



BAKER
HUGHES

LWD REALTIME LOG

Gamma Ray

Scale:

Company: Anadarko

1-240 MD

Well: Azul 13-32HZ

Depth Reference:

Field: Wattenberg

Driller's Depth

County: Weld Country: United States

State: Colorado

Status:

Final Print

Surface Location:

Latitude: 39° 46' 44" N
Longitude: 106° 41' 41" W

Other Services:

API No: 0512346102

Directional

Job ID: 9041438

SEC: 13 TOWN: 1N RGE: 66W

Permanent Datum (P.D.): Ground Level

Elevation: 5050.00 ft
Above P.D. 21.00 ft

Elev. KB: 5071.00 ft
Elev. DF: 5050.00 ft
Elev. GL:

Log Measured From: Rig Floor

Dates

Interval Logged

Magnetic Field Reference

Date From: 2018-04-11 Top: (ft) 1935.00

Azi Reference North: True Dip Angle: (deg) 66.34

Date To: 2018-04-14 Bottom: (ft) 13024.00

Total Magnetic Field Strength: (nT) 52372

Spud Date: 2018-04-10

Mag to Reference North Correction: (deg) 7.79 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	21.00	1935.00	9.625	36.00	21.00	1924.00
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7.875	1935.00	13024.00				
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Mud Record

Deviation Record

Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc Az (Start)	Inc Az (End)
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Oil Based Mud	1935.00	13024.00	7.875	11089.00	27.60 122.26	2.94 77.92
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Acquisition System Software Version

Other

Baker Hughes Cadence

RT4.1

PlotStudio 4.1.7763.3

Rig: Precision 464

Contractor: Precision Drilling

District: RMA

Unit: D&E

©"4239"Dcmgt"JwiJgu."c"IG"eqorcp{."NNE"ó"Cnn"tkijvu"tgugtXgF0"Dcmgt"JwiJgu."c"IG"eqorcp{."NNE"cpf"kvu"chhknkcvgu"*ôDJIGö+"rtqXkfgu"vJku"kphqtocvkqp"qp"cp"ôcu"kuô"dcuku"hqt"igpgtcn"kphqtocvkqp" purposes and believes it to be accurate as of the date of publication. BHGE does not make any representation as to the accuracy or completeness of the information and makes no warranties of any kind, specific, implied or oral, to the fullest extent permissible by law, including those of merchantability and fitness for a particular purpose or use. BHGE hereby disclaims any and all liability for any direct, indirect, consequential or special damages, claims for lost profits, or third party claims arising from the use of the information, whether a claim is asserted in contract, tort, or otherwise. The BHGE logo is a trademark of Baker Hughes, a GE company, LLC. GE and the GE monogram are trademarks of General Electric Company used under trademark license.

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	7.875	PDC	2.50	Steerable	1935.00	12983.00	1935.00	13024.00	2018-04-11 18:25	2018-04-14 12:17	55.78

Crew

Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Alexis Bejarano		2018-04-11	2018-04-14	Mohammad Odetallah		2018-04-11	2018-04-14				

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+ (%)
2018-04-11 00:00	1	1935.00	Oil Based Mud	9.0	19	N/A	3.3	78/22	Active Pit	27992	0.00
2018-04-12 16:00	1	6837.00	Oil Based Mud	9.0	17	N/A	3.2	78/22	Active Pit	26239	0.00
2018-04-13 16:00	1	9597.00	Oil Based Mud	9.3	16	N/A	3.2	78/22	Active Pit	27211	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	NaviGamma	6058	Gamma (single)	10.14	40.66	6.500	3.250
1	NaviGamma	6058	Directional (mag)	13.56	44.08	6.500	3.250
1	NaviGamma	6058	VSS	13.56	44.08	6.500	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	NaviGamma	Probe Based Gamma Module, NaviTrak Platform

Comments

1	Depth measurements were 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	A sliding indicator is shown to the left edge of track 1 as a heavy line. The indicator has been depth-shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.
3	Baker Hughes run 1 utilized 6 1/2 inch NaviGamma services (Gamma Ray and Directional) behind a 7 7/8 inch bit and steerable assembly from 1935 to 13024 feet MD (1850 to 7302 feet TVD).
4	Gamma Ray (GRAX) scale is presented 0 to 200 API per customer request.
5	There are numerous gaps throughout the log due to surveying while on bottom drilling ahead.
6	There are numerous gaps throughout the log due to bad decoding after picking up a bad agitator.

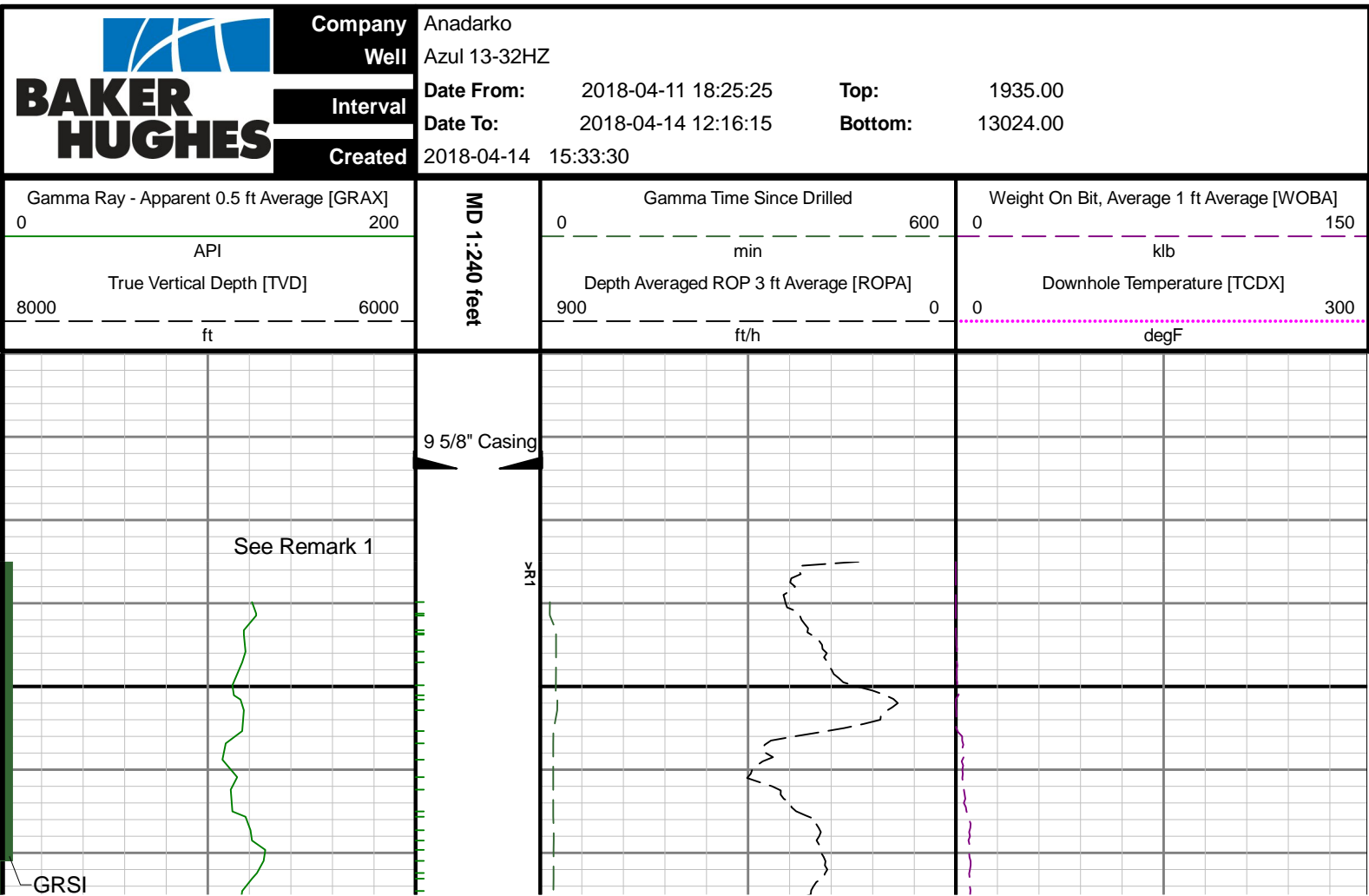
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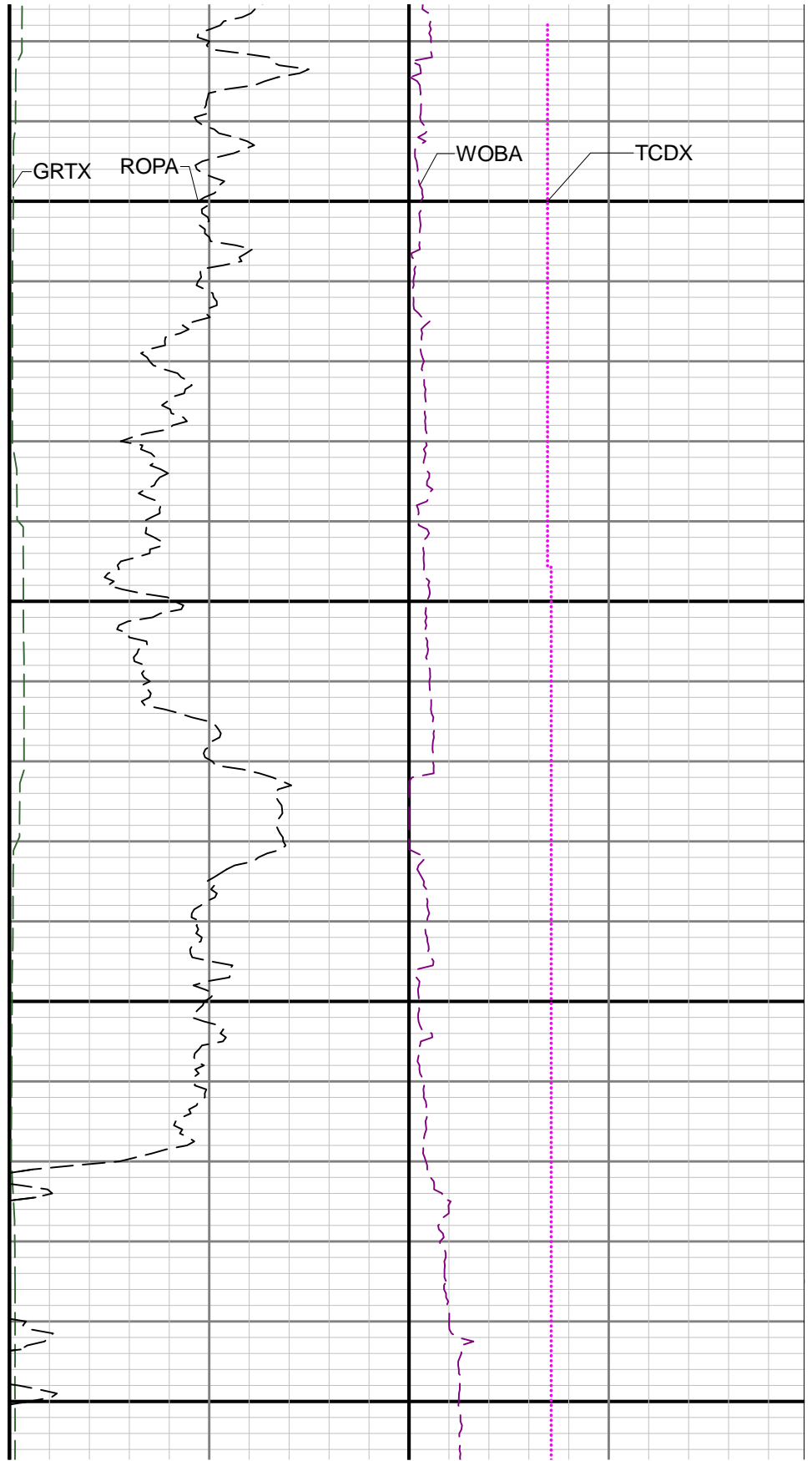
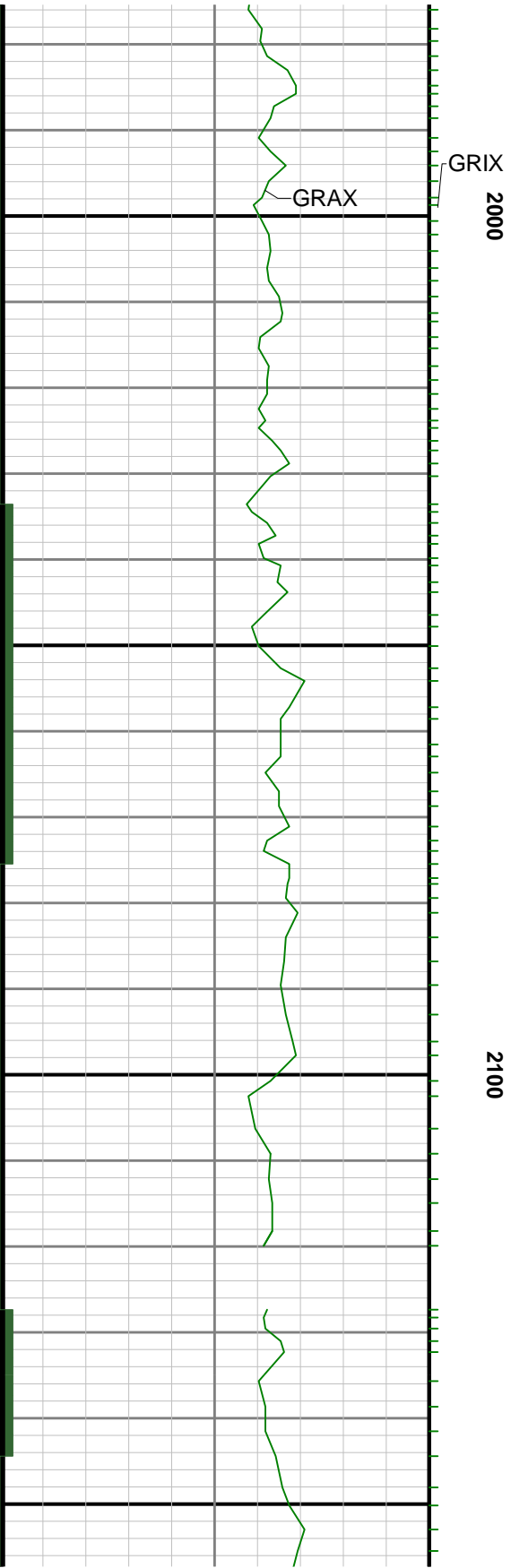
	Measured	Hole	Run	
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Number	Depth (ft)	Section (in)	No.	Remark
1	1935.00	7.875	1	Baker Hughes began logging at 1935 feet MD (1850 feet TVD) as requested by the client.
2	13024.00	7.875	1	The interval from 12983 to 13024 feet MD (7302 to 7304 feet TVD) was not logged due to sensor offset from the bit.

Curve Mnemonics

Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	Gamma Ray - Time Since Drilled - Real-Time	min
GRSI	Sliding Indicator Flag	unitless







2200

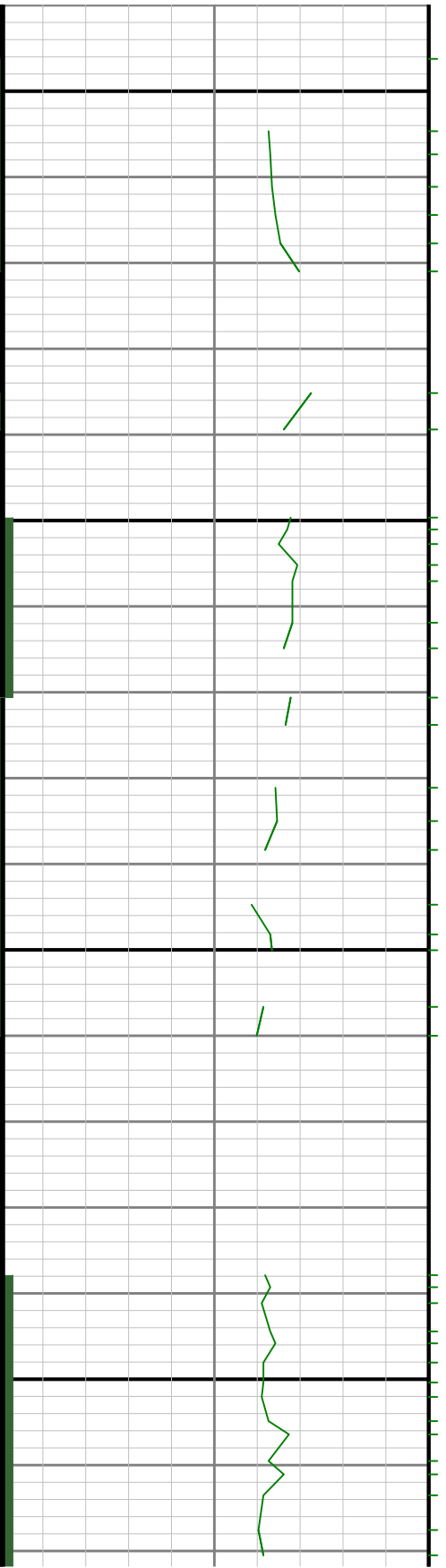
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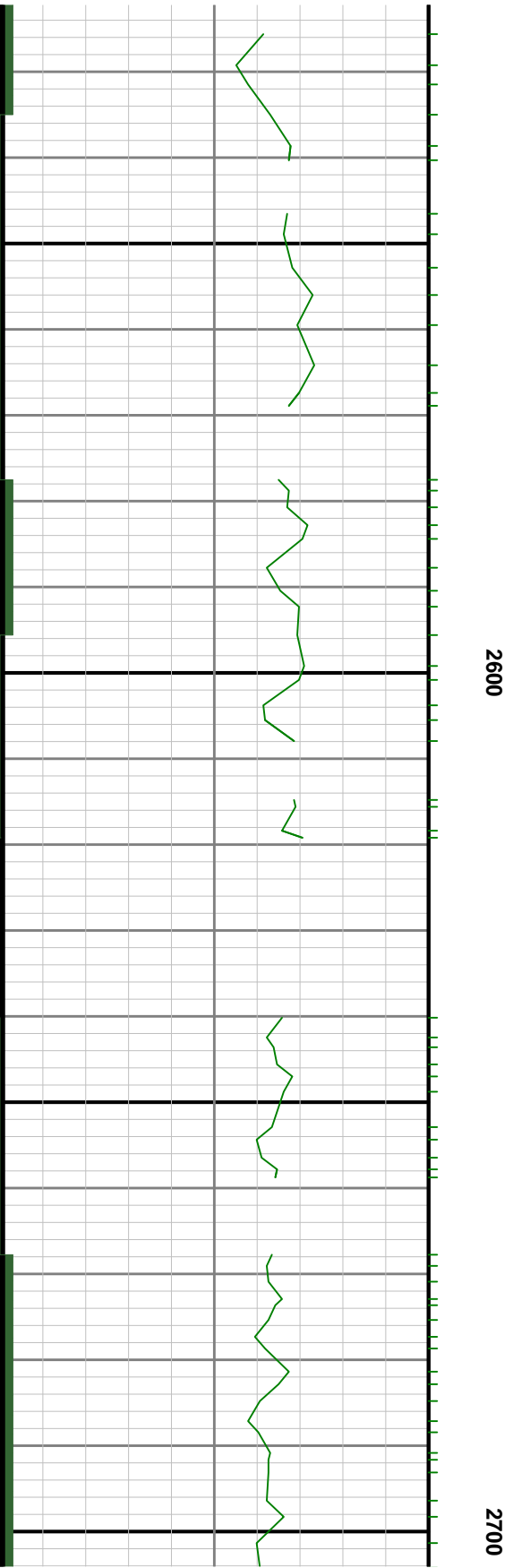
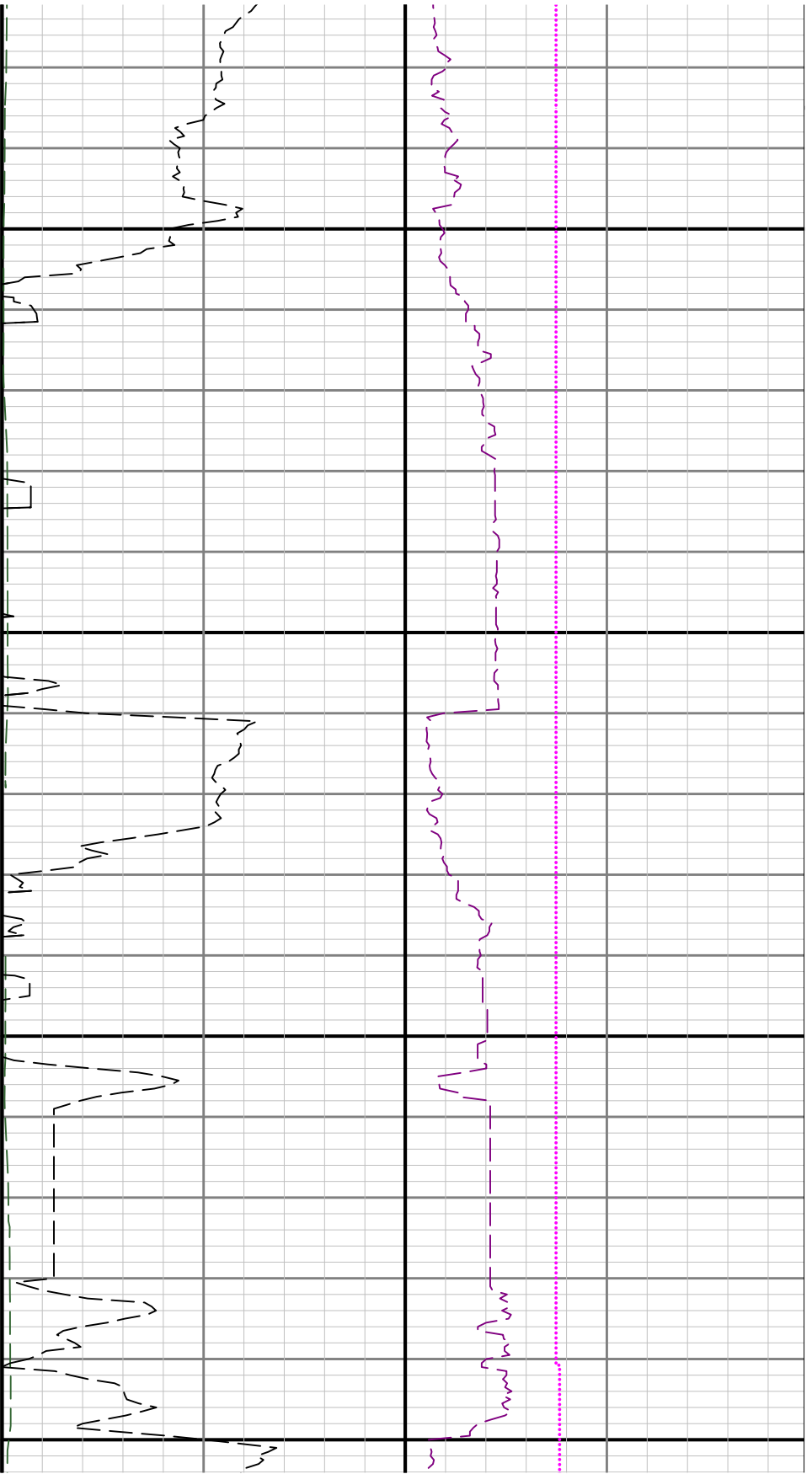


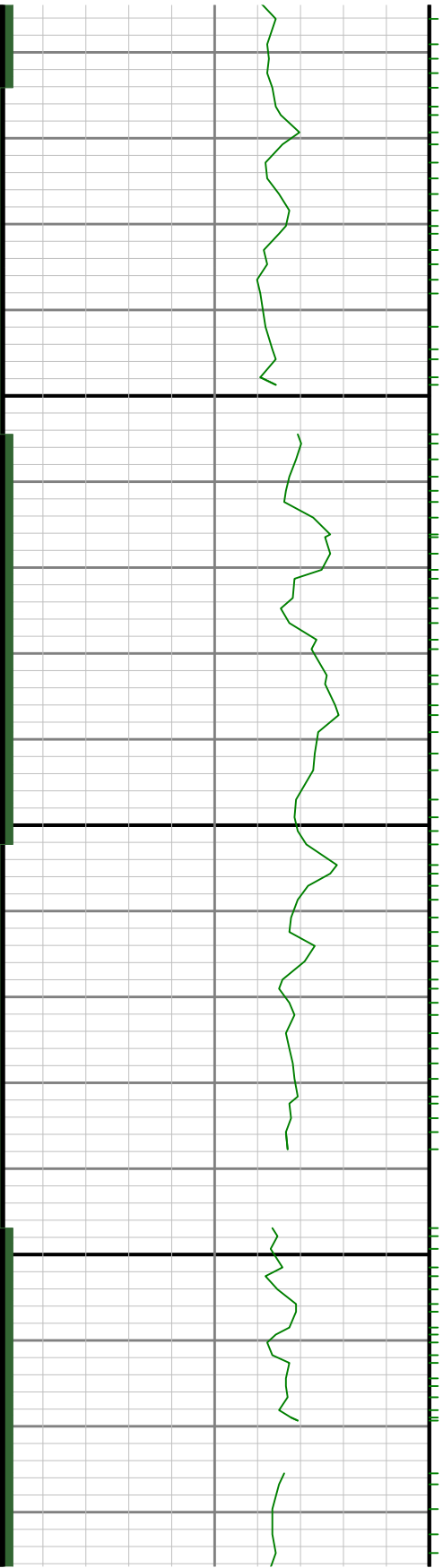
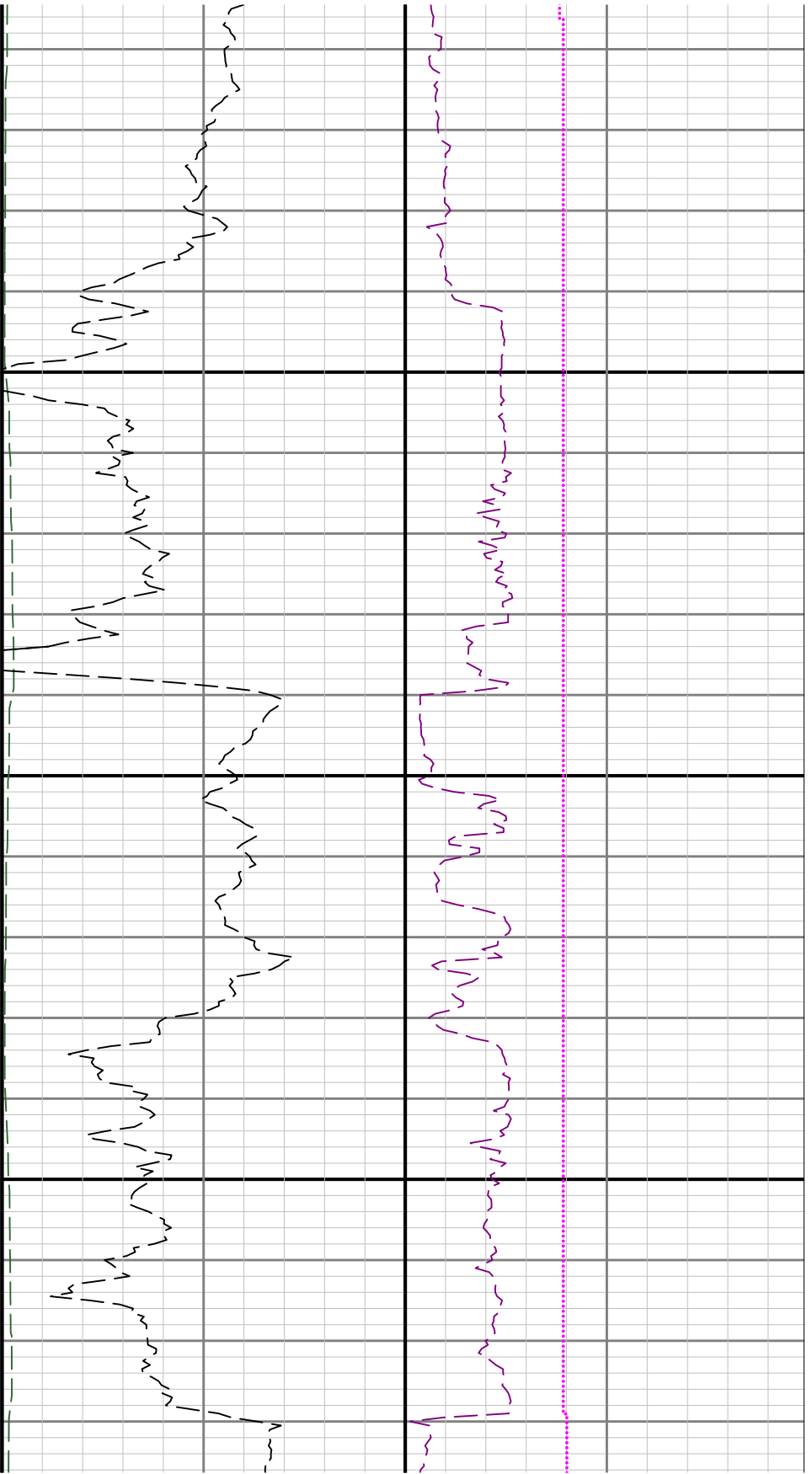


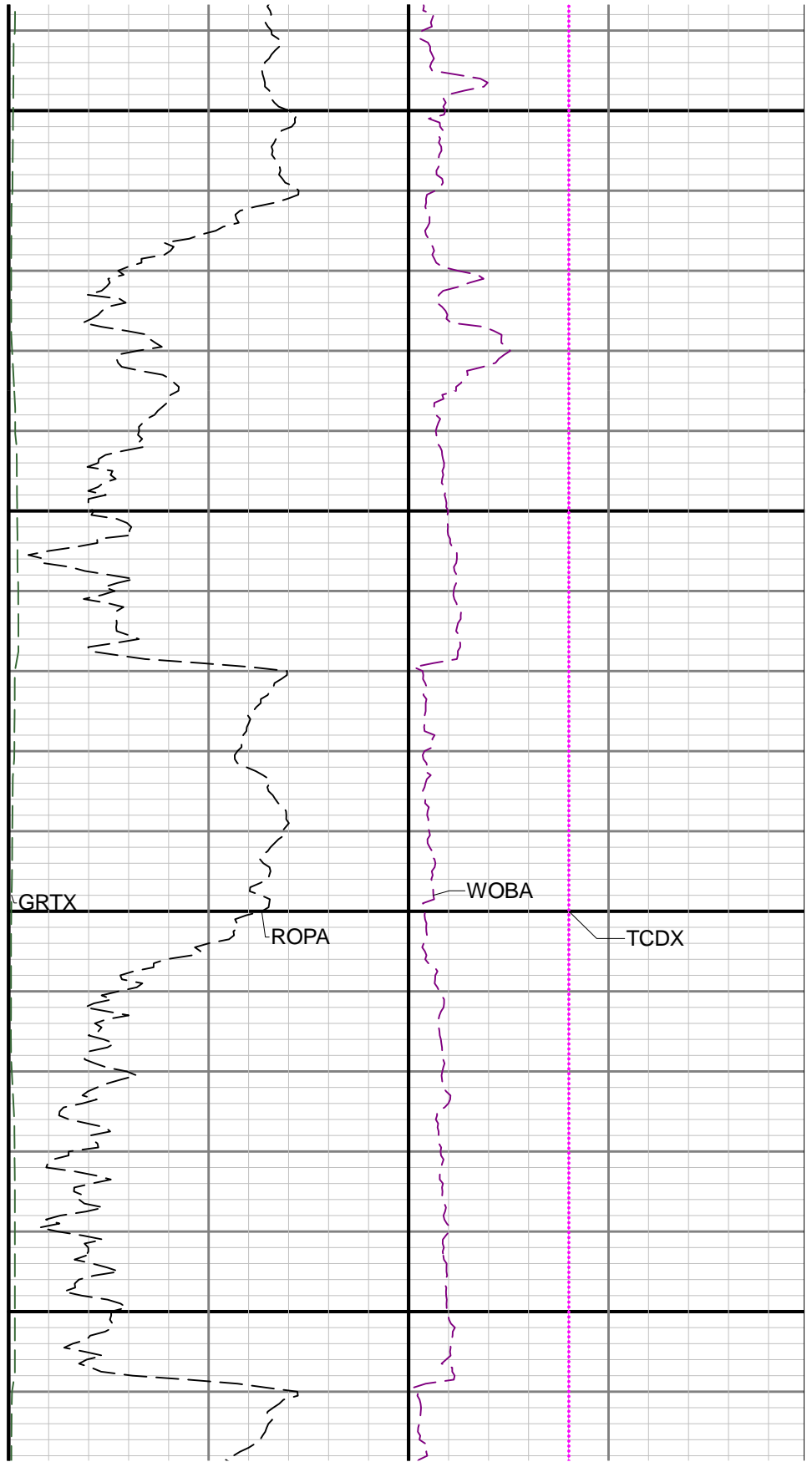
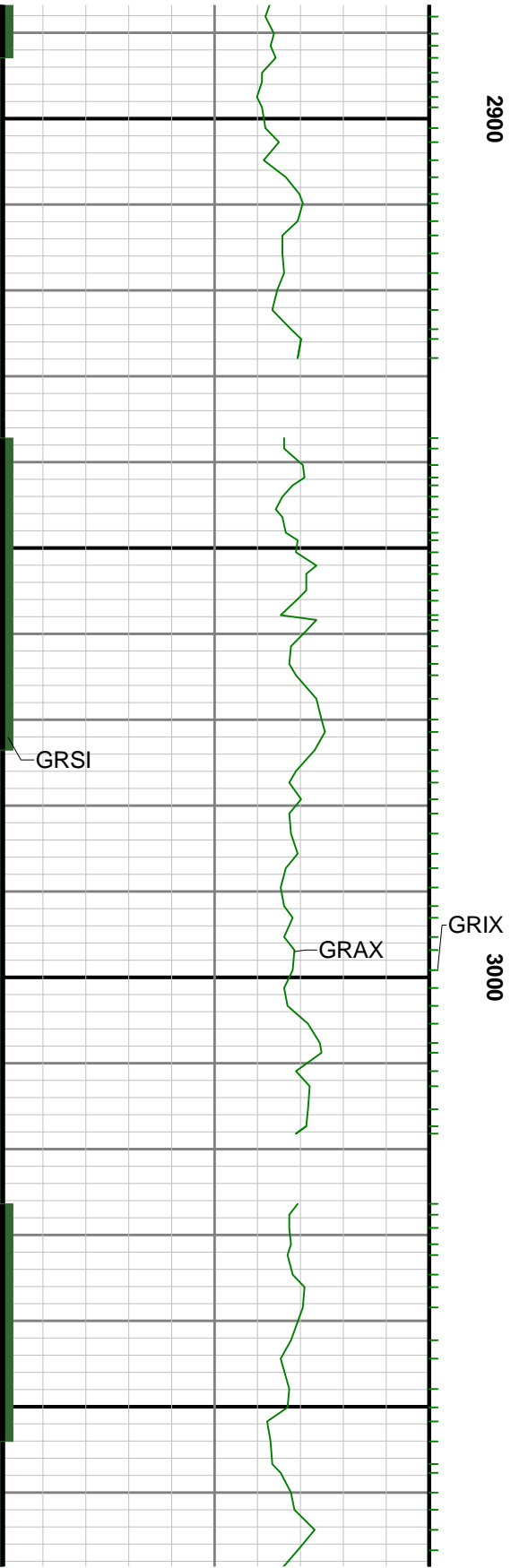
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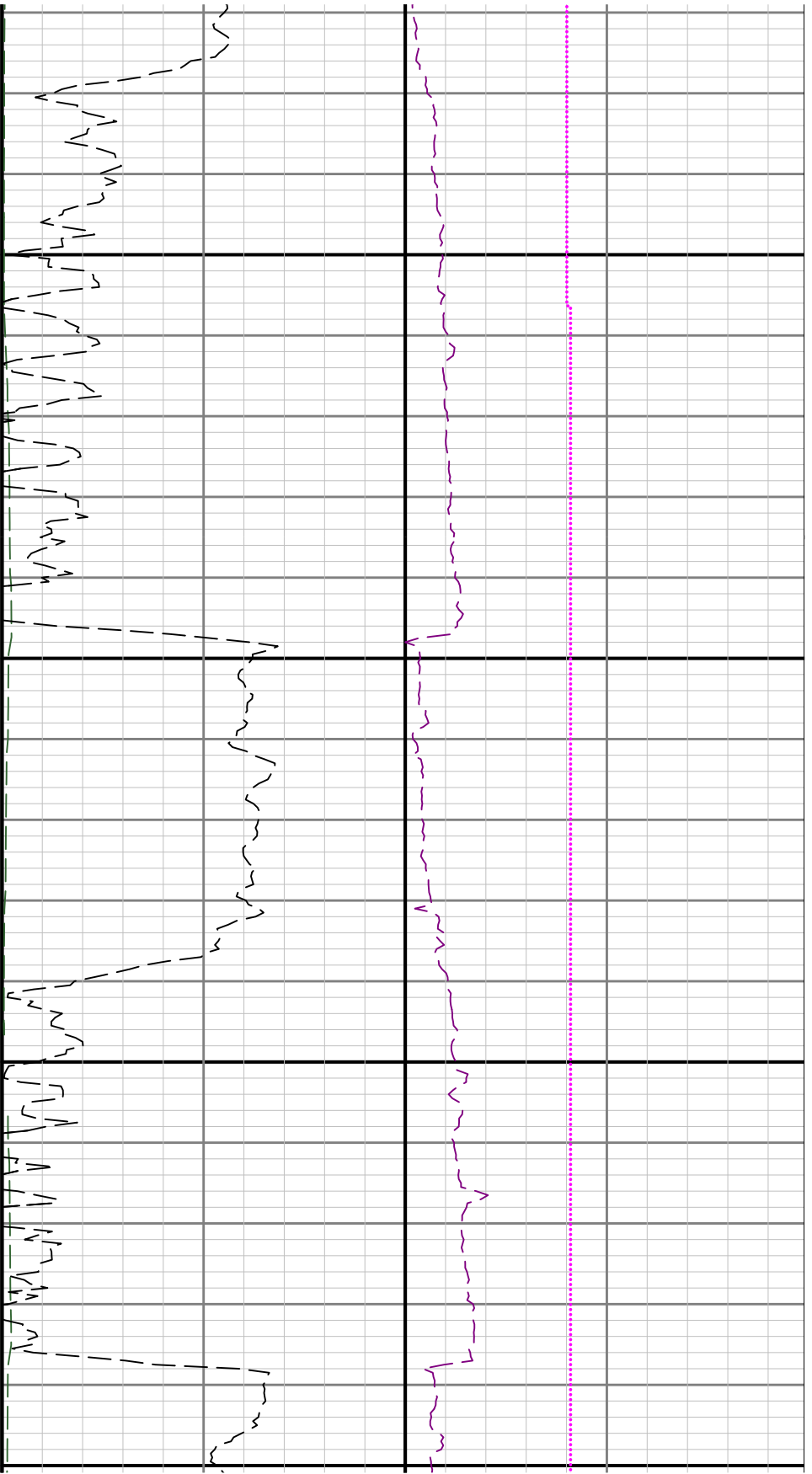
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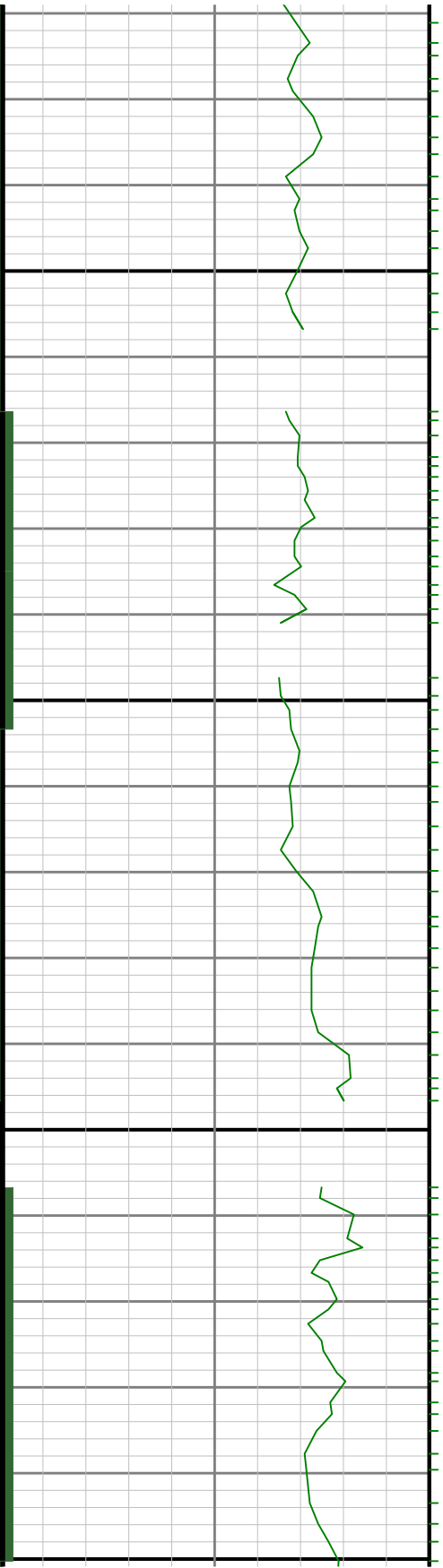


