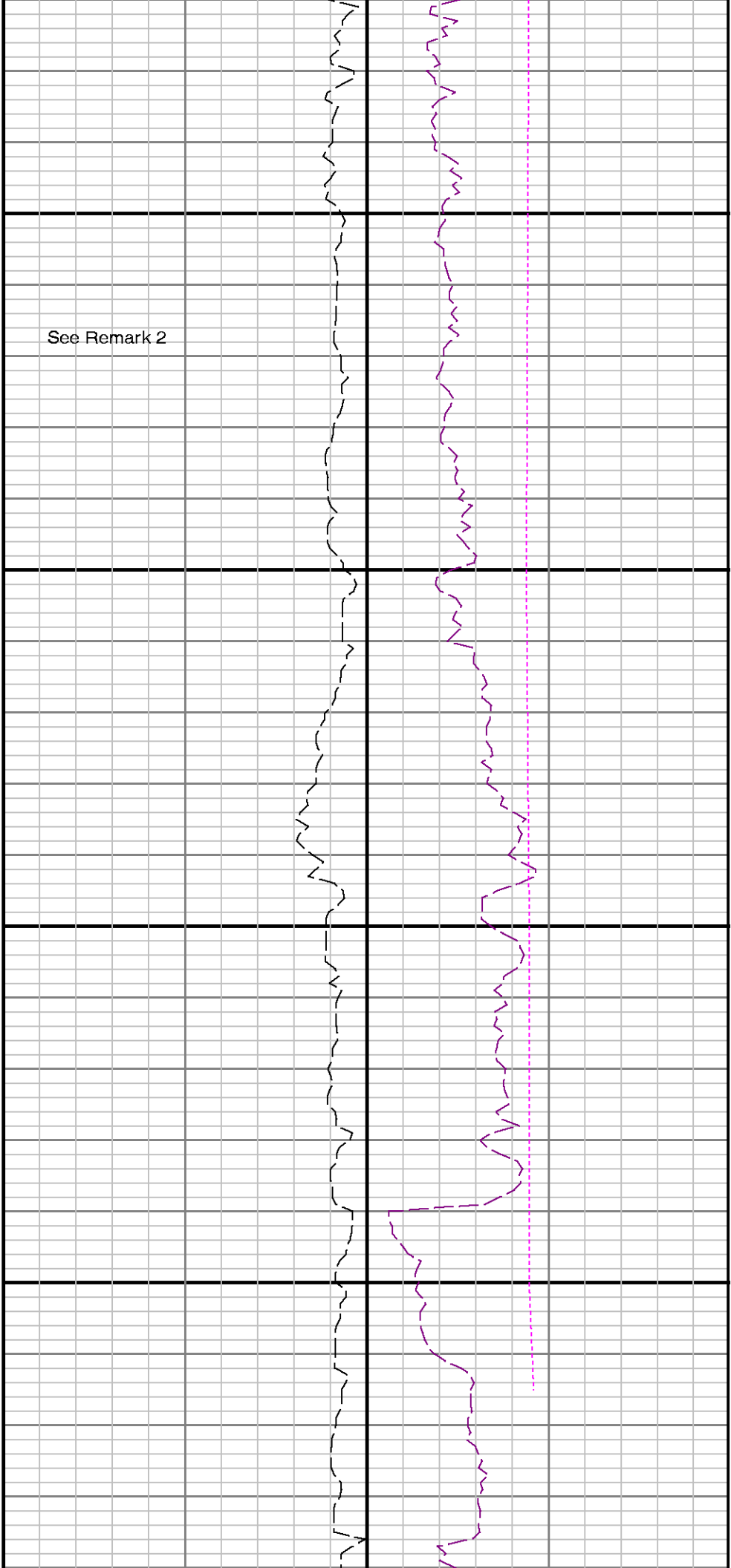




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7300

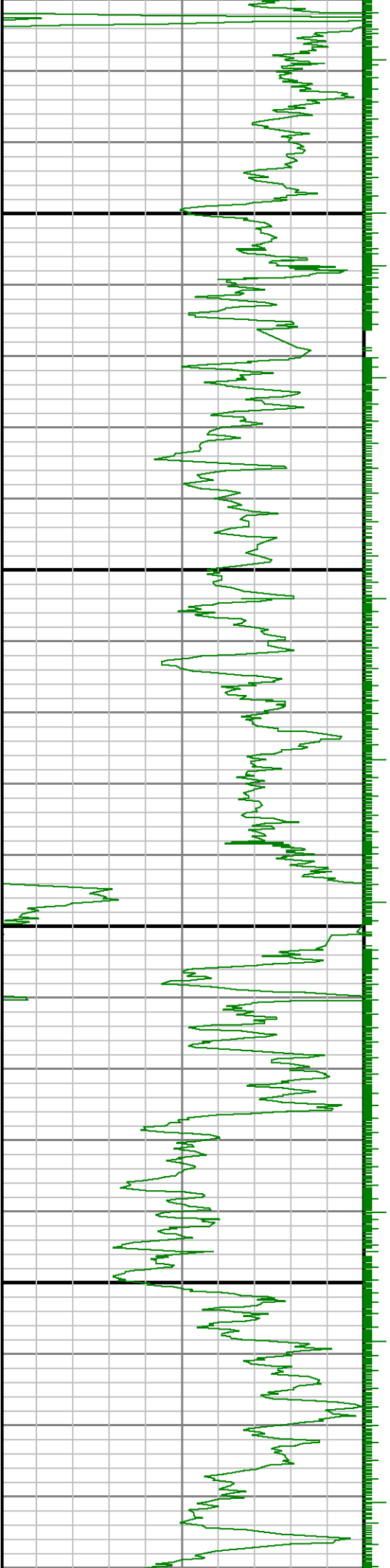


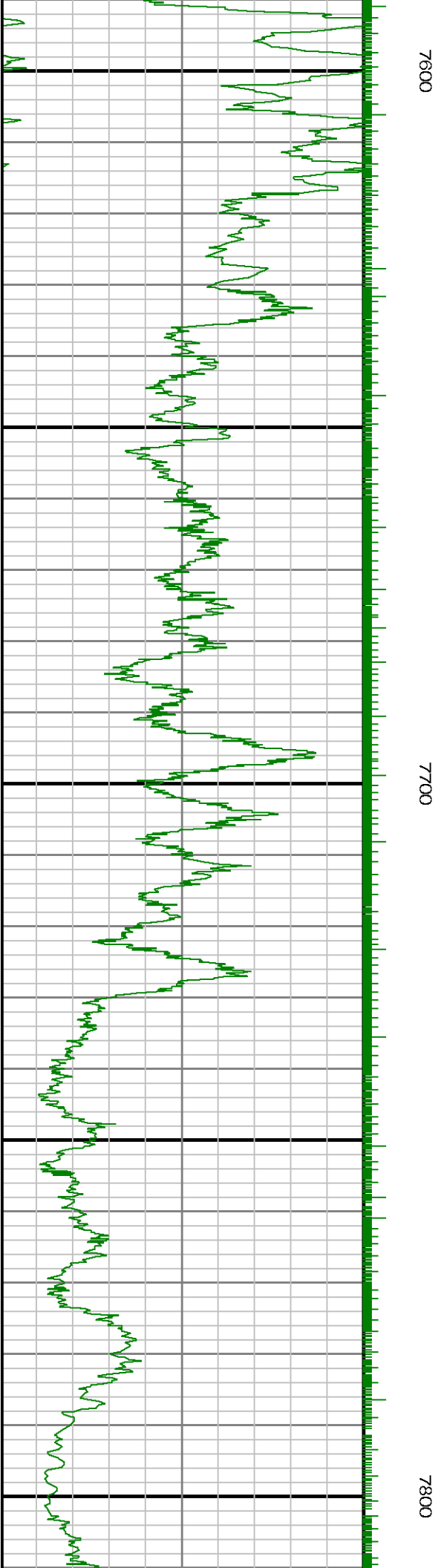


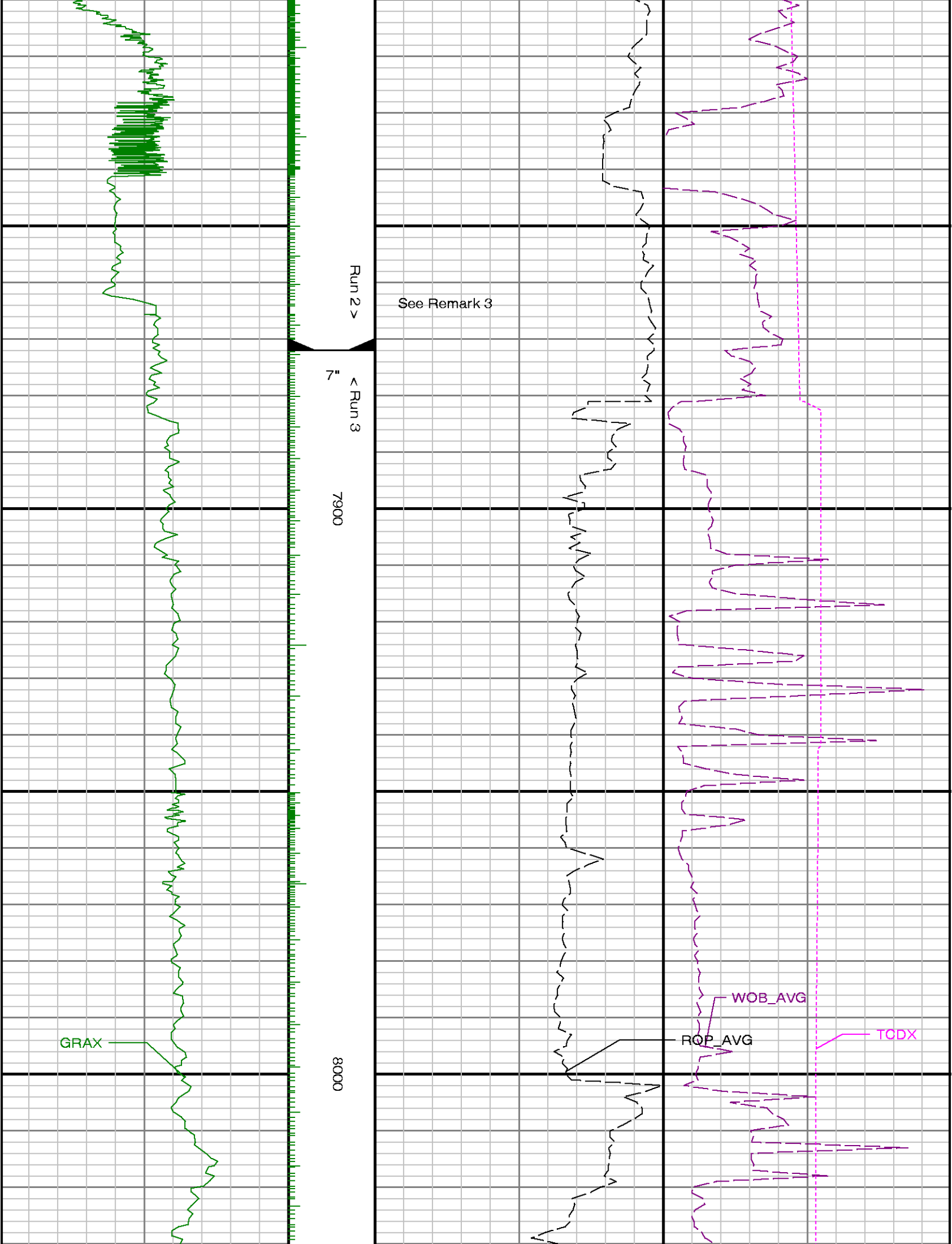
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Run 1 > Run 2

7500







See Remark 3

Run 2 >

< Run 3

7900

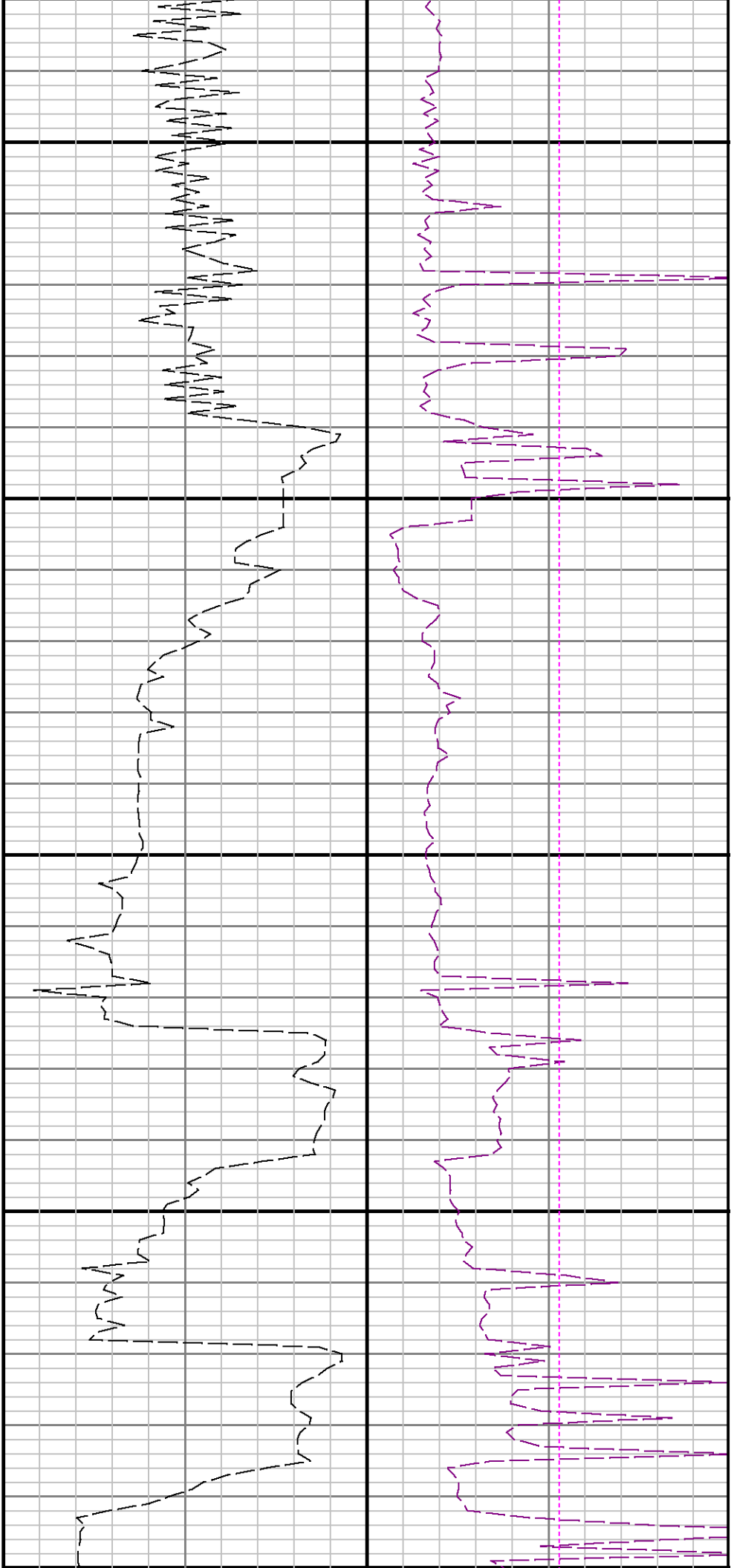
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GRAX

