

LWD MEMORY COMPOSITE LOG



Gamma Ray

Scale: 1:240 Measured Depth	Company: Noble Energy Inc
Depth Reference: Driller's Depth	Well: GIG-EM STATE Y9-730
Status: Final Print	Field: Weld County
	County: Weld Country: United States
API: 05123518390000	State: Colorado
Job ID: 111683774	Surface Location: Latitude: 40° 08' 38.796" N Longitude: 104° 33' 01.692" W
	Other Services: Directional

Operational Summary

Rig & Elevations

Dates	Drilled (ft)	Logged (ft)	Rig Contractor: Patterson-UTI	Rig: Patterson 268	Elev. KB: (ft)	4972.00
From: 2023-03-16	Top: 109.00	Top: 0.00	Permanent Datum (P.D.): Mean Sea Level	Elevation: (ft) 4943.00	Elev. DF: (ft)	4972.00
To: 2023-03-18	Bottom: 17325.00	Bottom: 17312.00	Log Measured From: Rig Floor	Above P.D.: (ft) 4972.00	Elev. GL: (ft)	4943.00

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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 (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	13.500	PDC	4.00	Rotary	0.00	0.00	109.00	2066.00	N/A	N/A	0.00
2	2	8.500	PDC	2.50	AutoTrak Curve	2052.00	17312.00	2066.00	17325.00	2023-03-16 15:04	2023-03-18 12:52	40.99

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Jacob Johnson	2023-03-04	2023-03-20	Jason Wiley	2023-03-04	2023-03-20	Jeremiah Samson	2023-03-04	2023-03-16
Marcos Favela	2023-03-04	2023-03-20	Adam Schlenz	2023-03-09	2023-03-20			

Mud Properties Record

Date / Time	Run No.	Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2023-03-05 03:00	1	1100.00	Water Based Mud	8.8	2	N/A	N/A	0/96.3	Active Pit	596	N/A
2023-03-16 05:00	2	2066.00	Oil Based Mud	10.2	14	N/A	19.0	70.7/15.1	Active Pit	23810	N/A
2023-03-17 05:00	2	7055.00	Oil Based Mud	9.7	11	N/A	20.6	71.4/18	Active Pit	24295	N/A
2023-03-18 05:00	2	15487.00	Oil Based Mud	10.1	54	N/A	21.0	69/17.8	Active Pit	25267	N/A

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	EvoOne	15069834G8000133	Gamma (single)	9.40	21.32	8.000	3.250
1	EvoOne	15069834G8000133	Directional (mag)	10.40	22.32	8.000	3.250
2	AutoTrak Curve Steering Unit	15932345	Near Bit Inclination	5.93	6.78	7.000	4.330
2	AutoTrak Curve Steering Unit	15932345	Near Bit VSS	5.93	6.78	7.000	4.330
2	AutoTrak Curve MWD	15952395	Gamma (single)	2.20	13.13	7.000	3.250
2	AutoTrak Curve MWD	15952395	Directional (mag)	12.27	23.20	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
MWD	EvoOne - Dir Gamma	EvoOne
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit

ATC MWD	AutoTrak Curve MWD	AutoTrak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	AutoTrak Curve LCPM

Comments


- 1 Baker Hughes Company runs 1 utilized 8 inch Directional-only service behind an 13 1/2 inch PDC bit and steerable assembly from 109 to 2066 feet MD (109 to 2066 feet TVD) therefore, no logging data was acquired for this run.)
- 2 Baker Hughes Company run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch PDC bit and rotary steerable assembly from 2065 to 17325 feet MD (2064 to 6976 feet TVD).
- 3 Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to a lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.