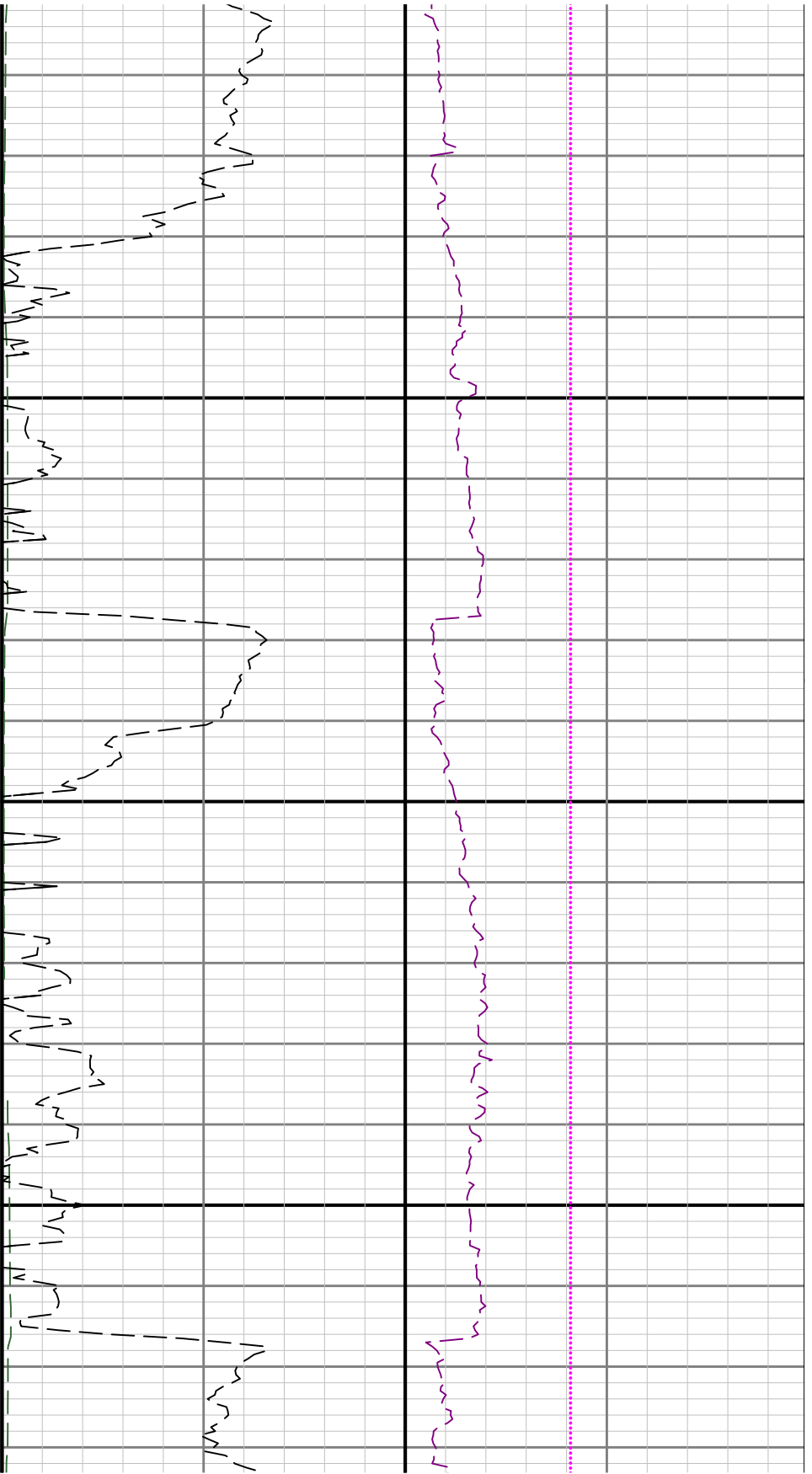




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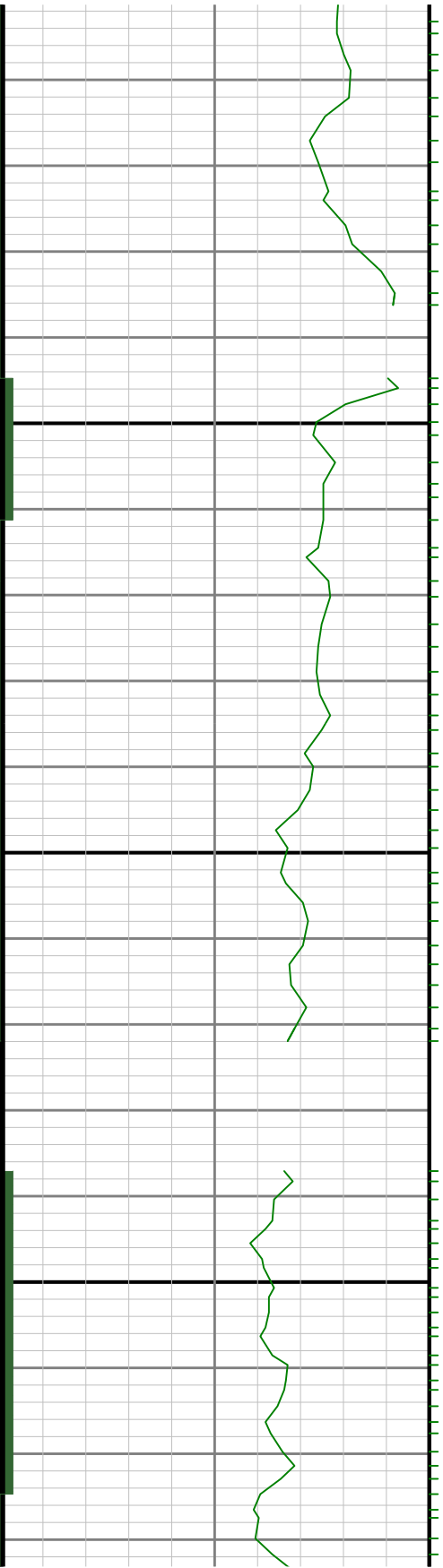
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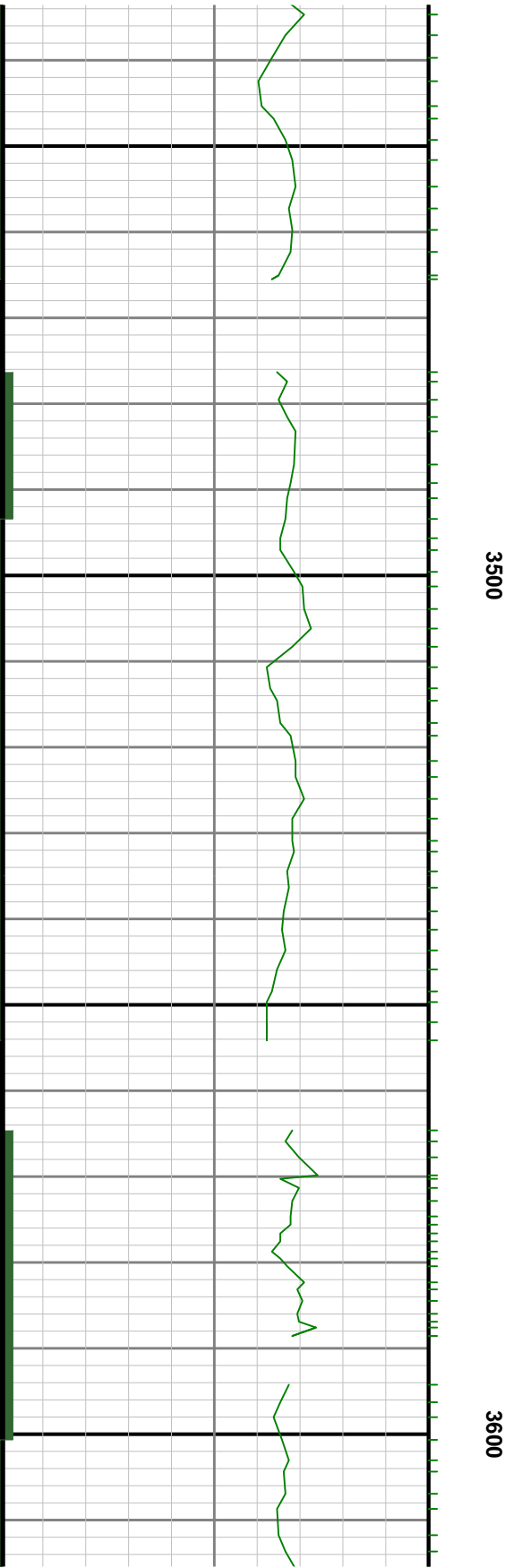
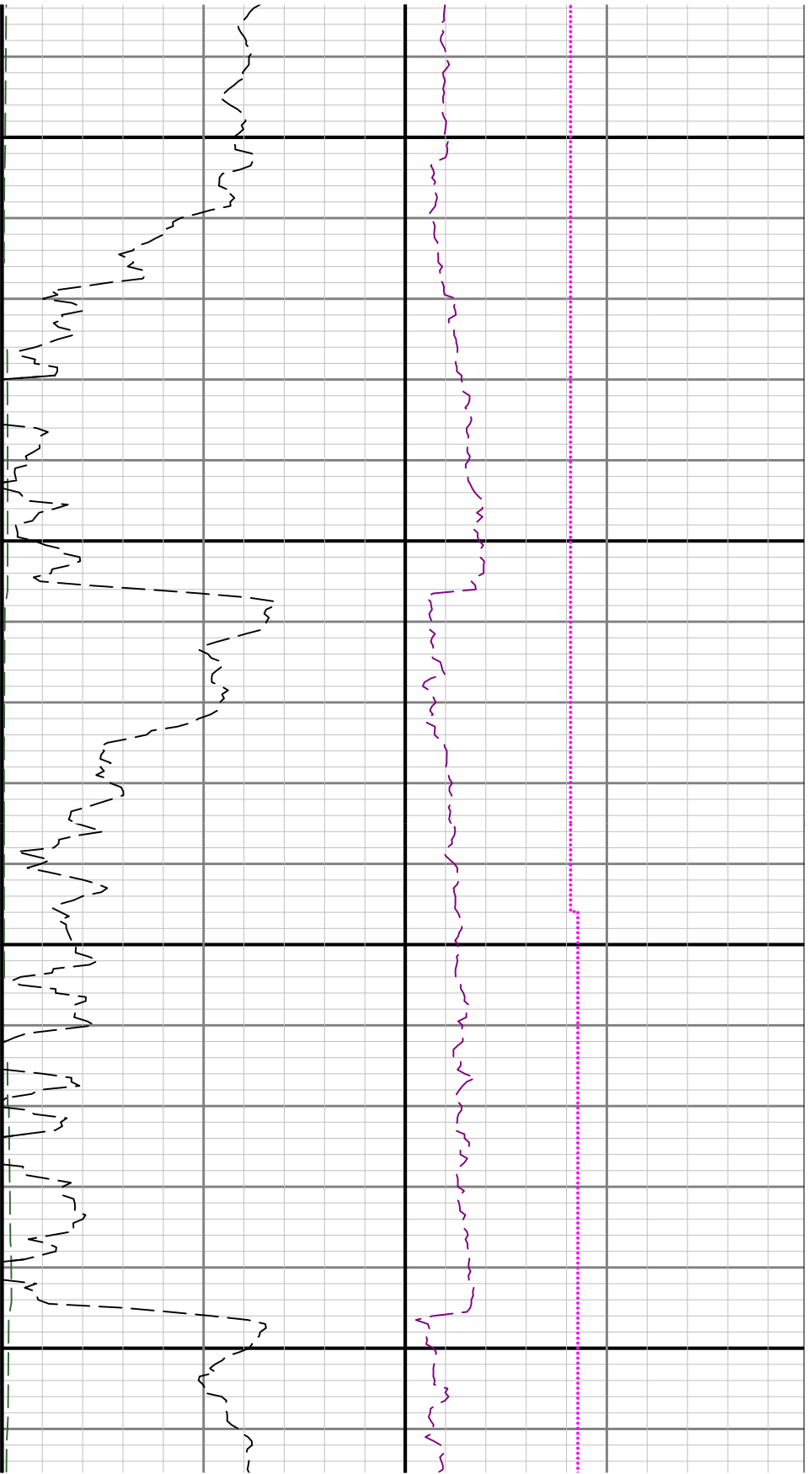


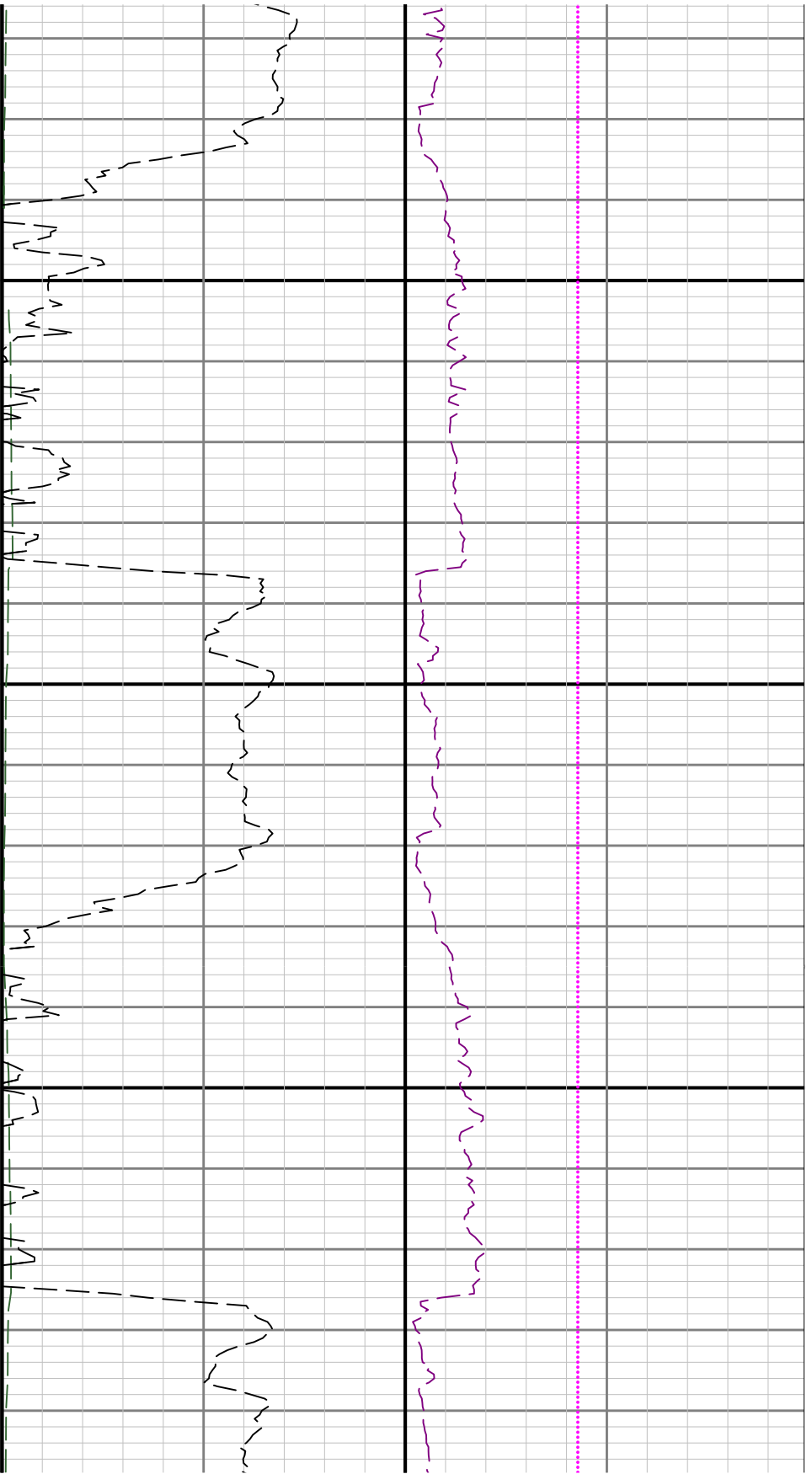


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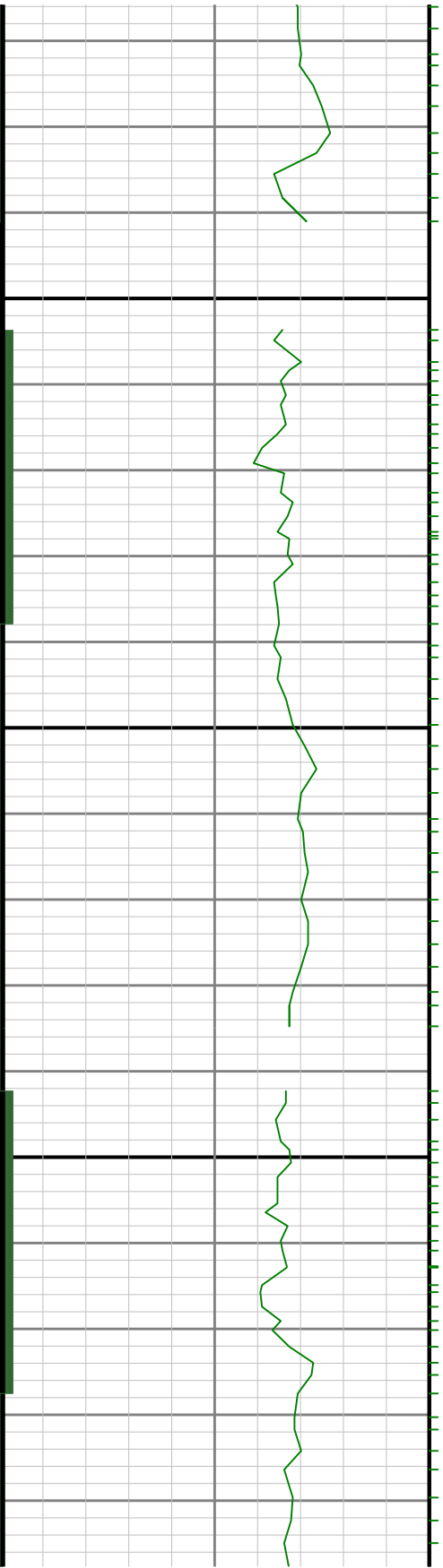
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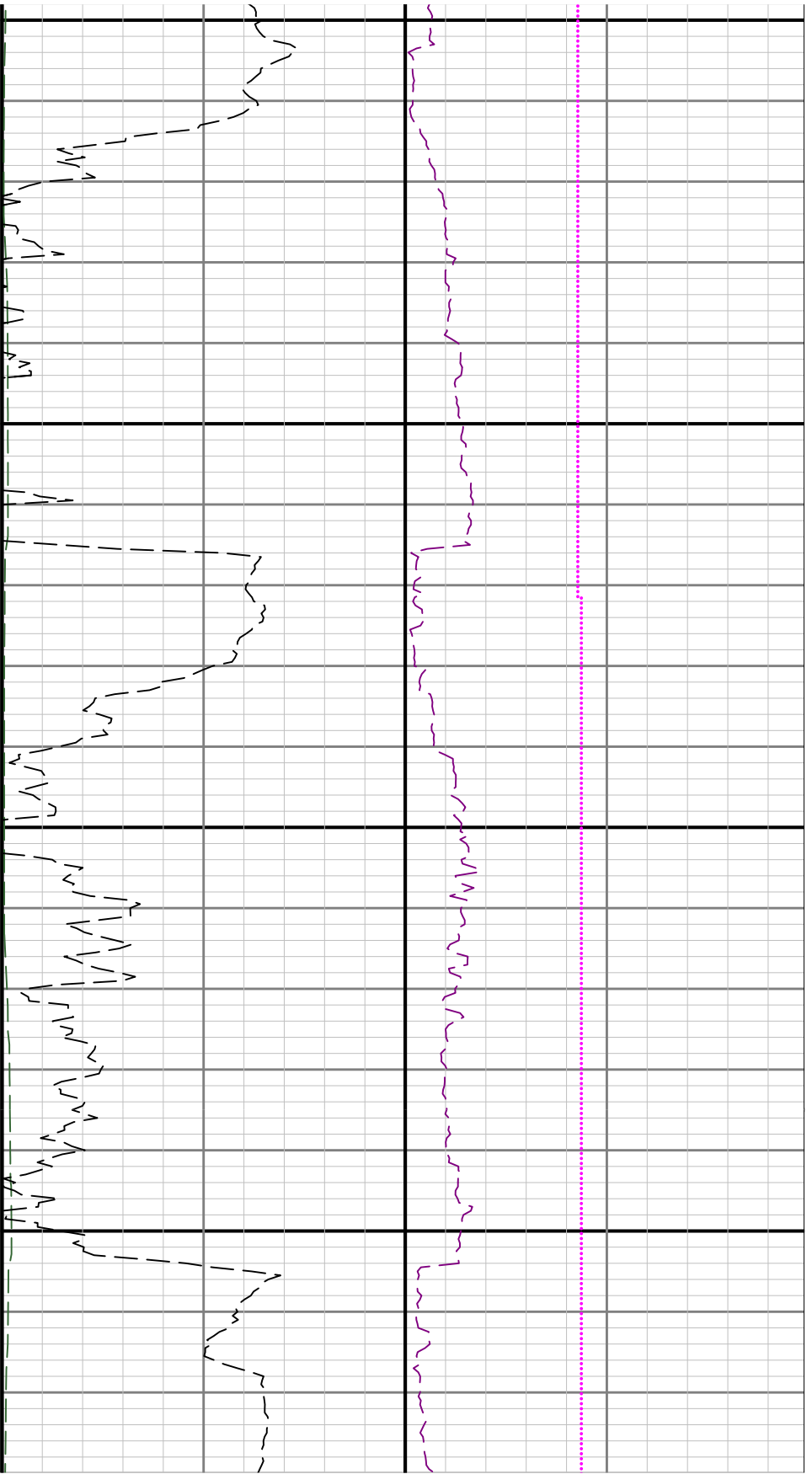






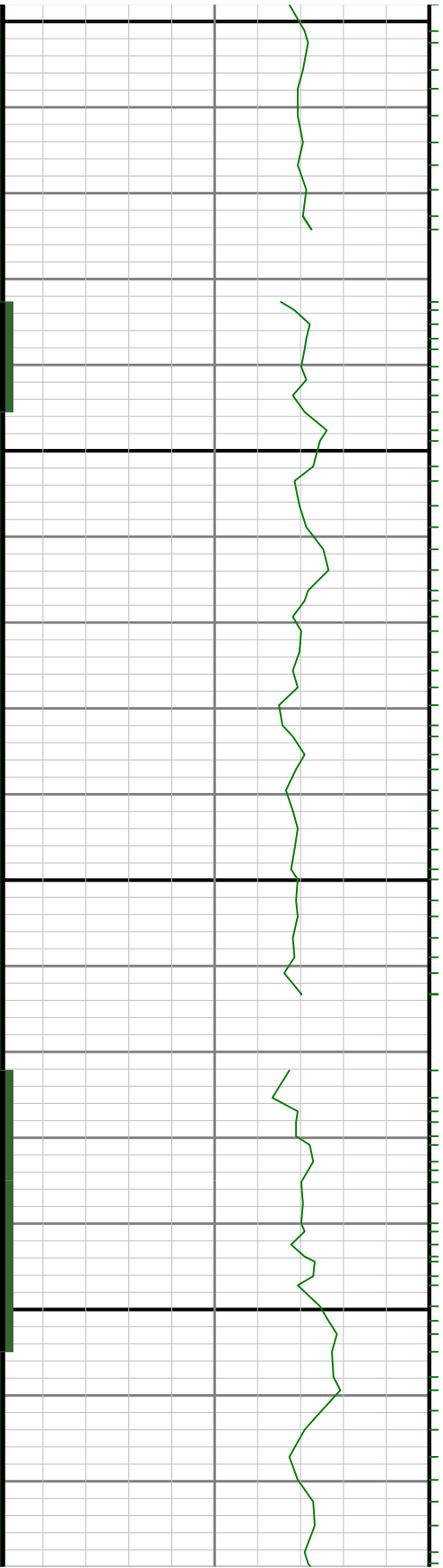
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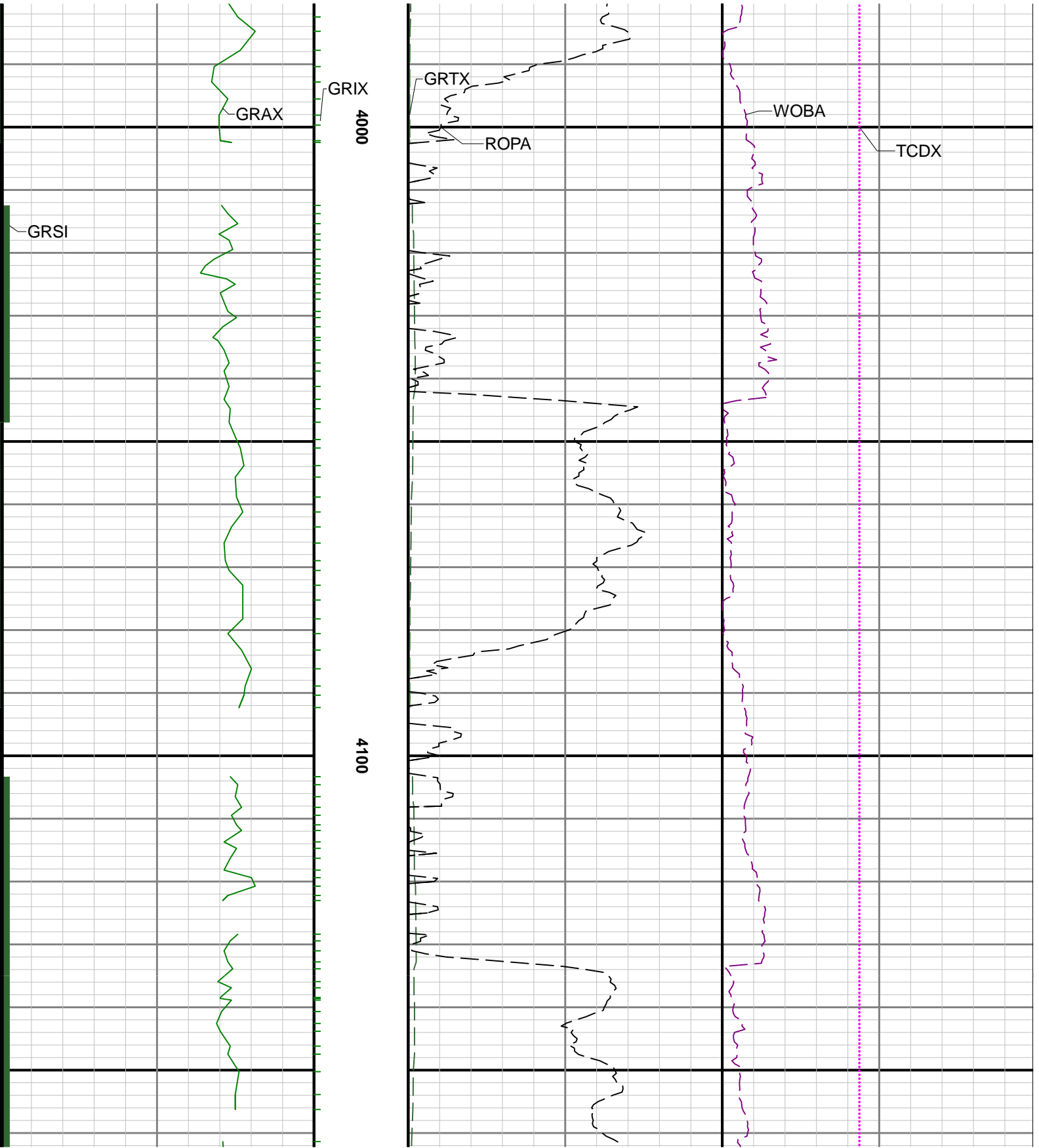


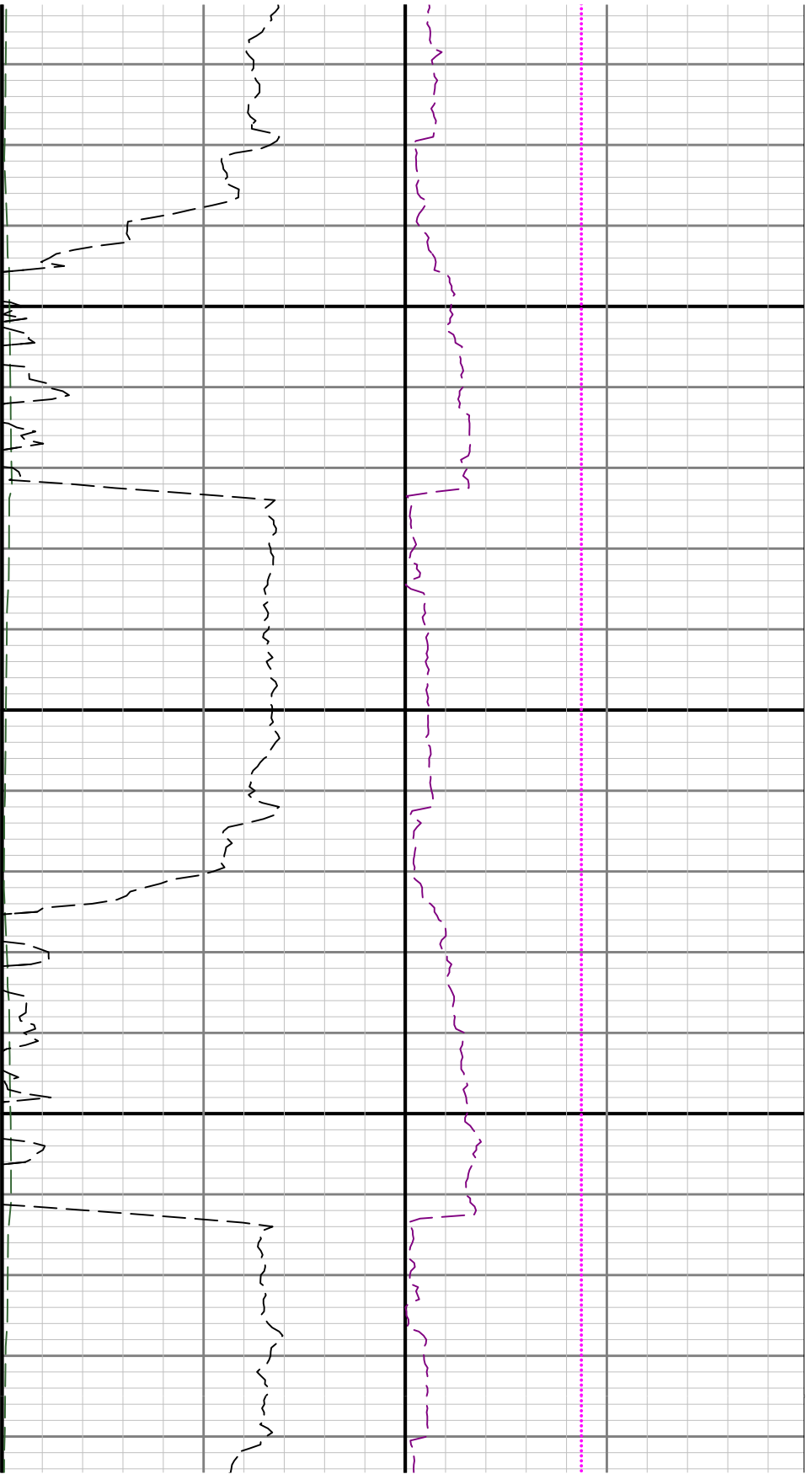


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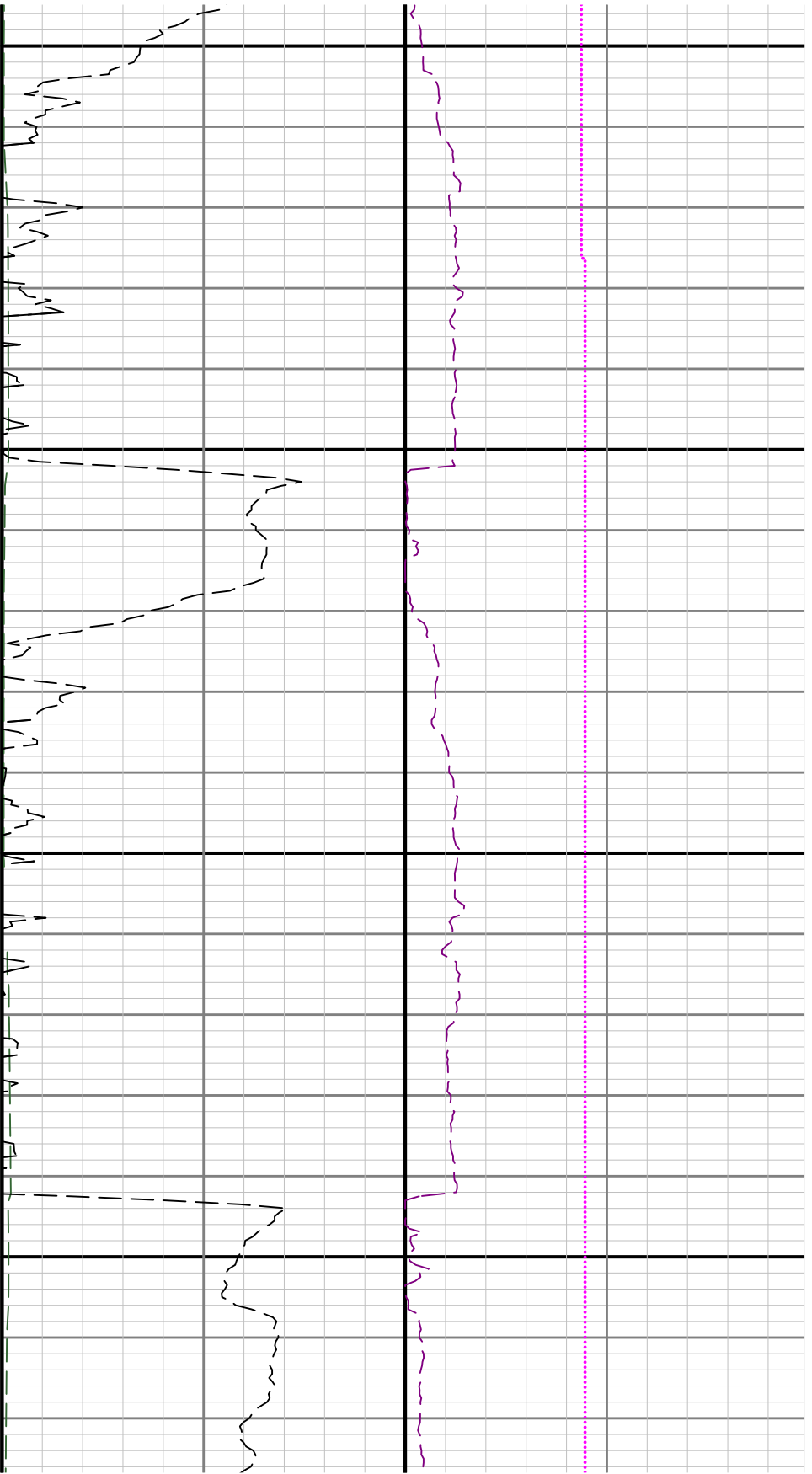






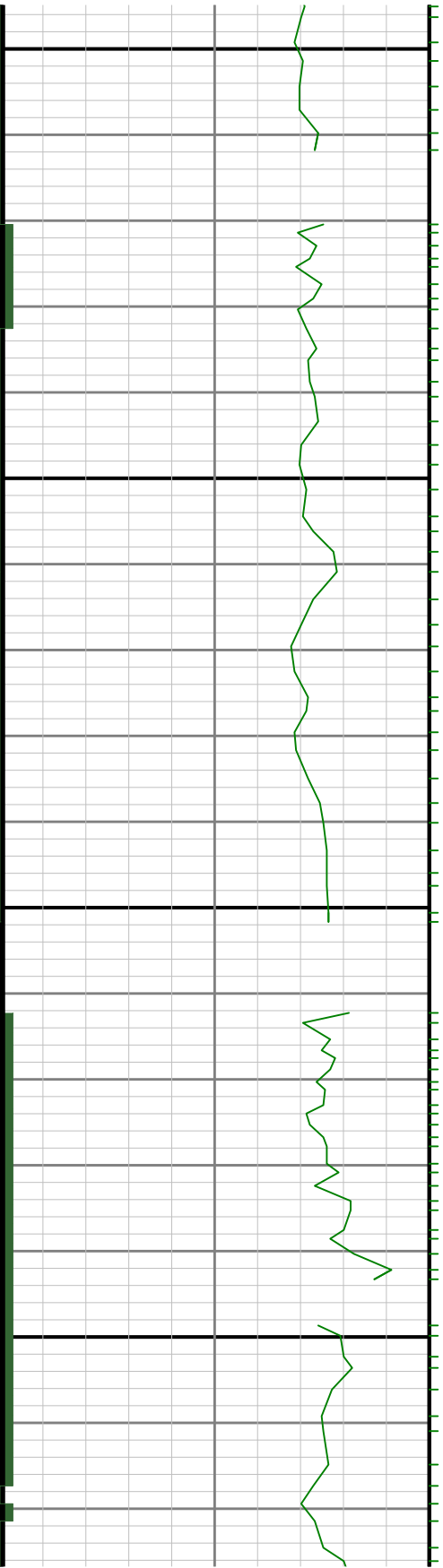
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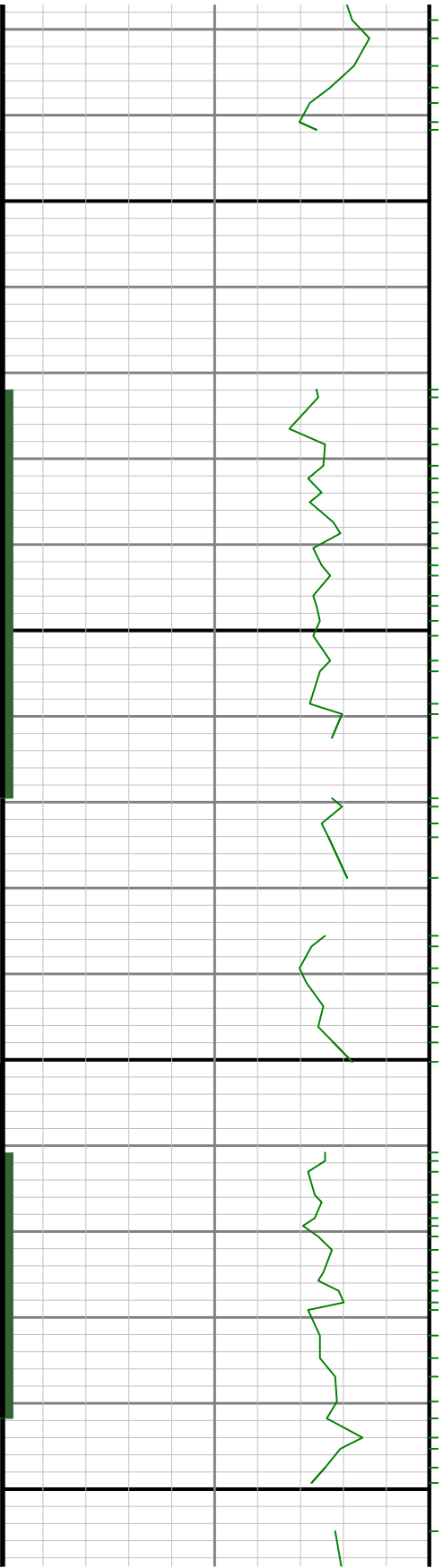
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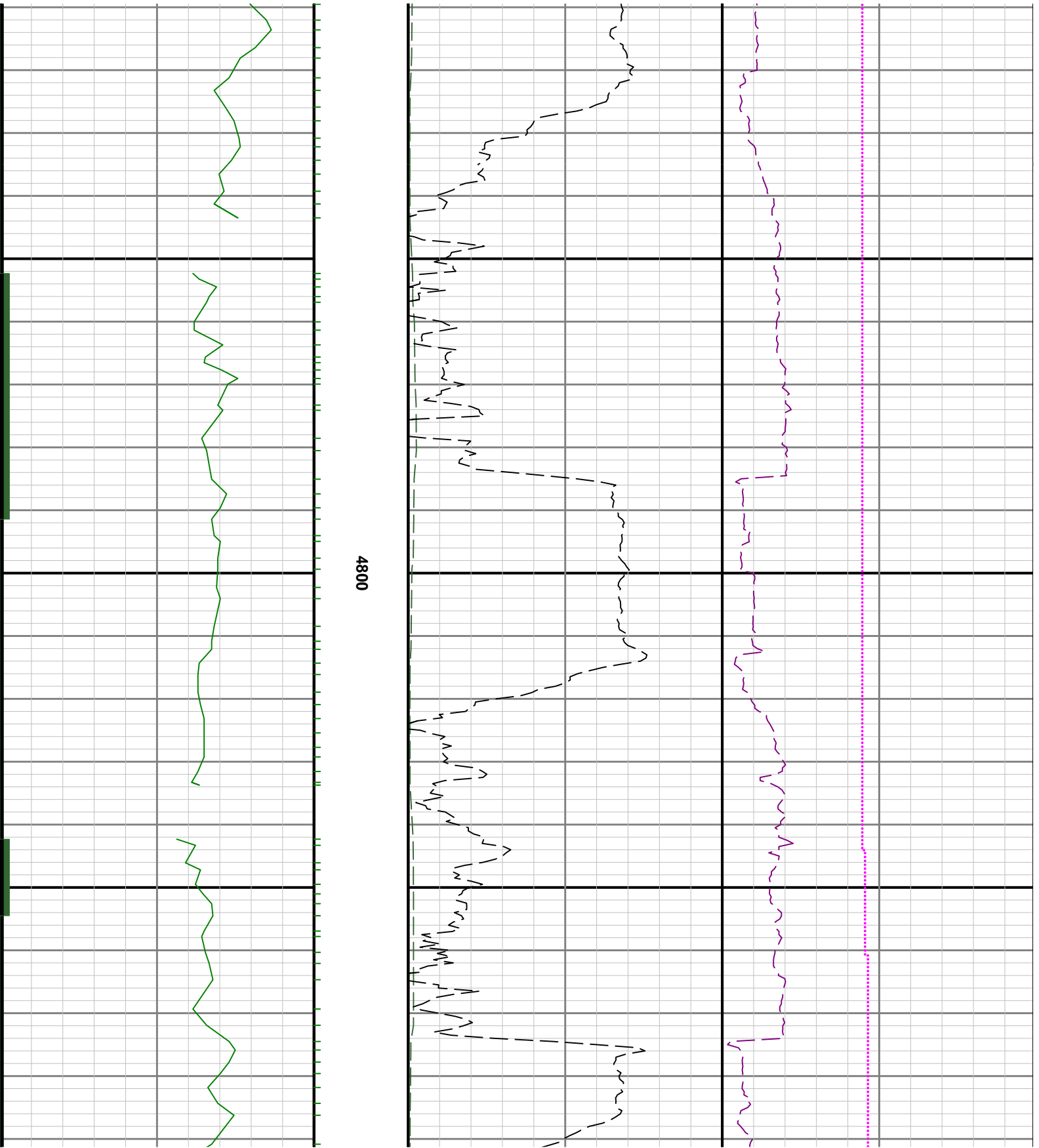