RQP_AVG

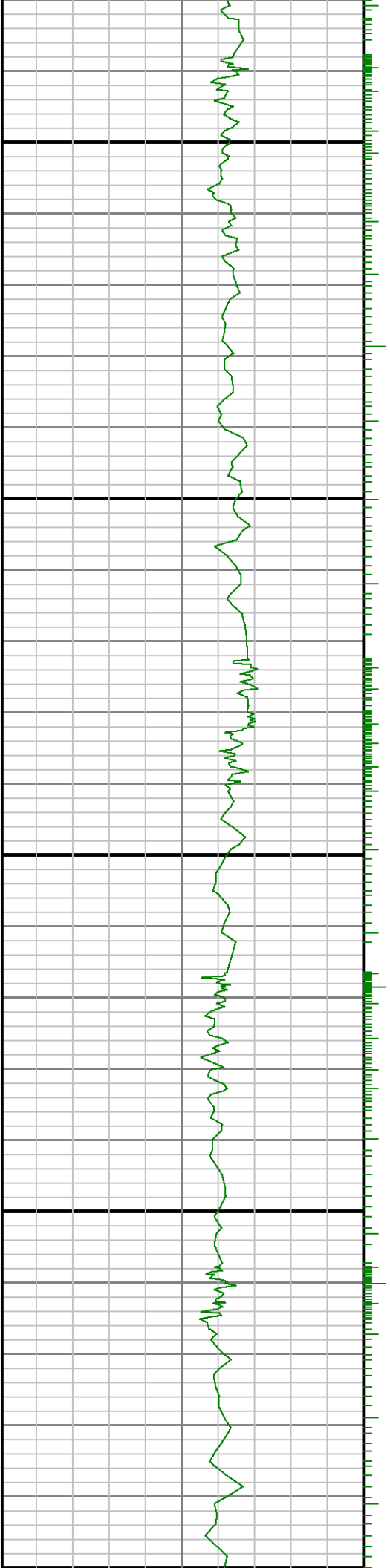
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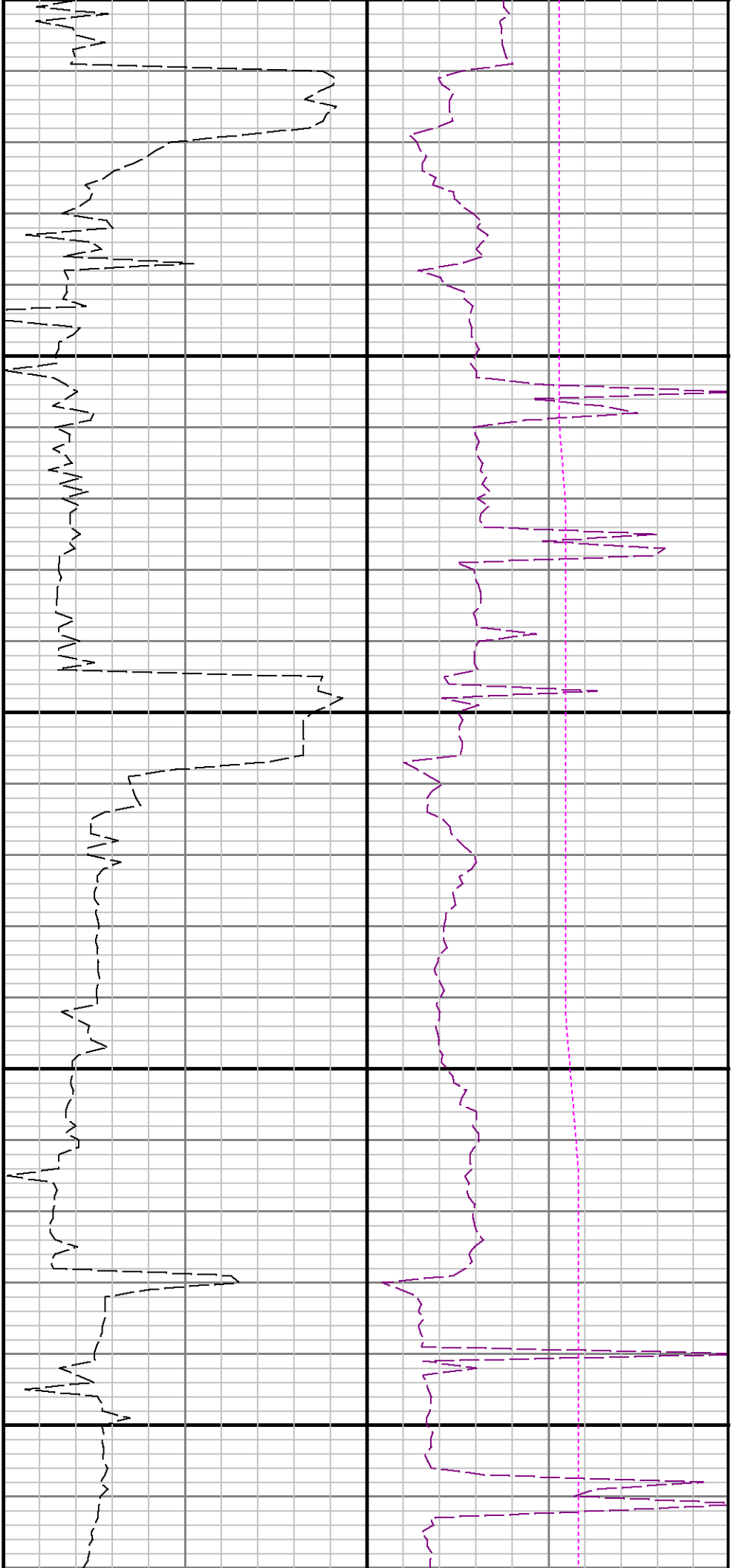
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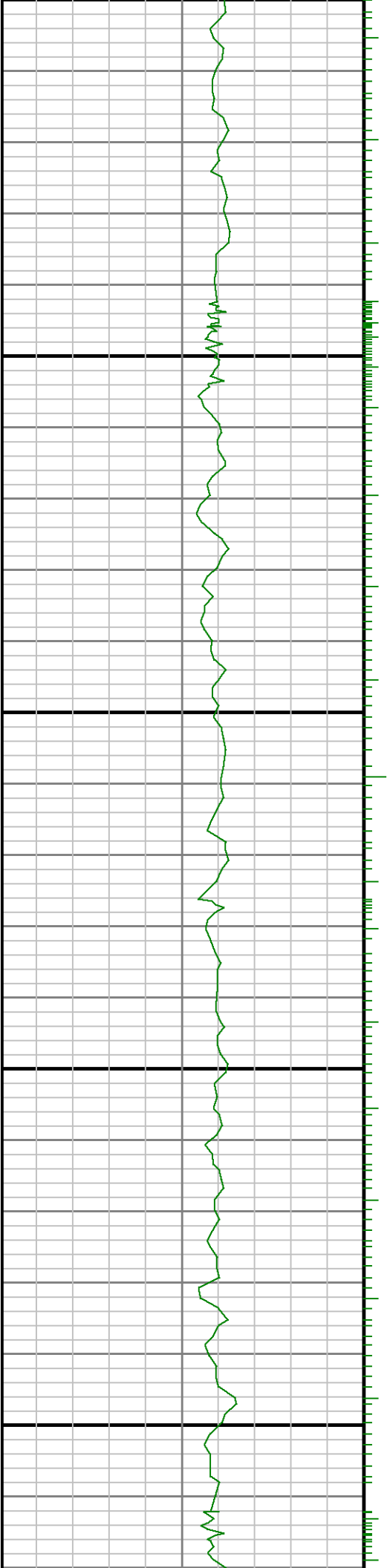
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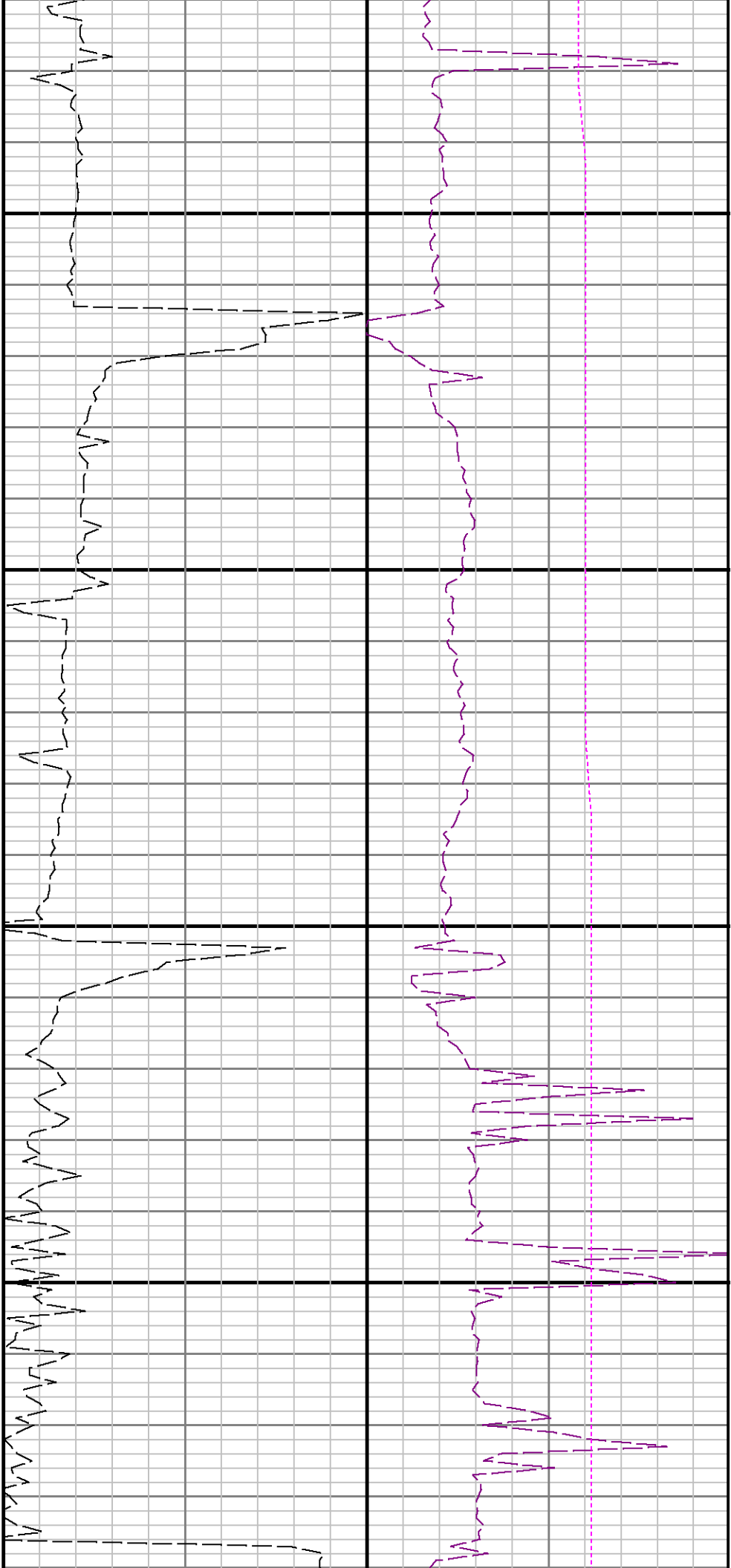