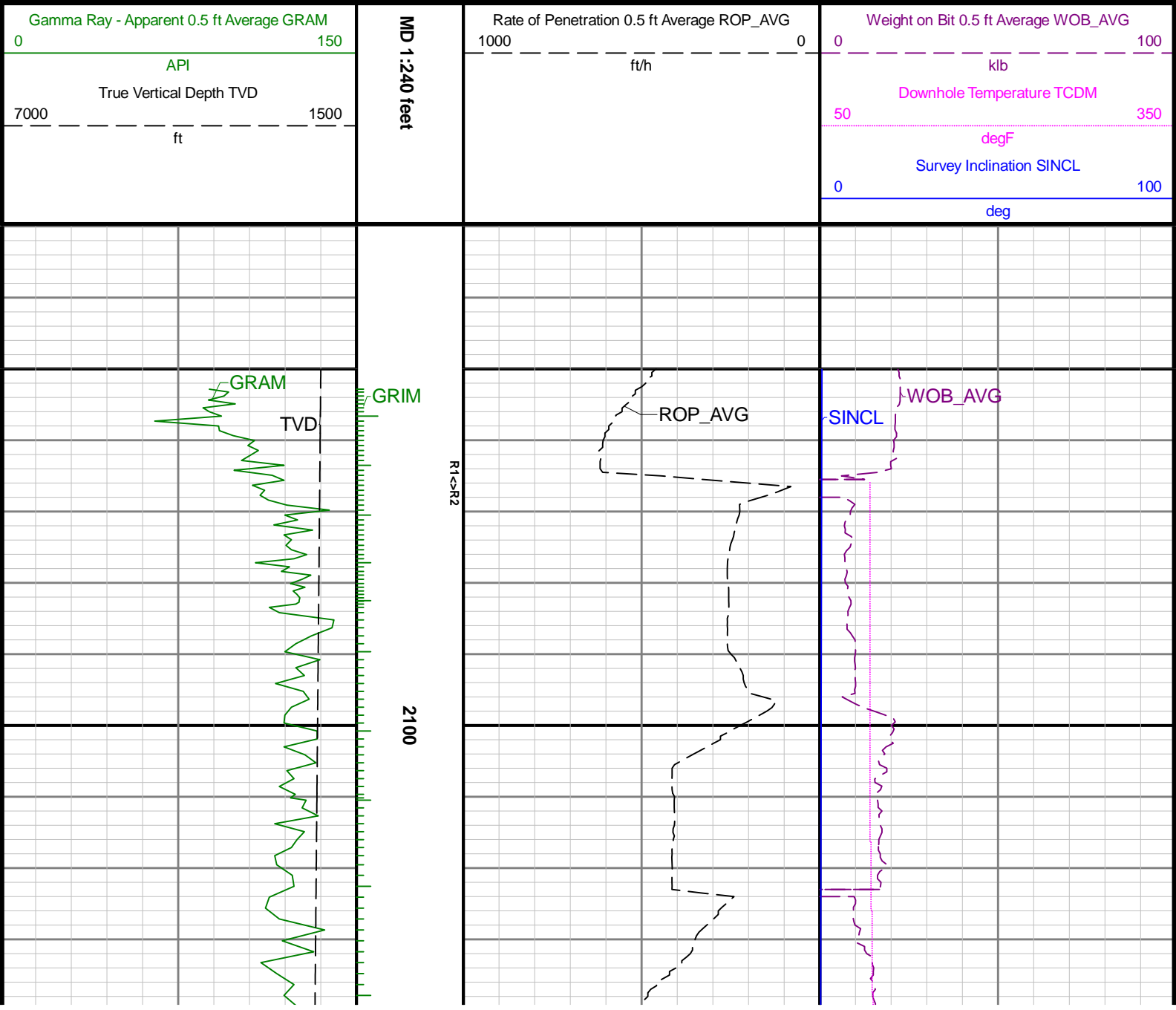
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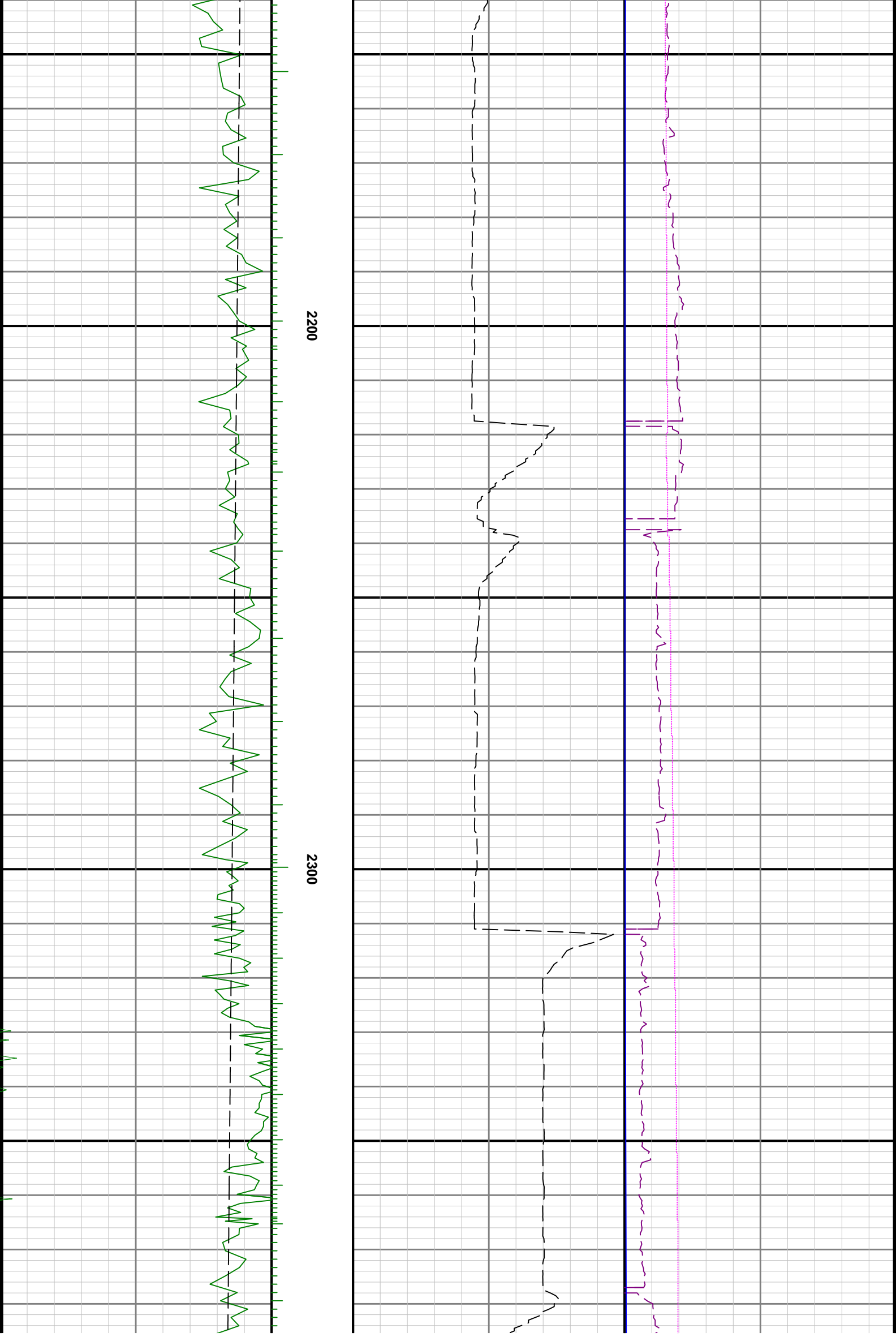
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	17312.00	8.500	2	The interval from 17312 to 17325 feet MD (6976 to 6976 feet TVD) was not logged due to sensor to bit offset at well TD.