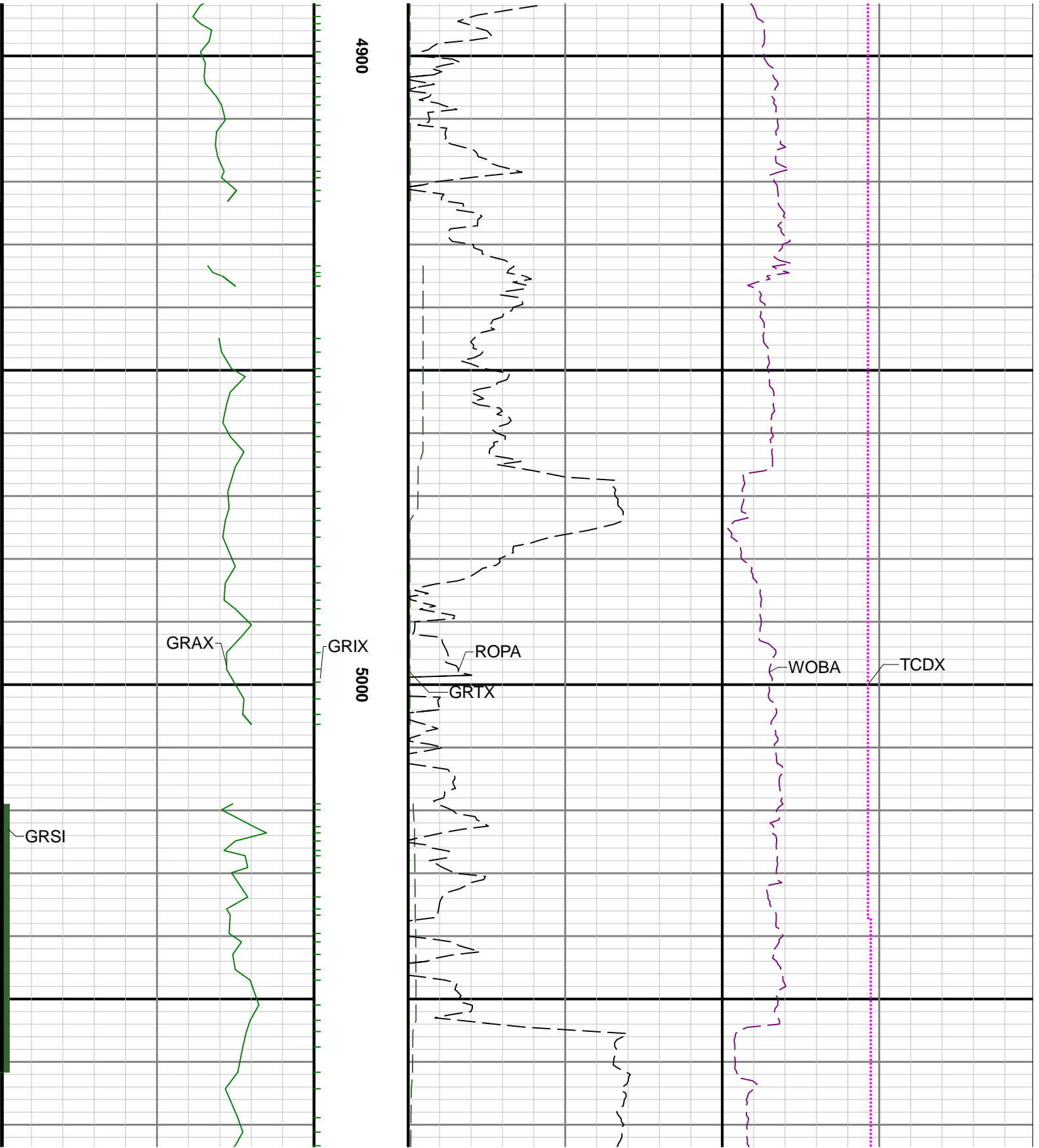


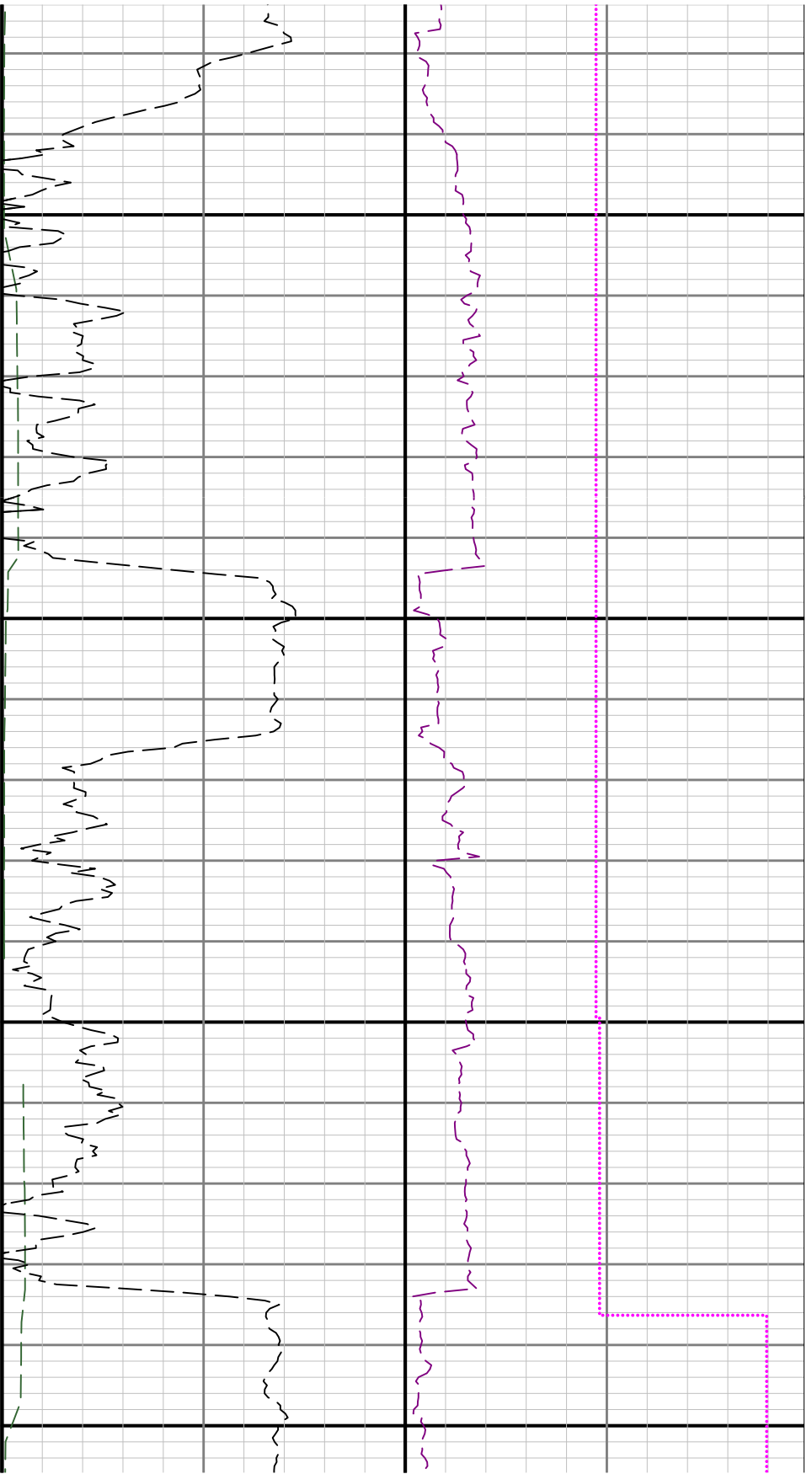
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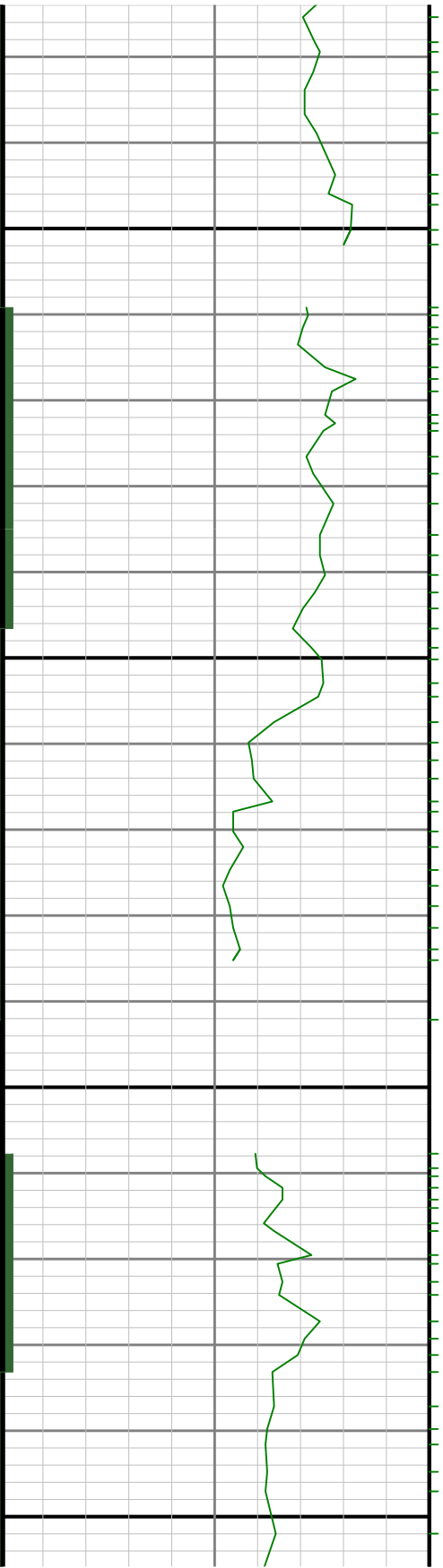


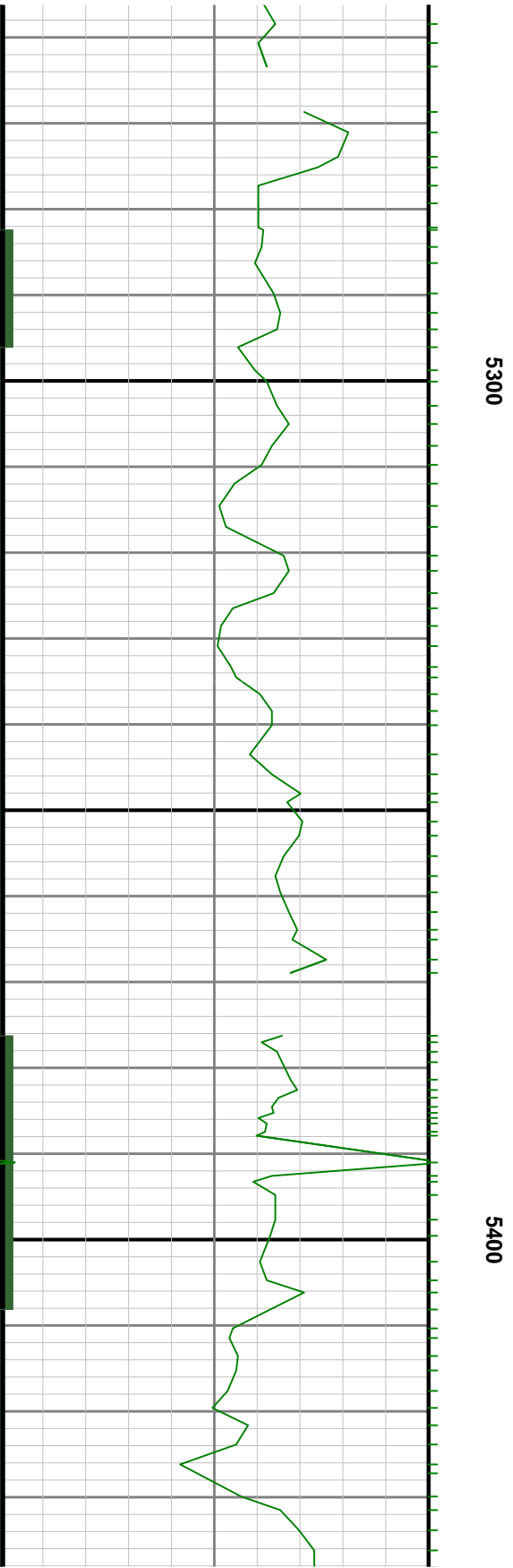
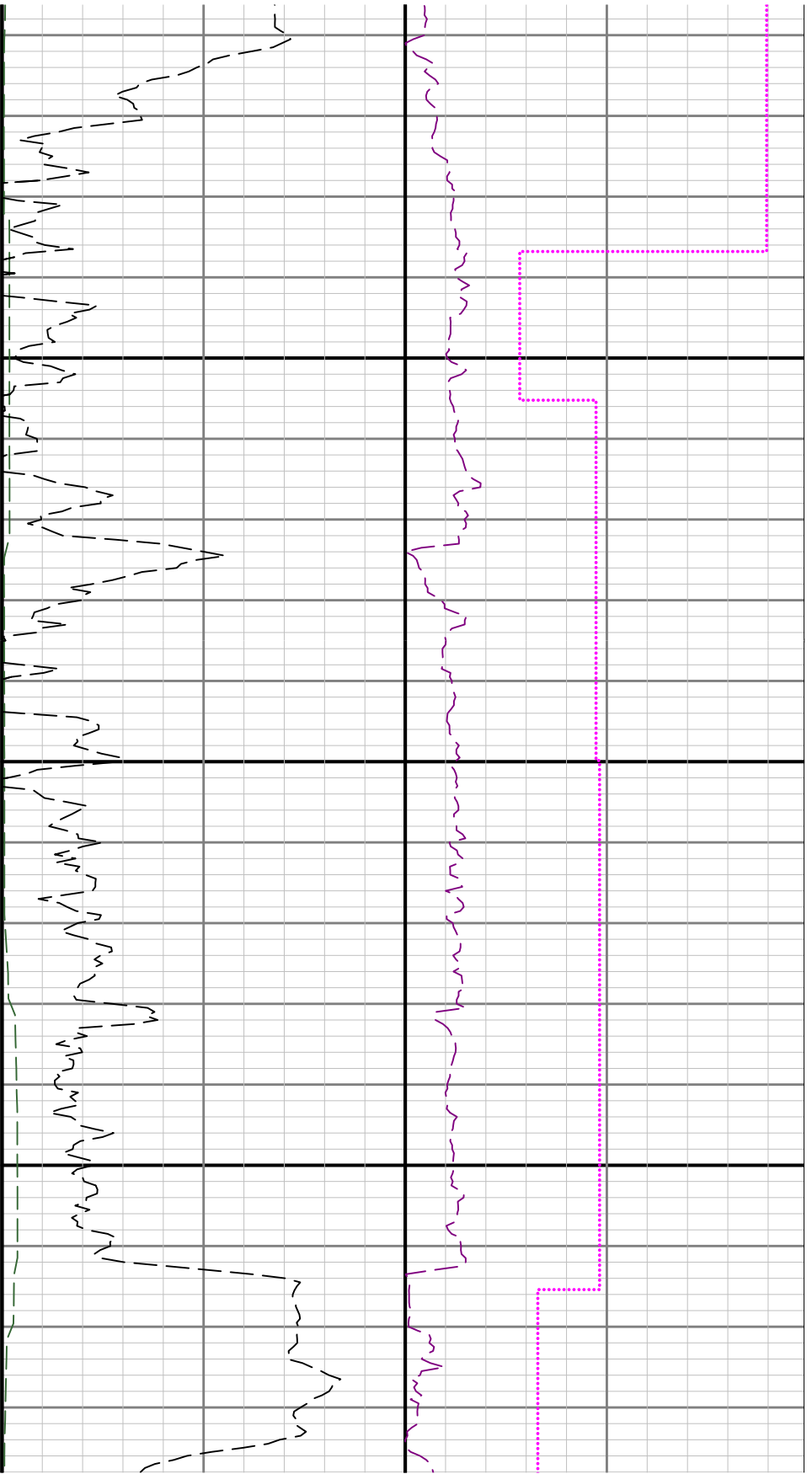


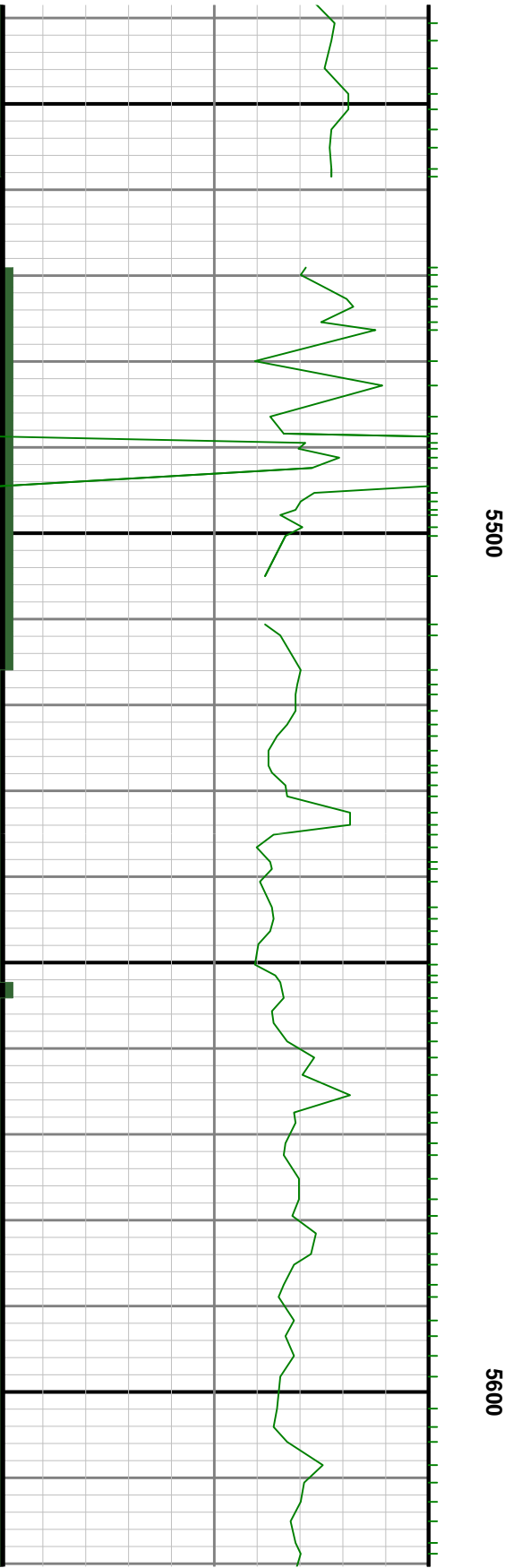
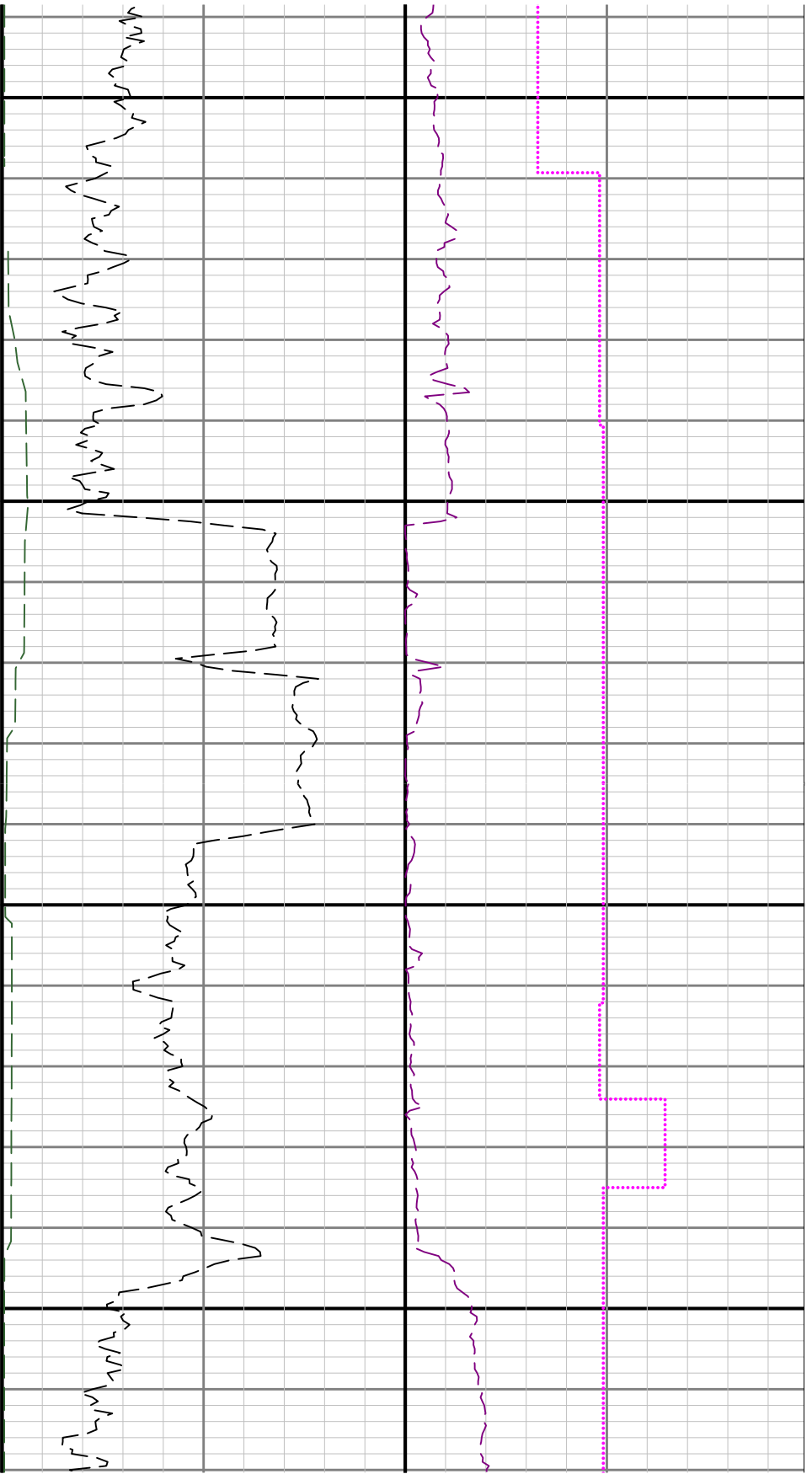


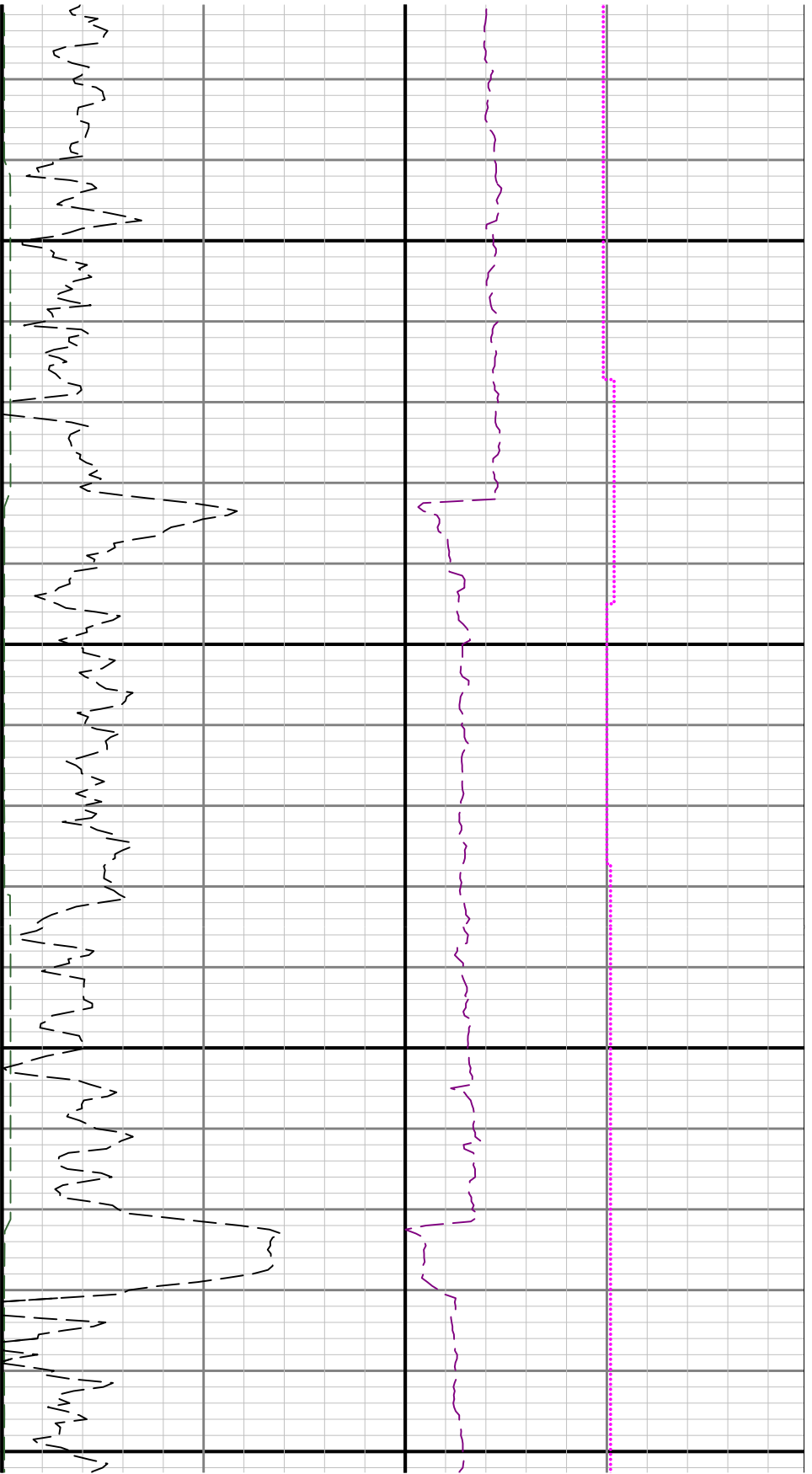
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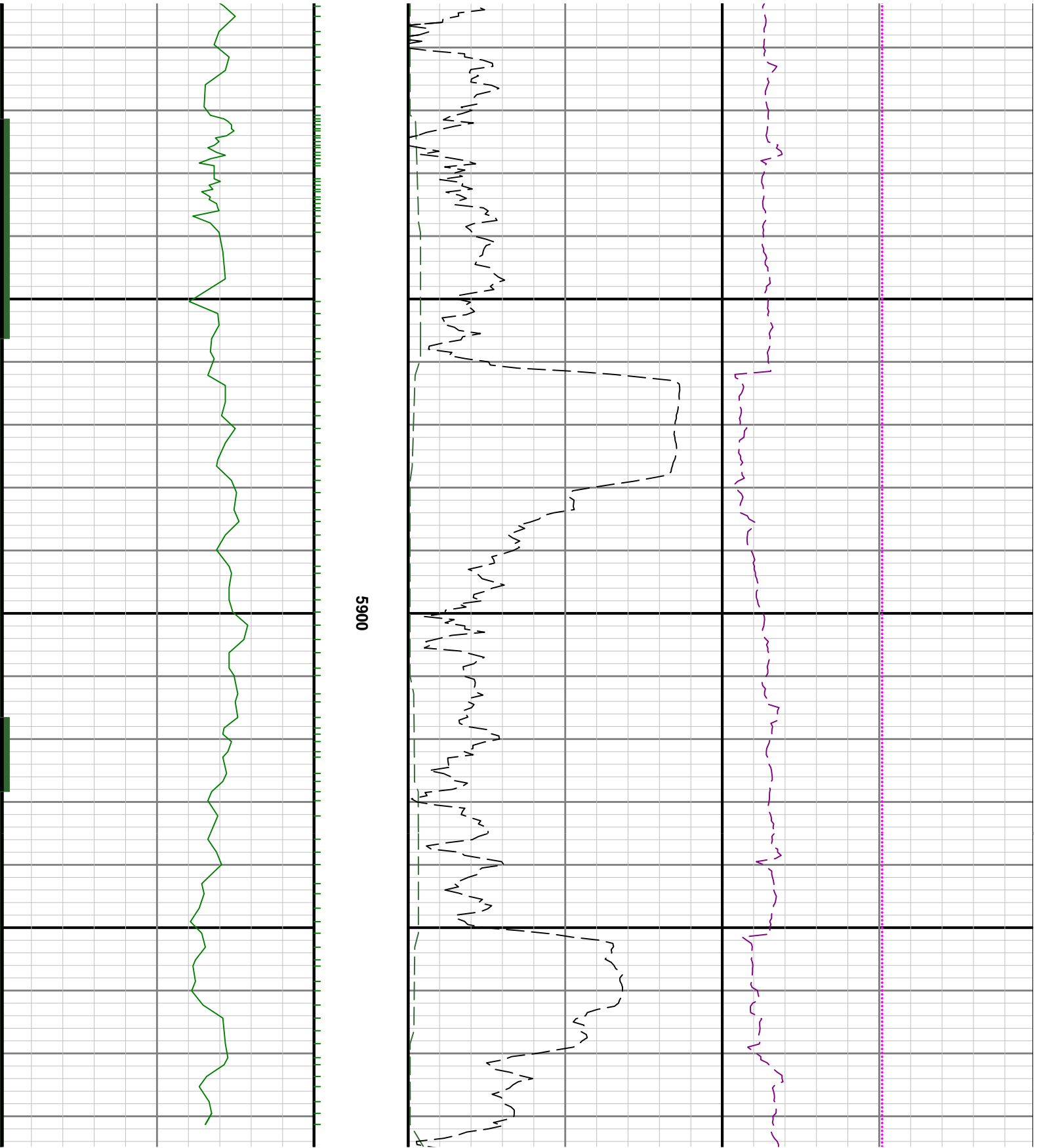
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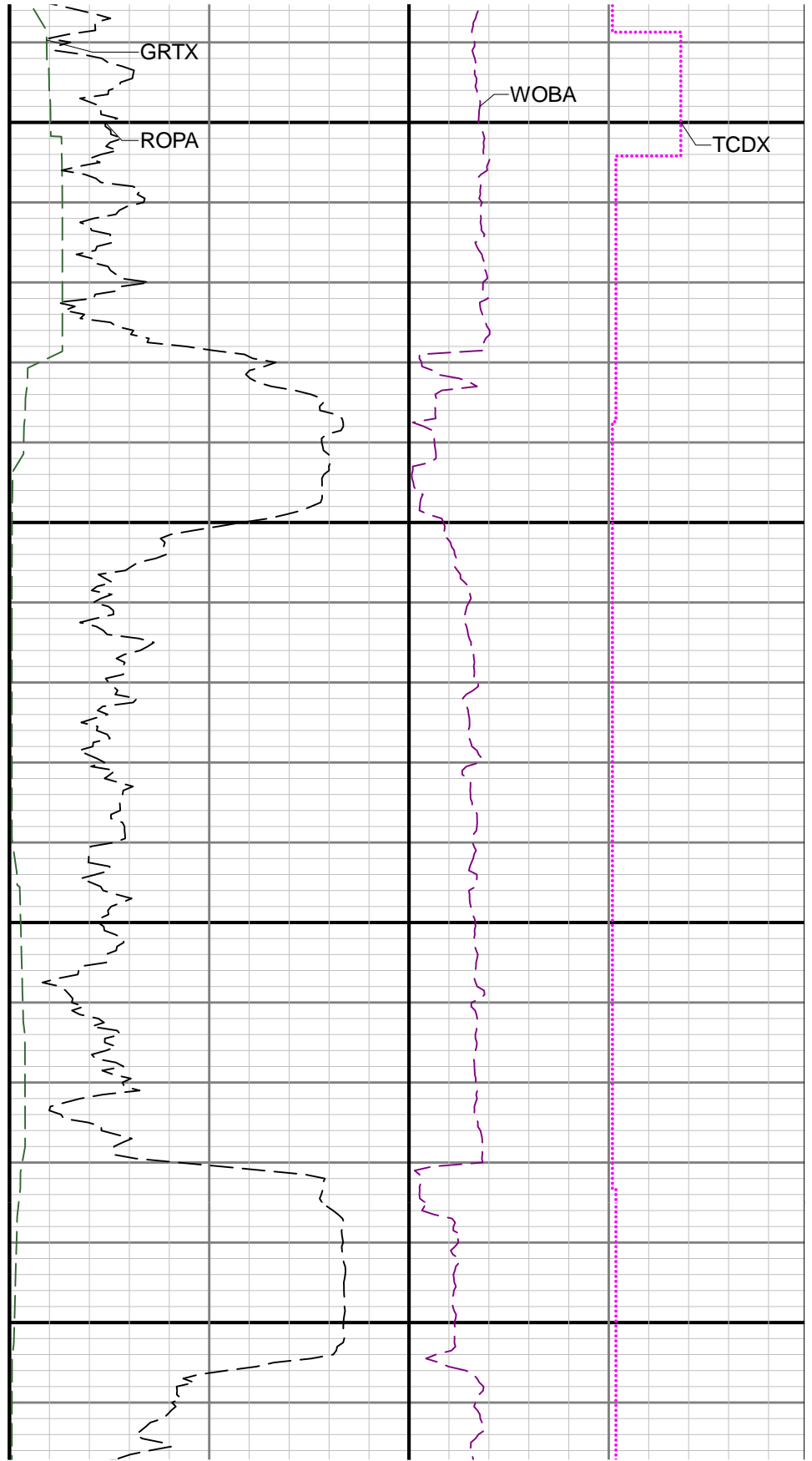
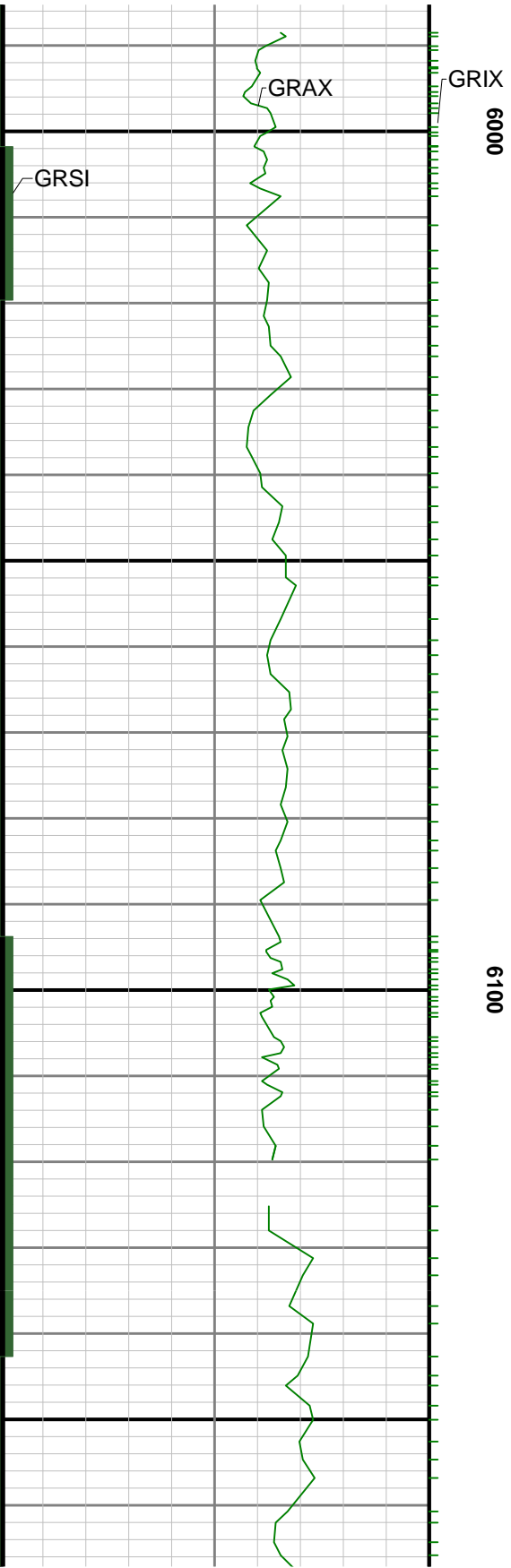