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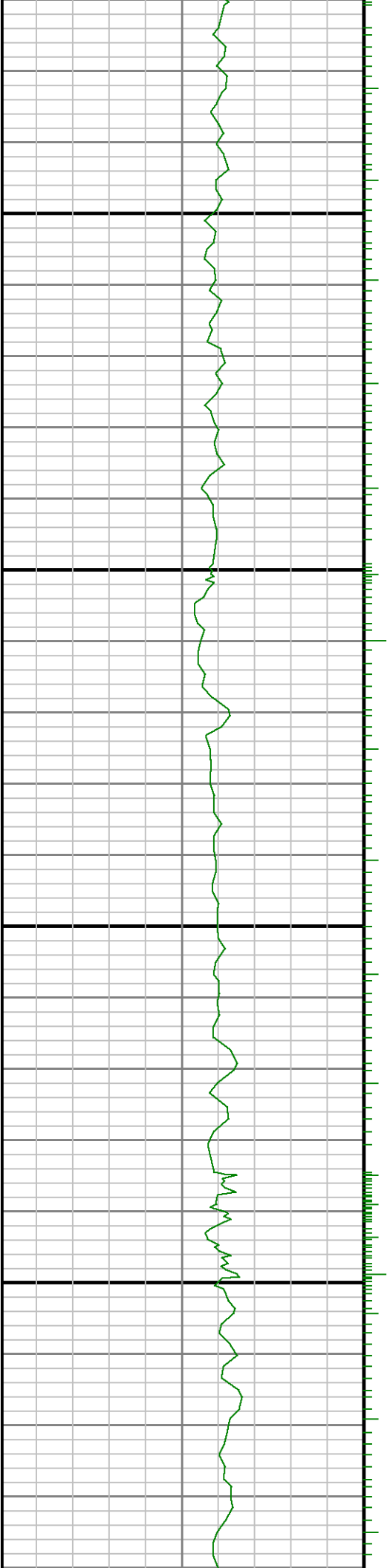
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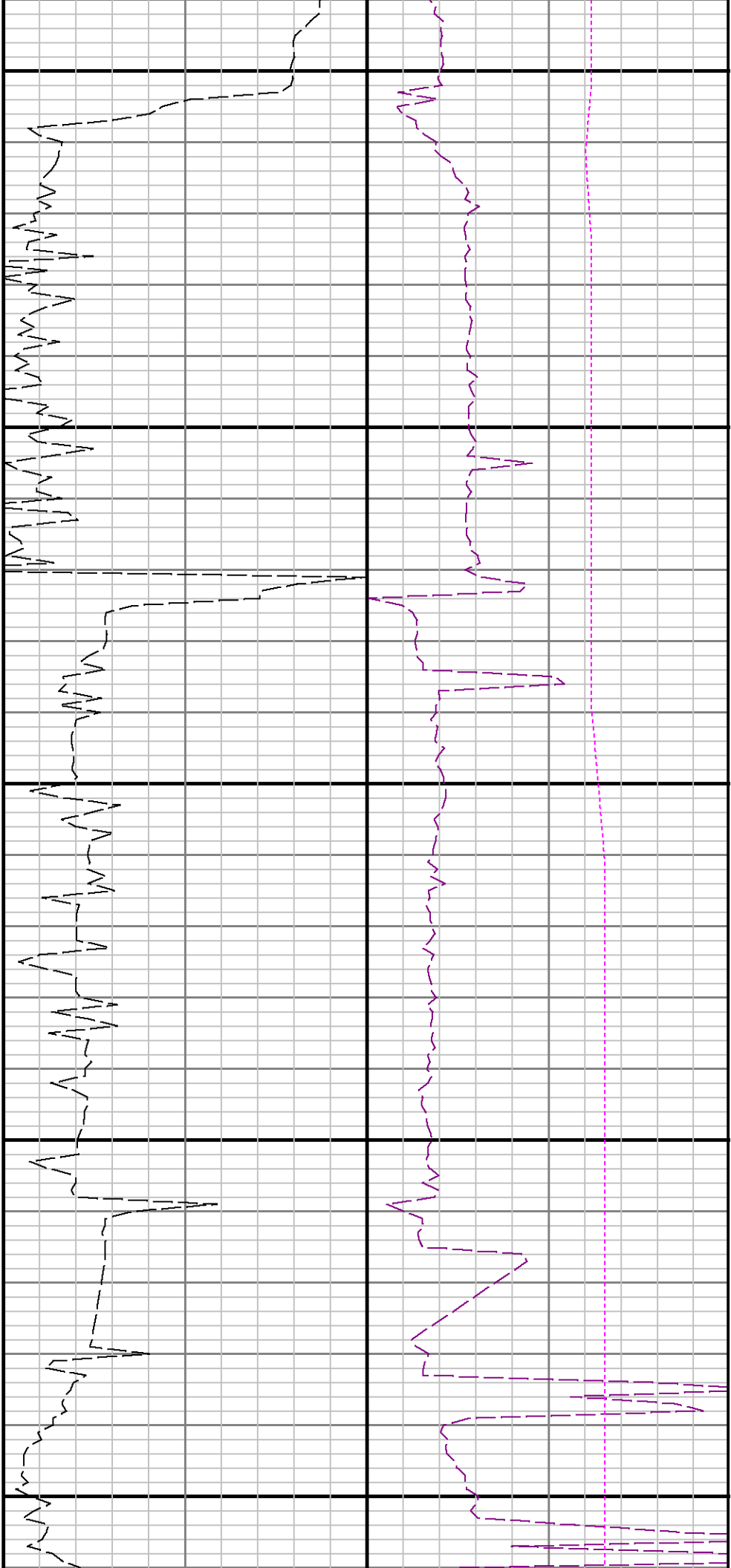




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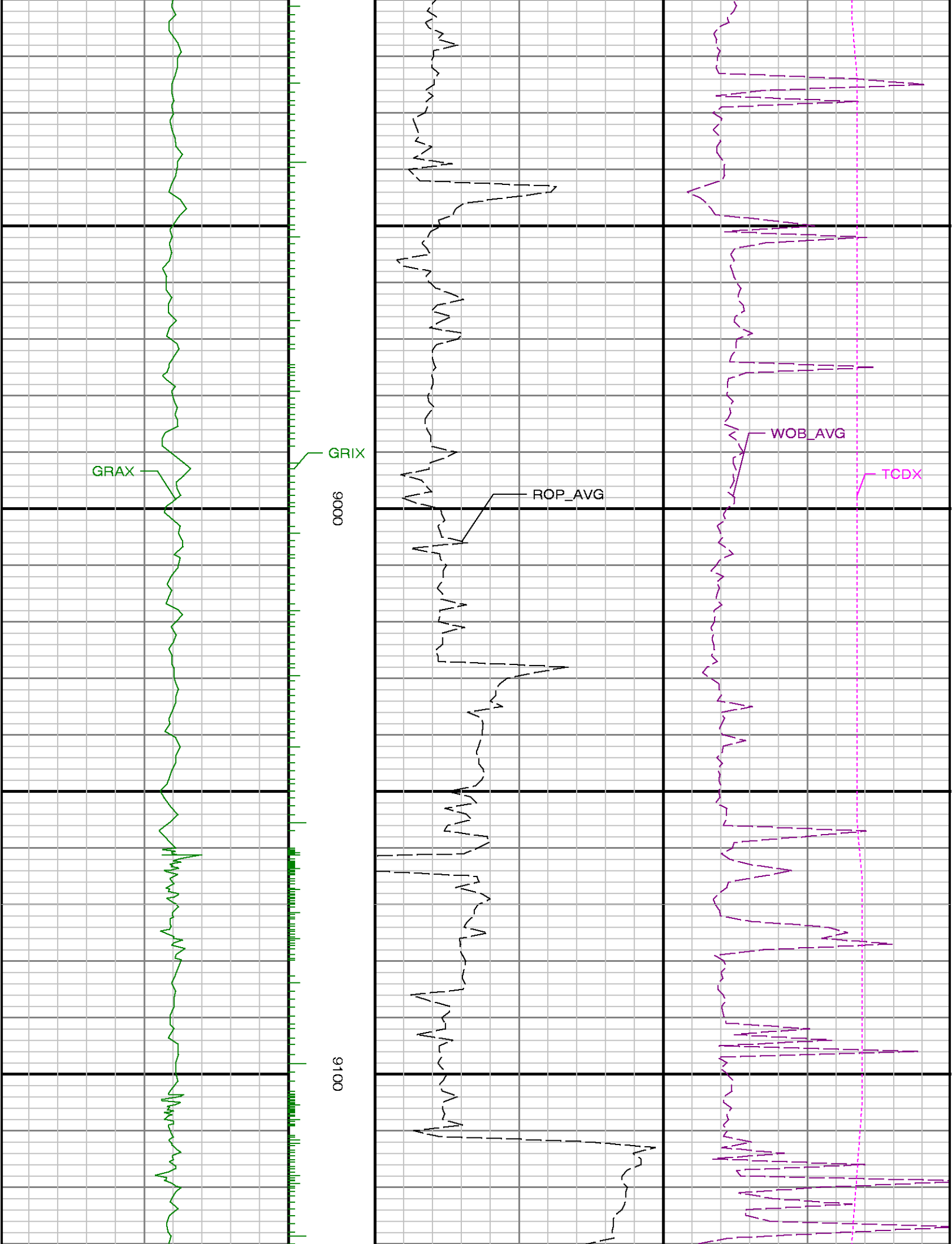


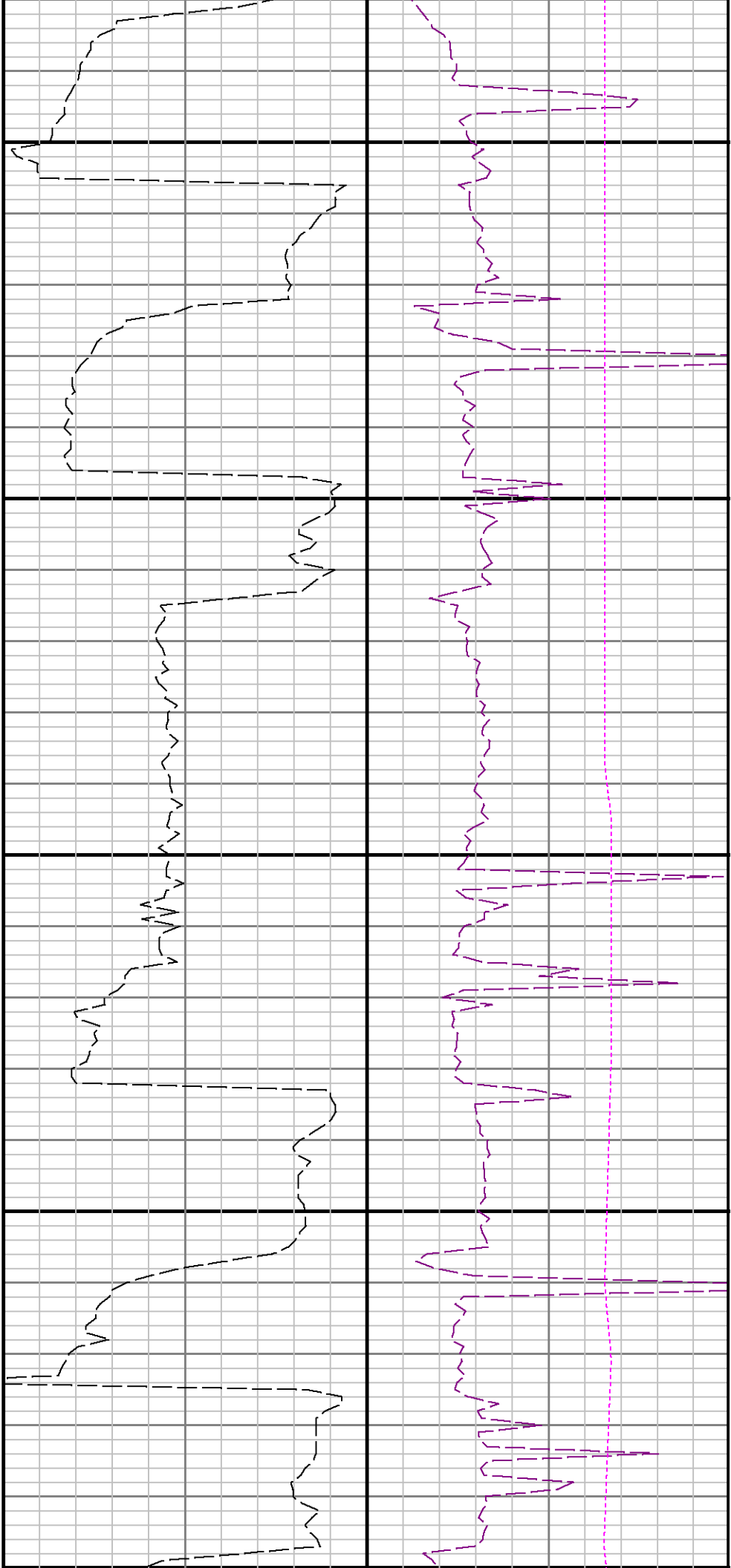


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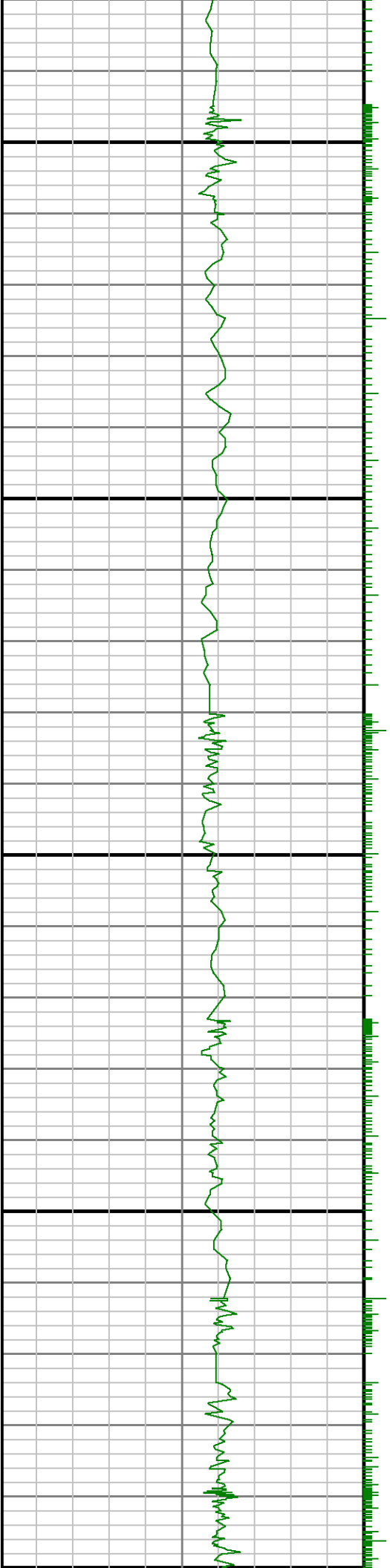
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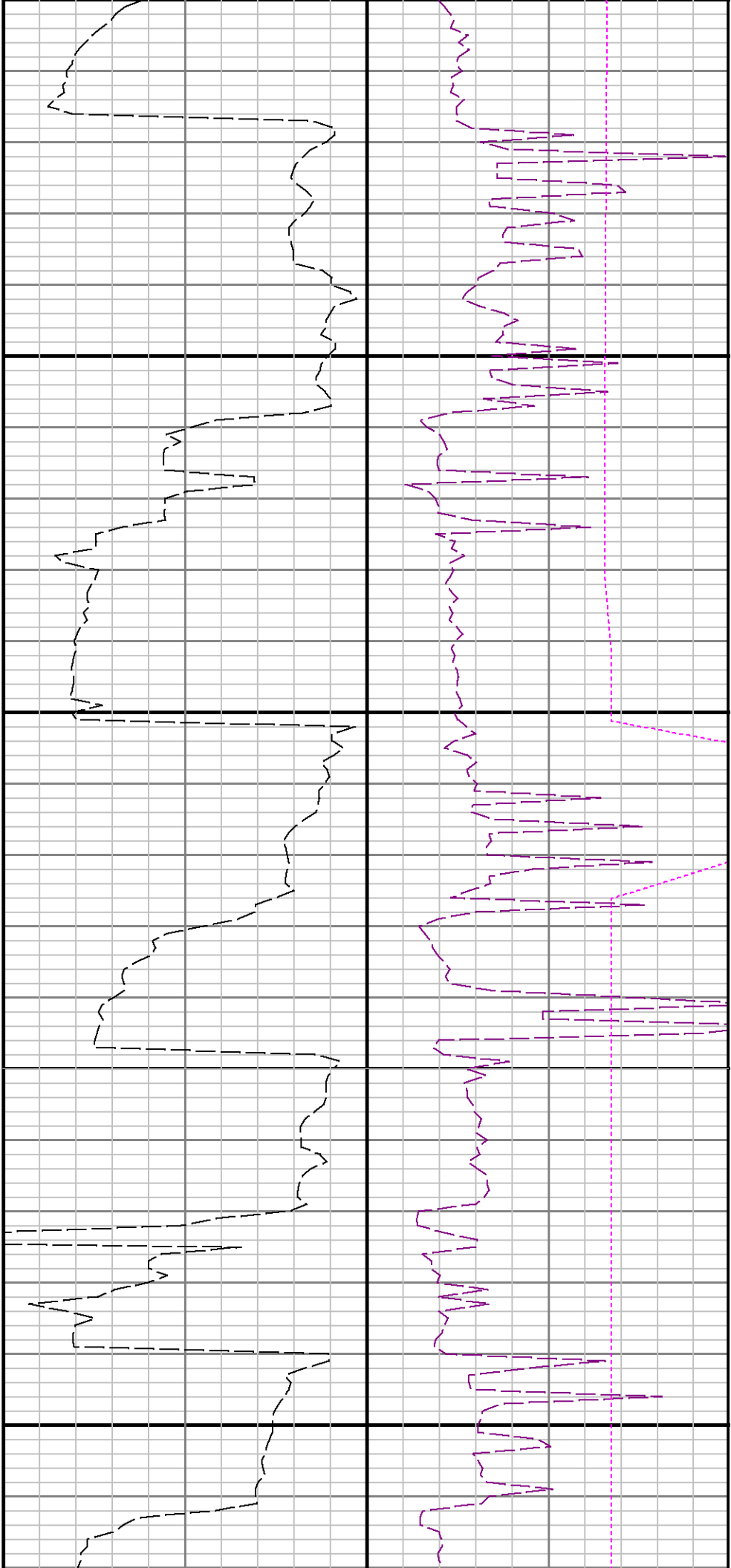