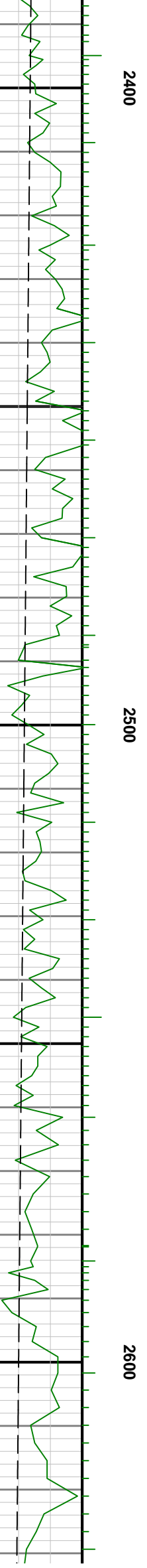
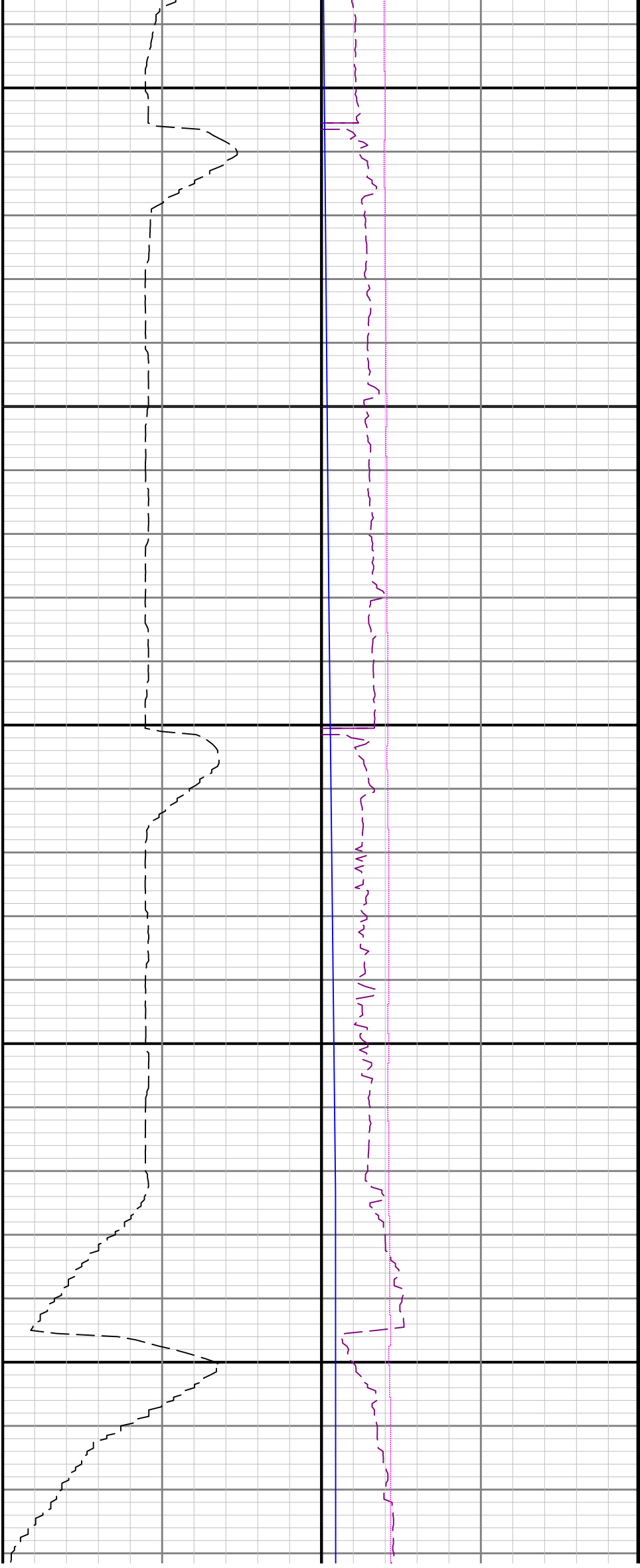
Curve Mnemonics