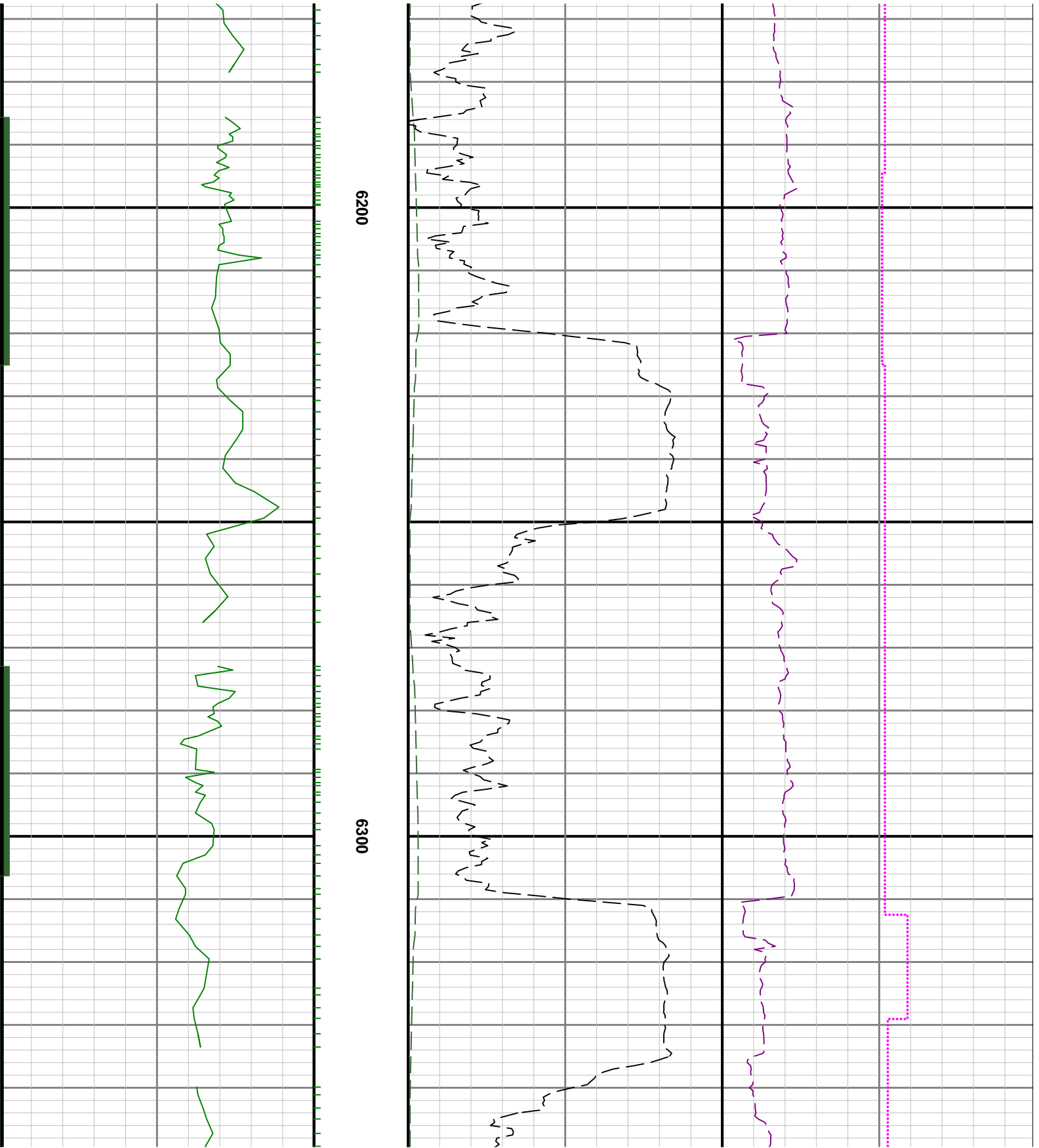


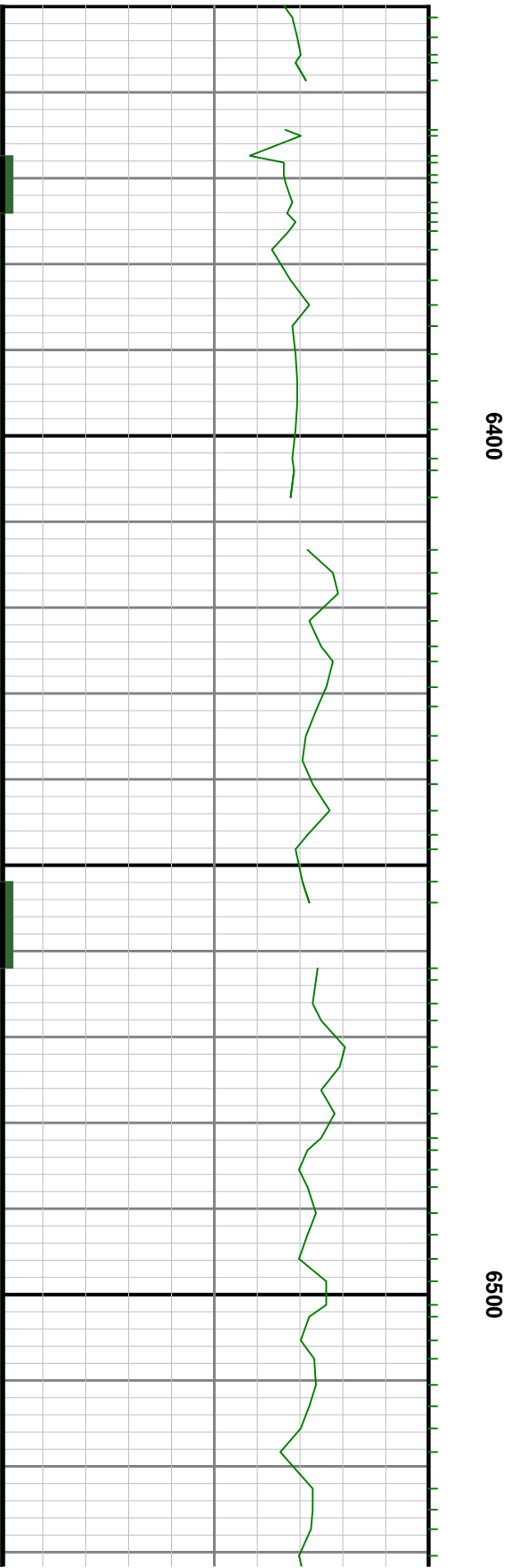
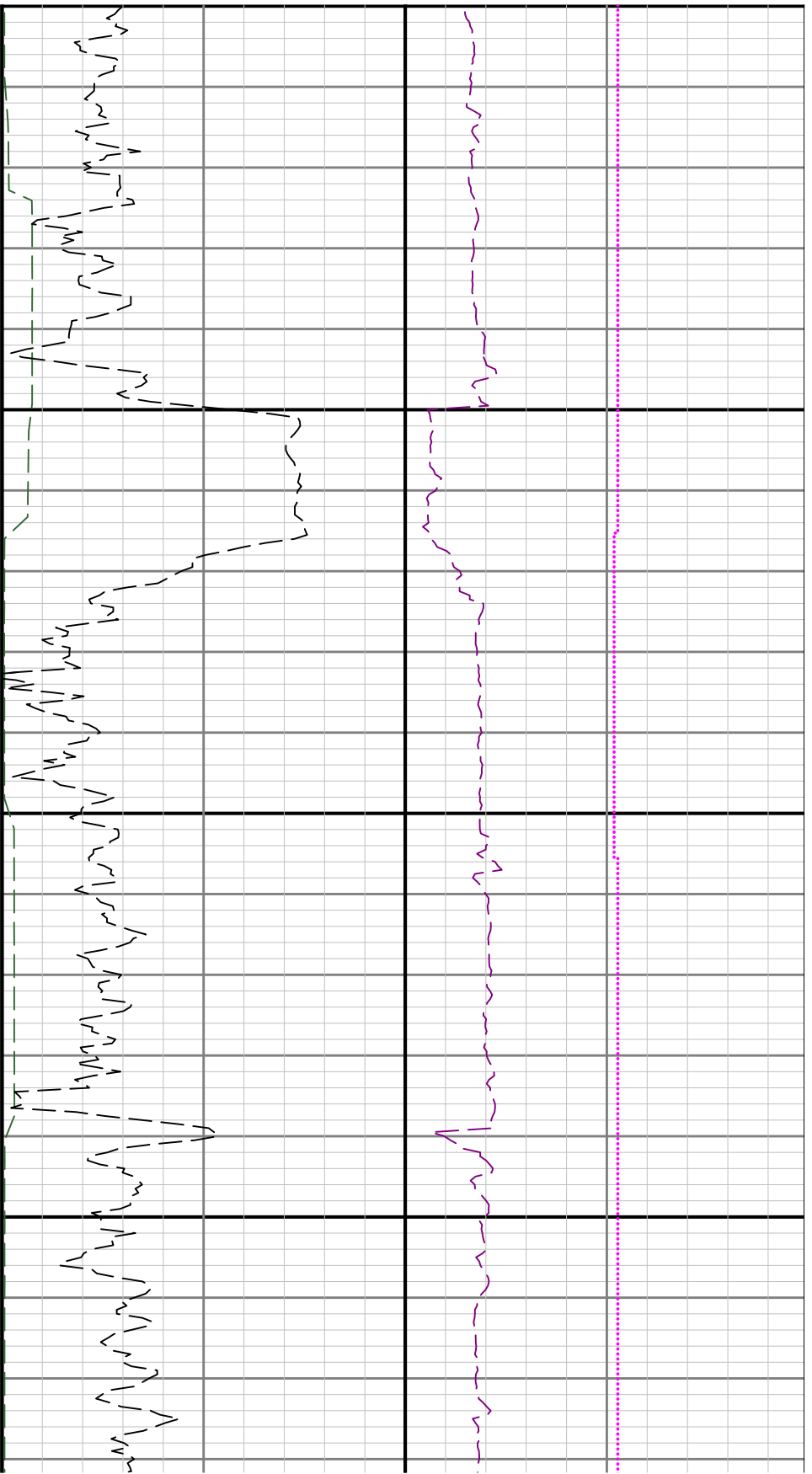


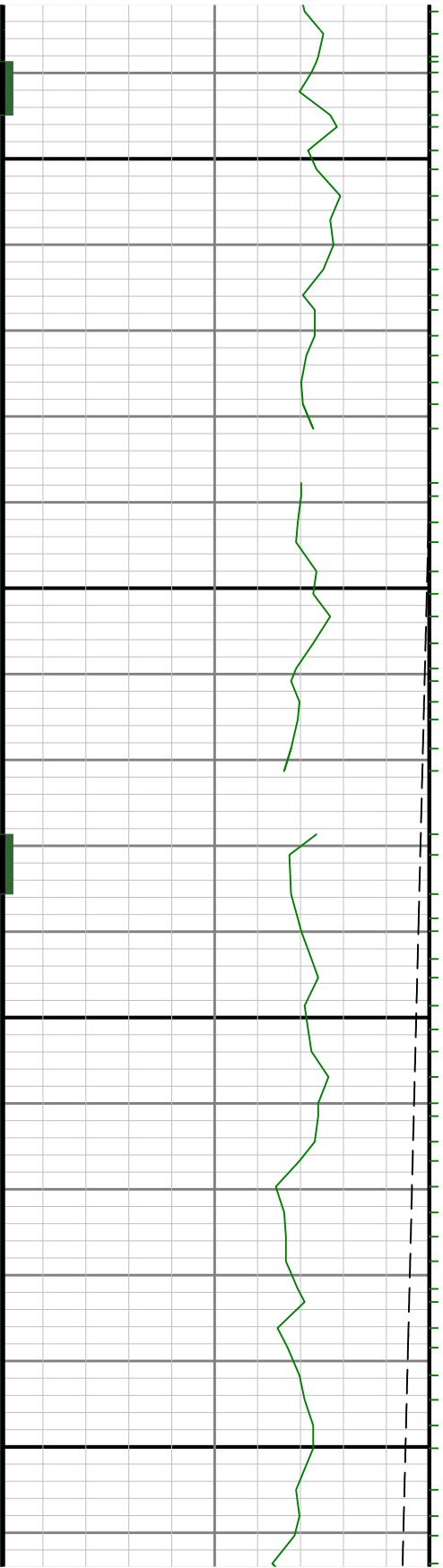






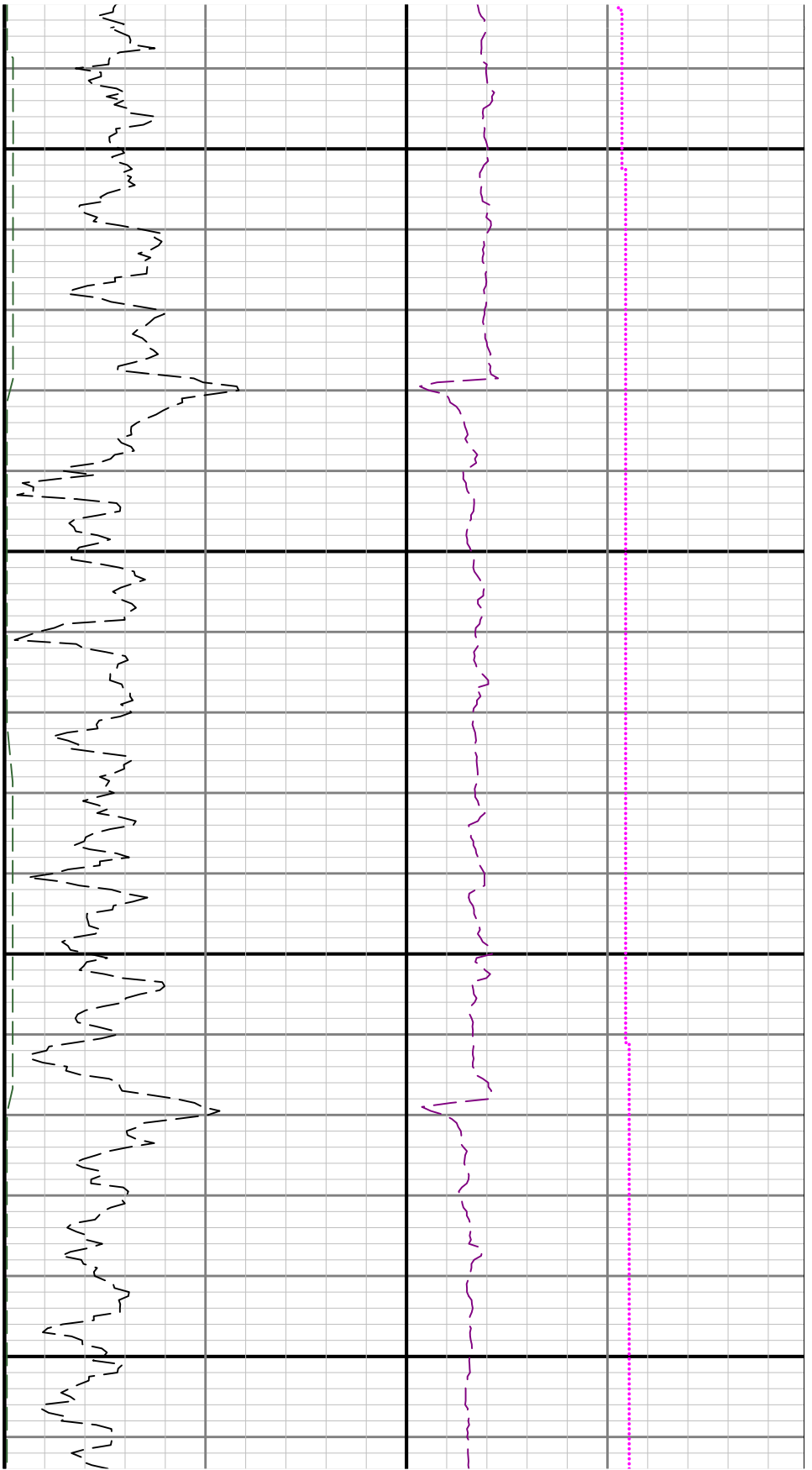


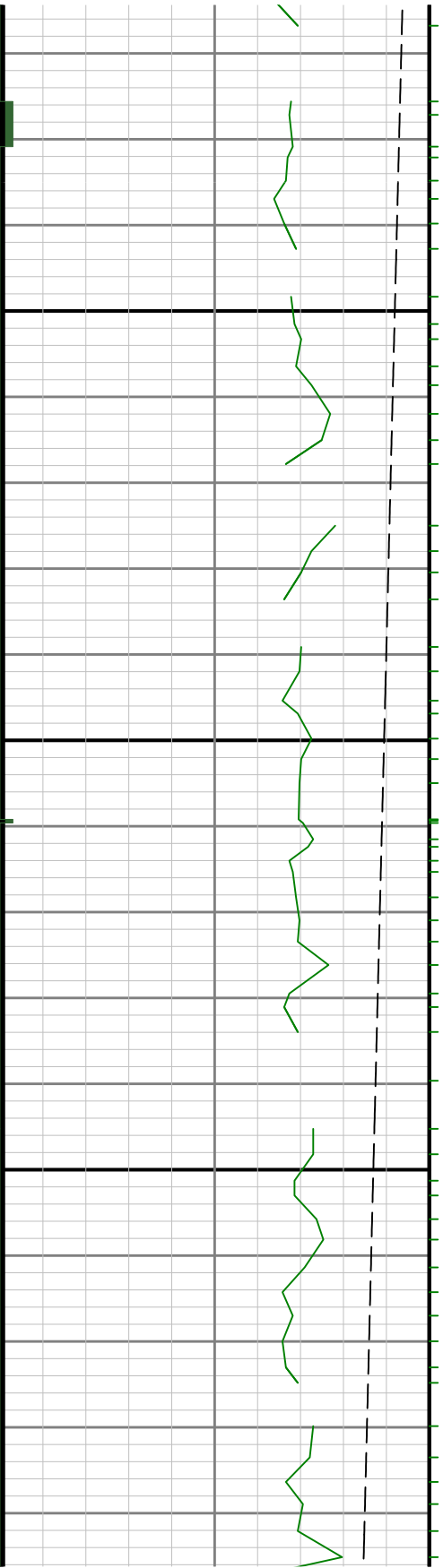




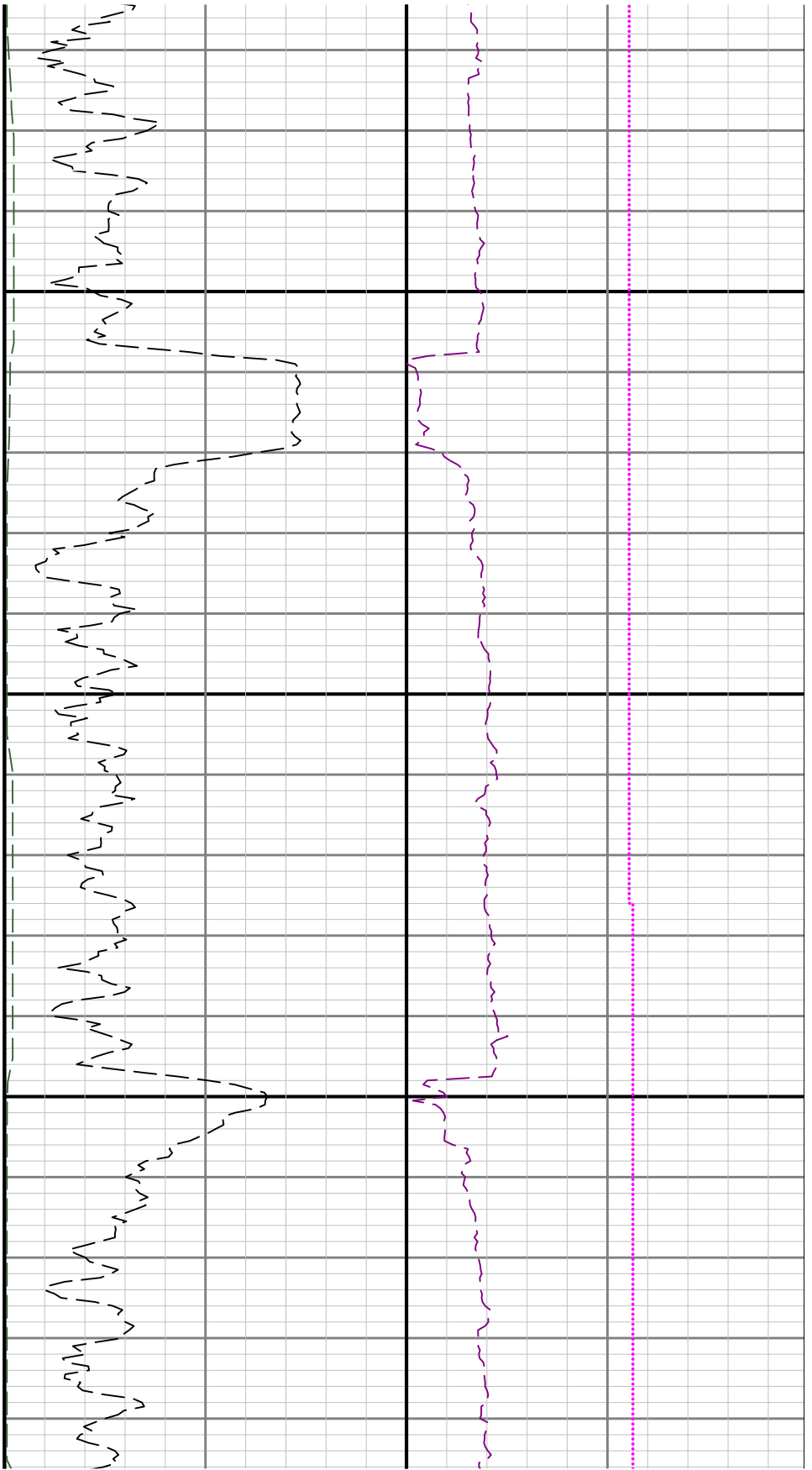
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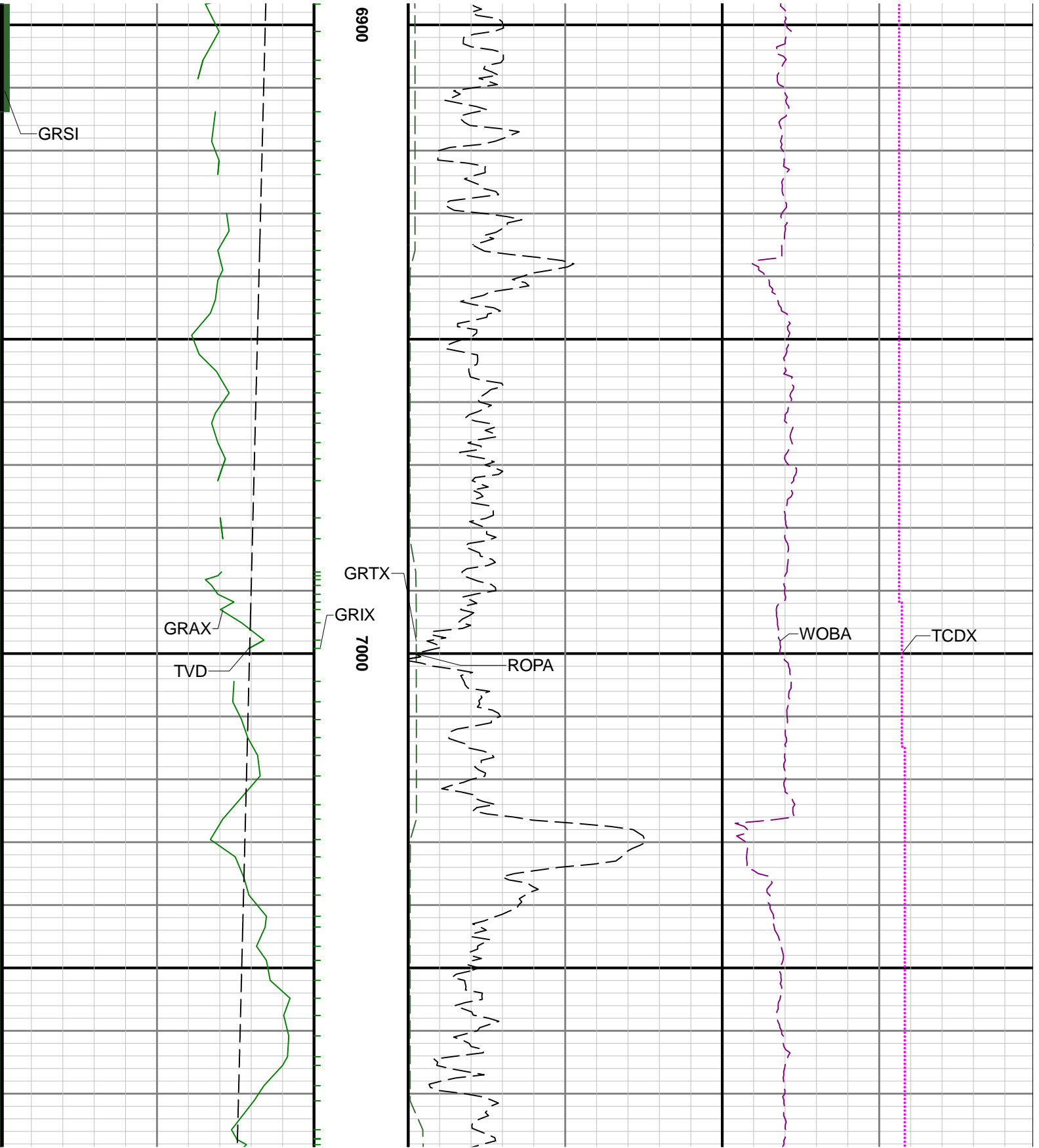
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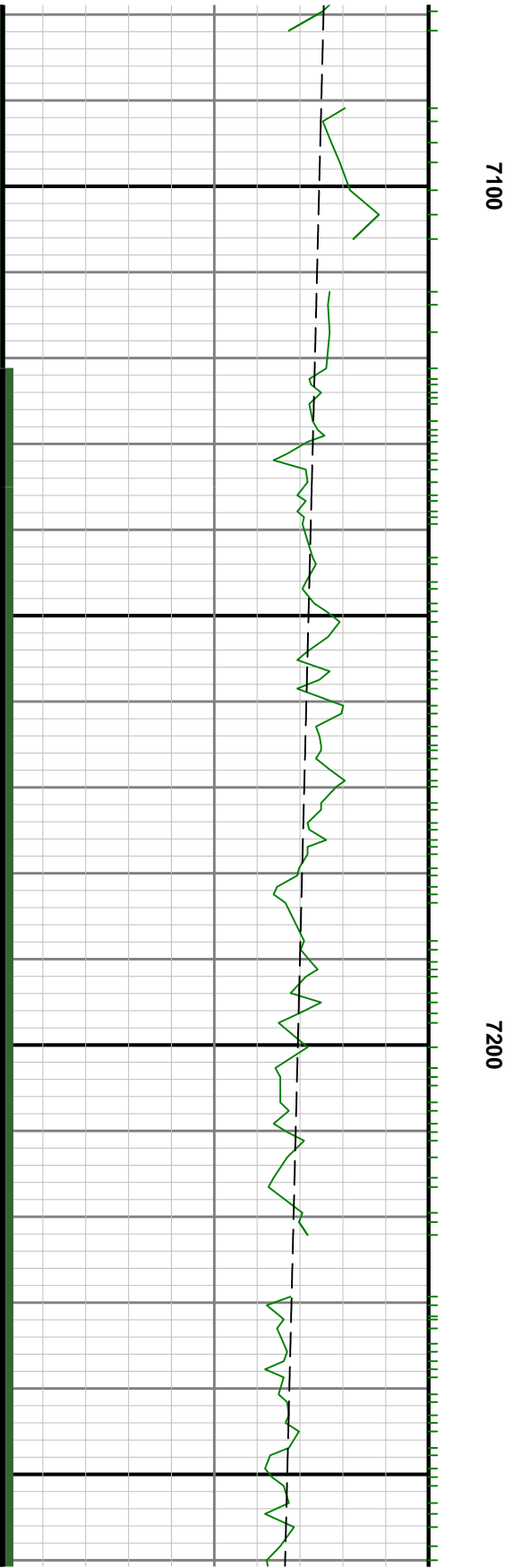


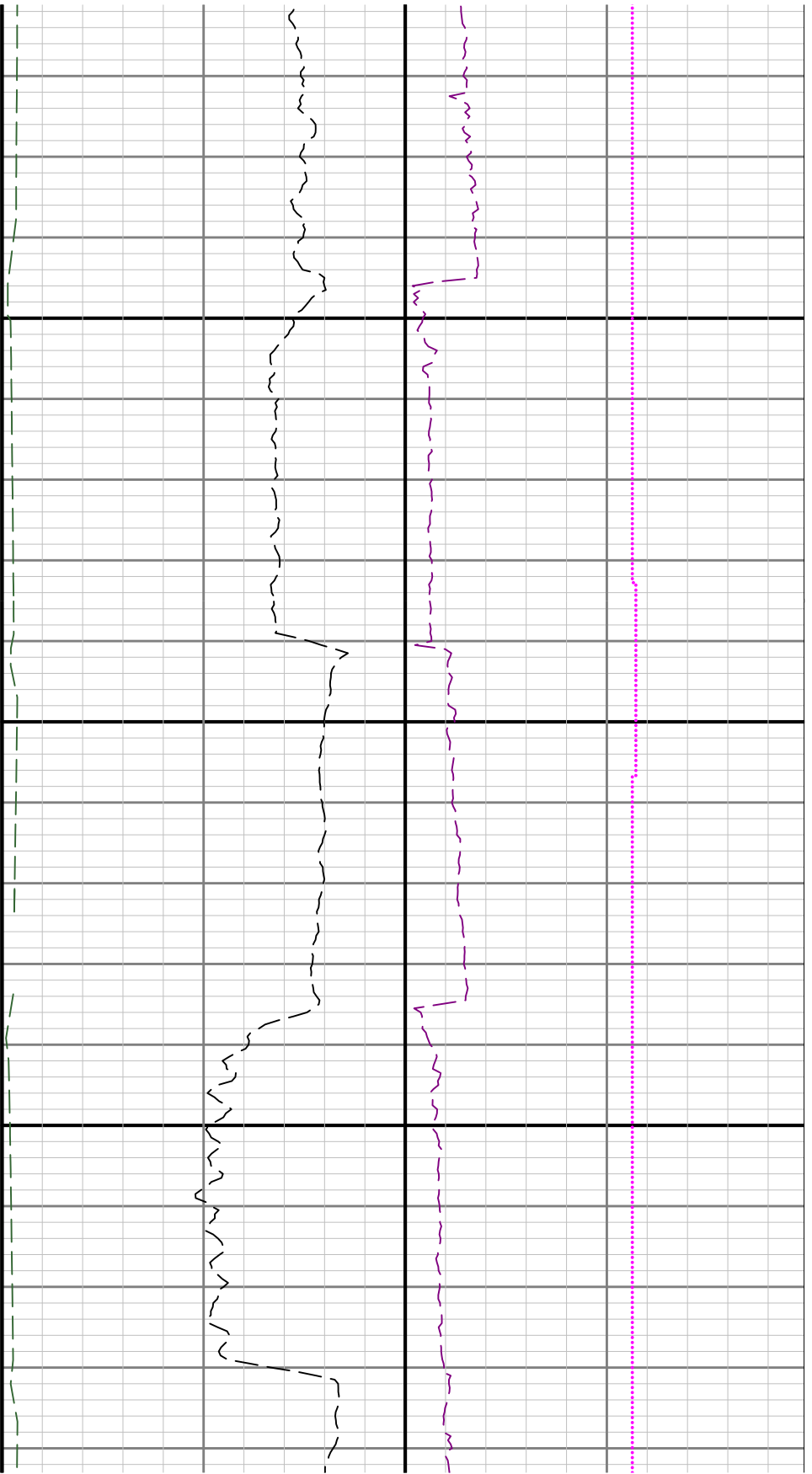


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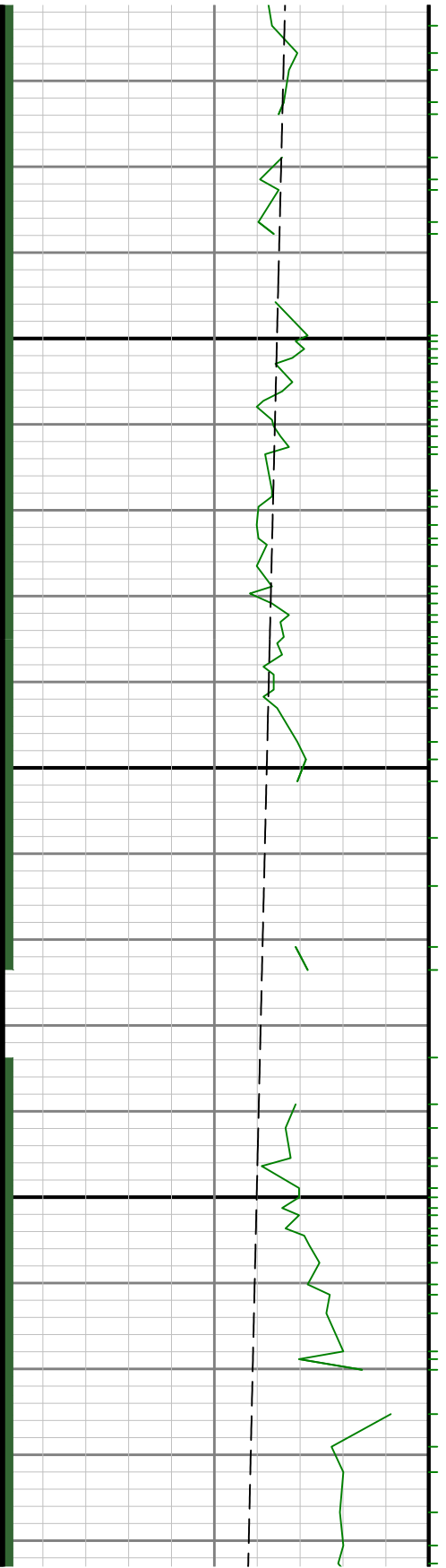