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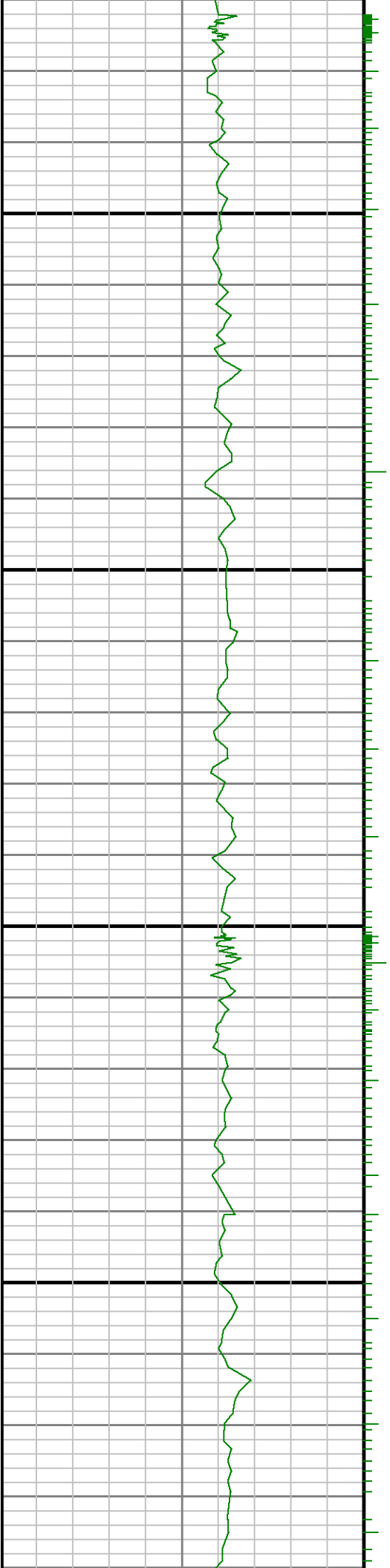
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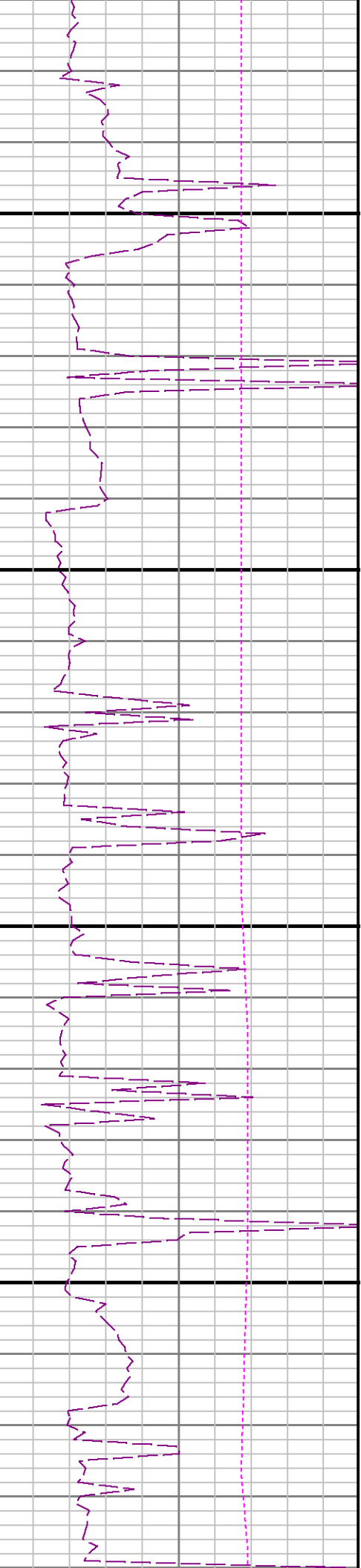
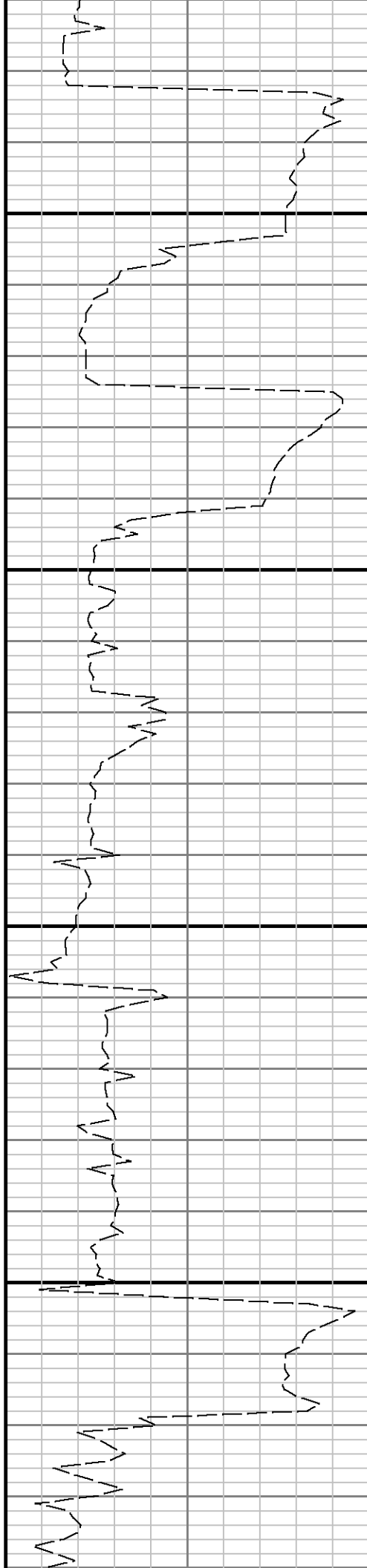
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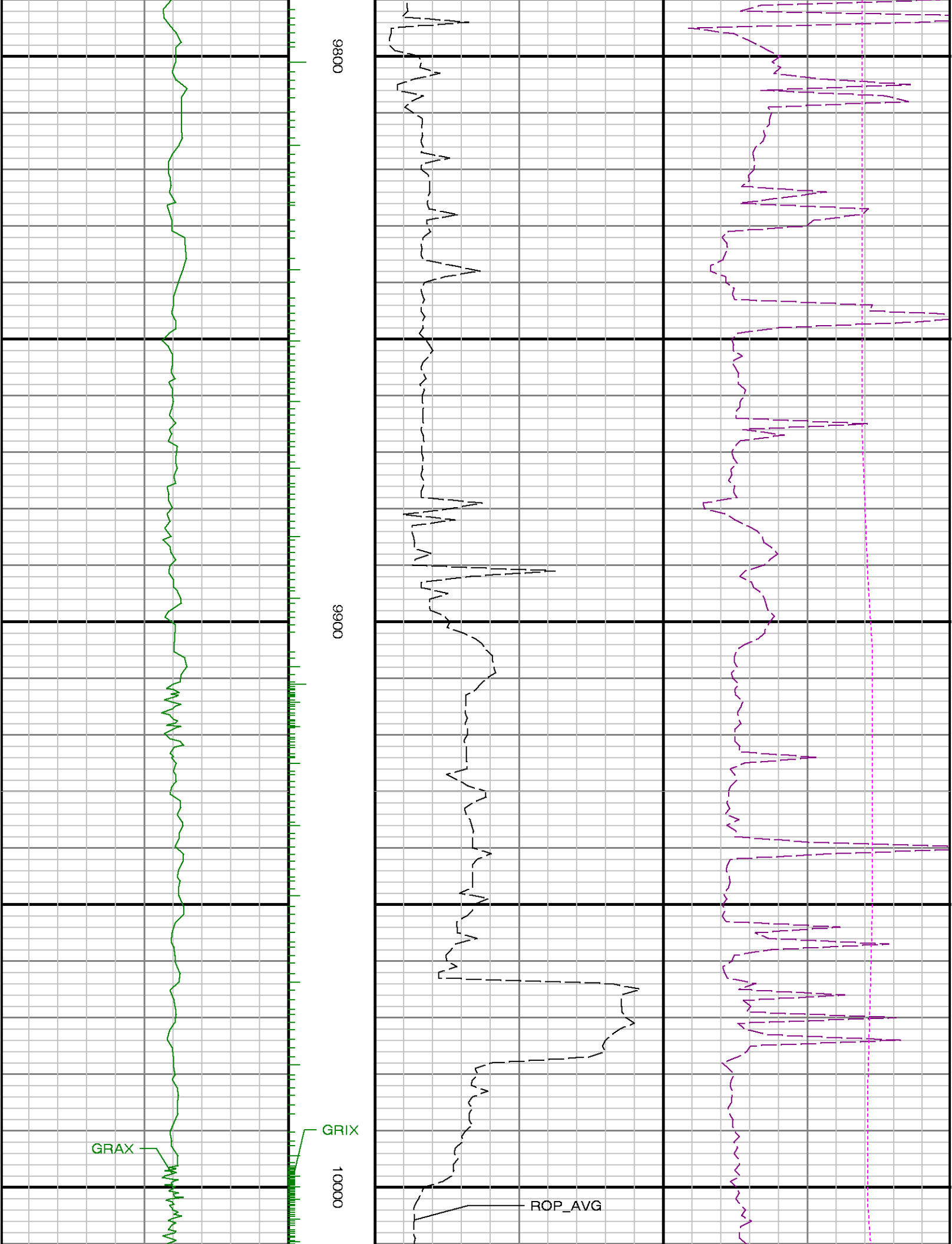
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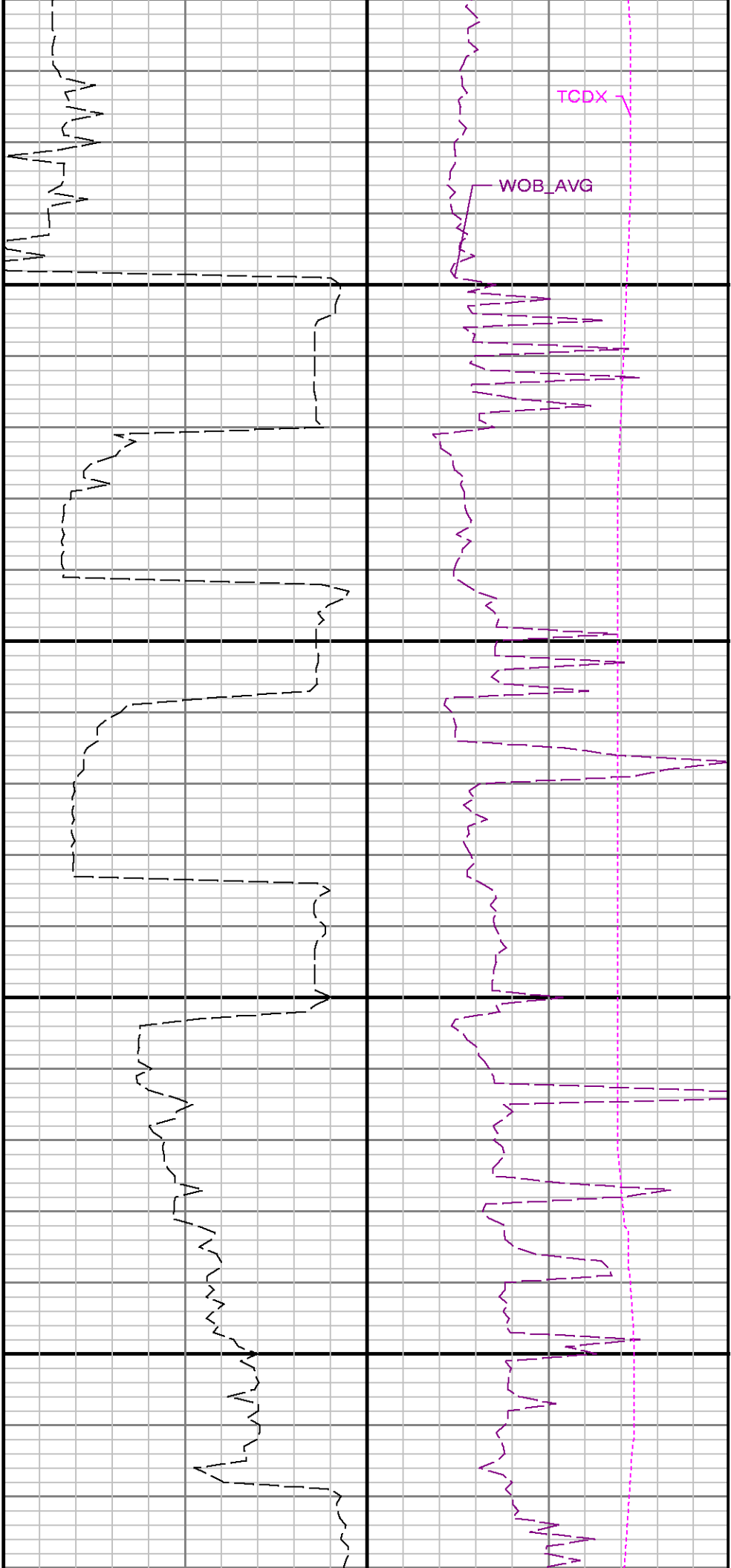