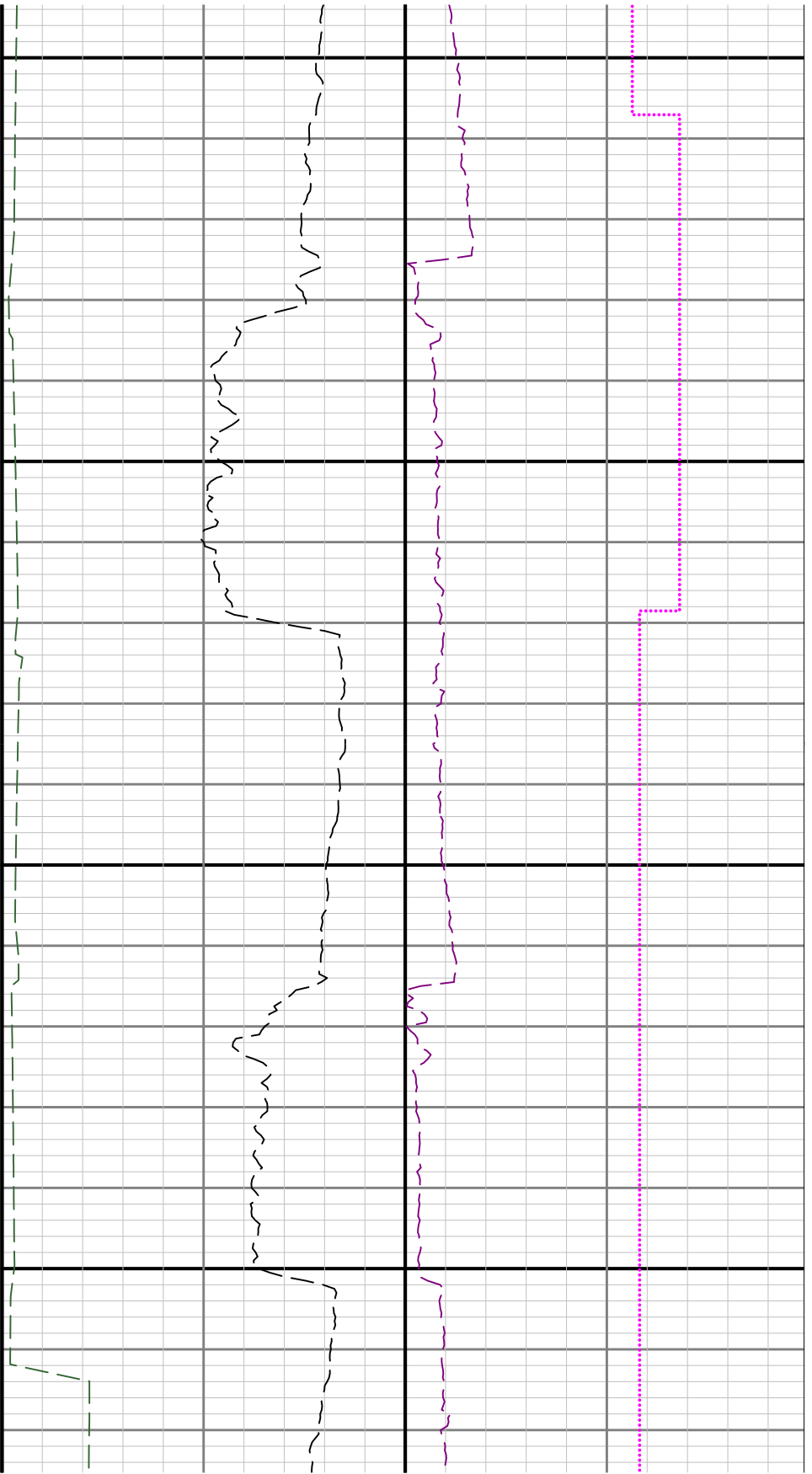




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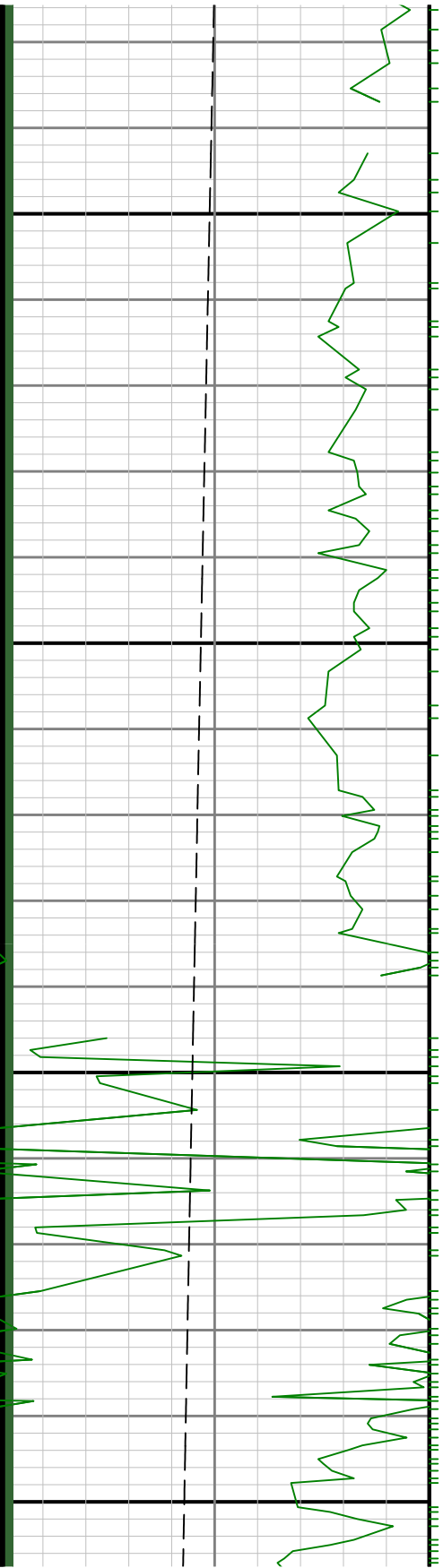
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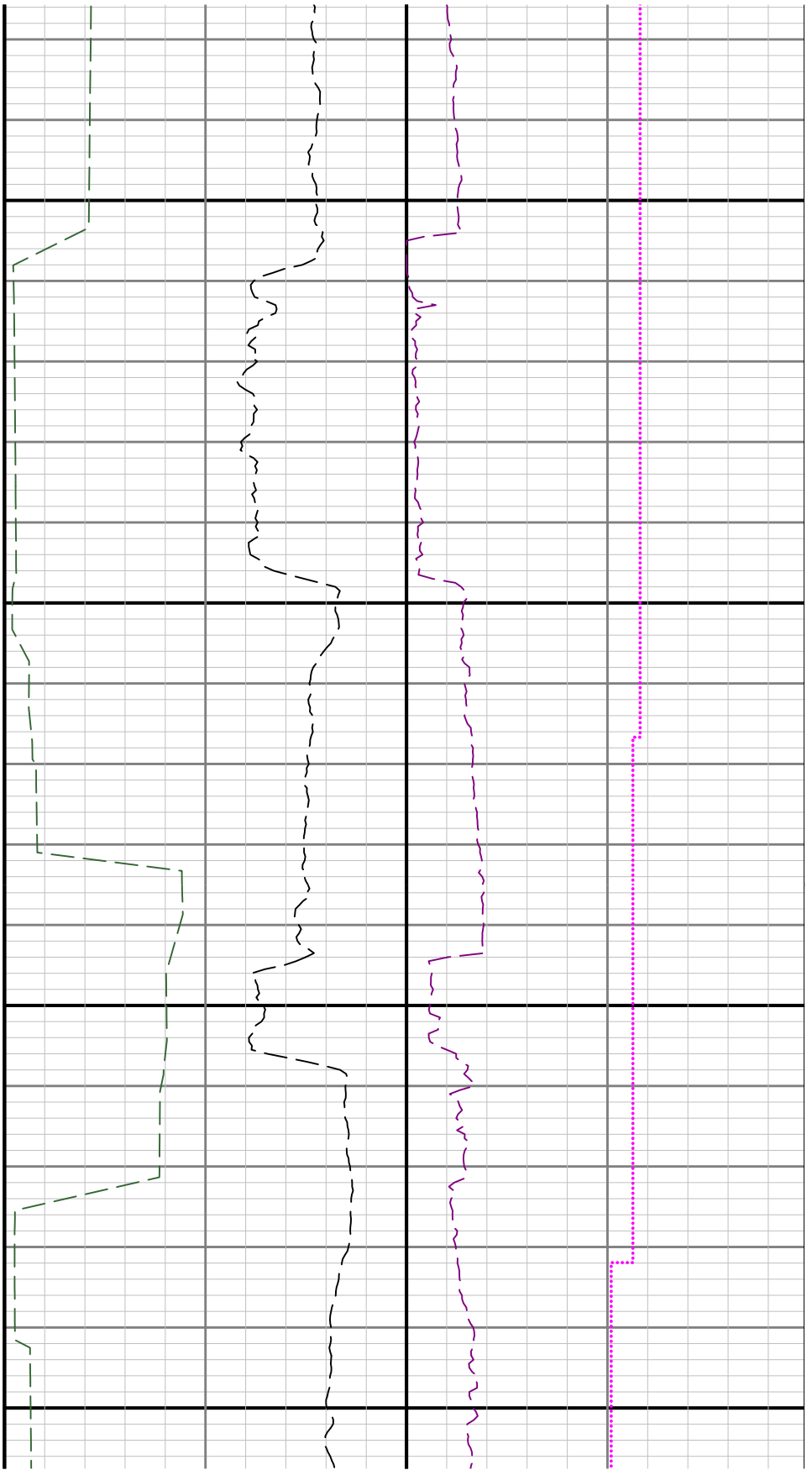
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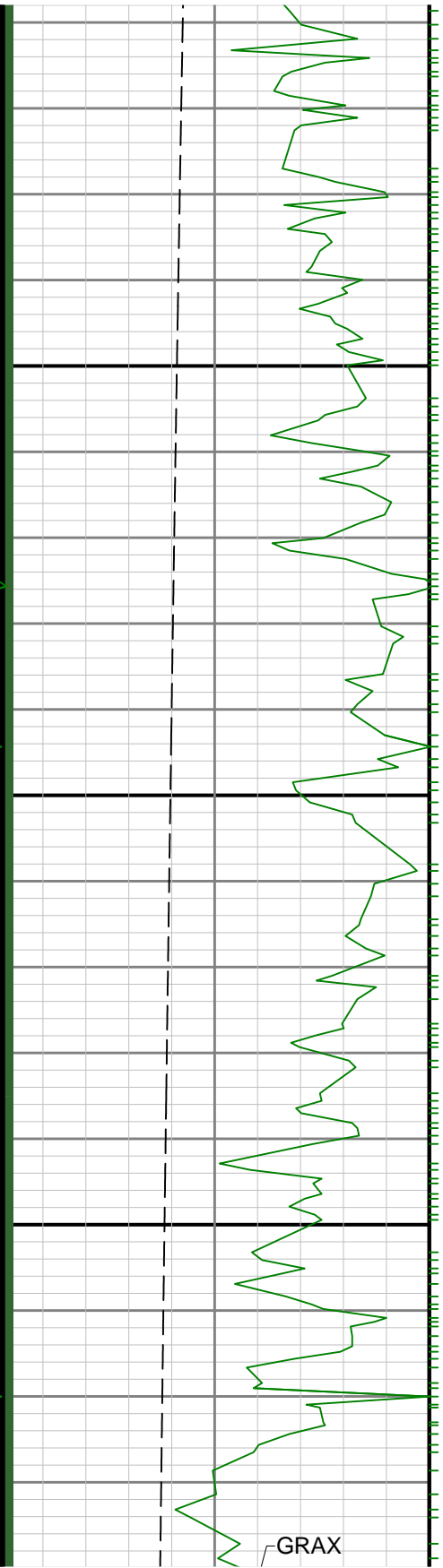
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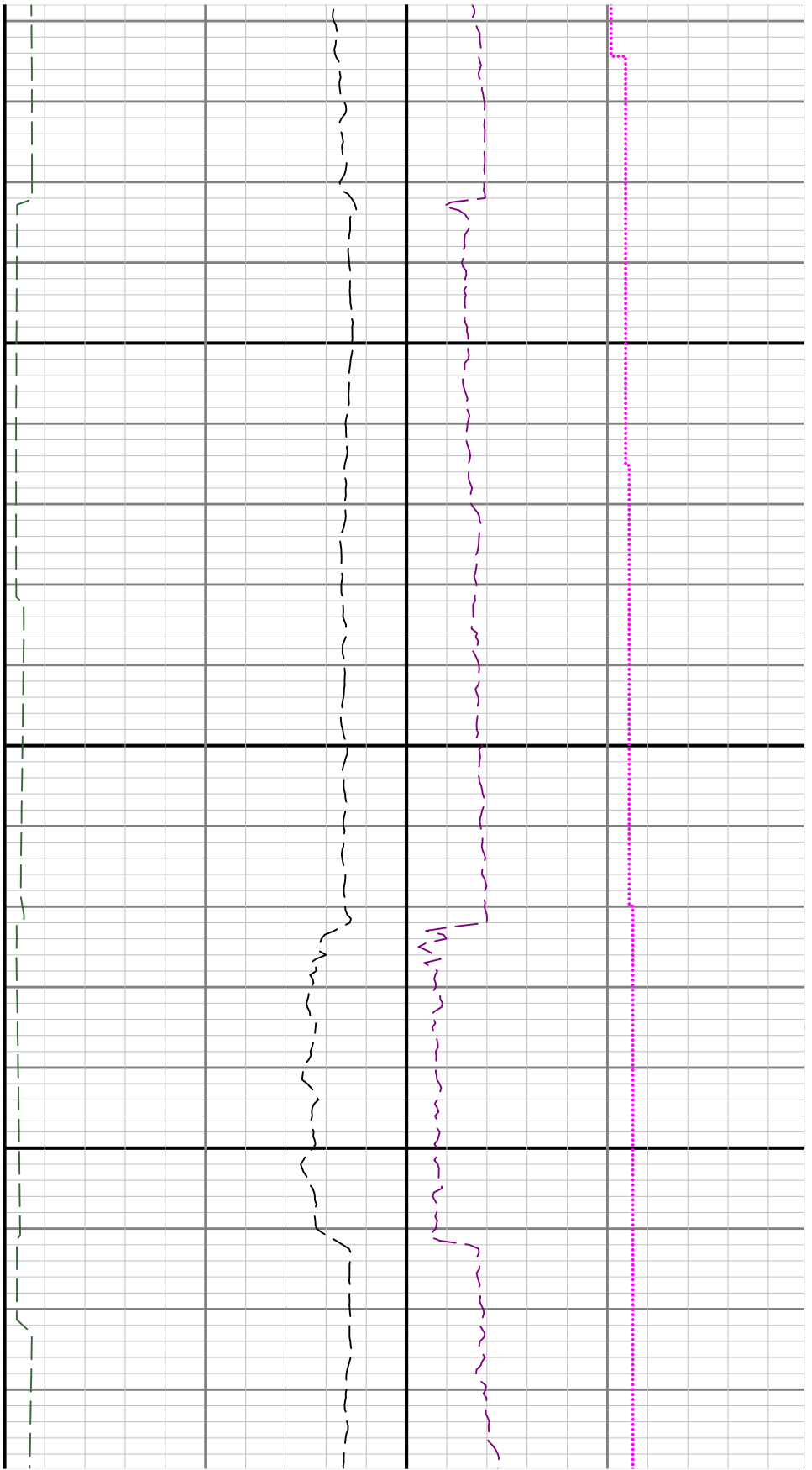
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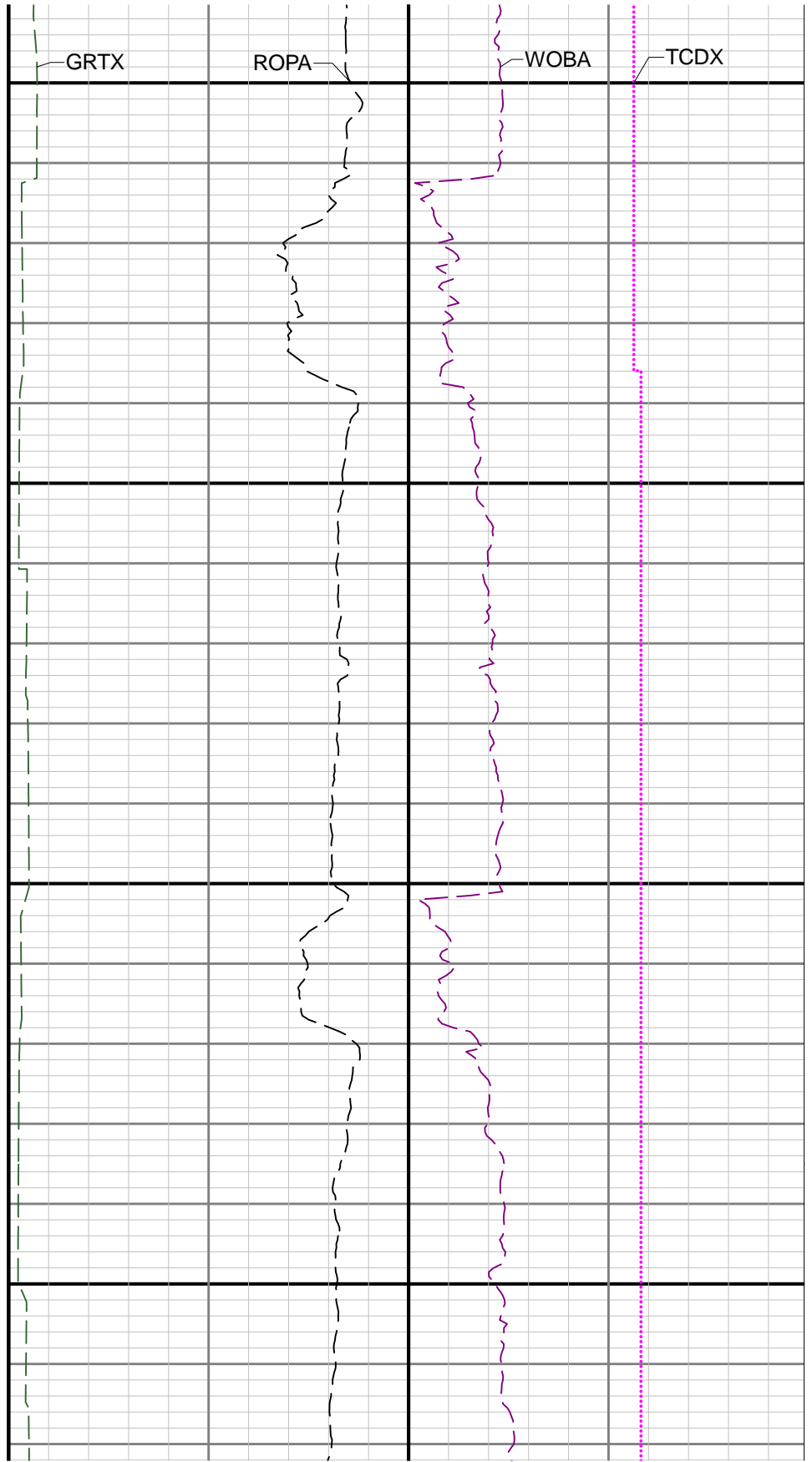
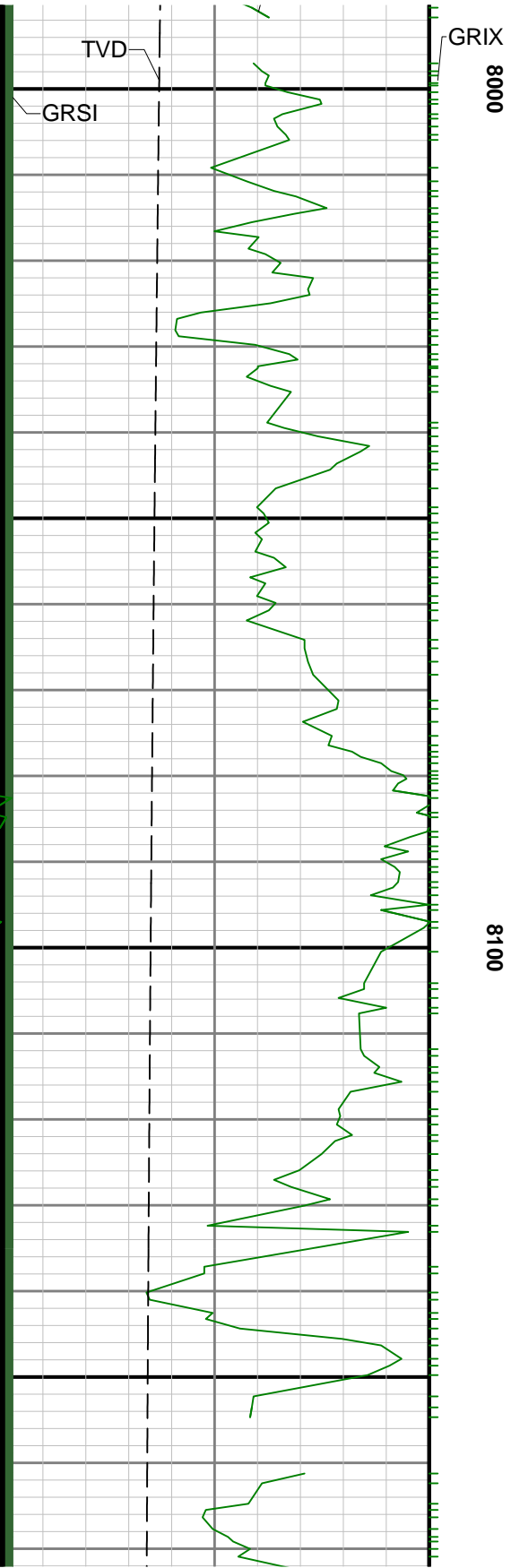
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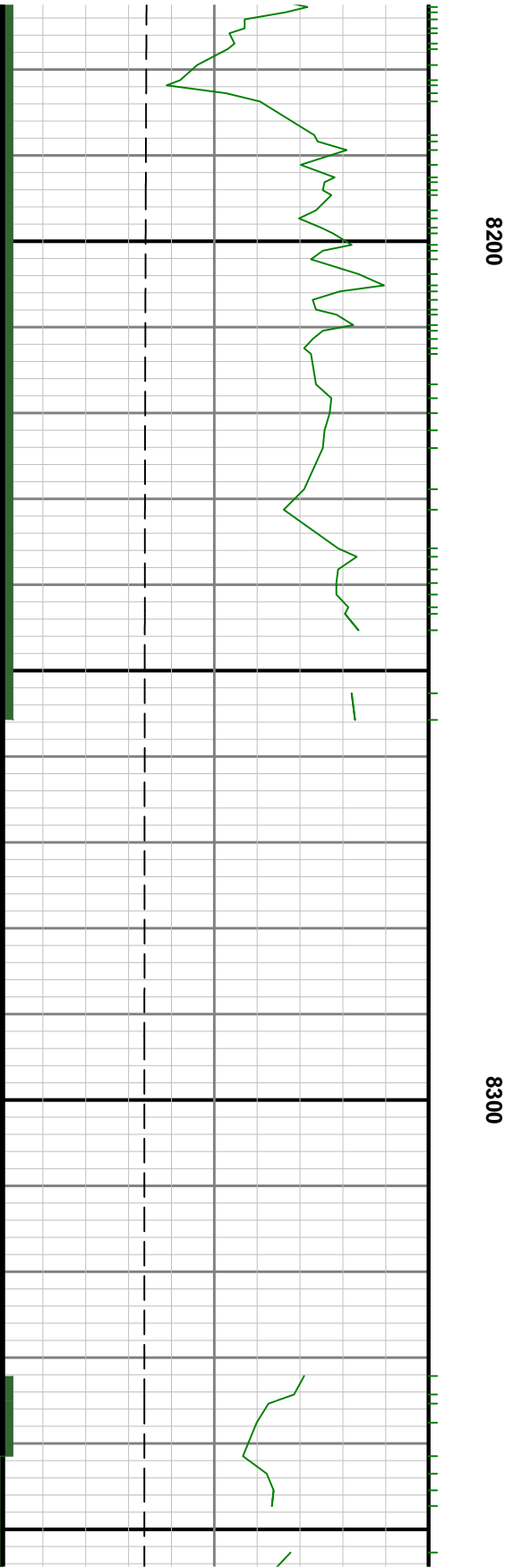
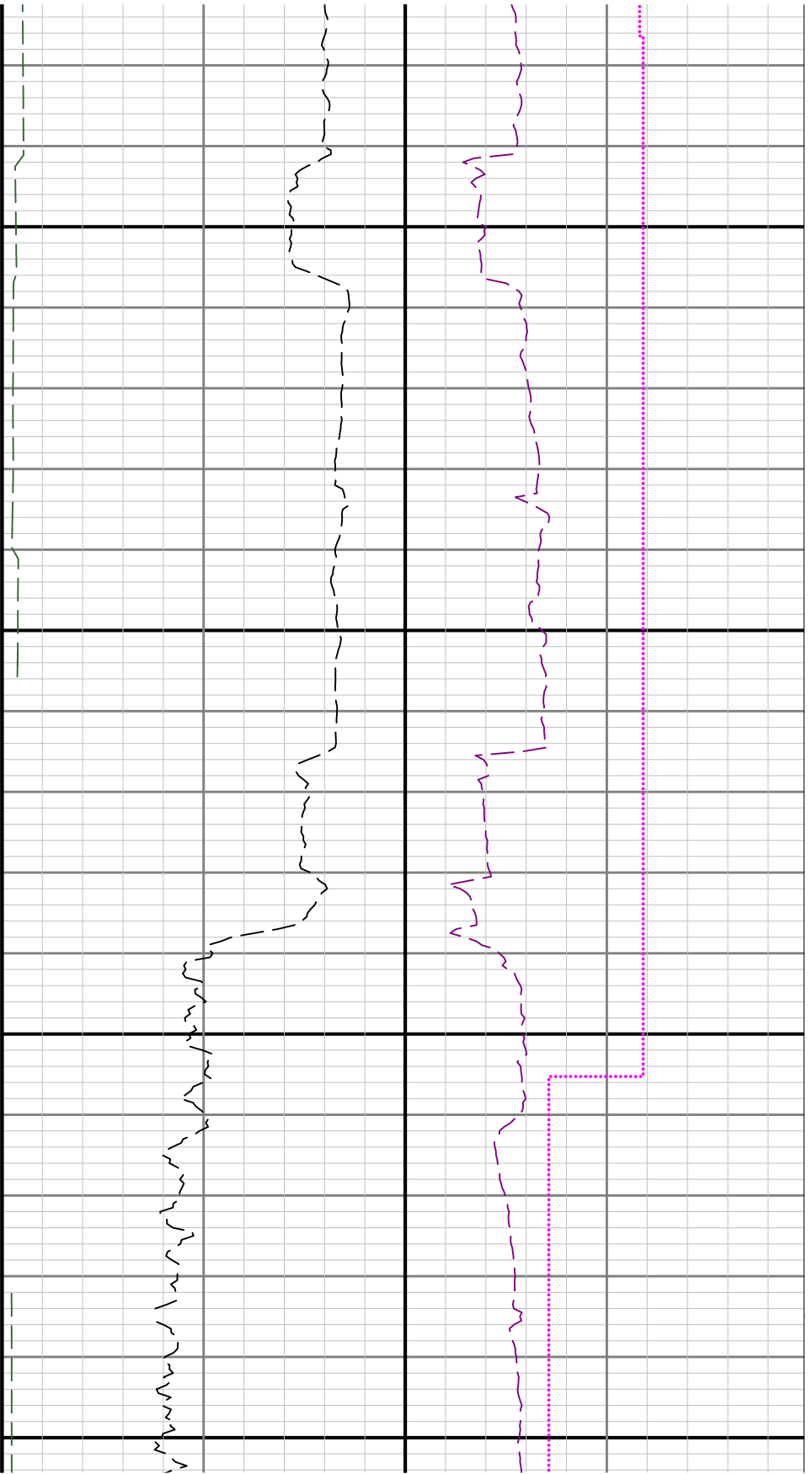


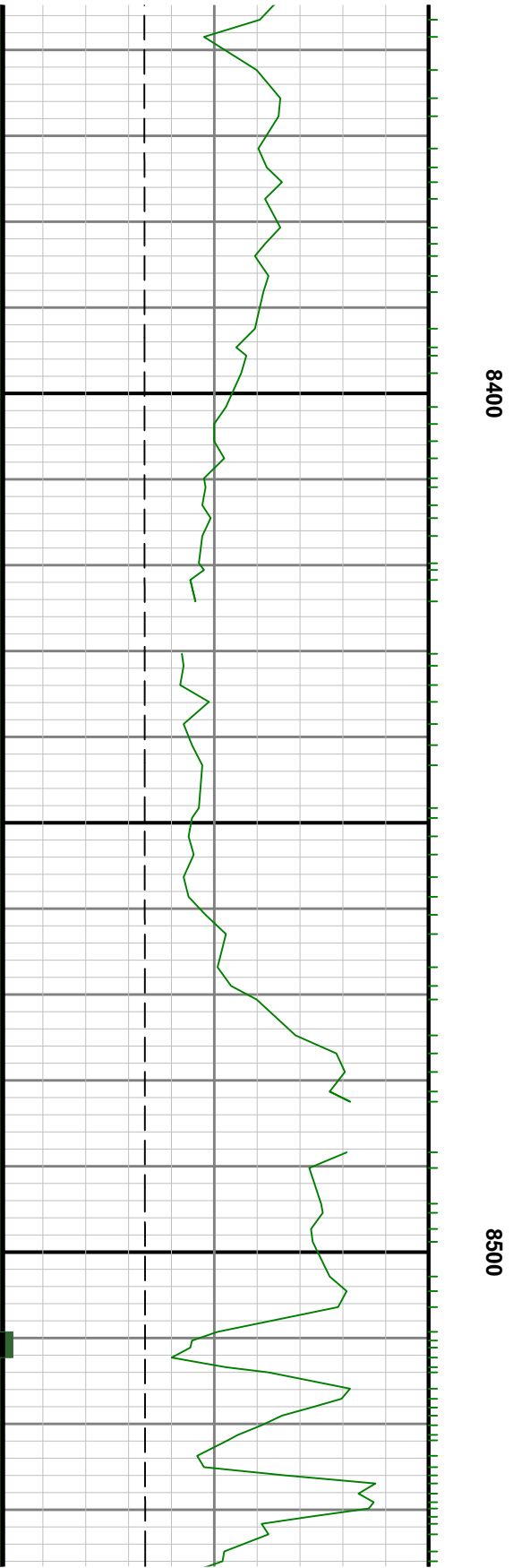
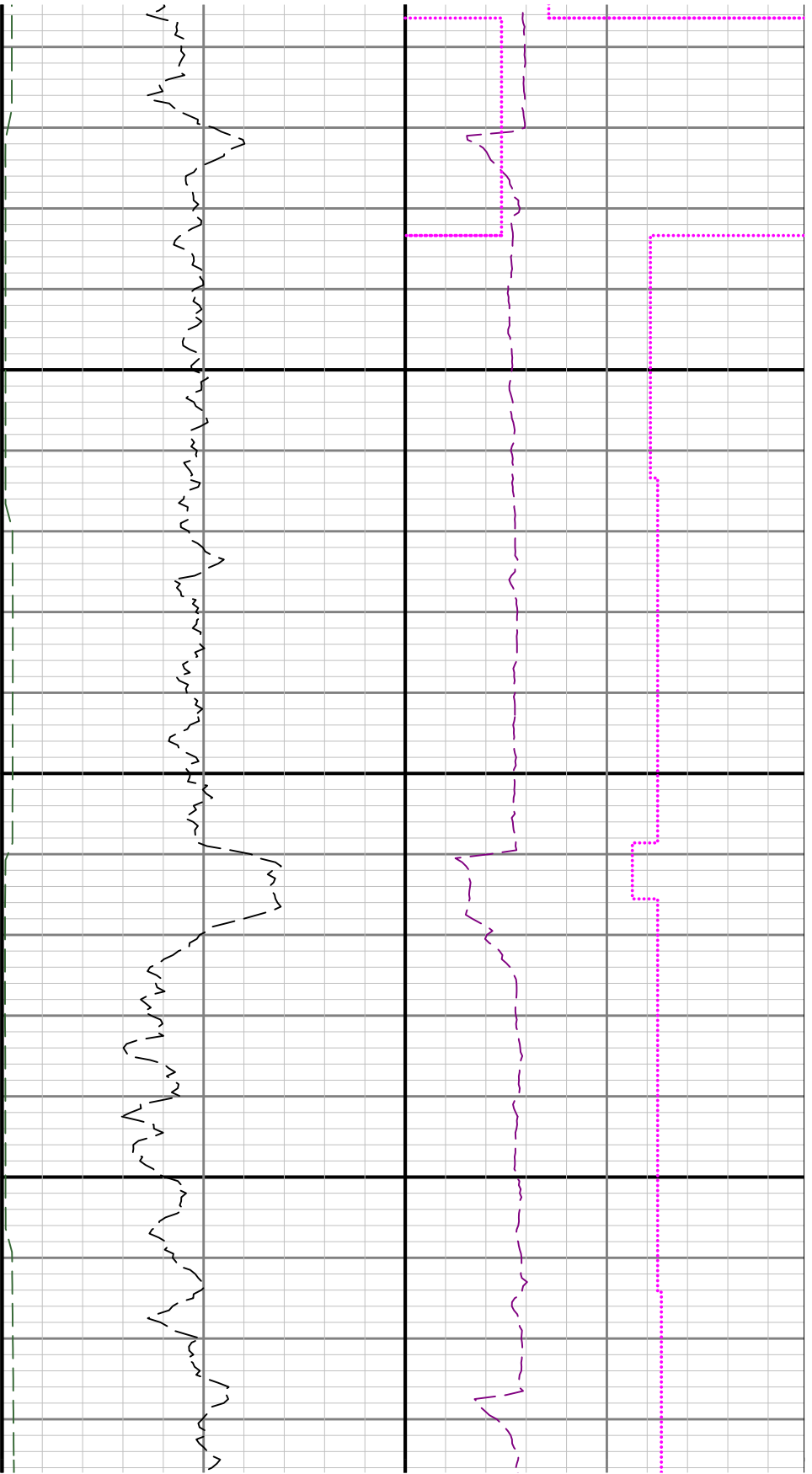


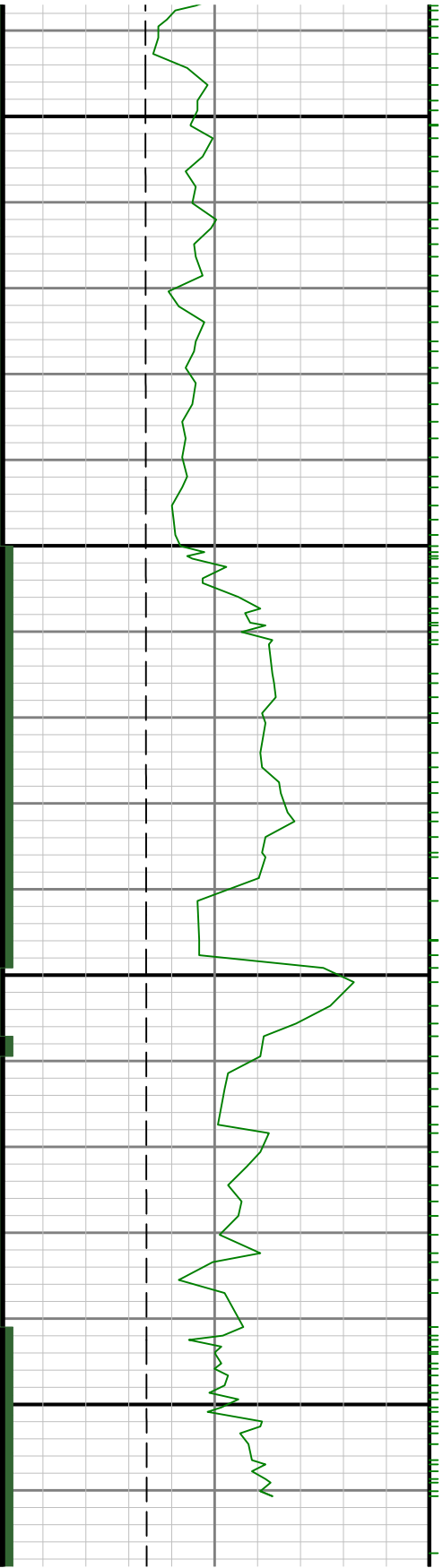
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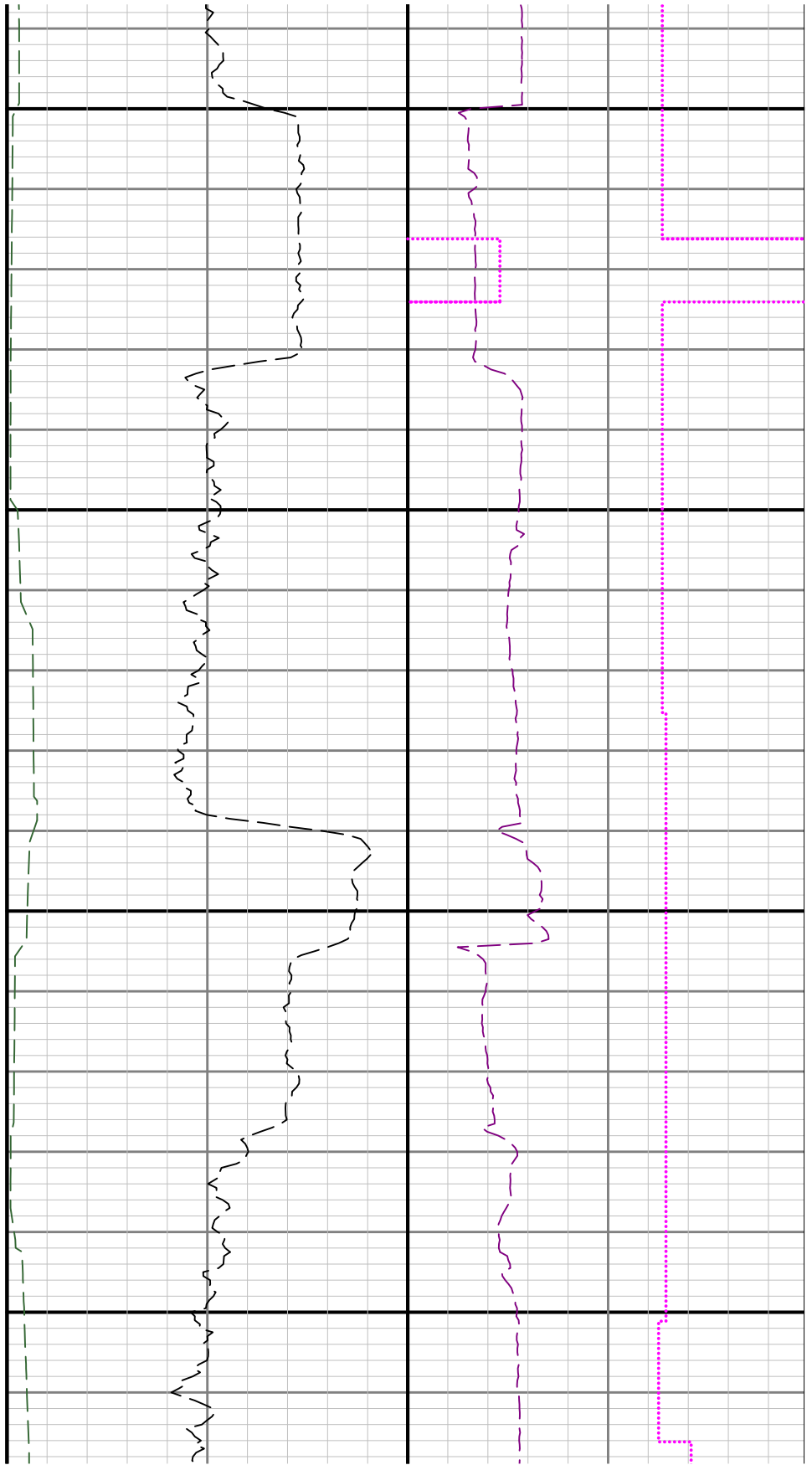


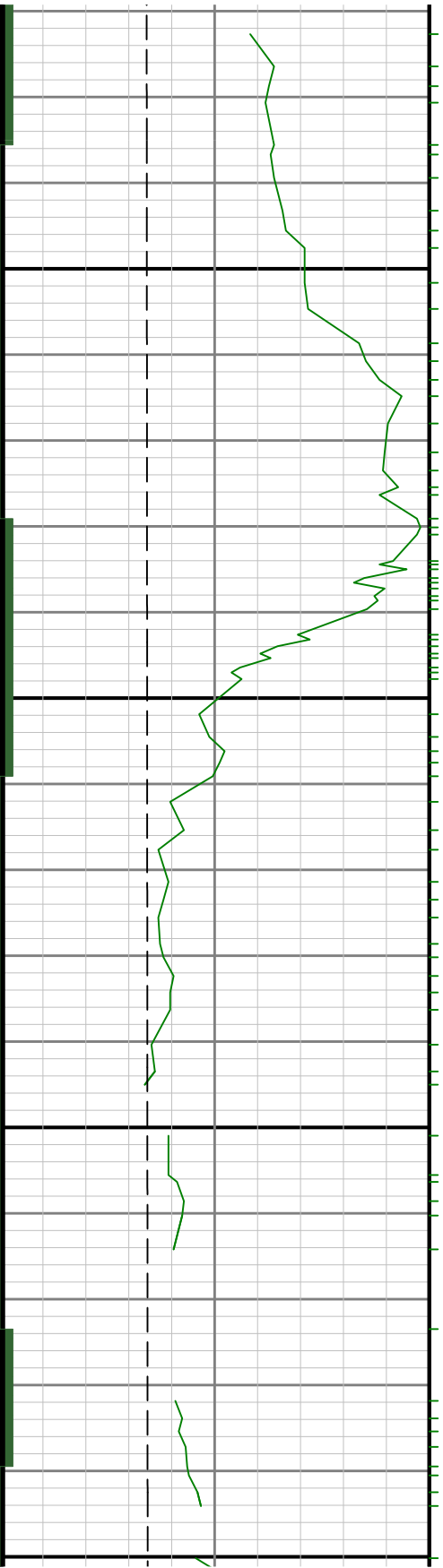




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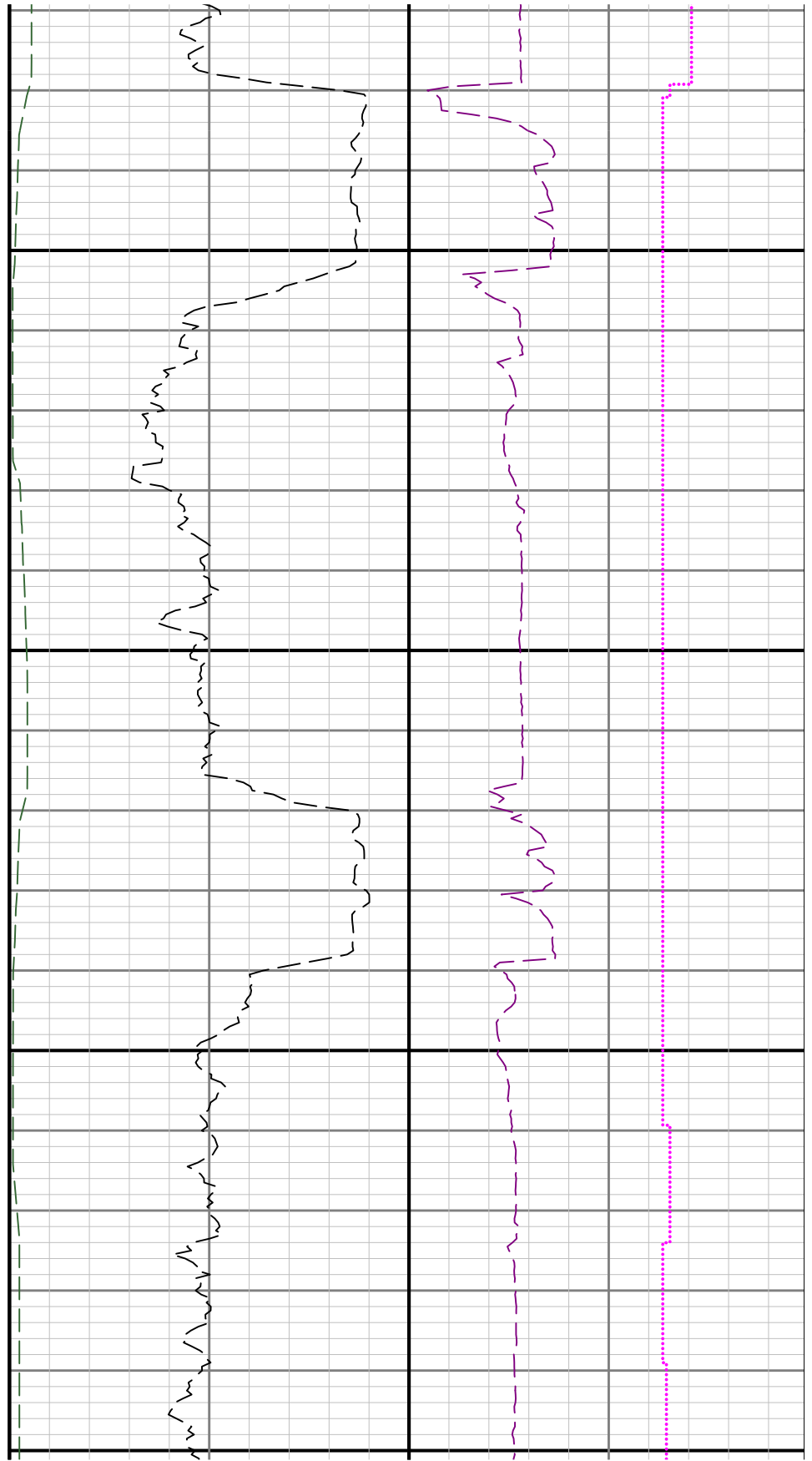
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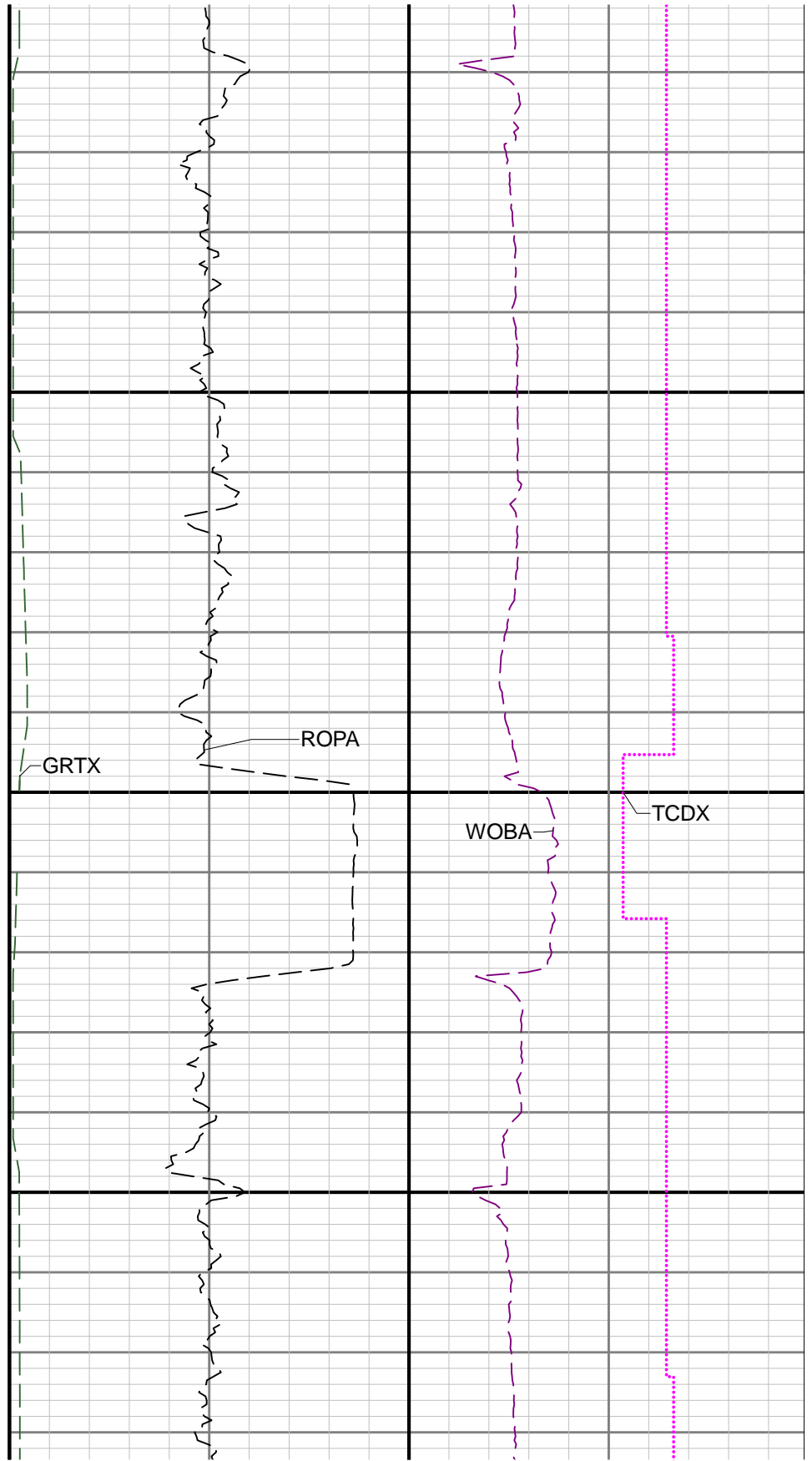
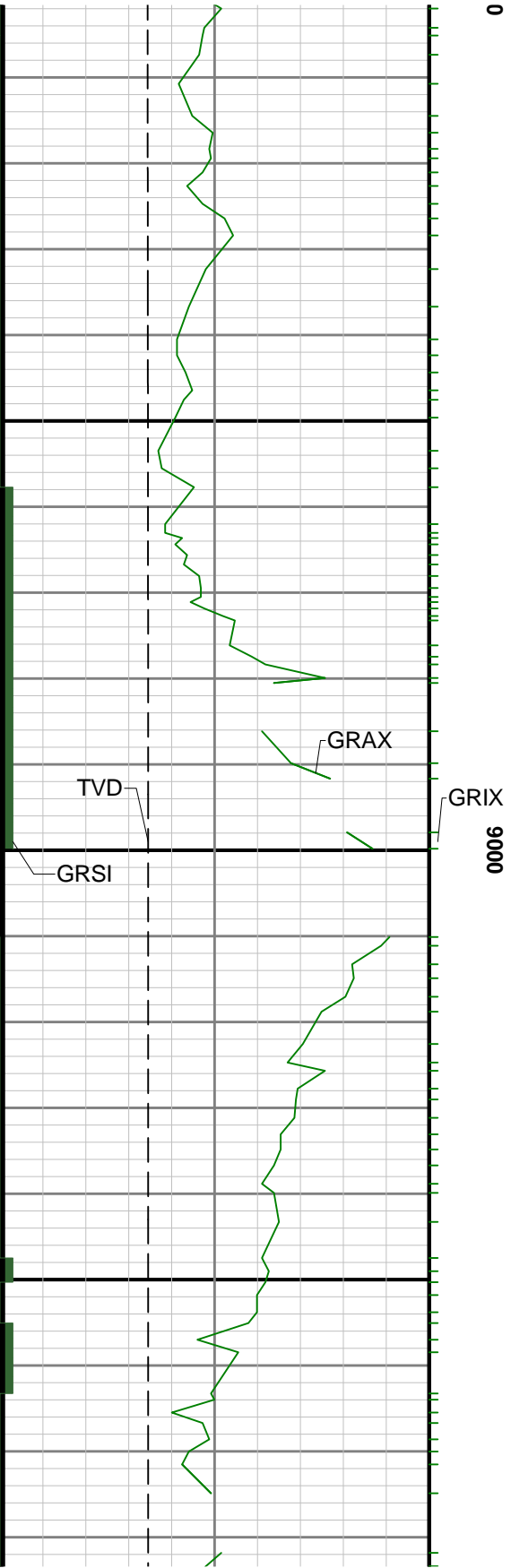