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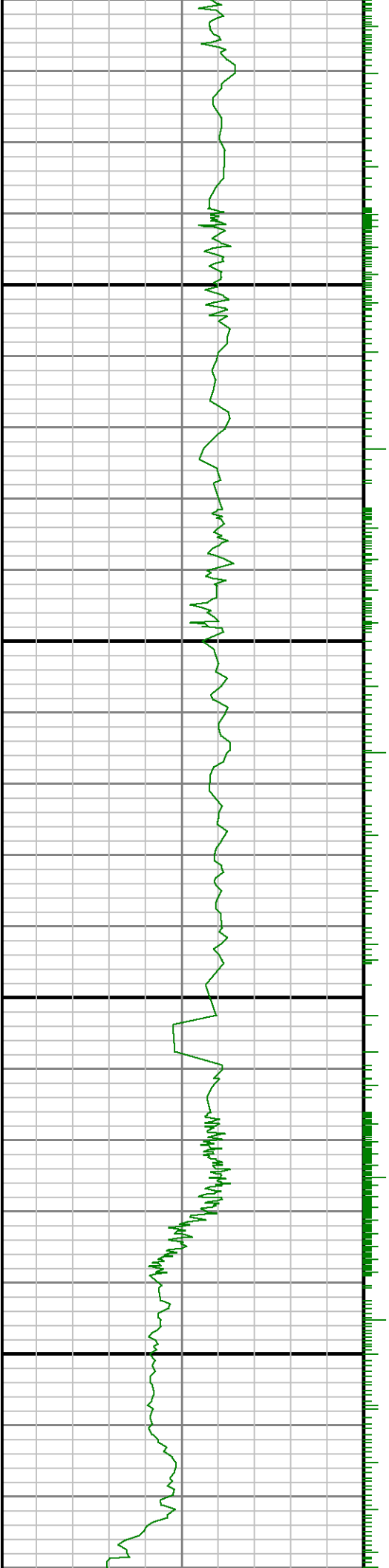


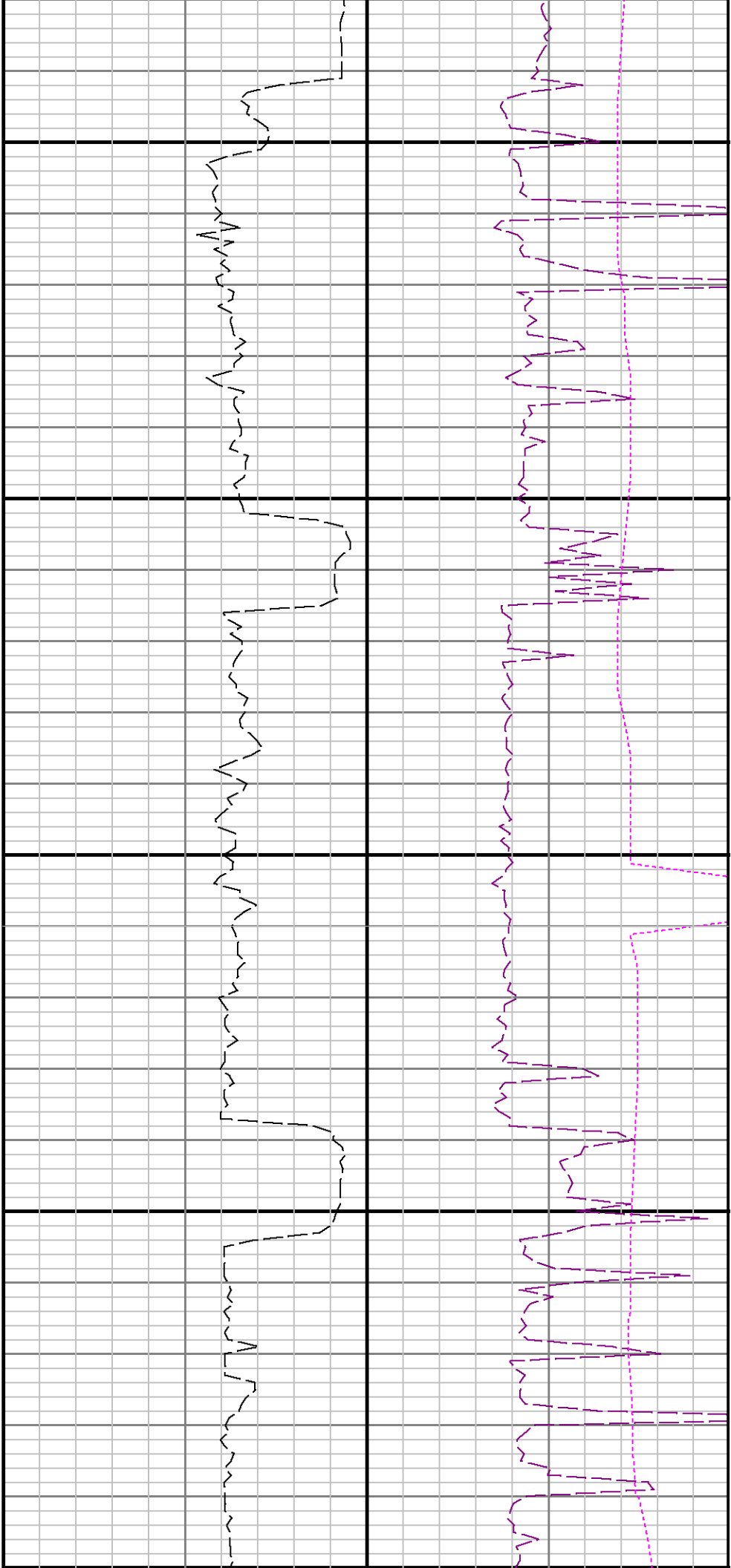




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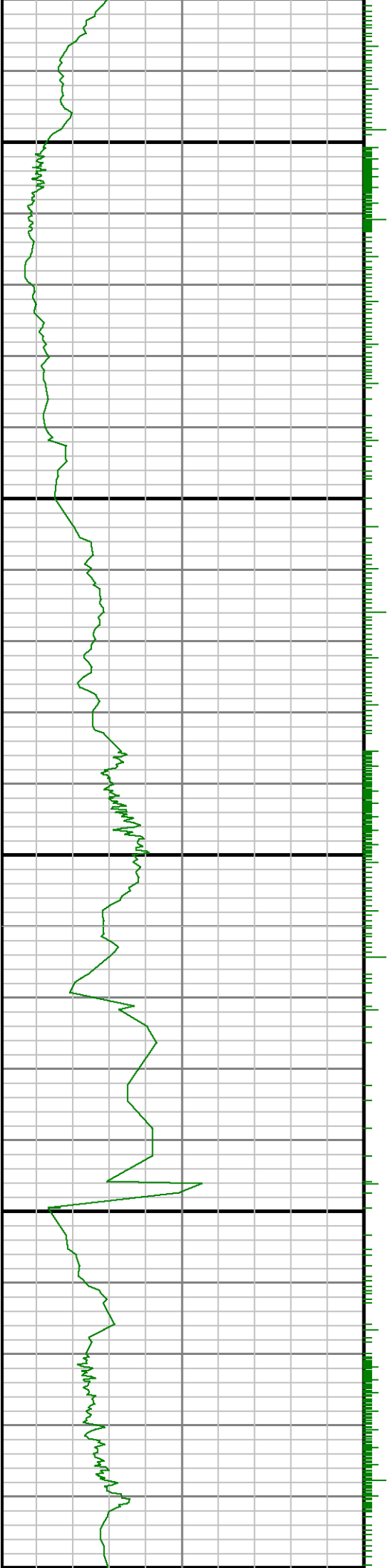
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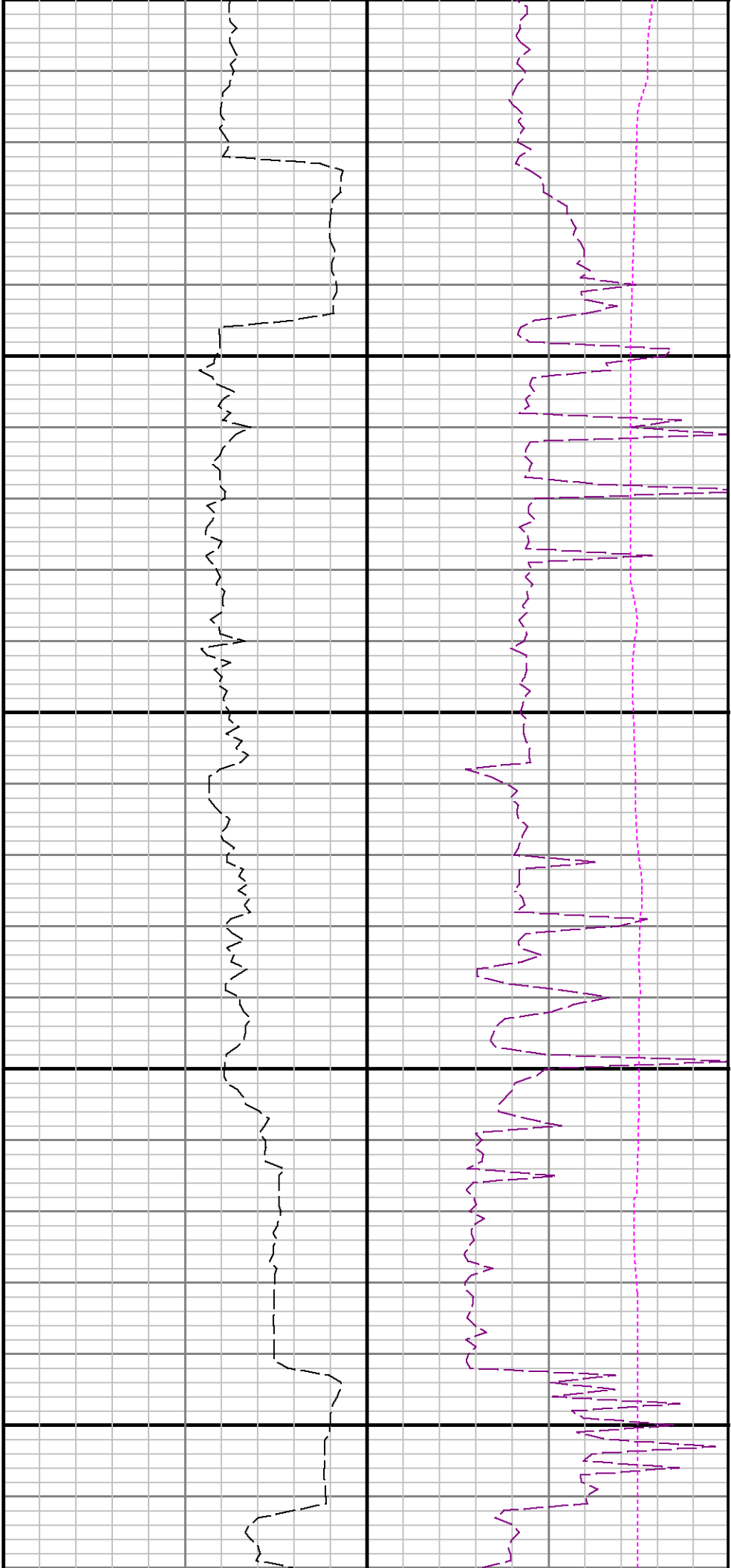