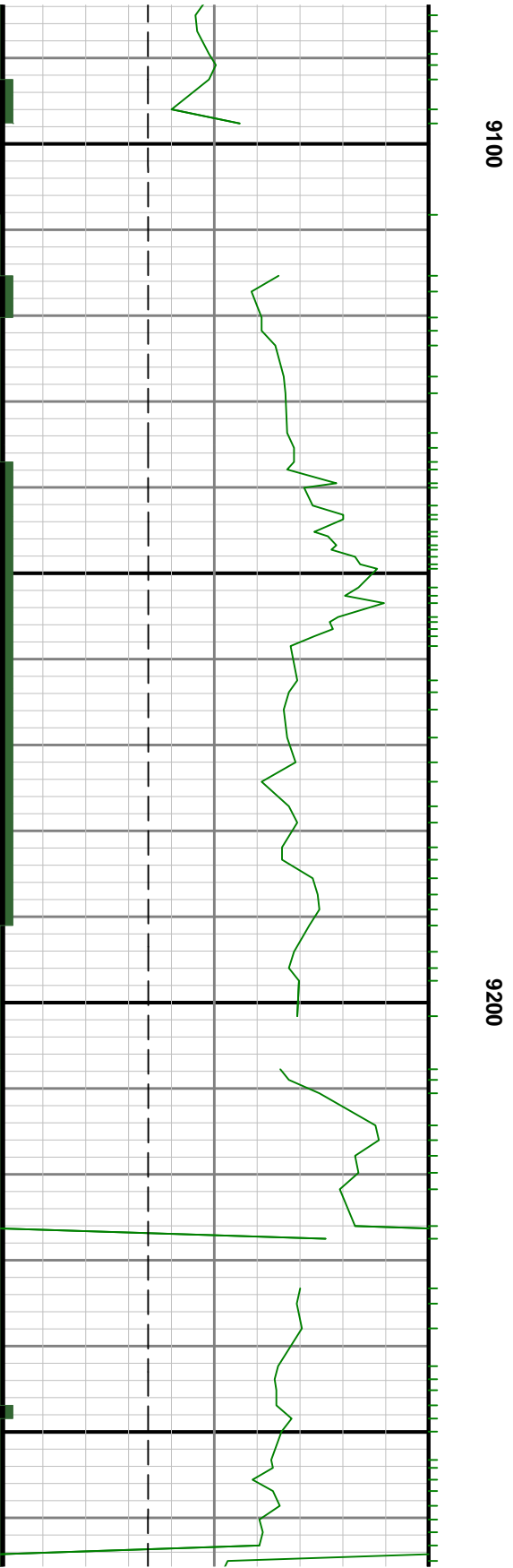
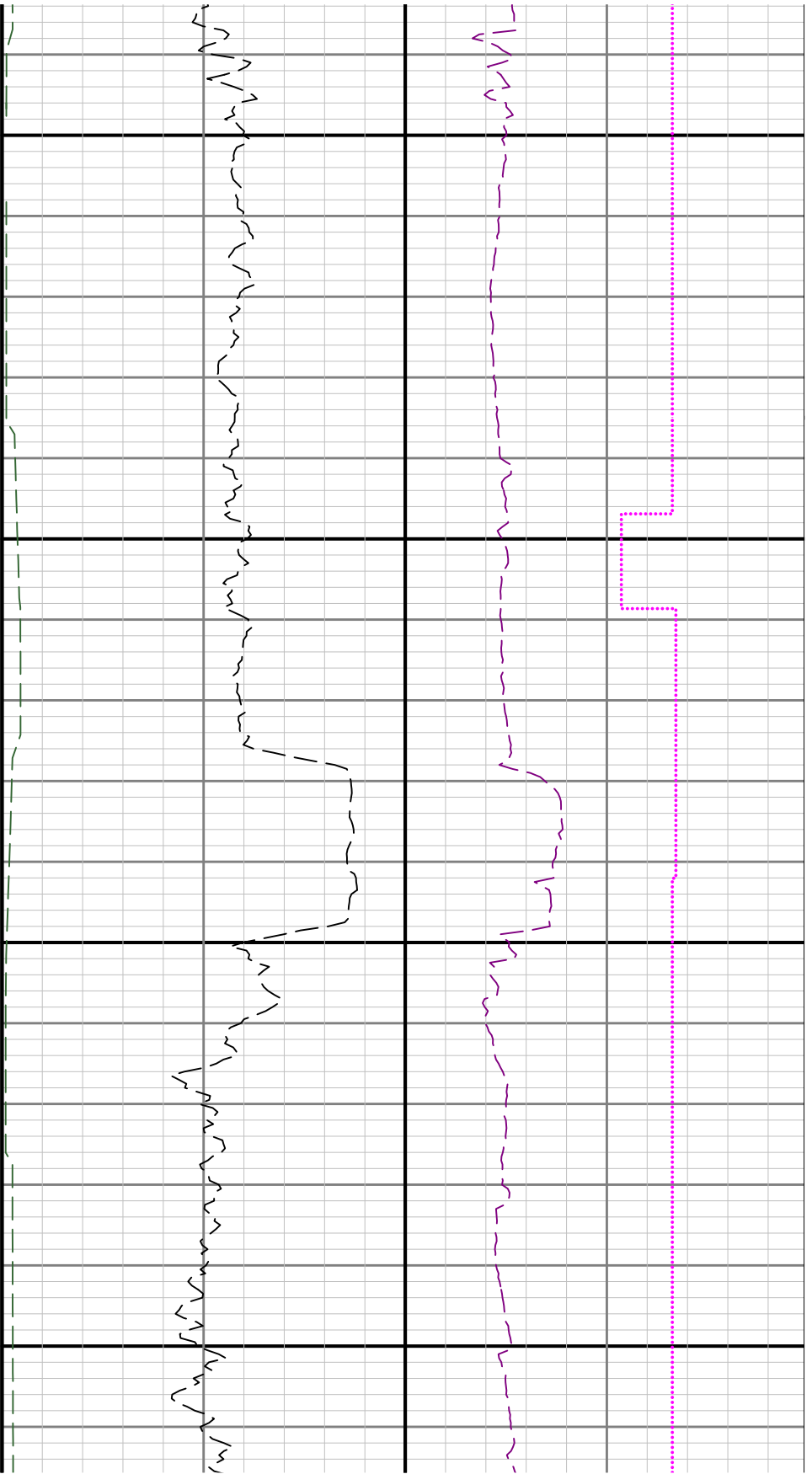


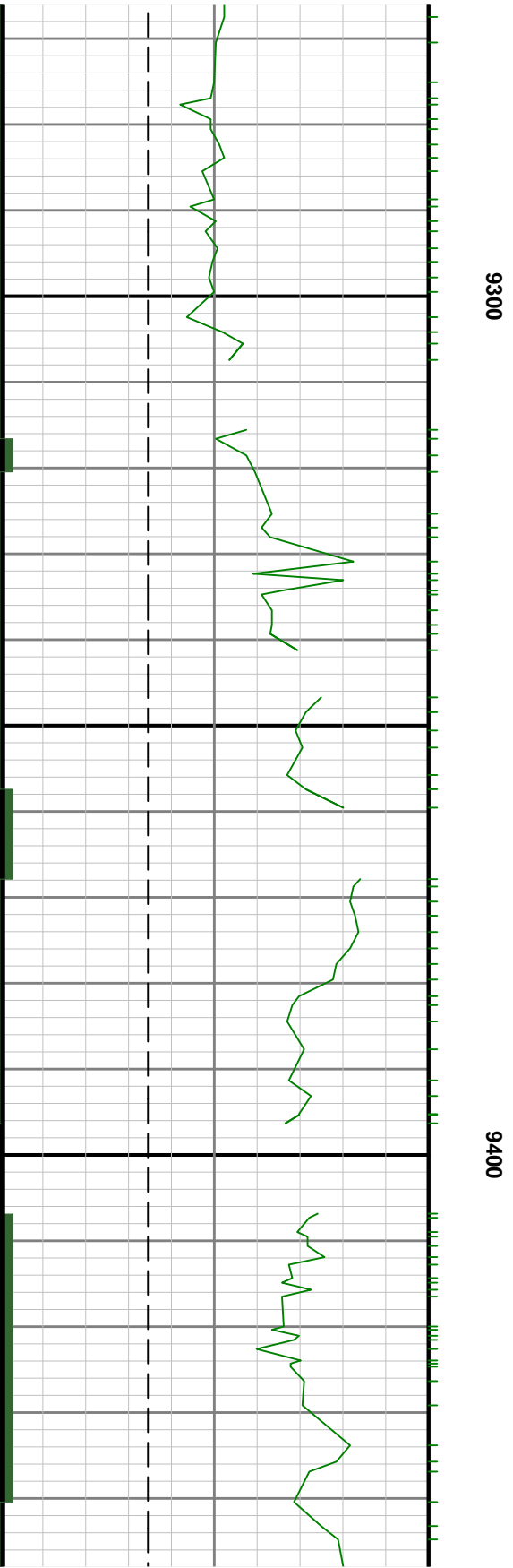
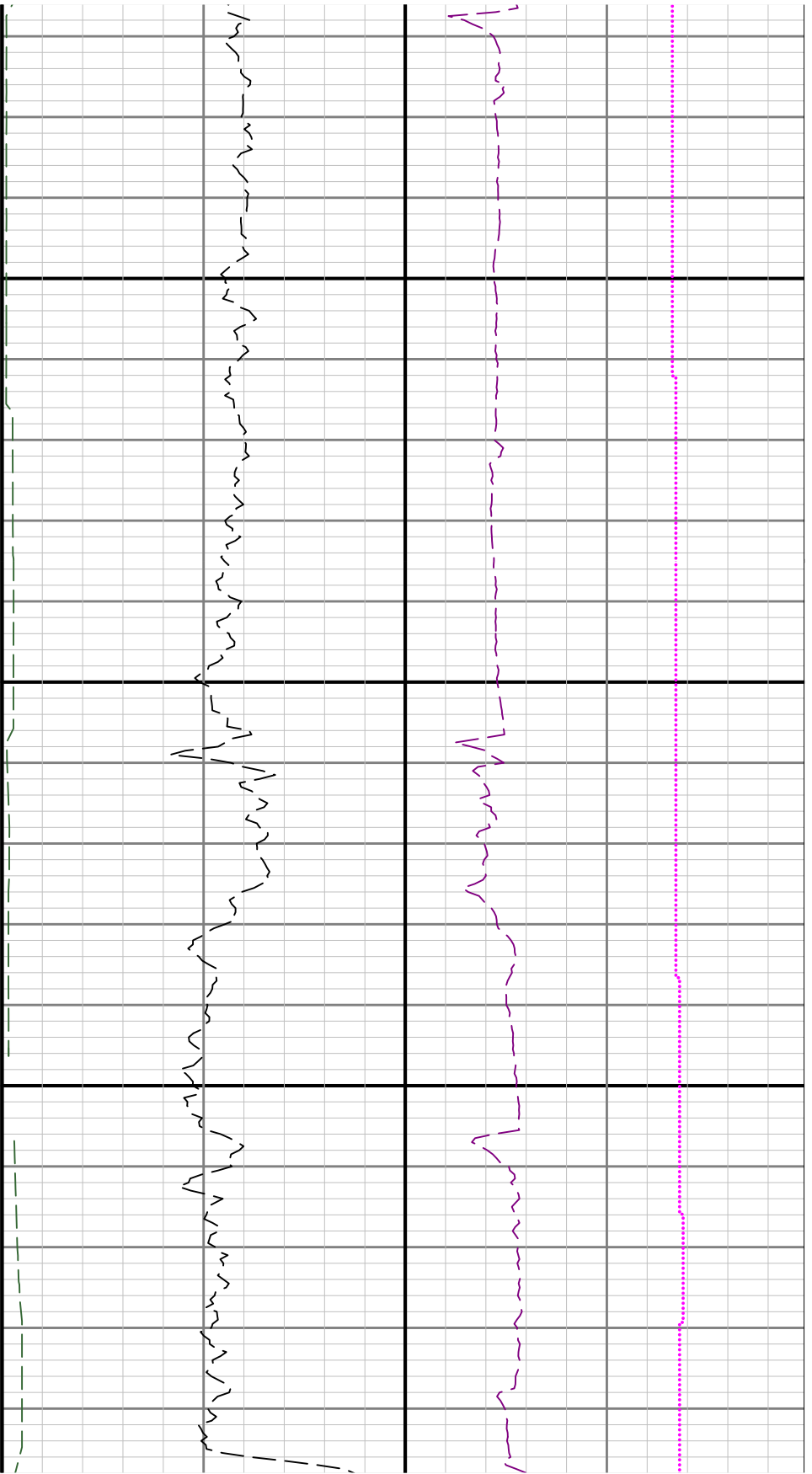
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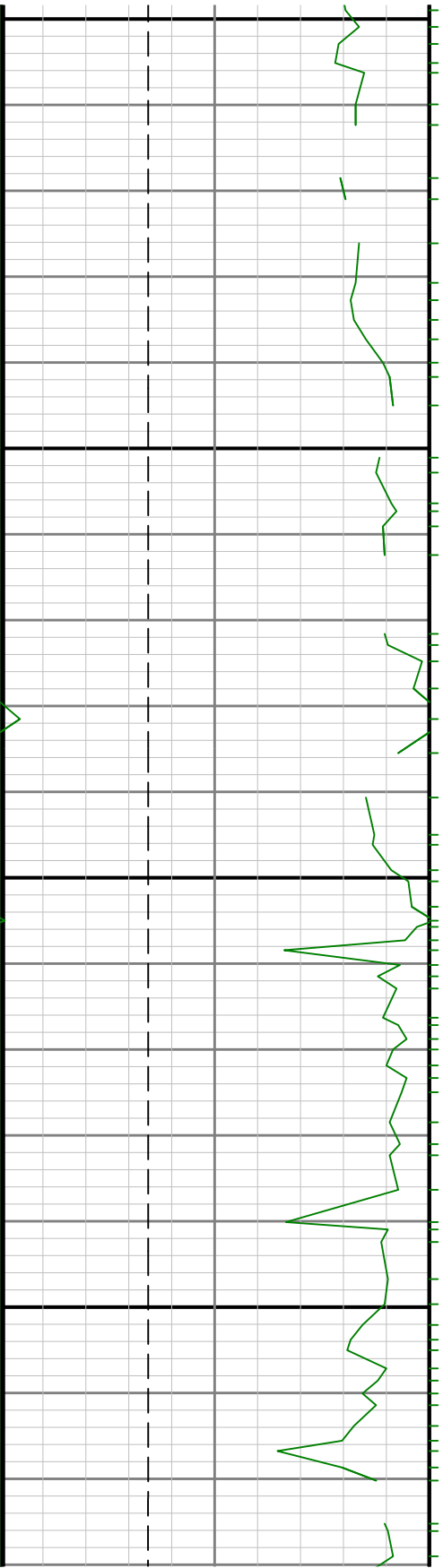
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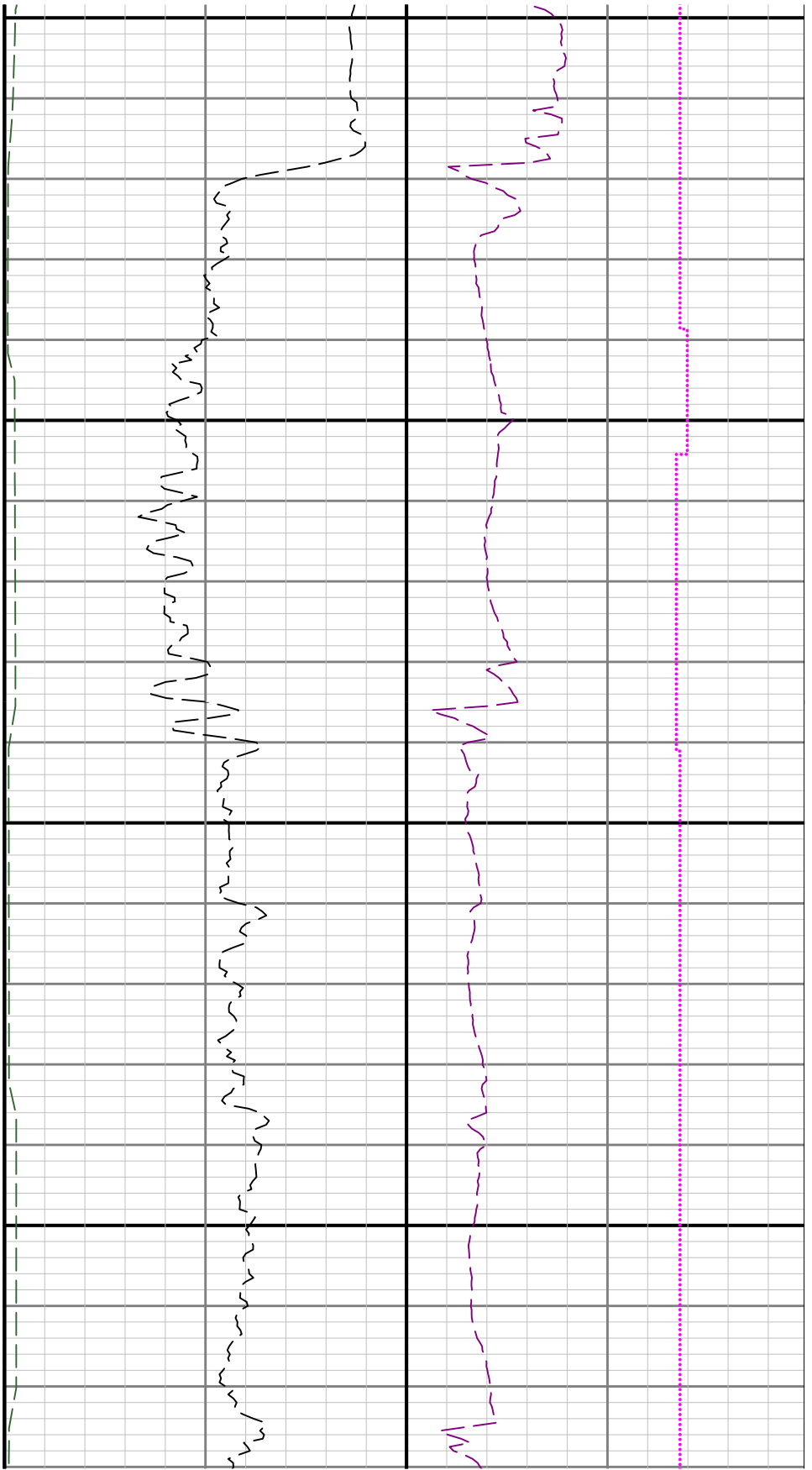


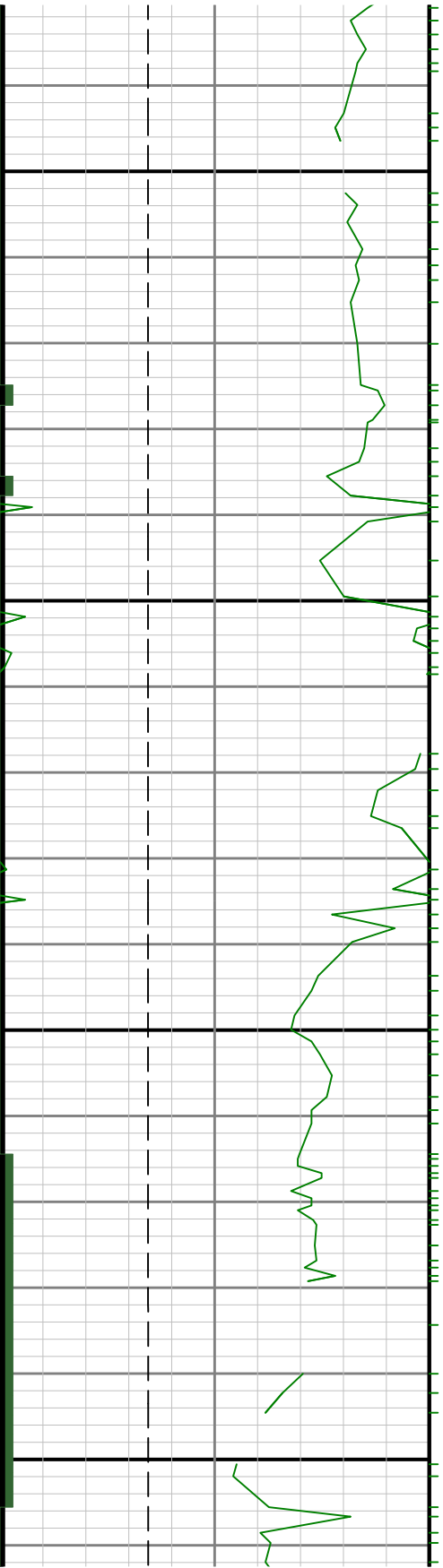




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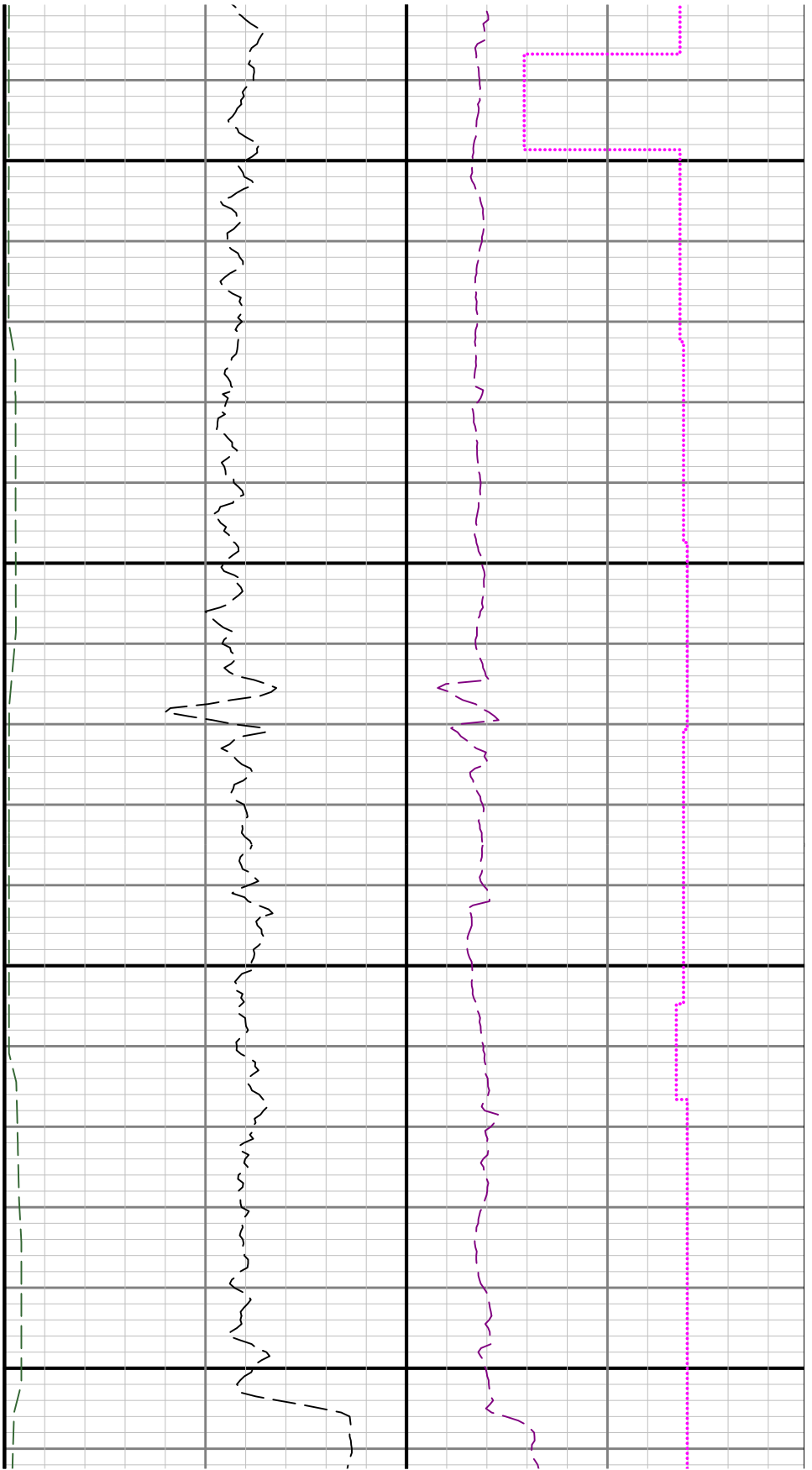
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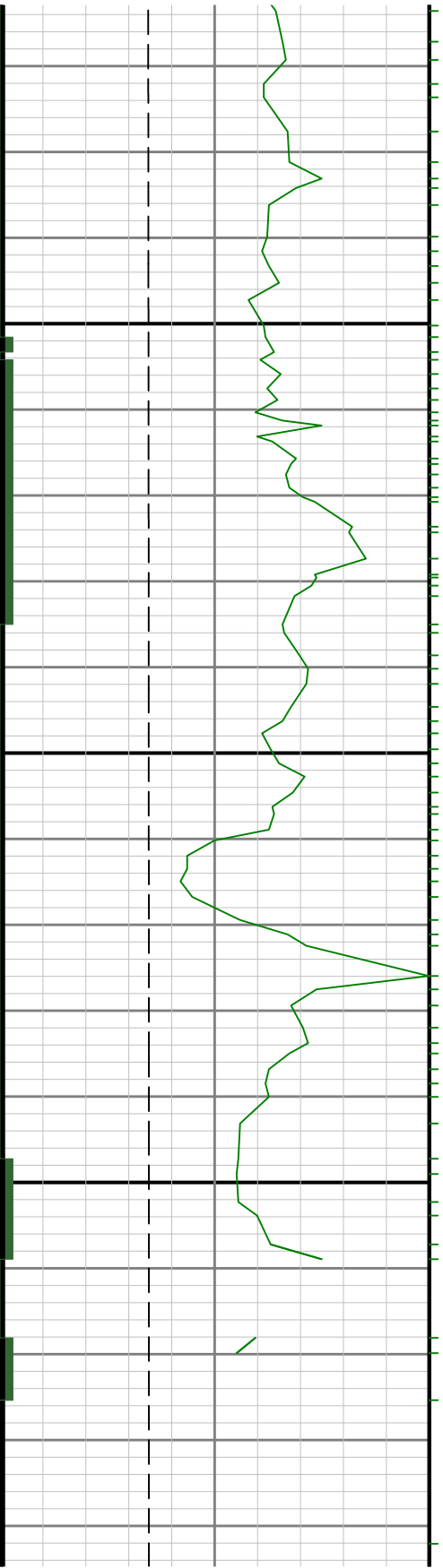




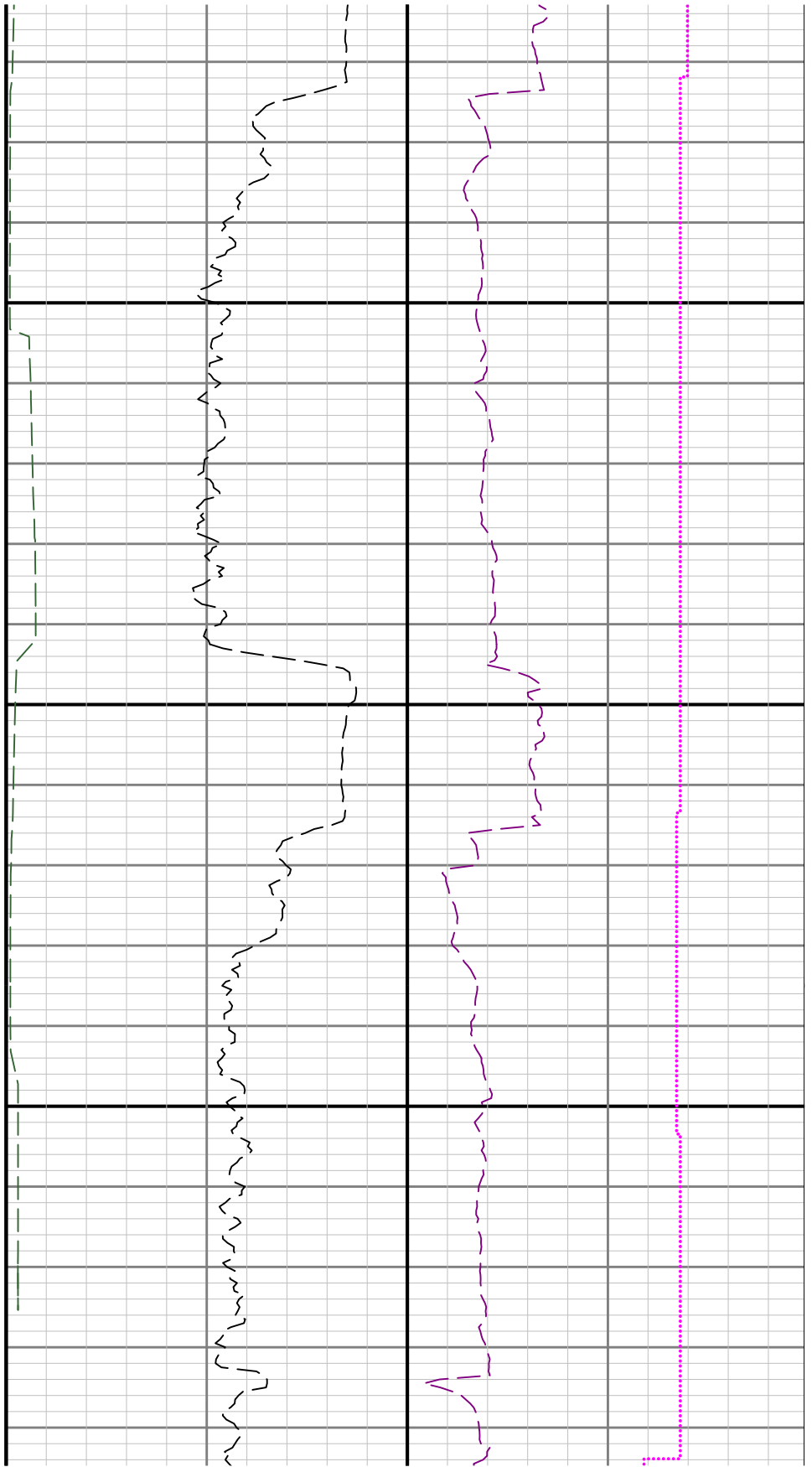
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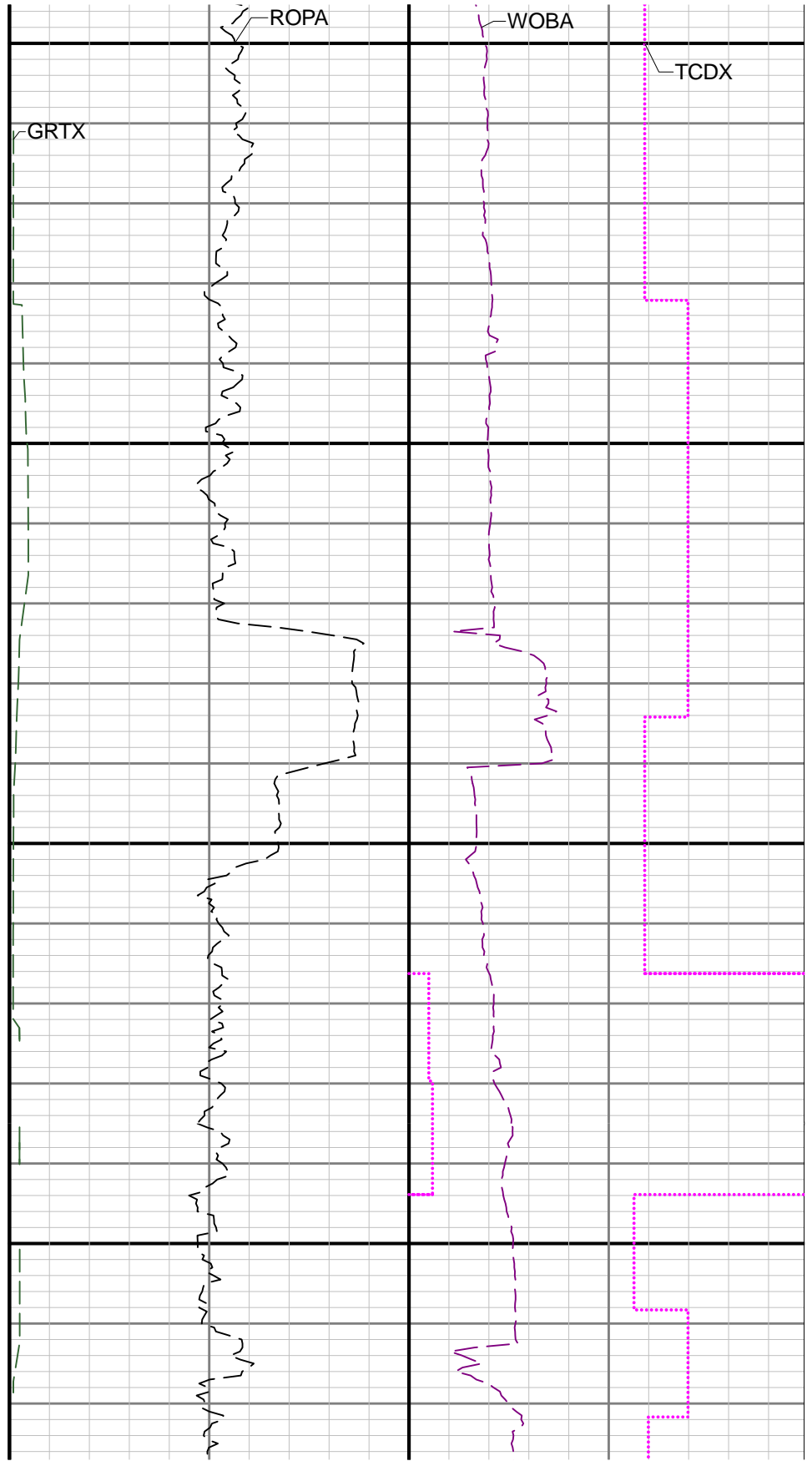
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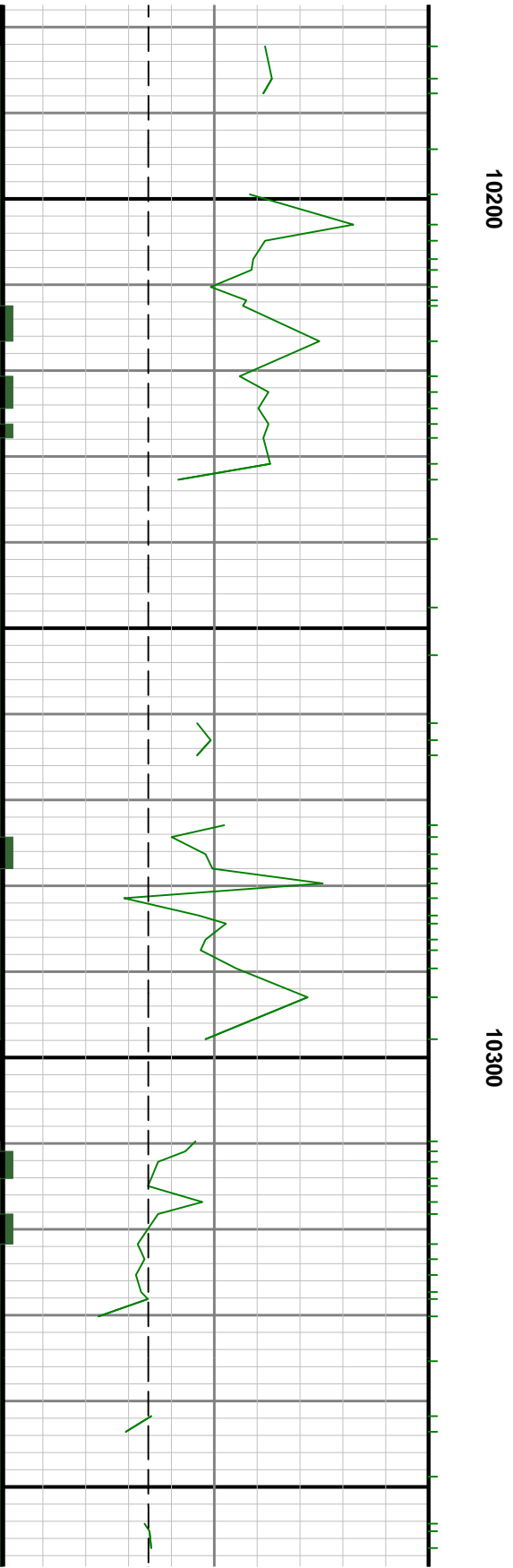