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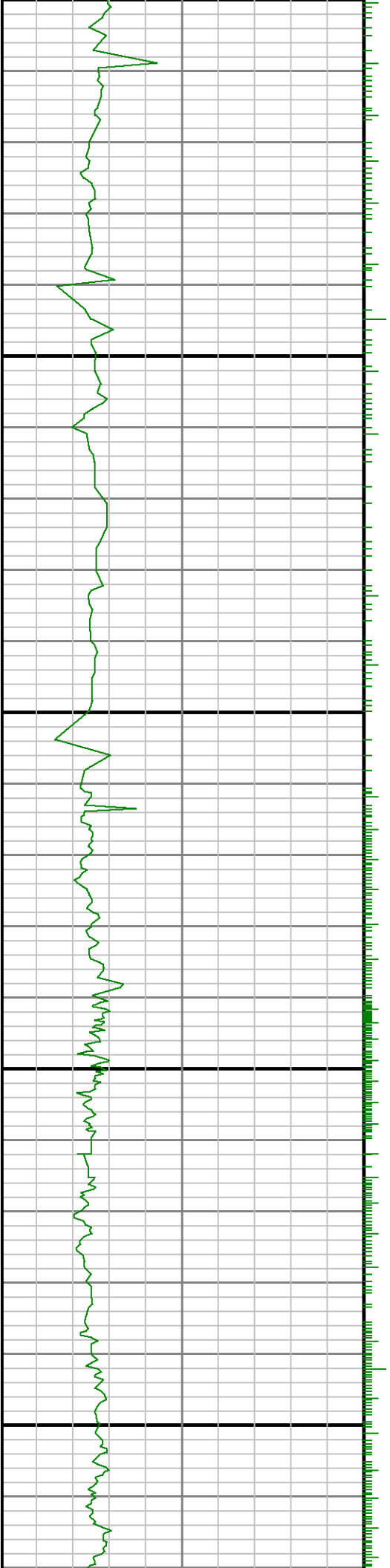
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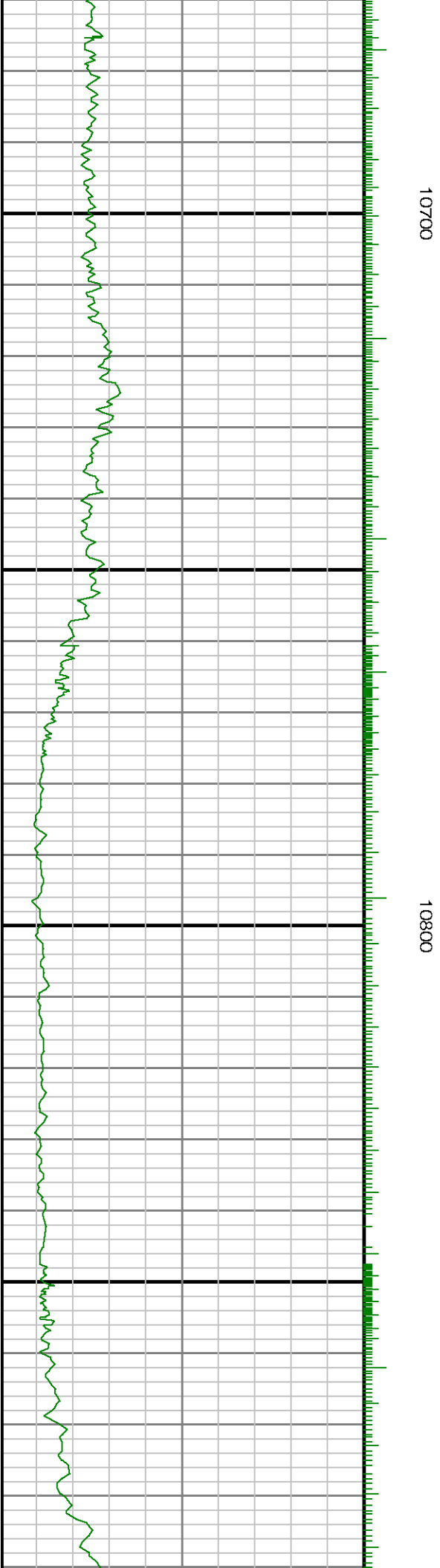
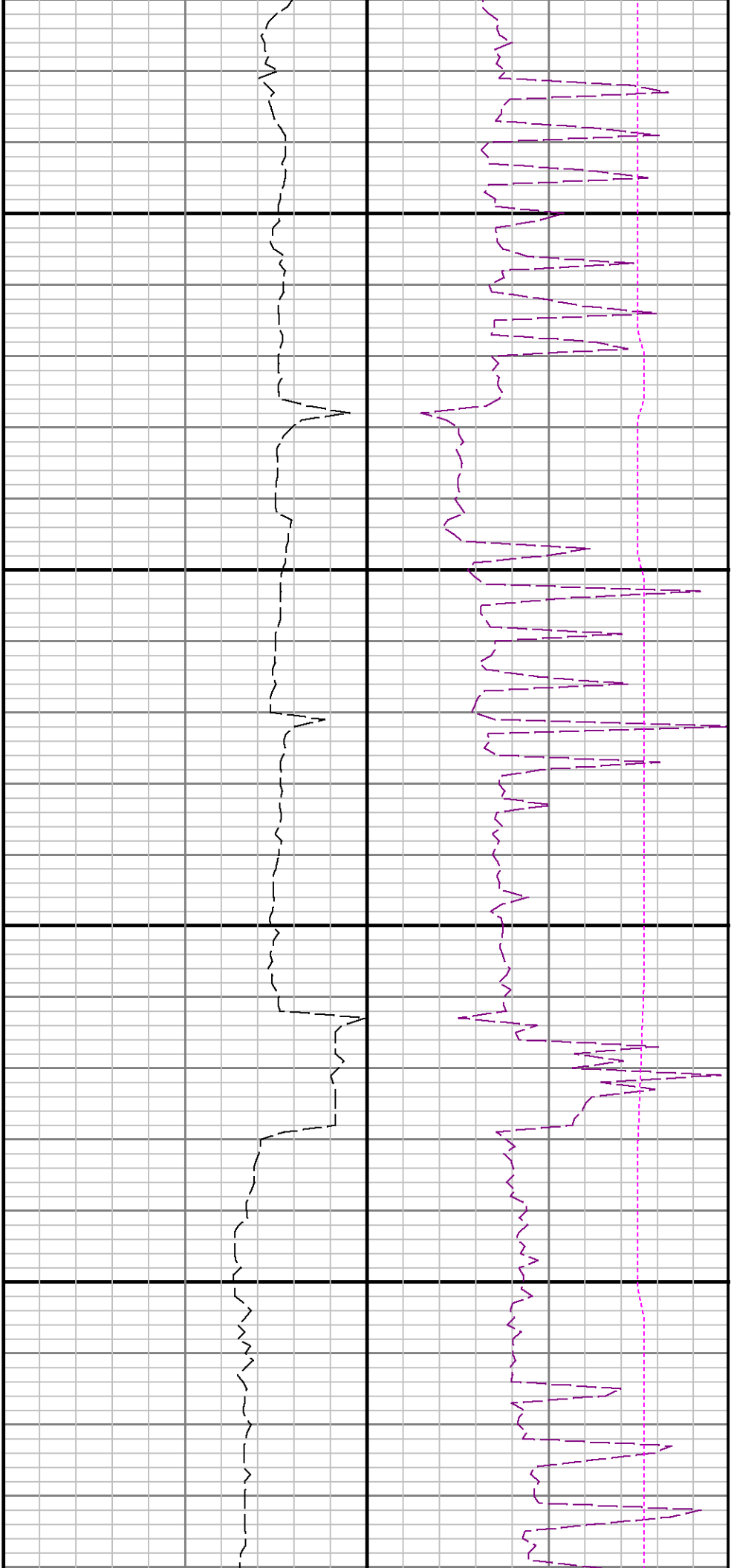


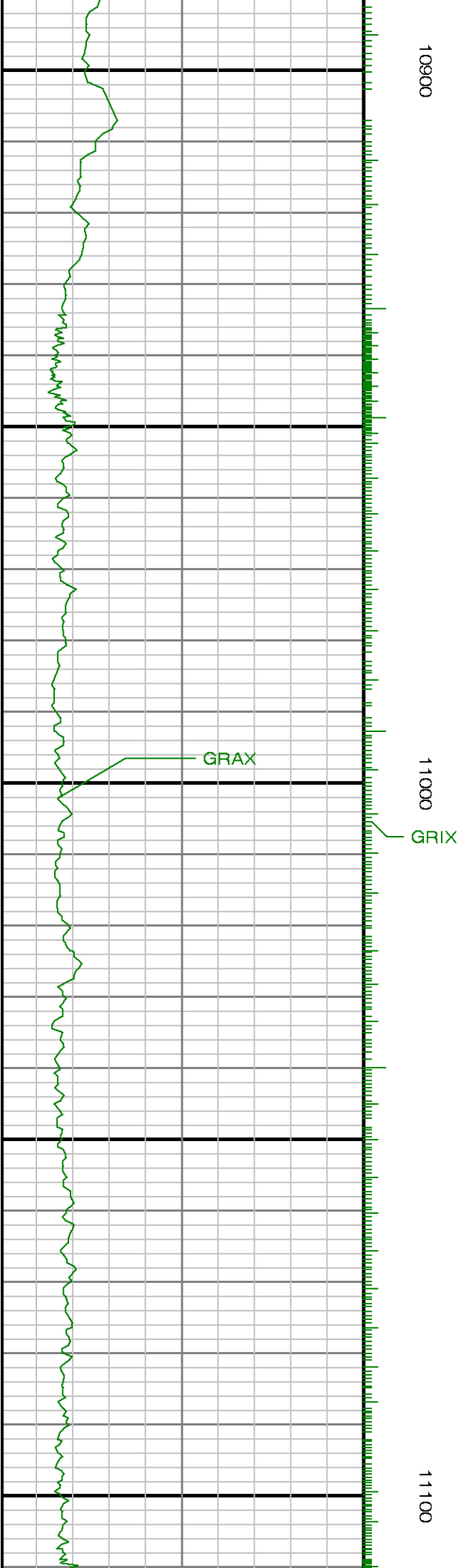
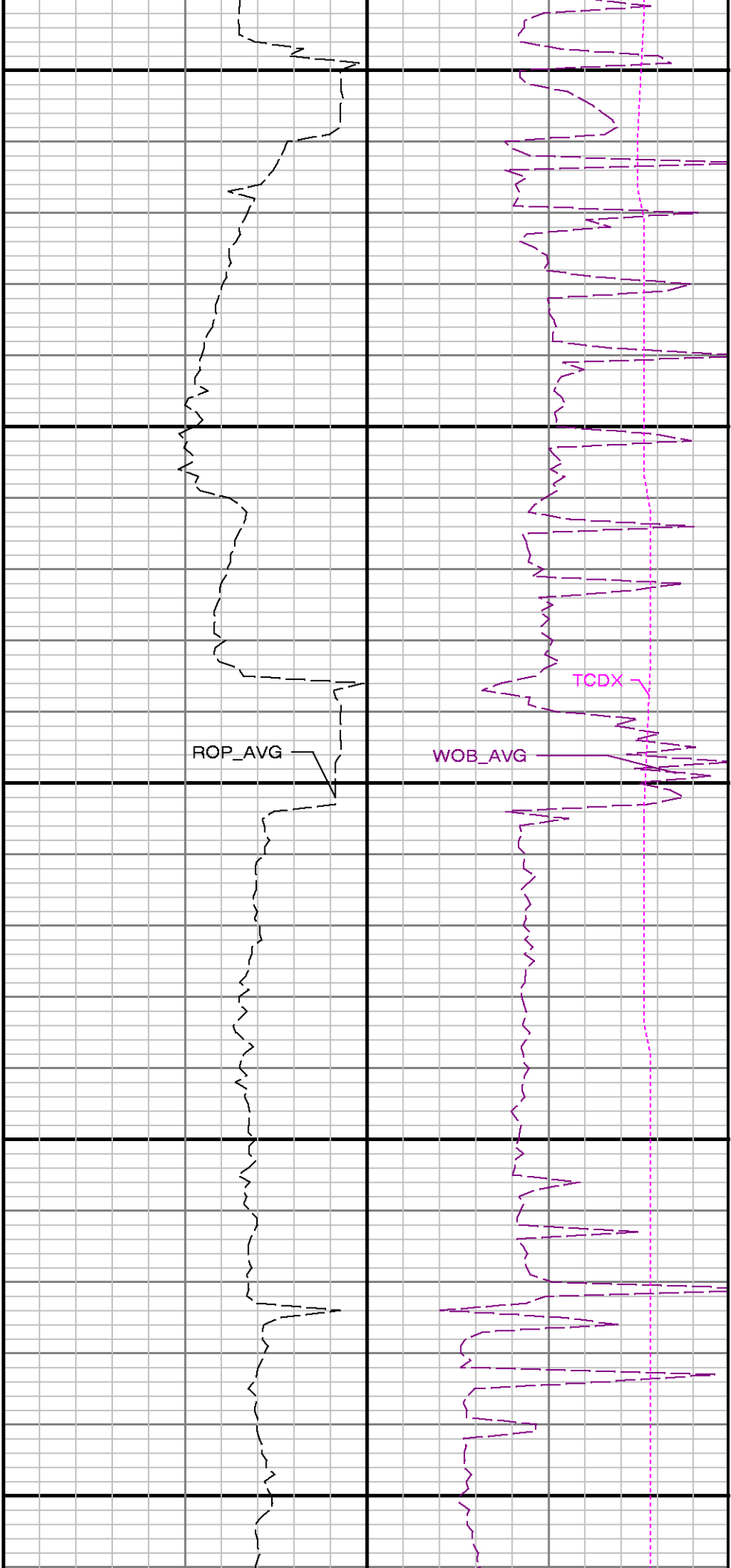


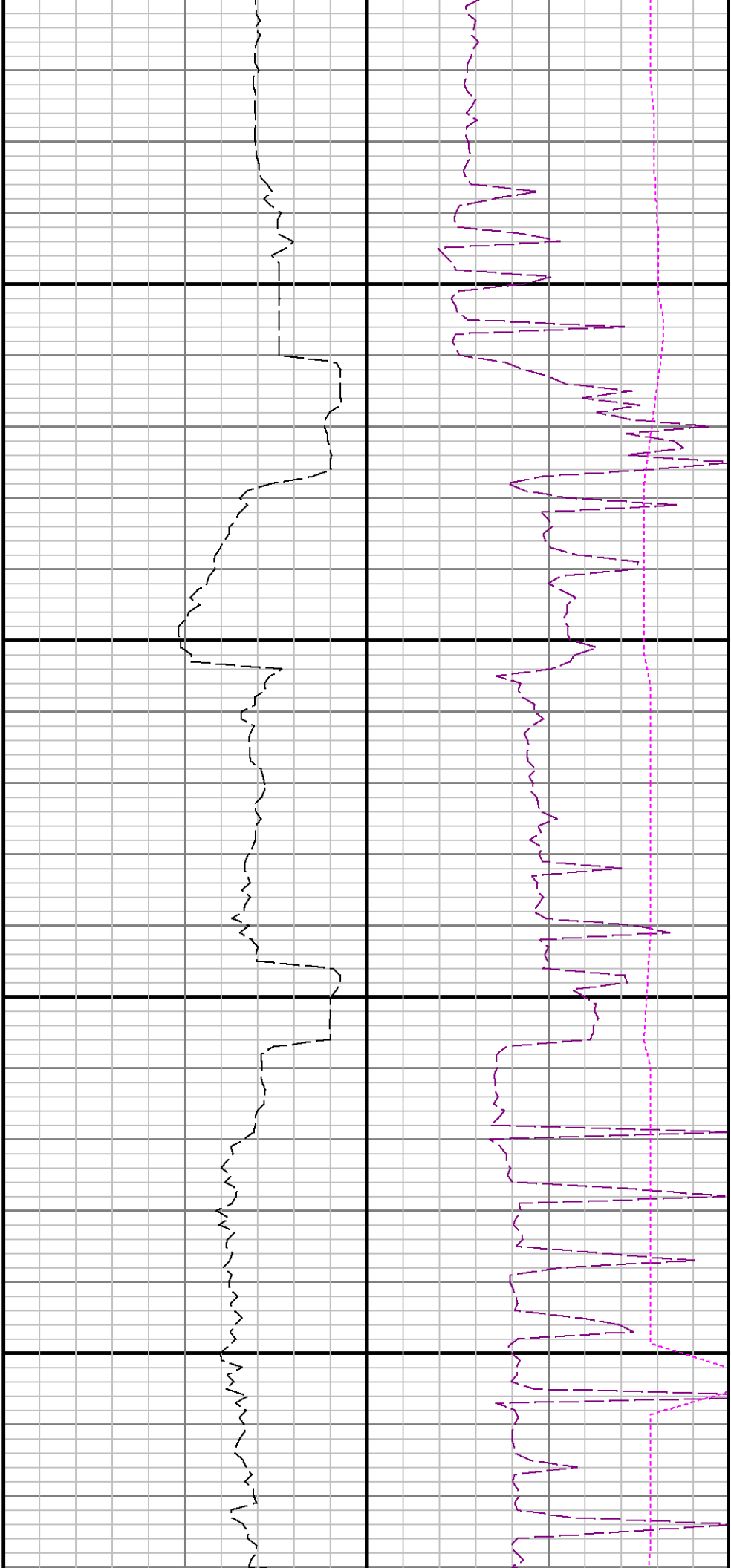
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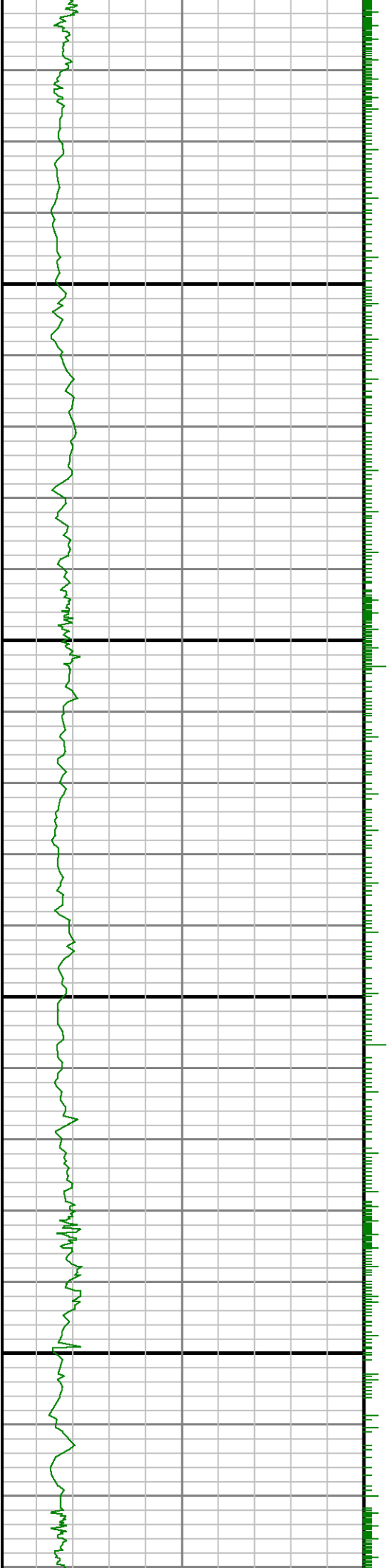