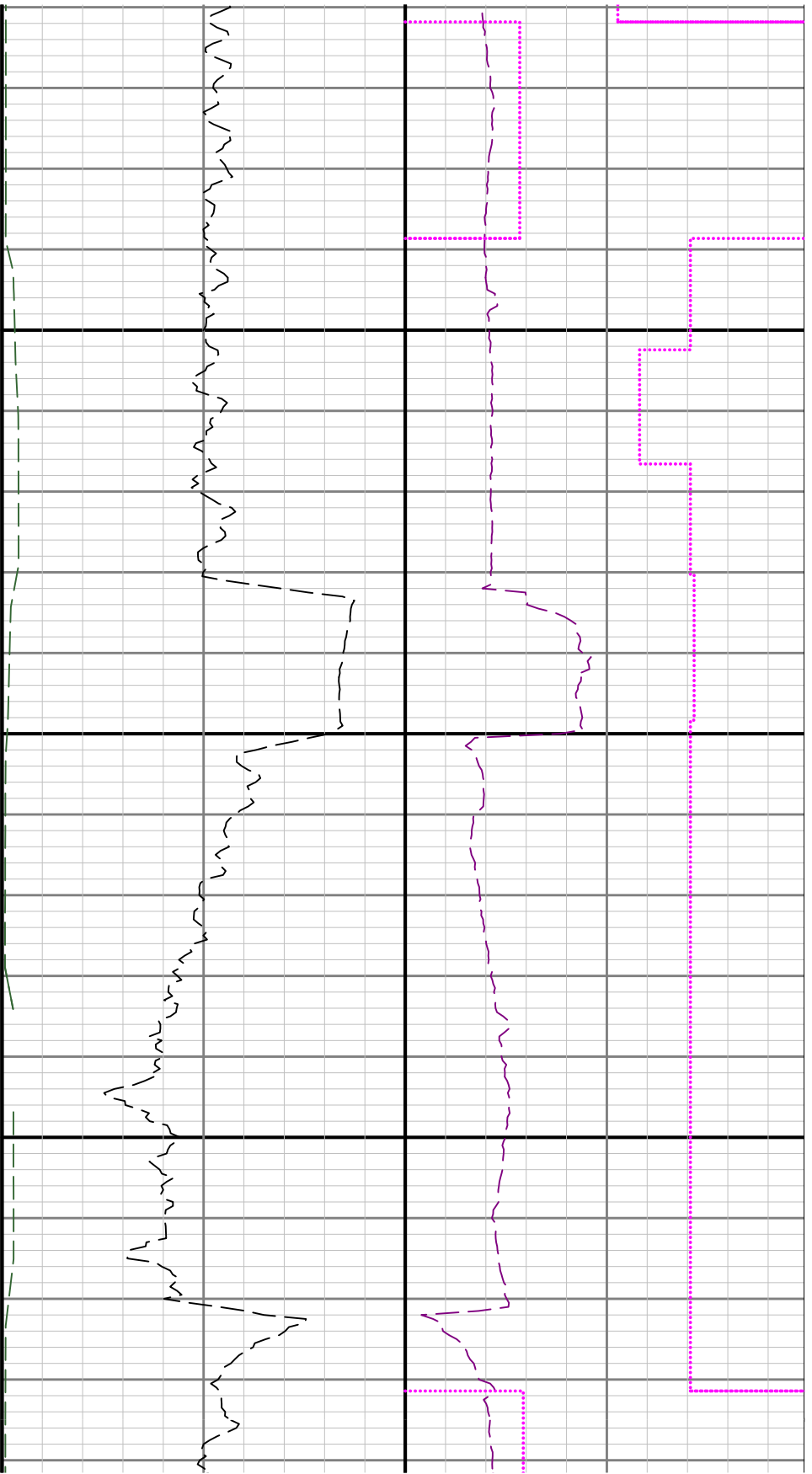


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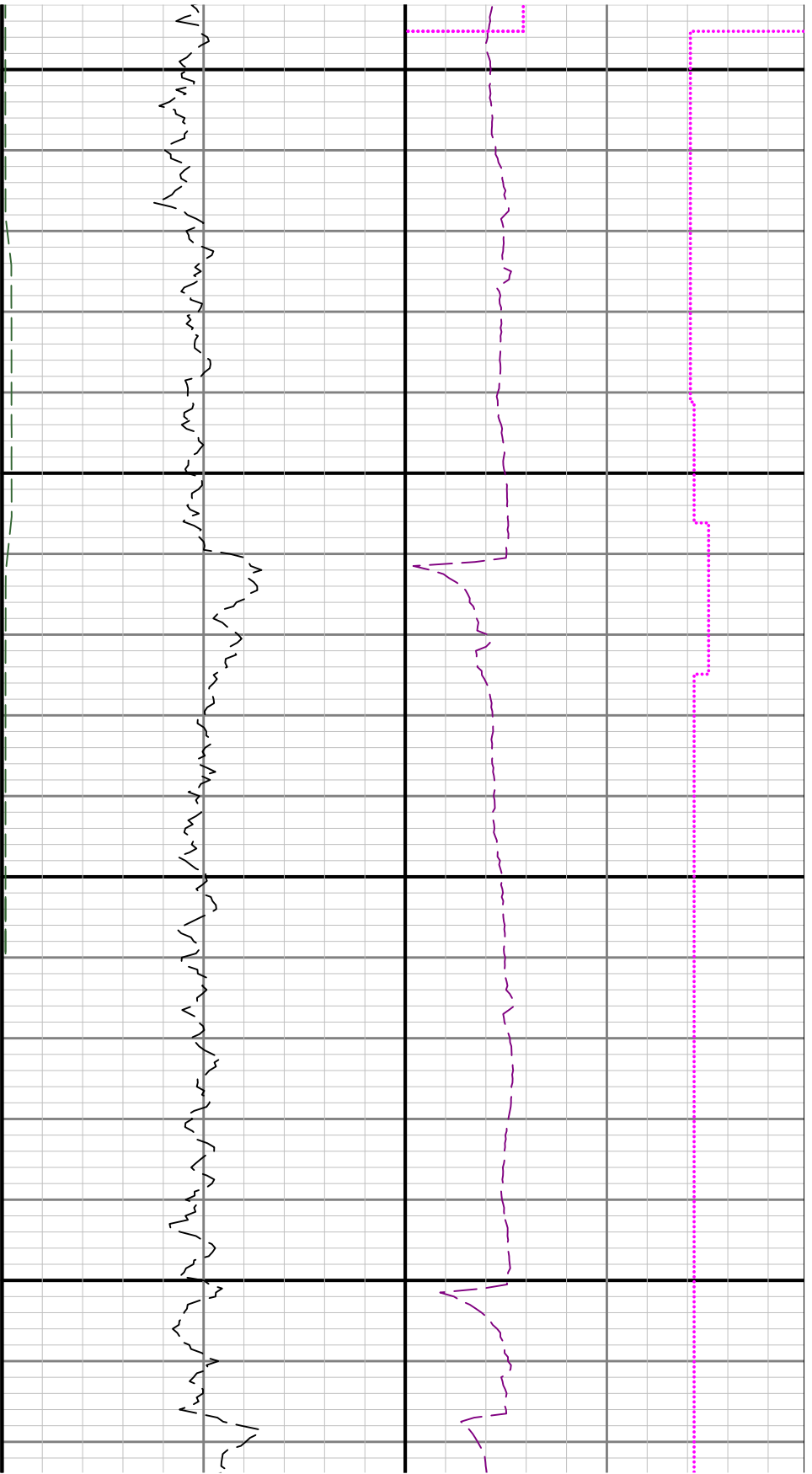






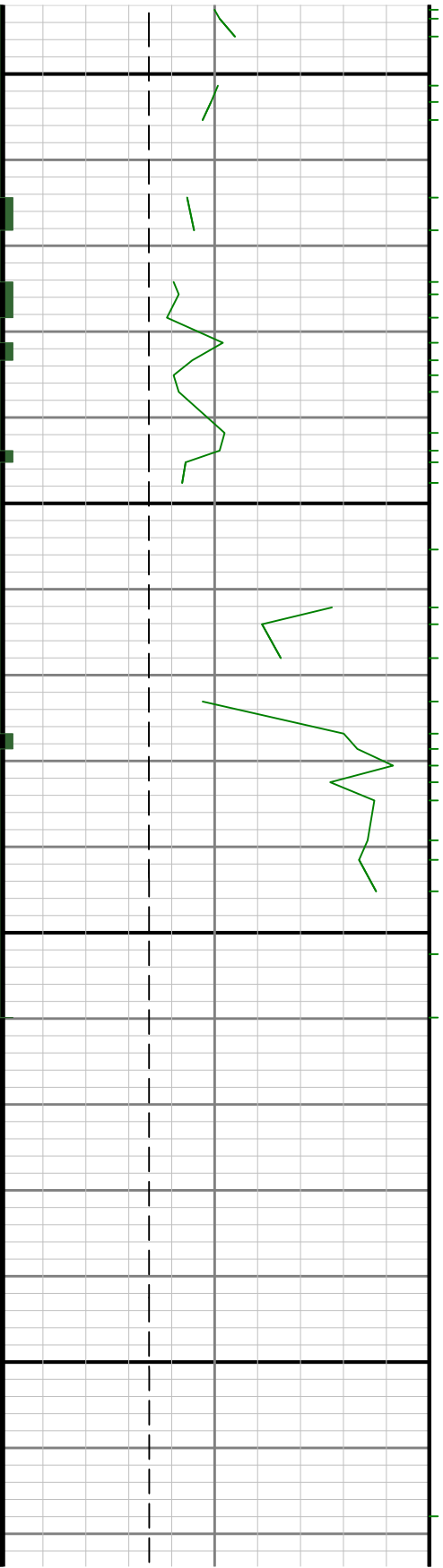
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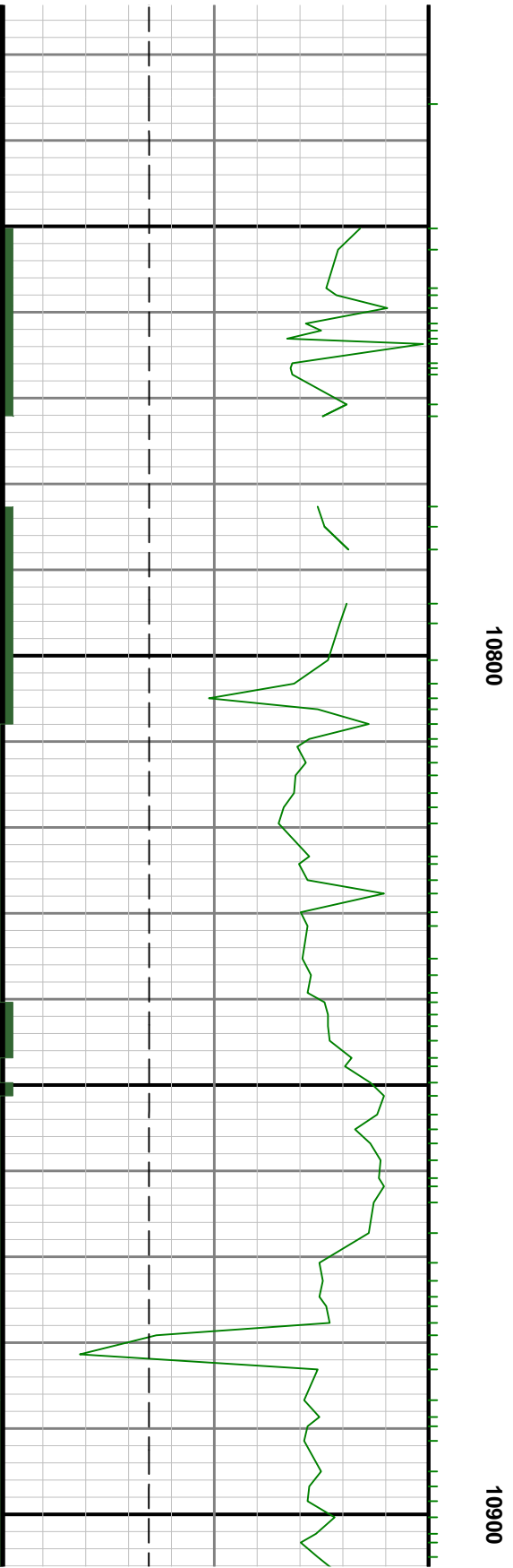
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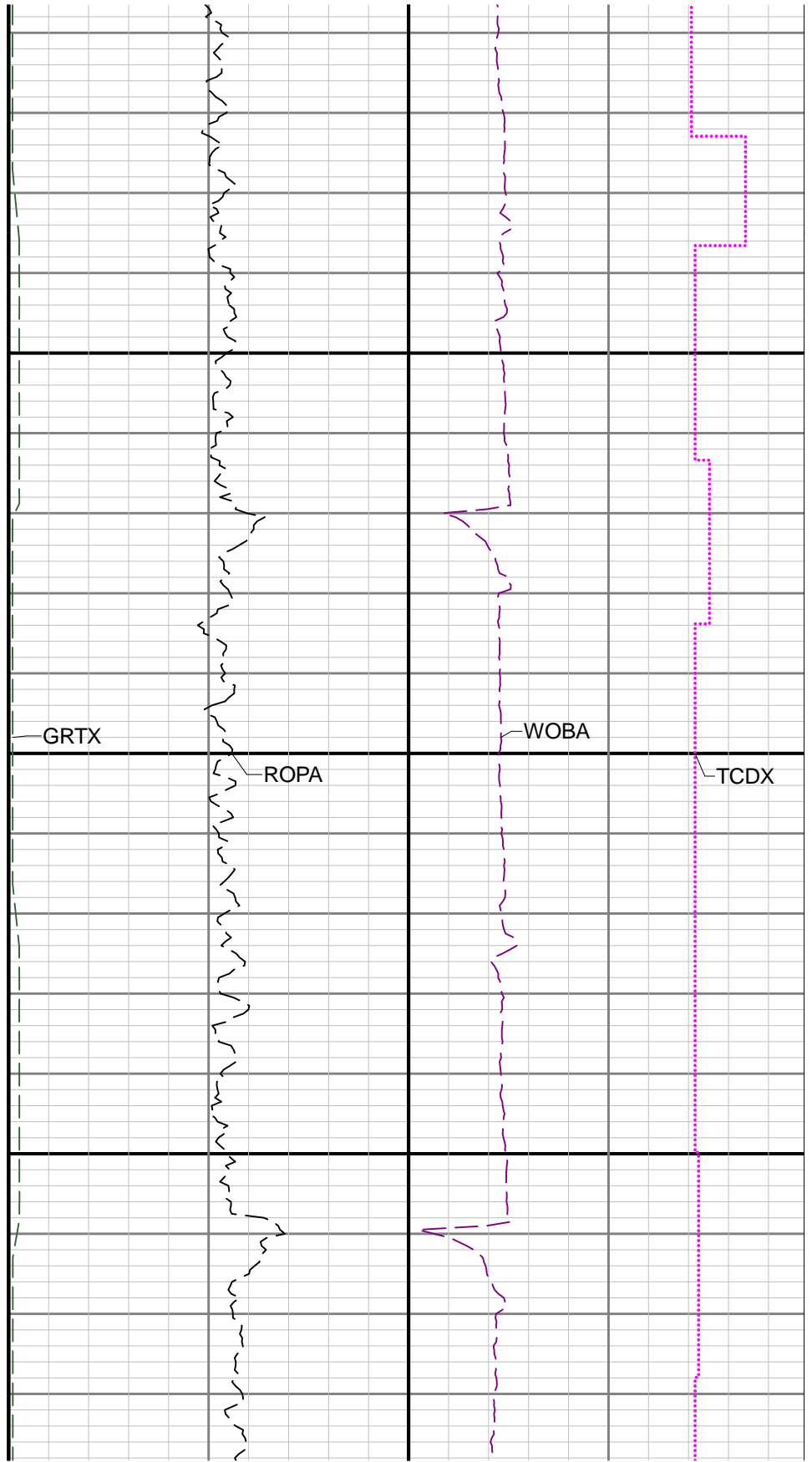
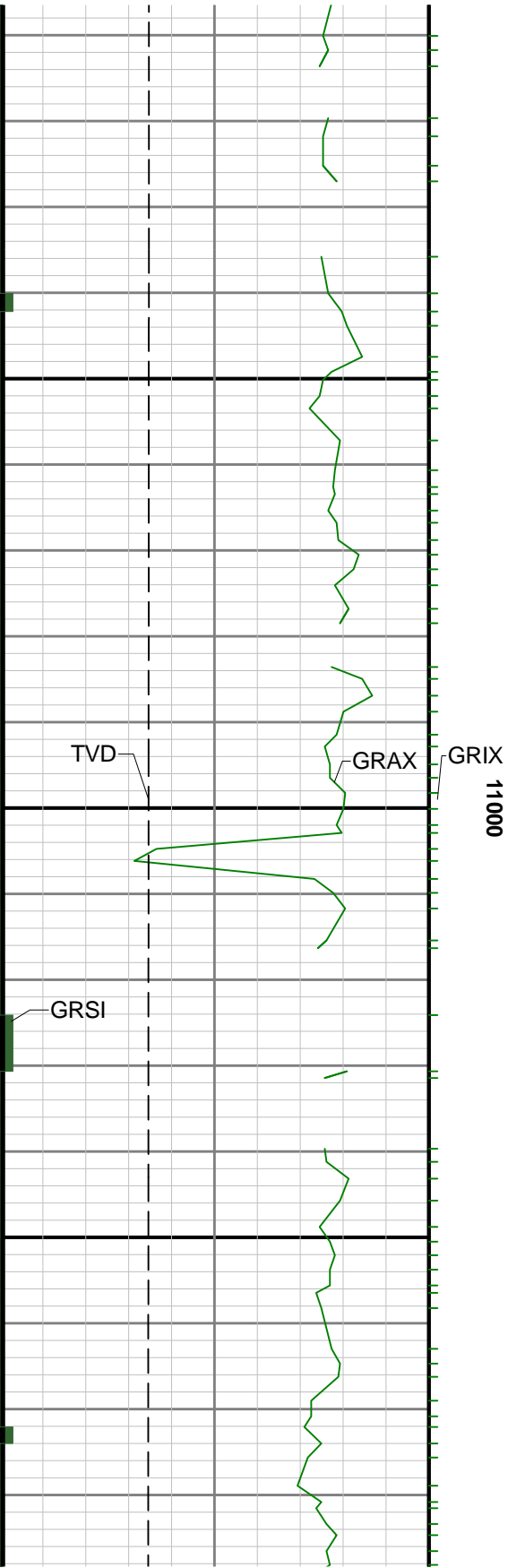


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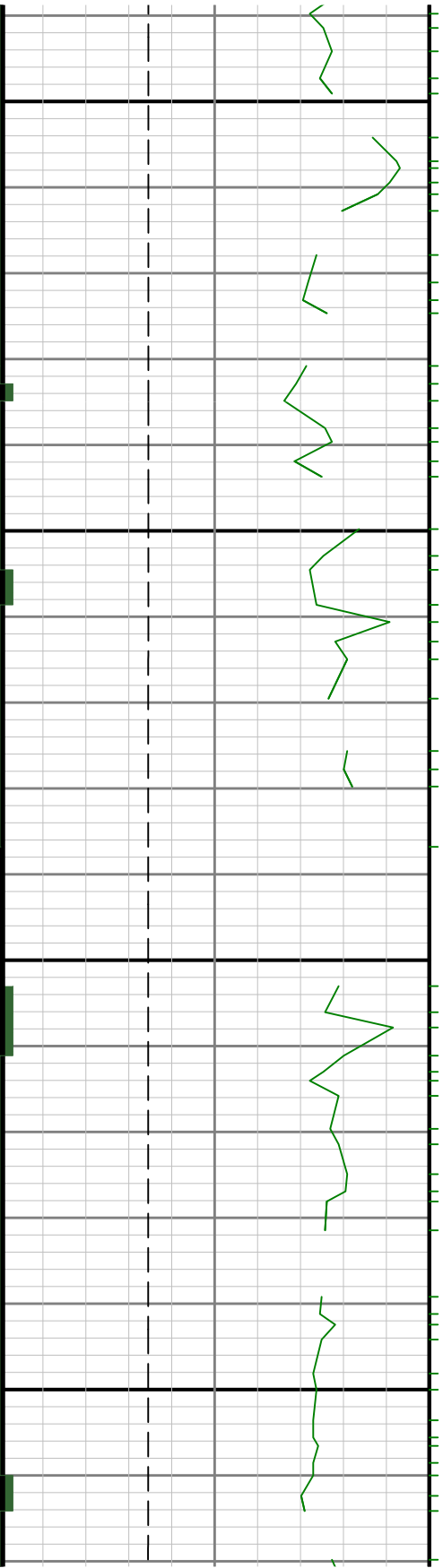


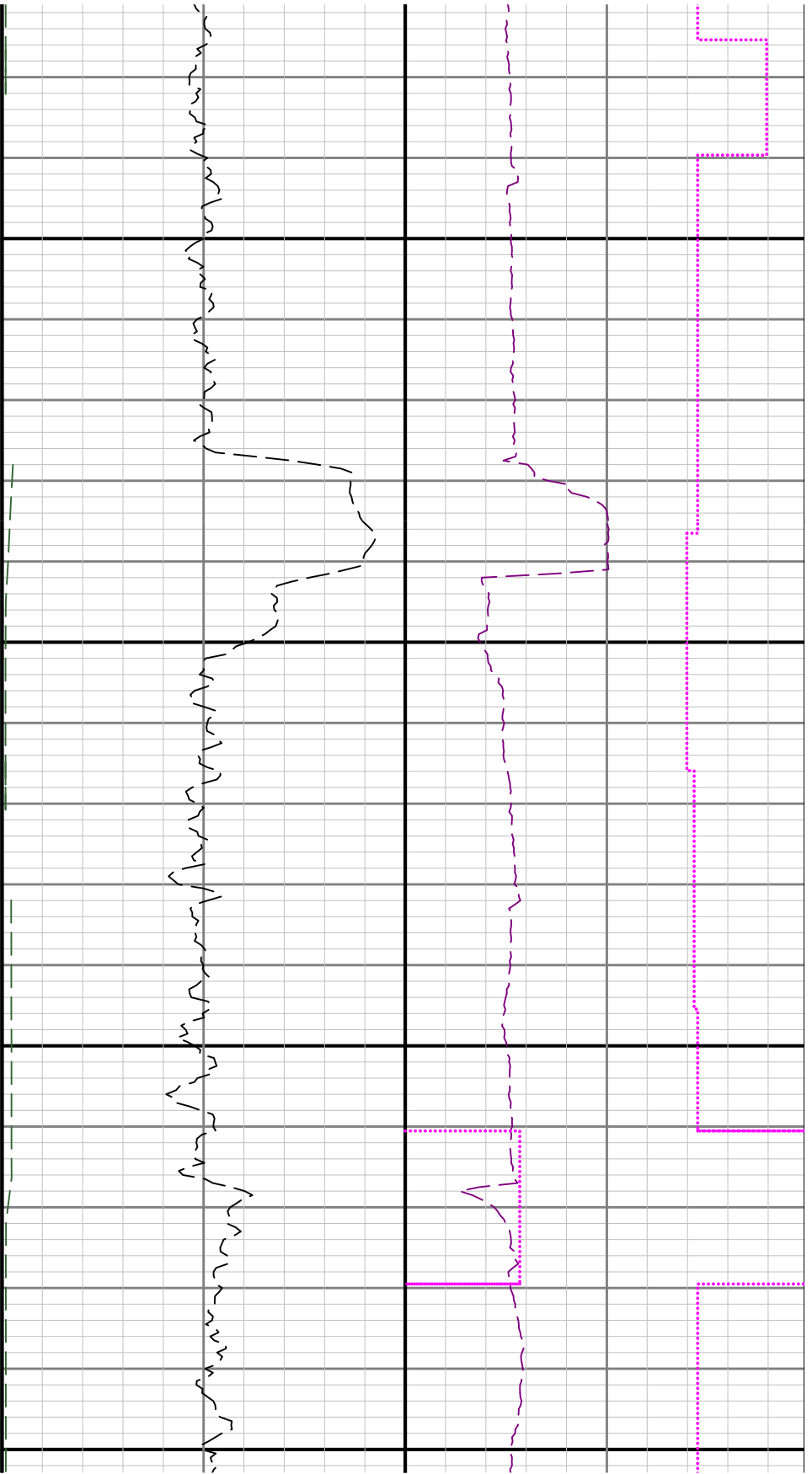




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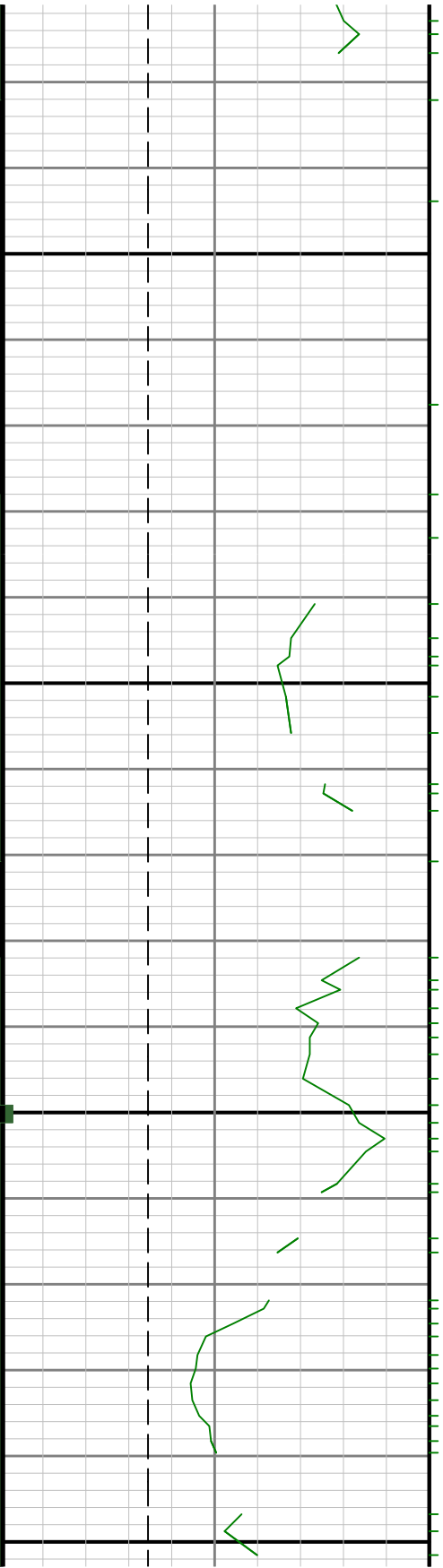
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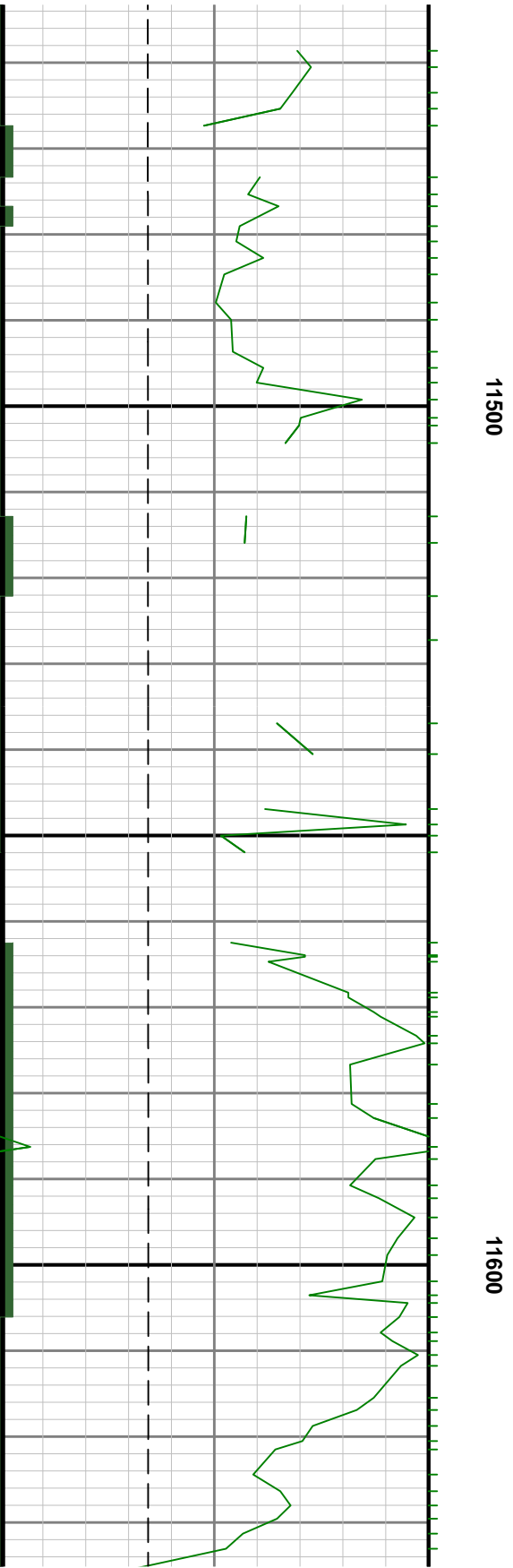
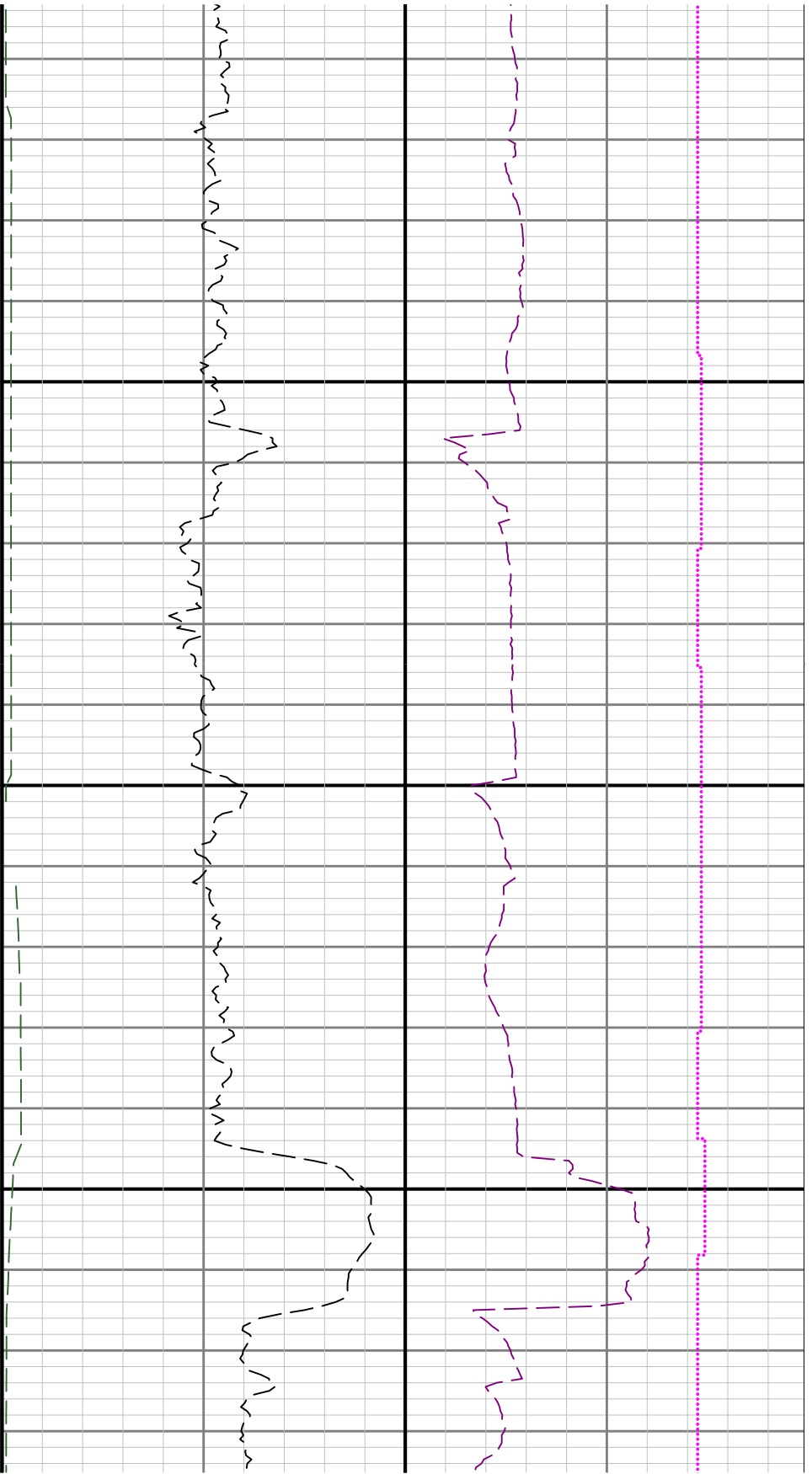


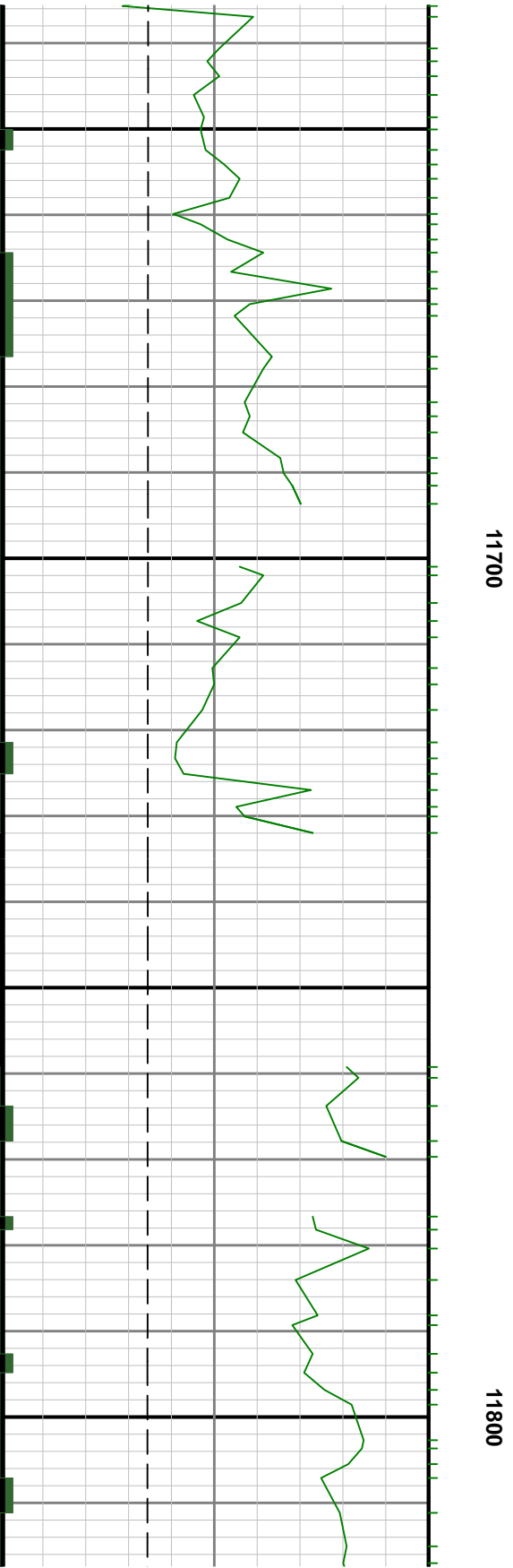
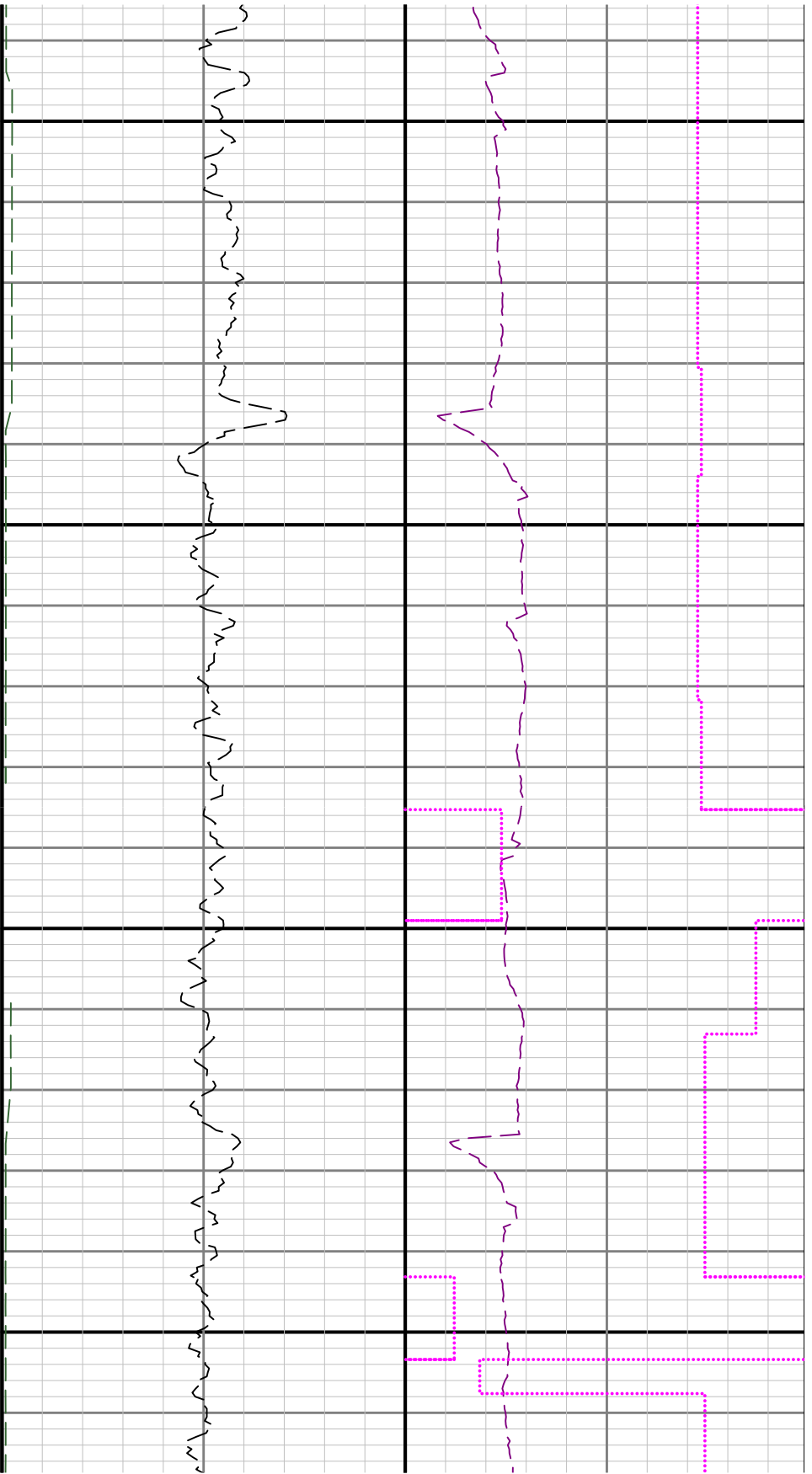