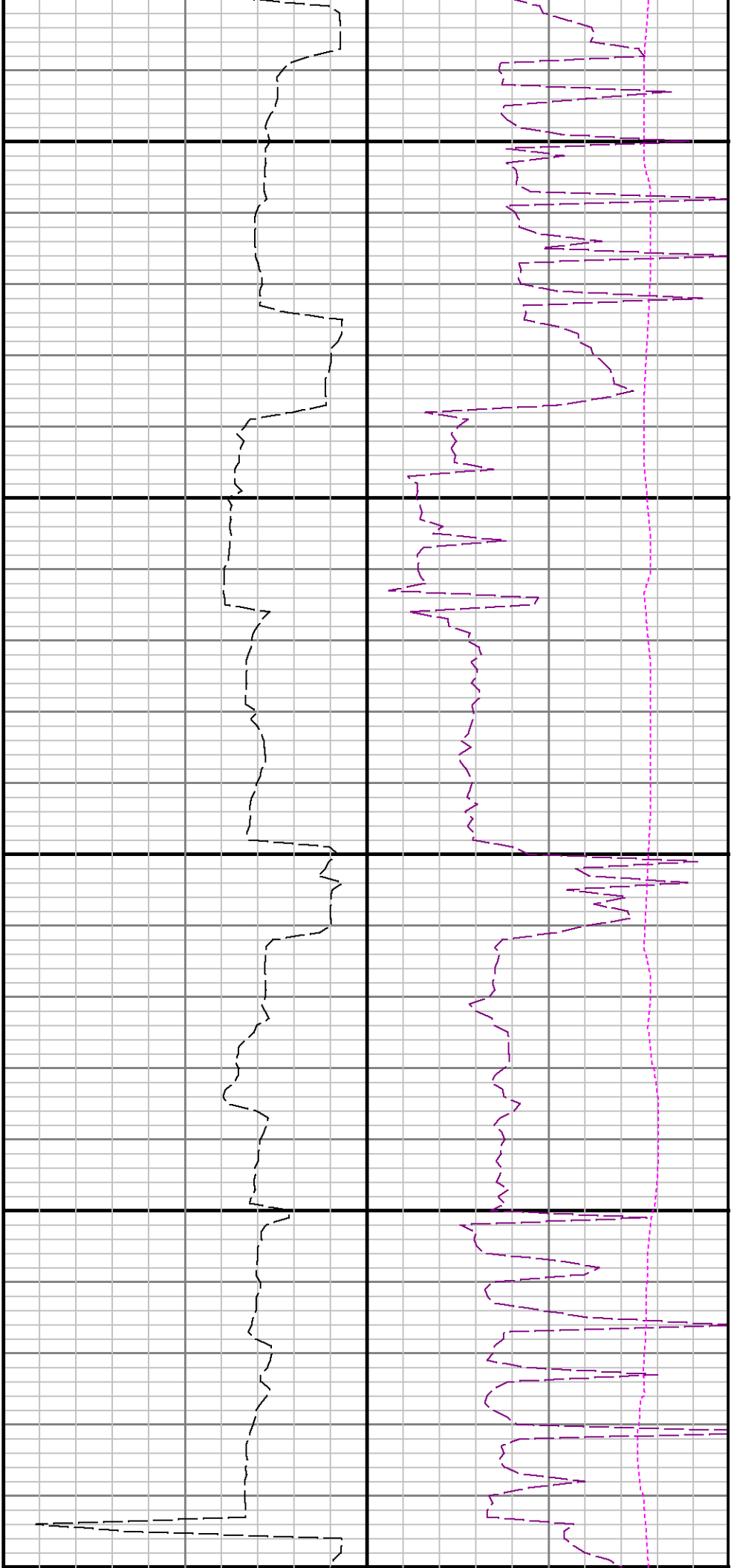




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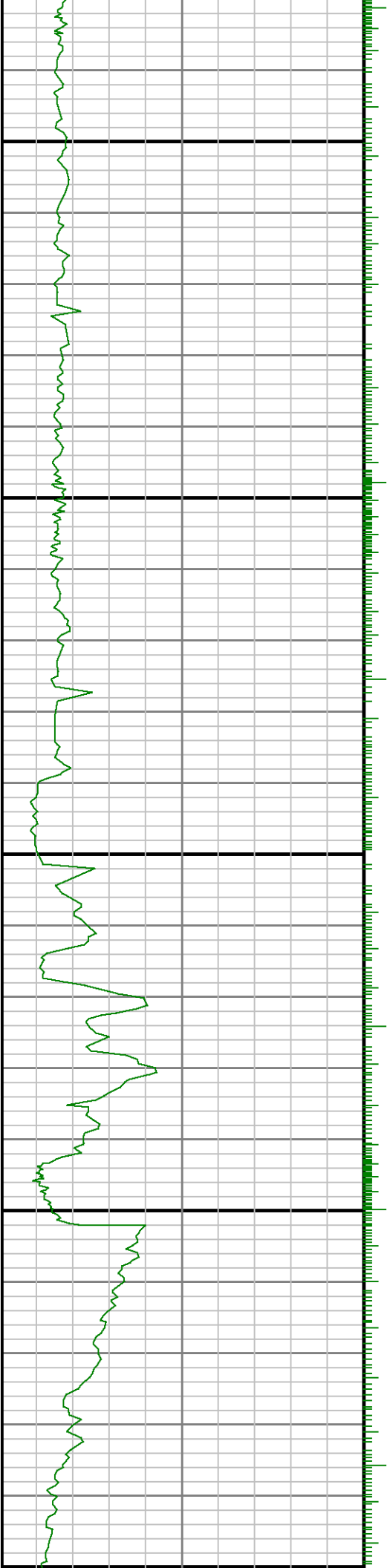
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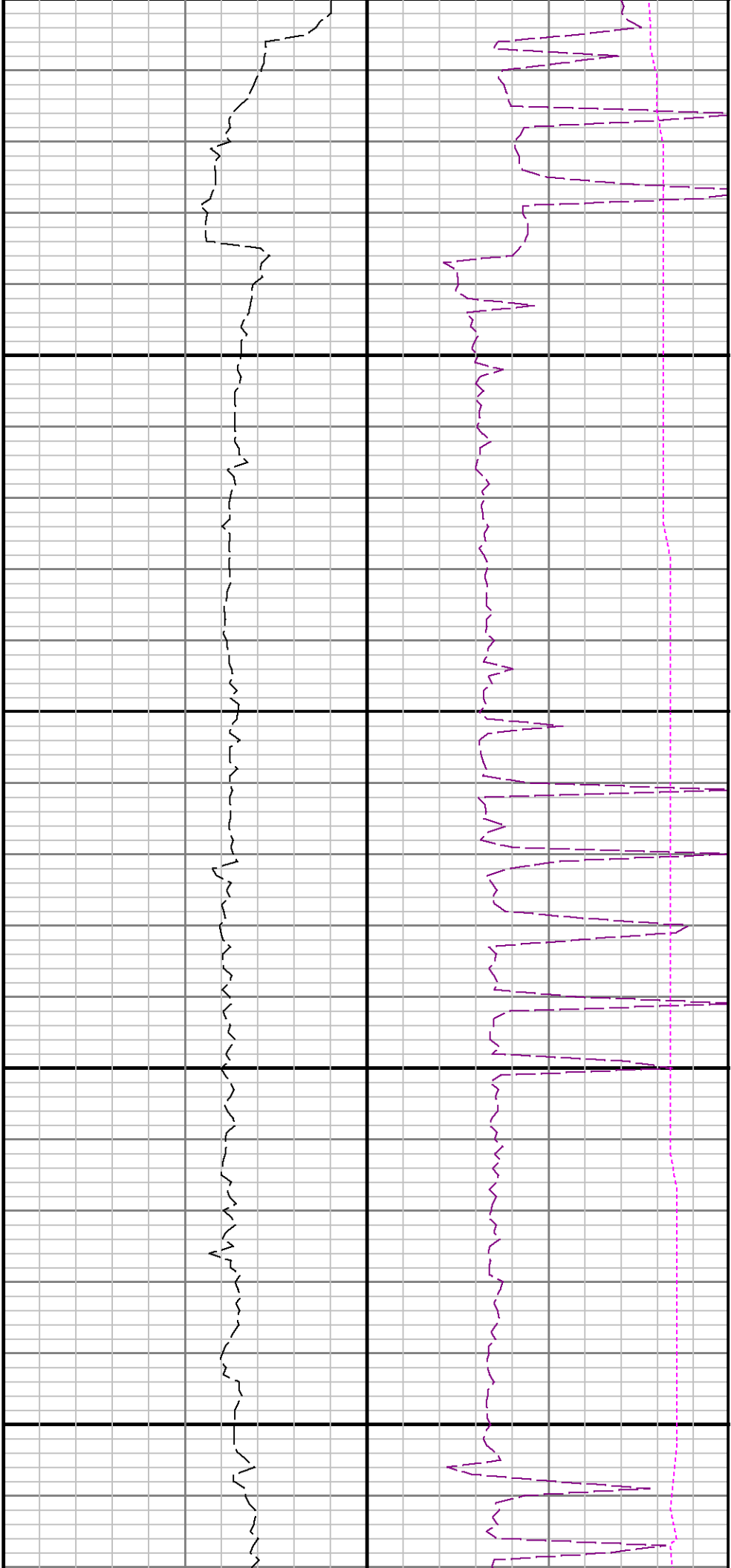




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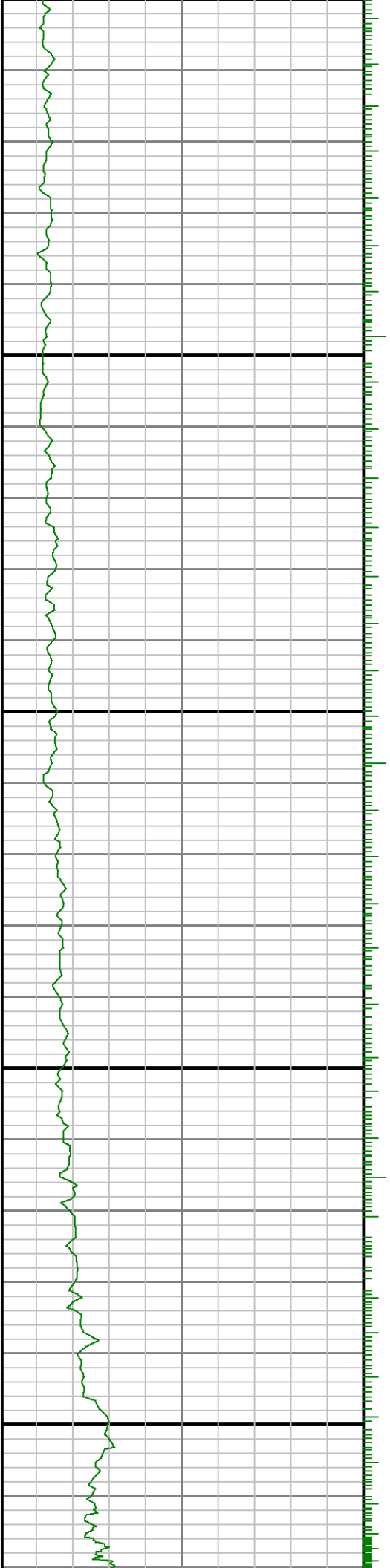
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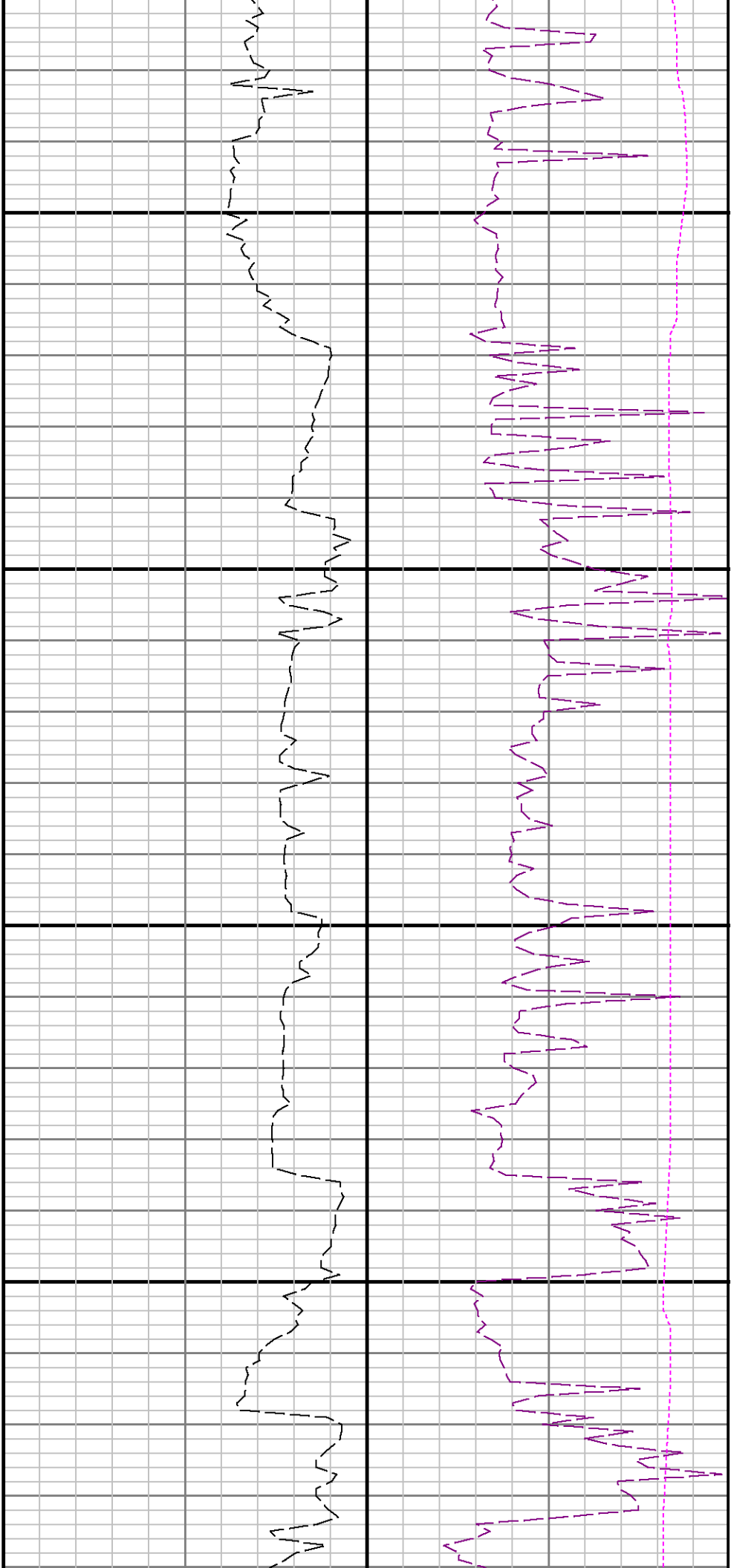




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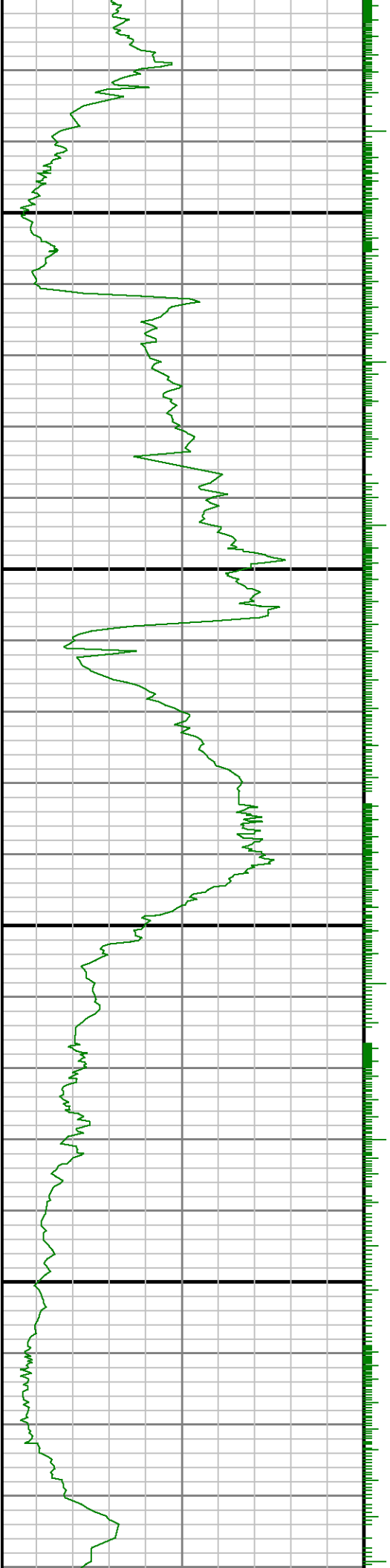
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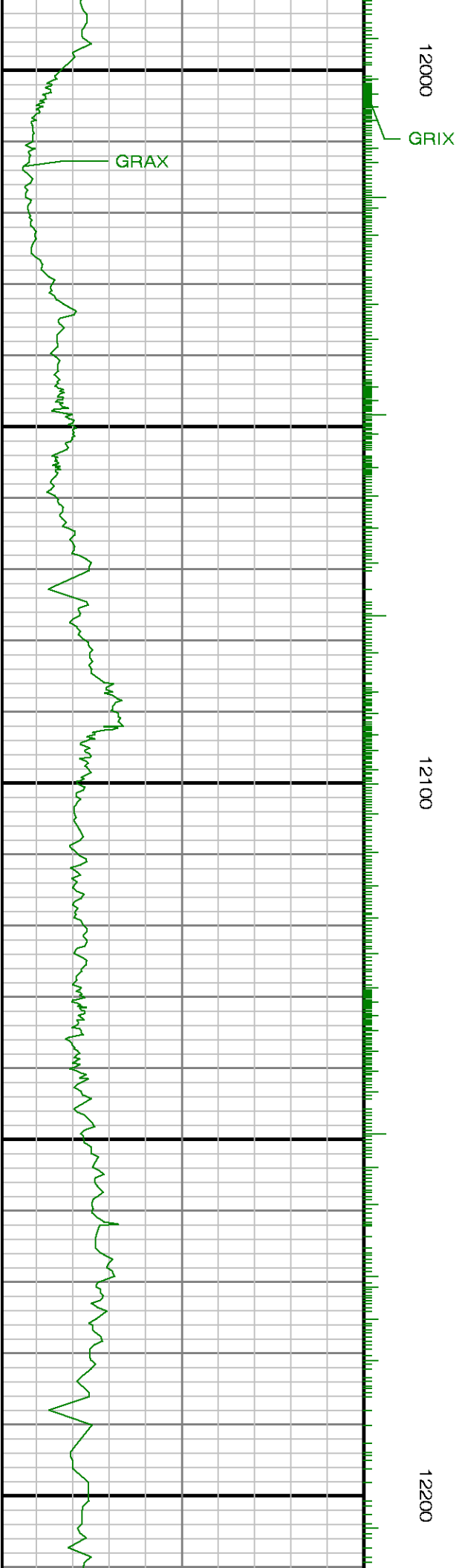
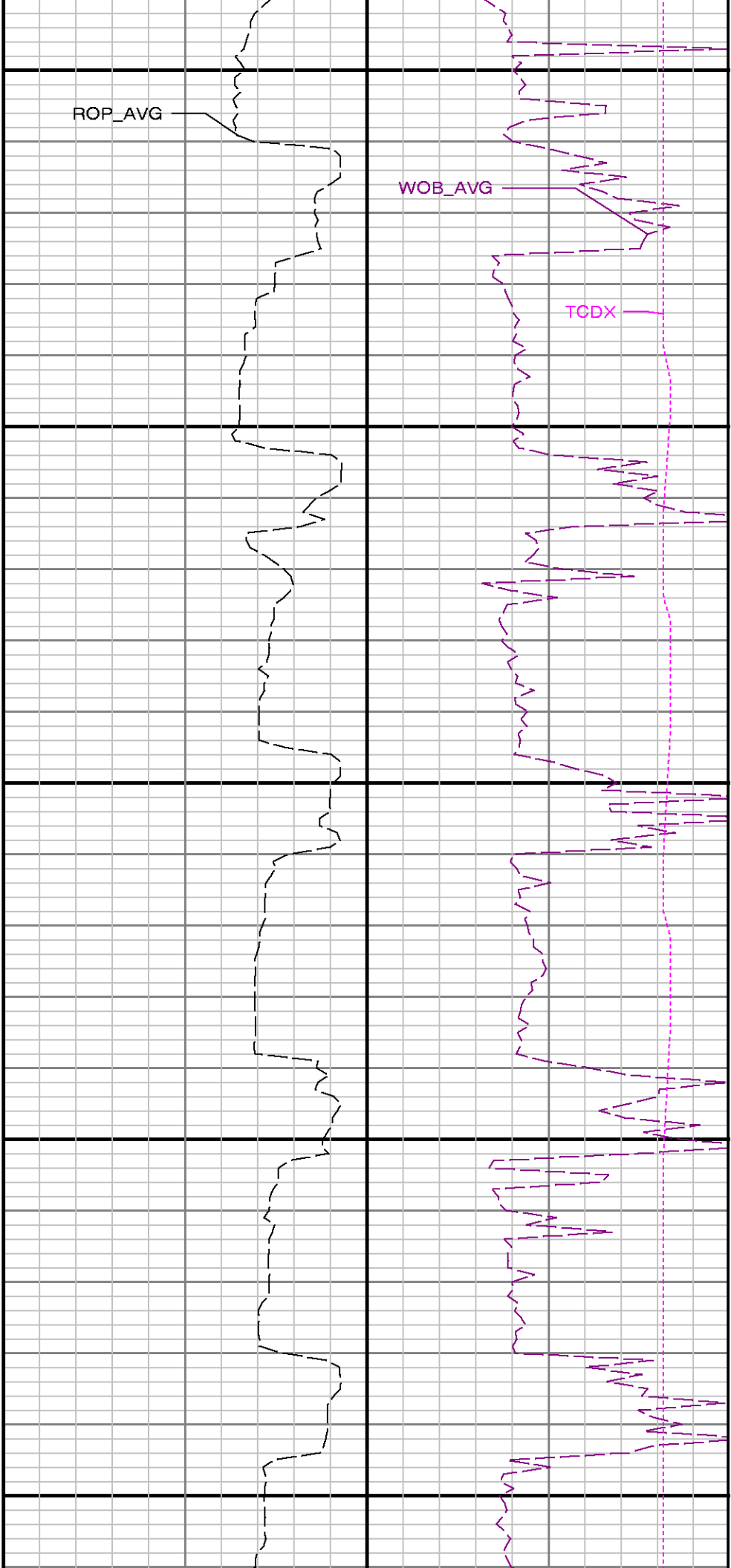


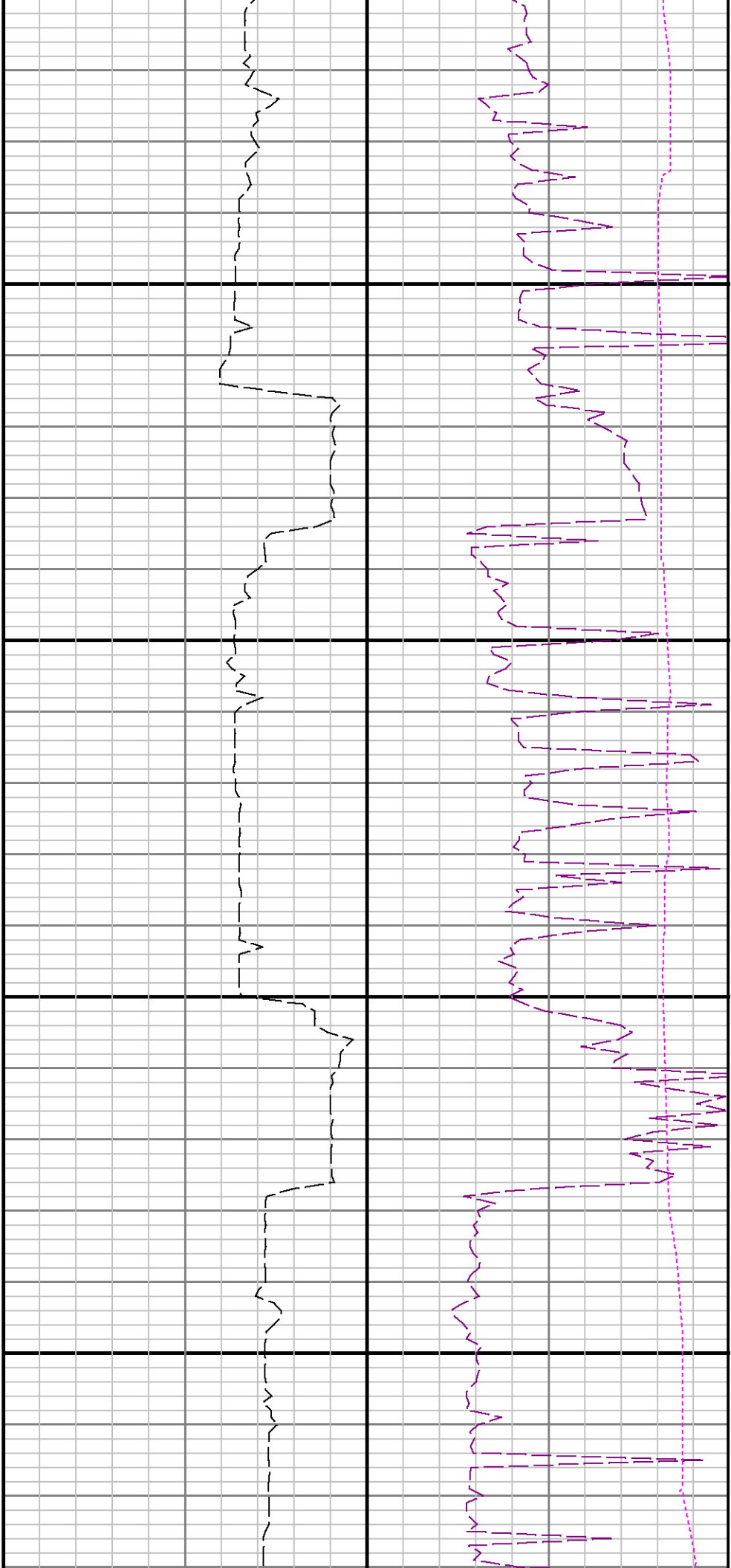


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