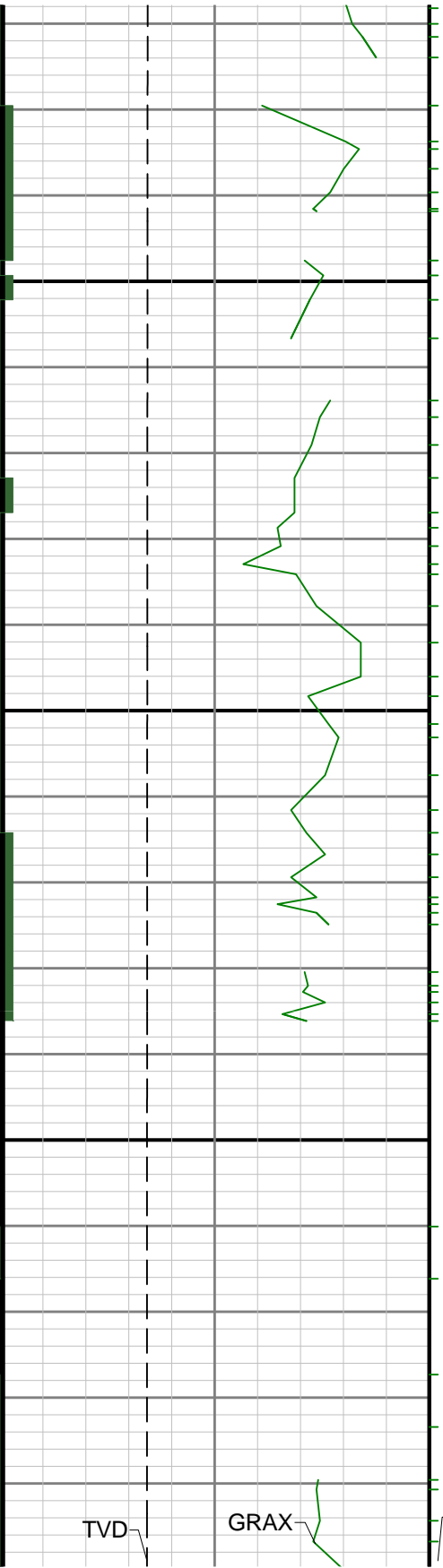
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11400







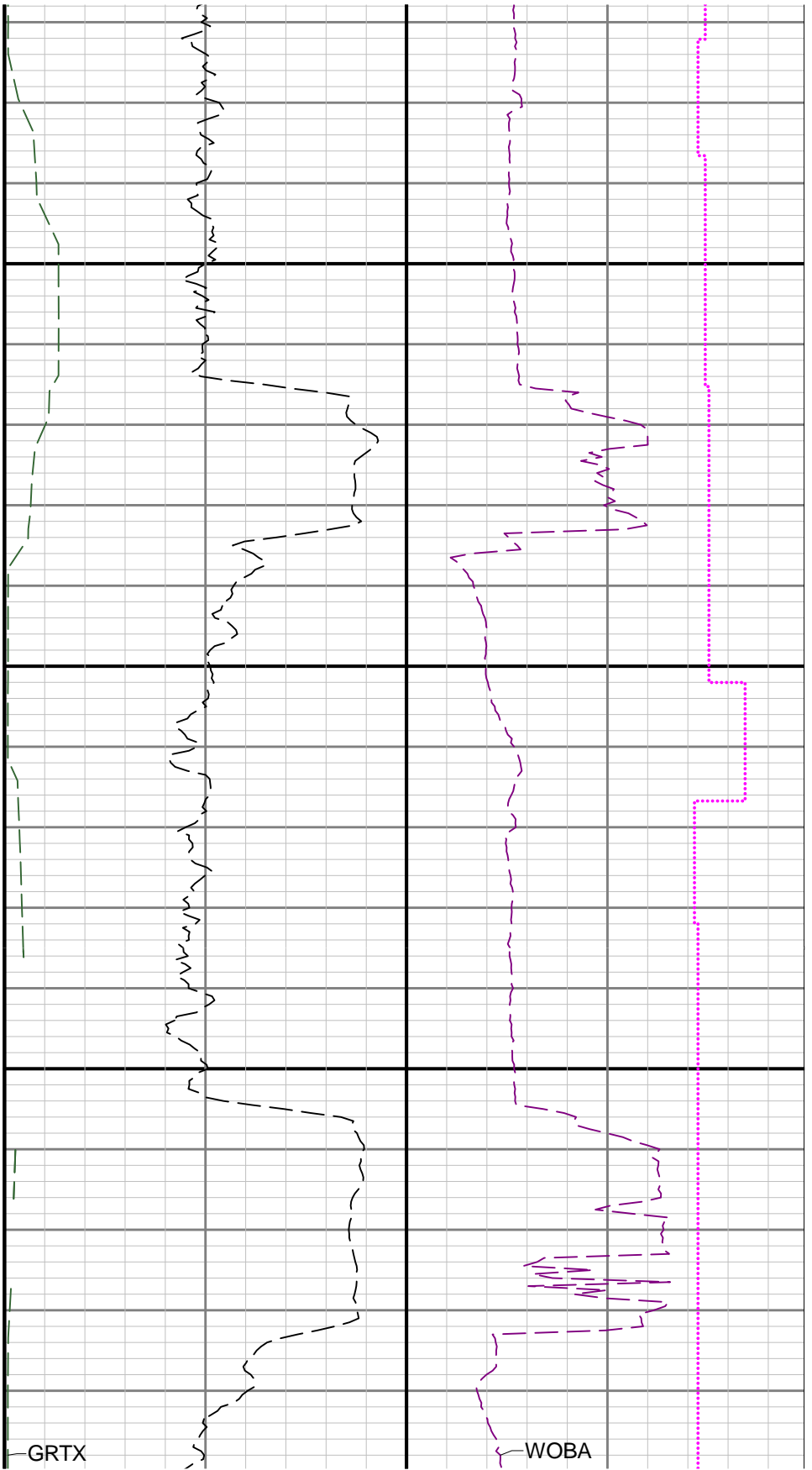


11900

GRIX 12

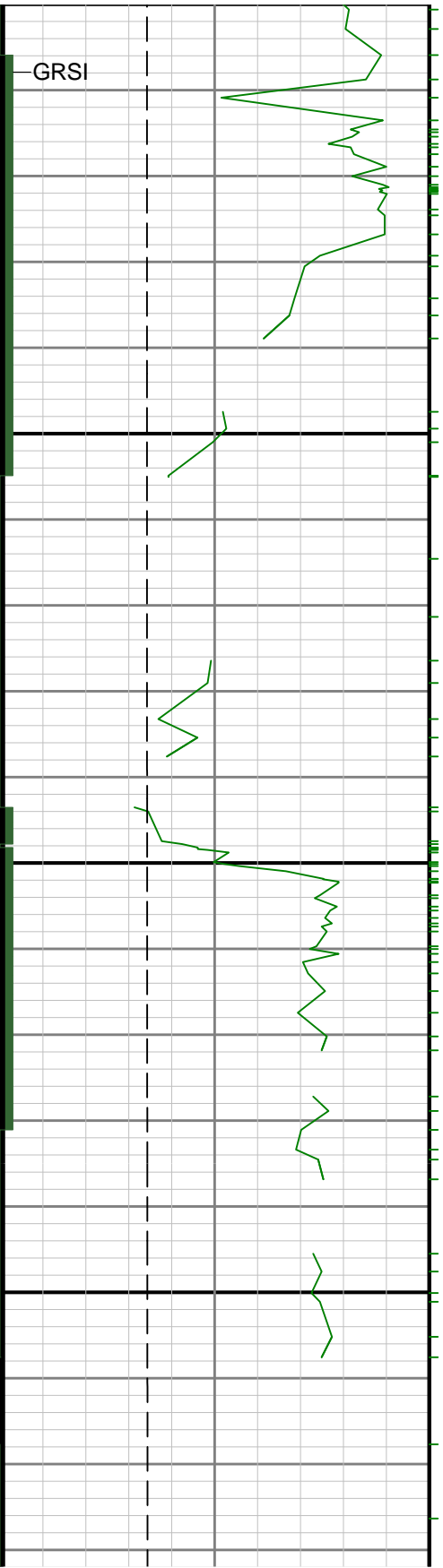
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TVD



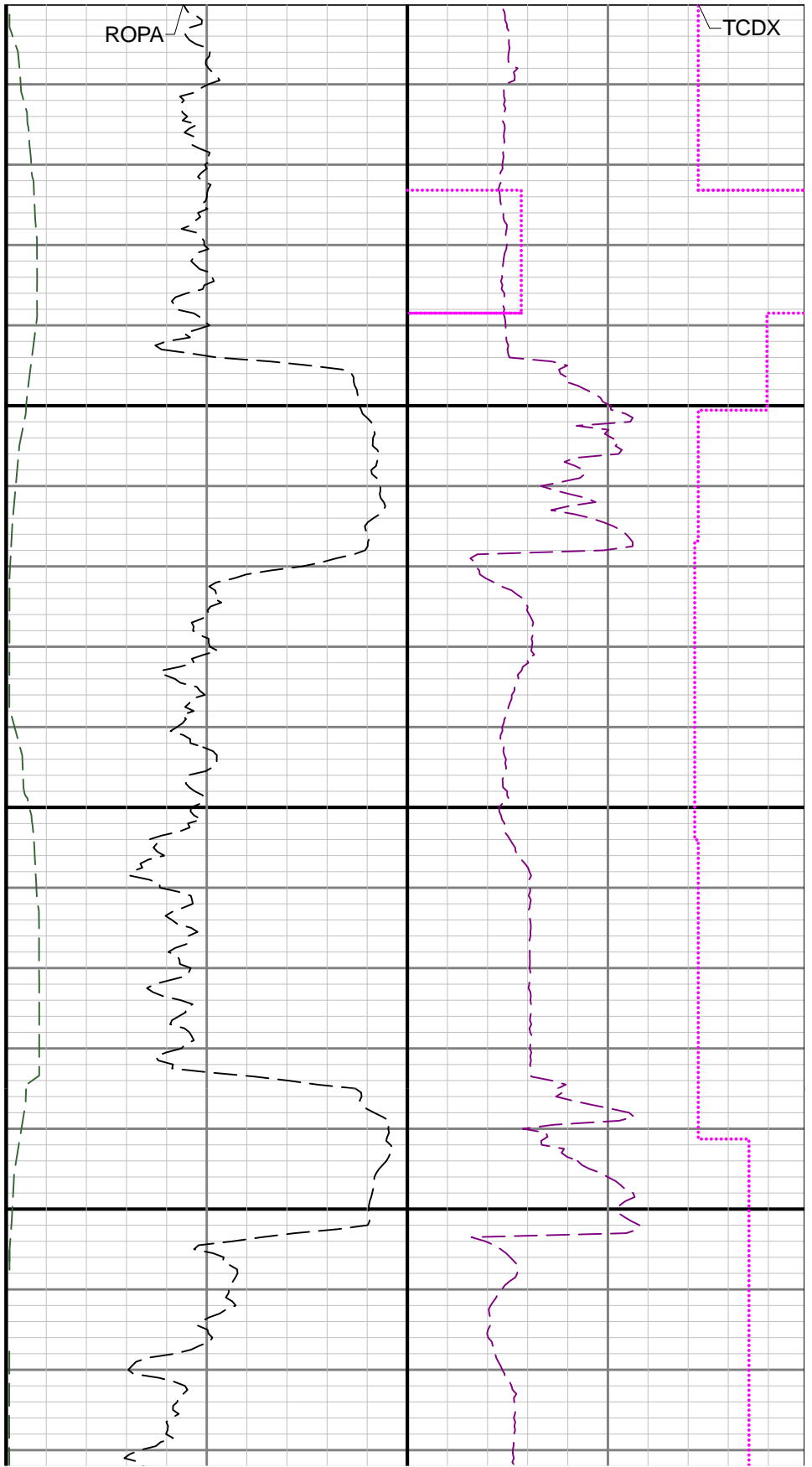
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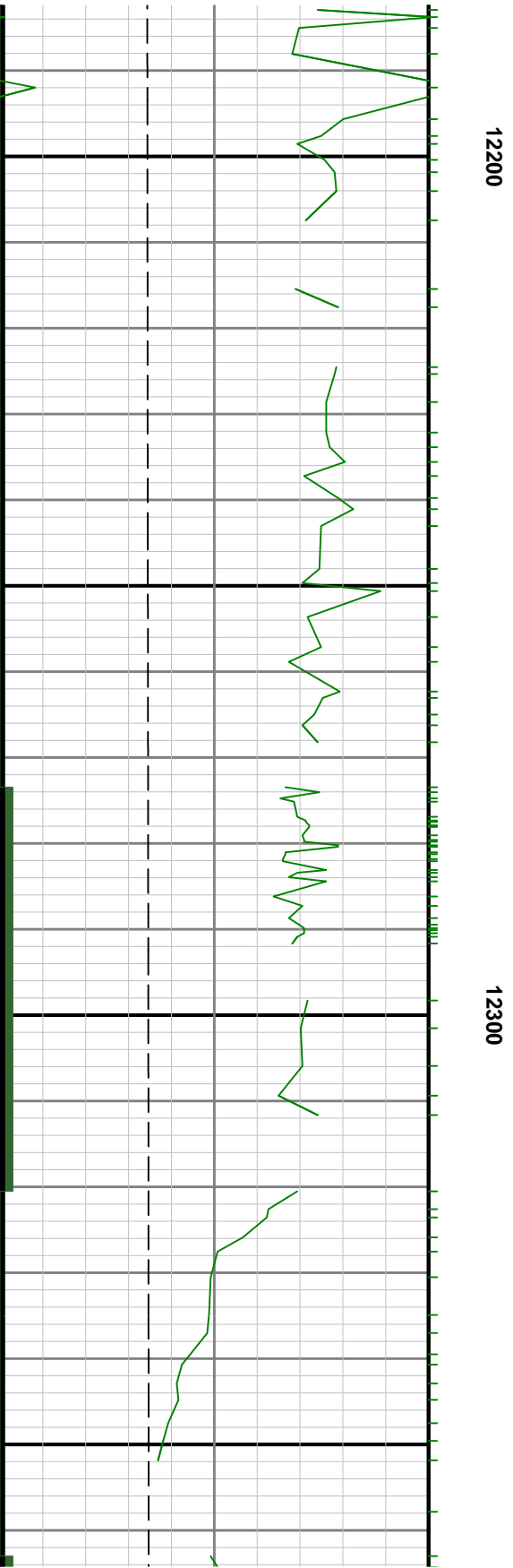
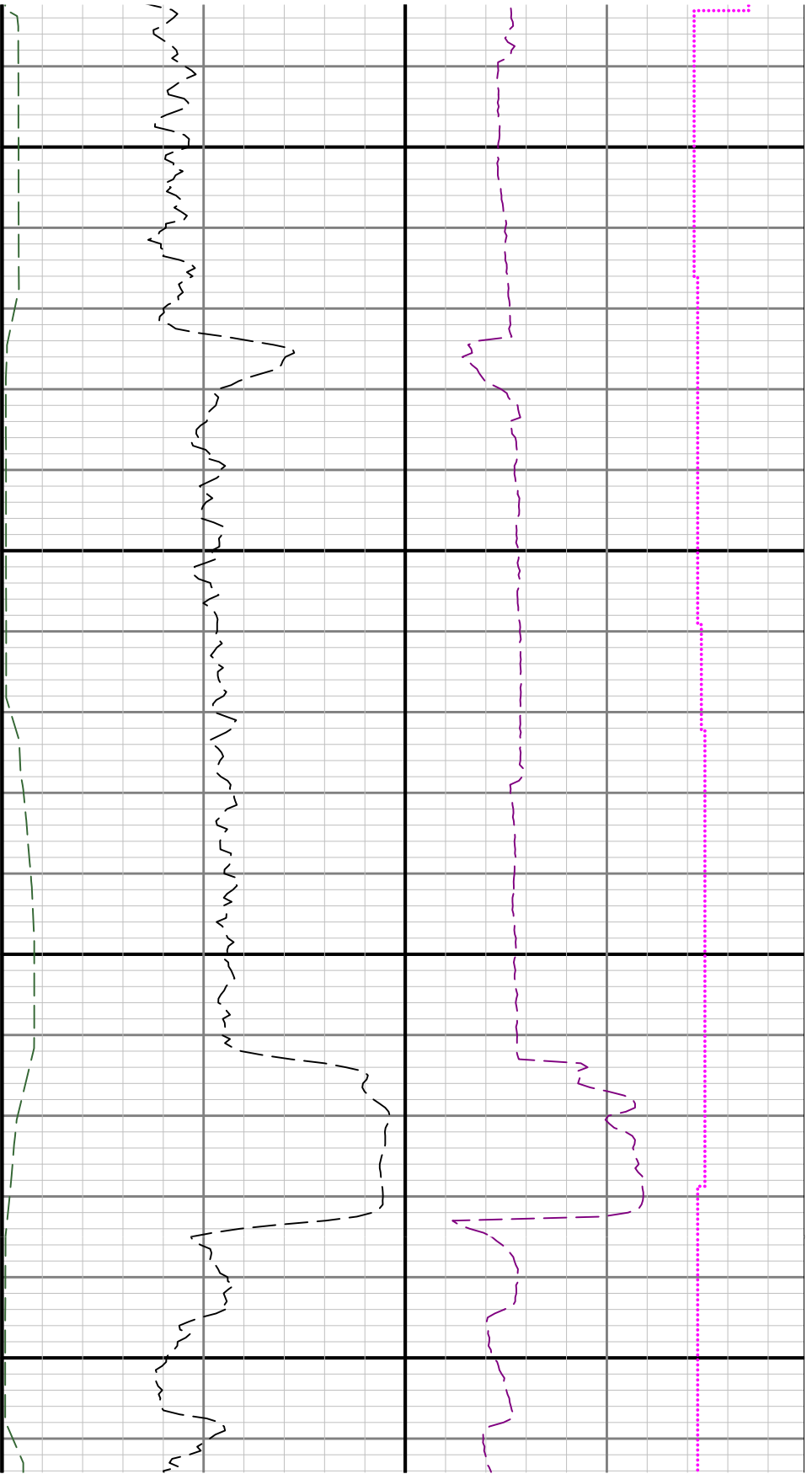
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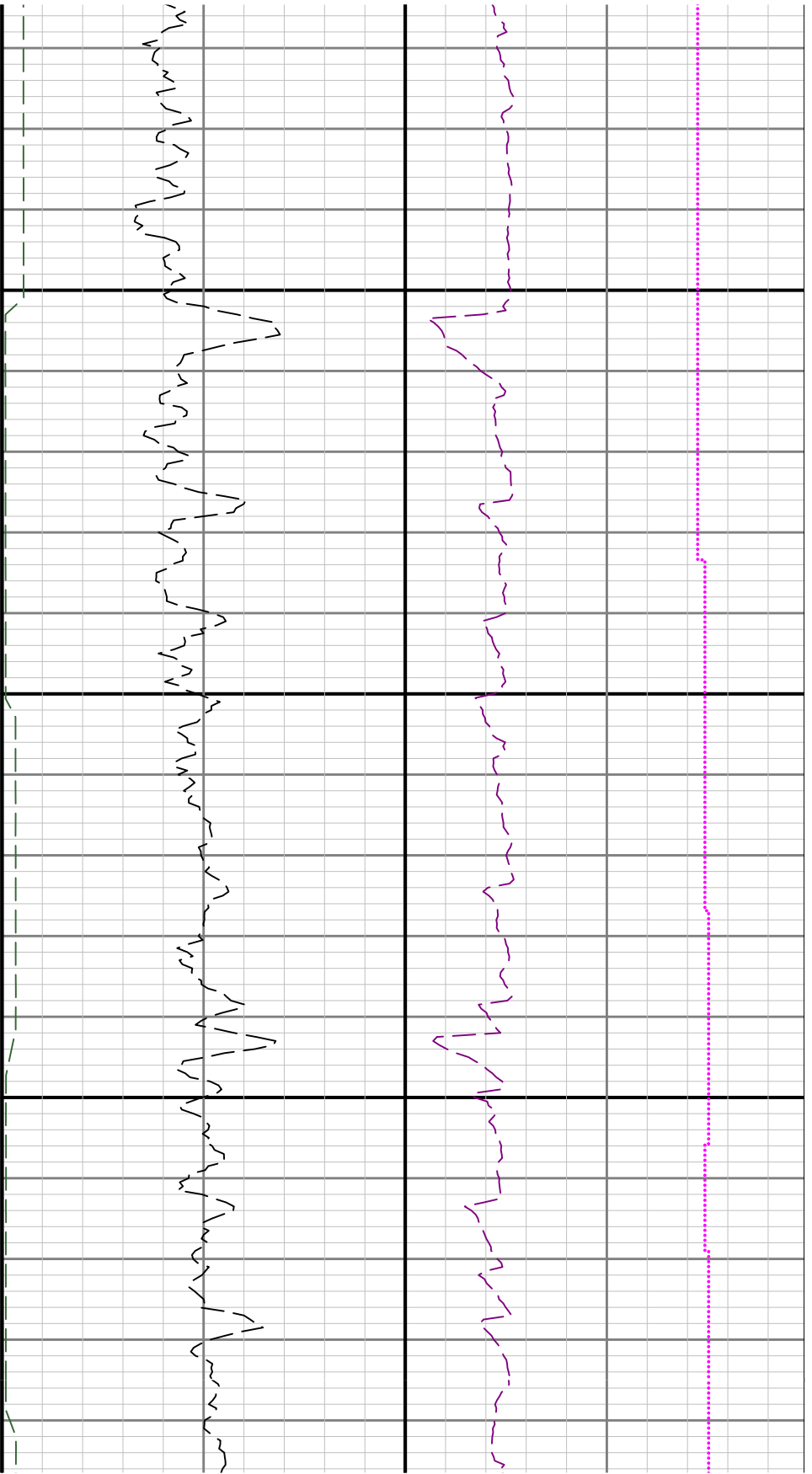


100

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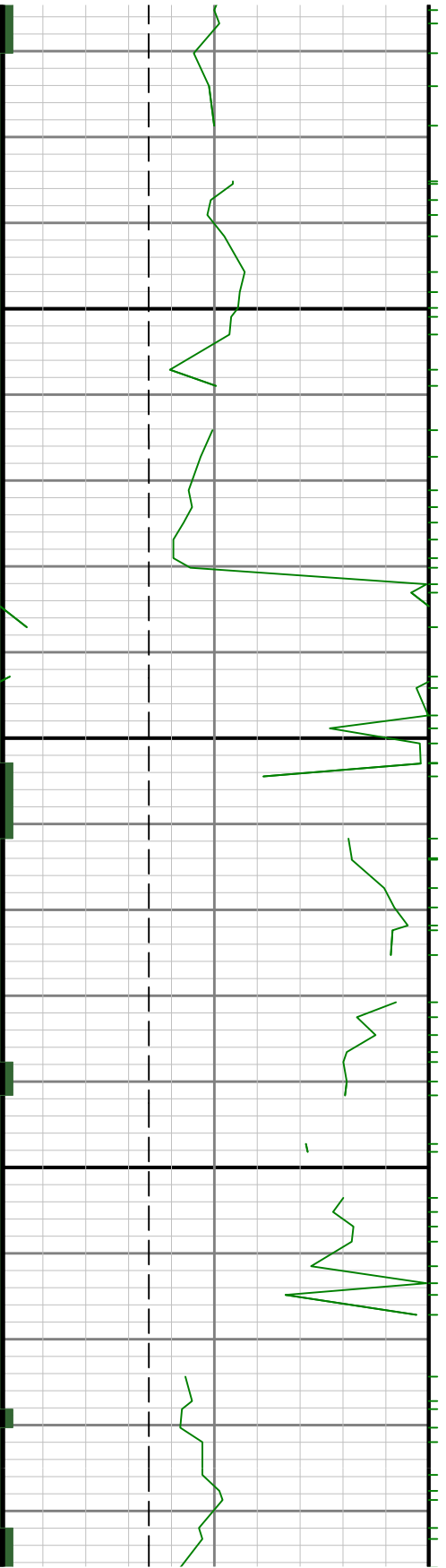


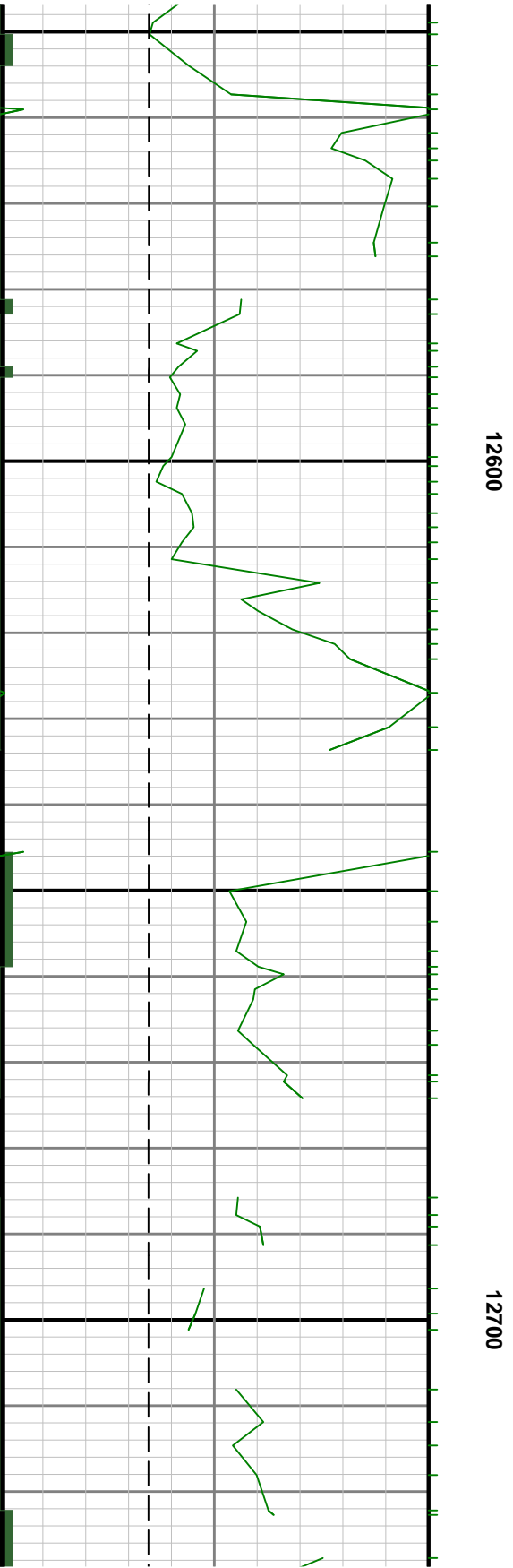
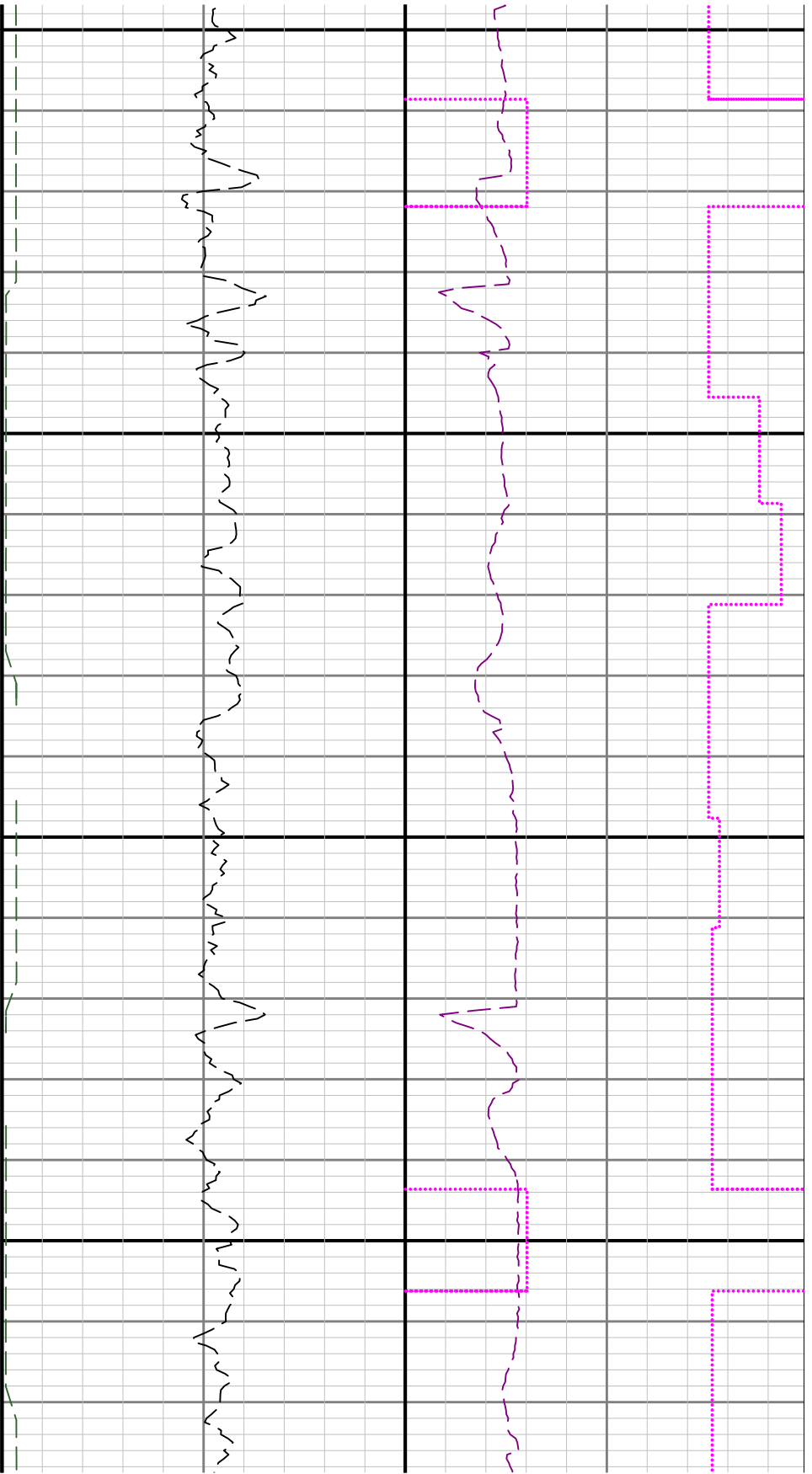


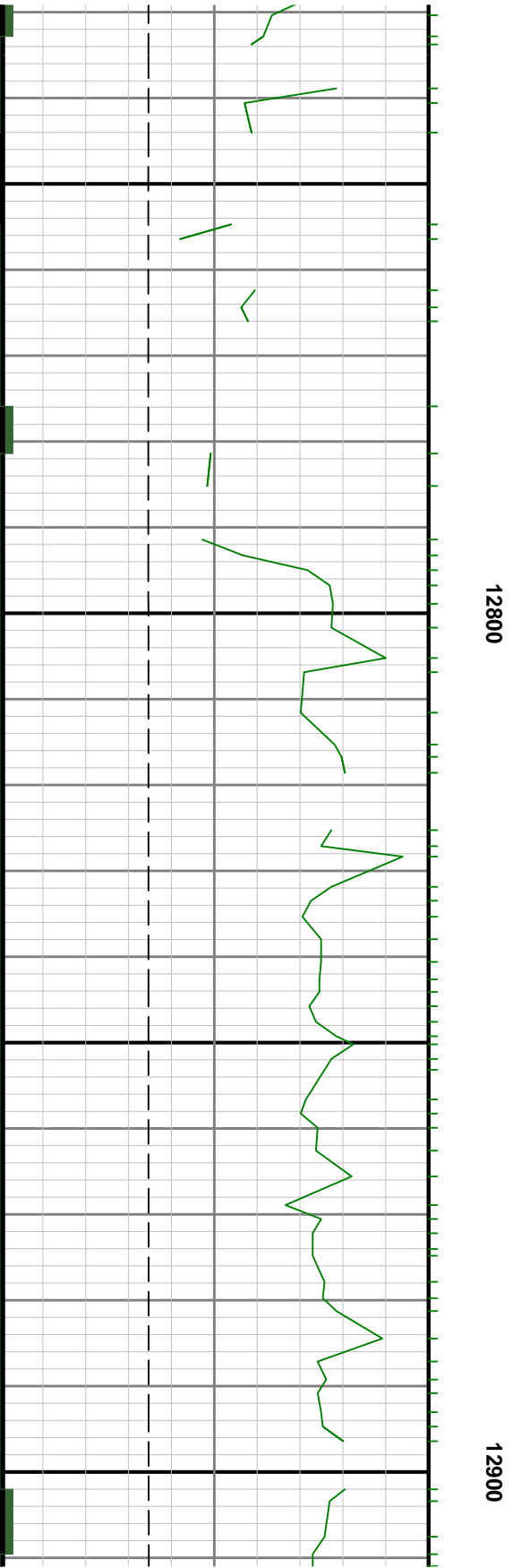


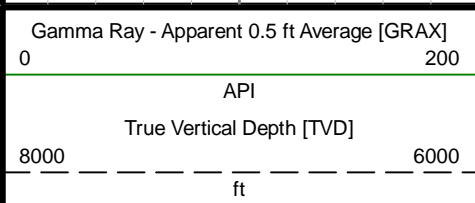
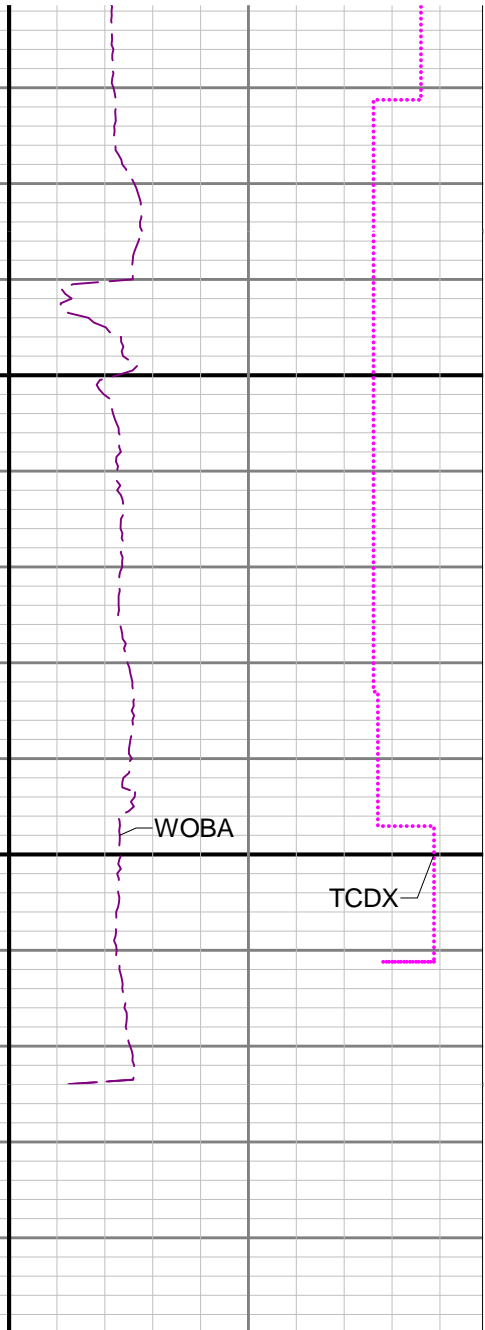
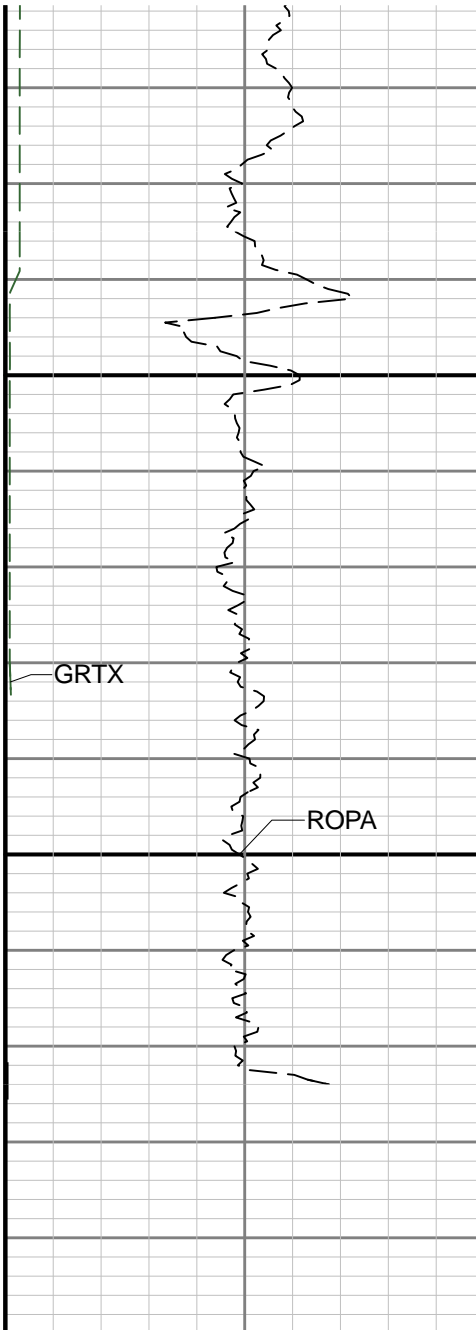
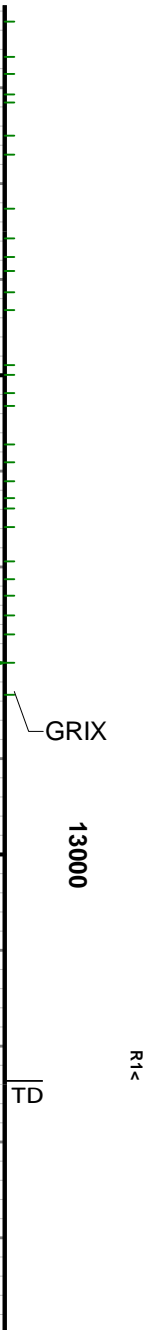
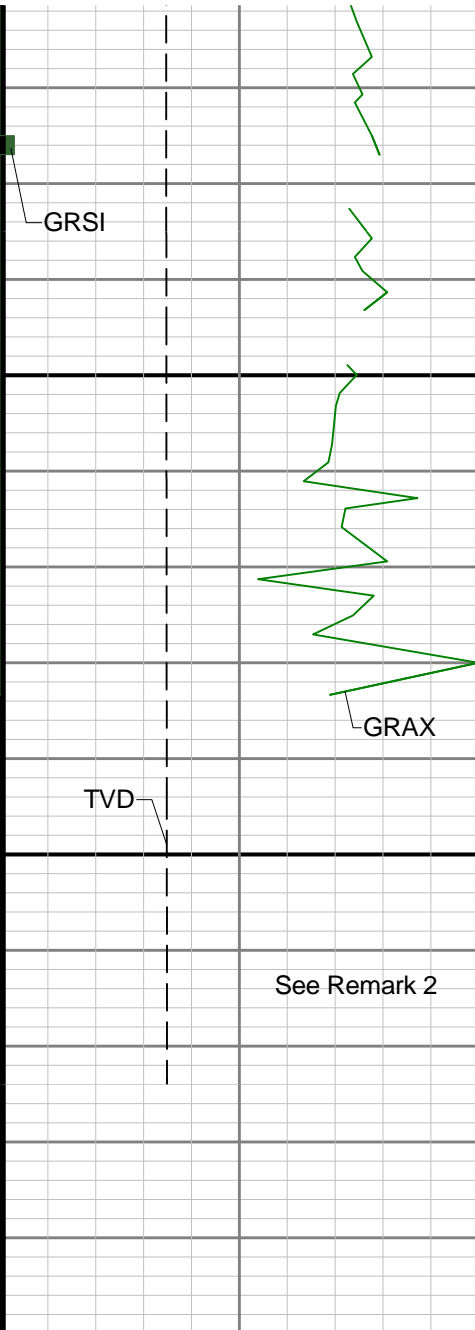
12400

12500









MD 1:240 feet