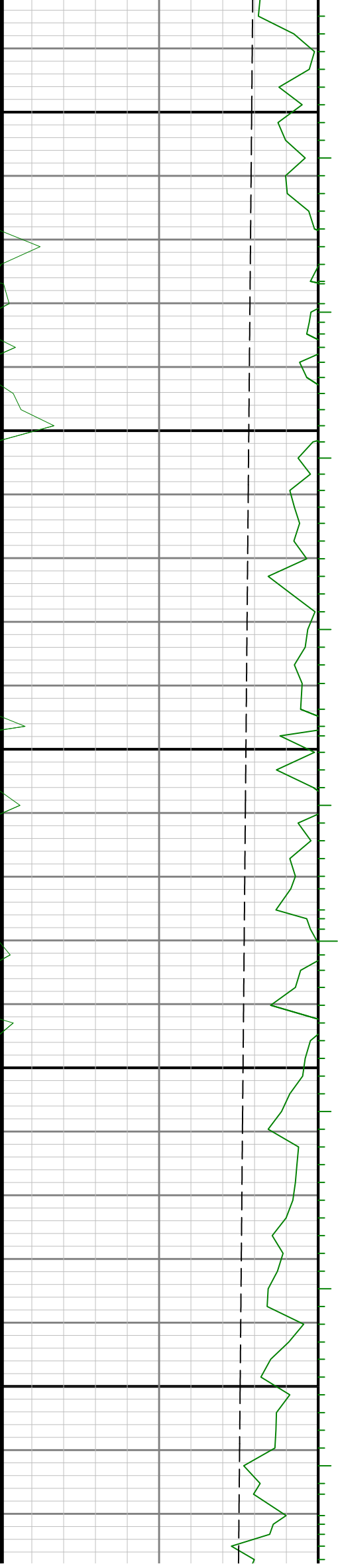
Presented Curves	Description	Units
ROP_AVG	Rate of Penetration of bit, Average	ft/h
TVD	True Vertical Depth	ft
WOB_AVG	Weight On Bit, Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
TCDM	Directional Real-Time Survey Temperature	degF
SINCL	Survey Inclination	deg

	Company	Noble Energy Inc		
	Well	GIG-EM STATE Y9-730		
	Interval	Date From: 2023-03-16 15:04	Interval Drilled: (ft)	109.00 - 17325.00
	Created	Date To: 2023-03-18 12:52	Interval Logged: (ft)	0.00 - 17312.00



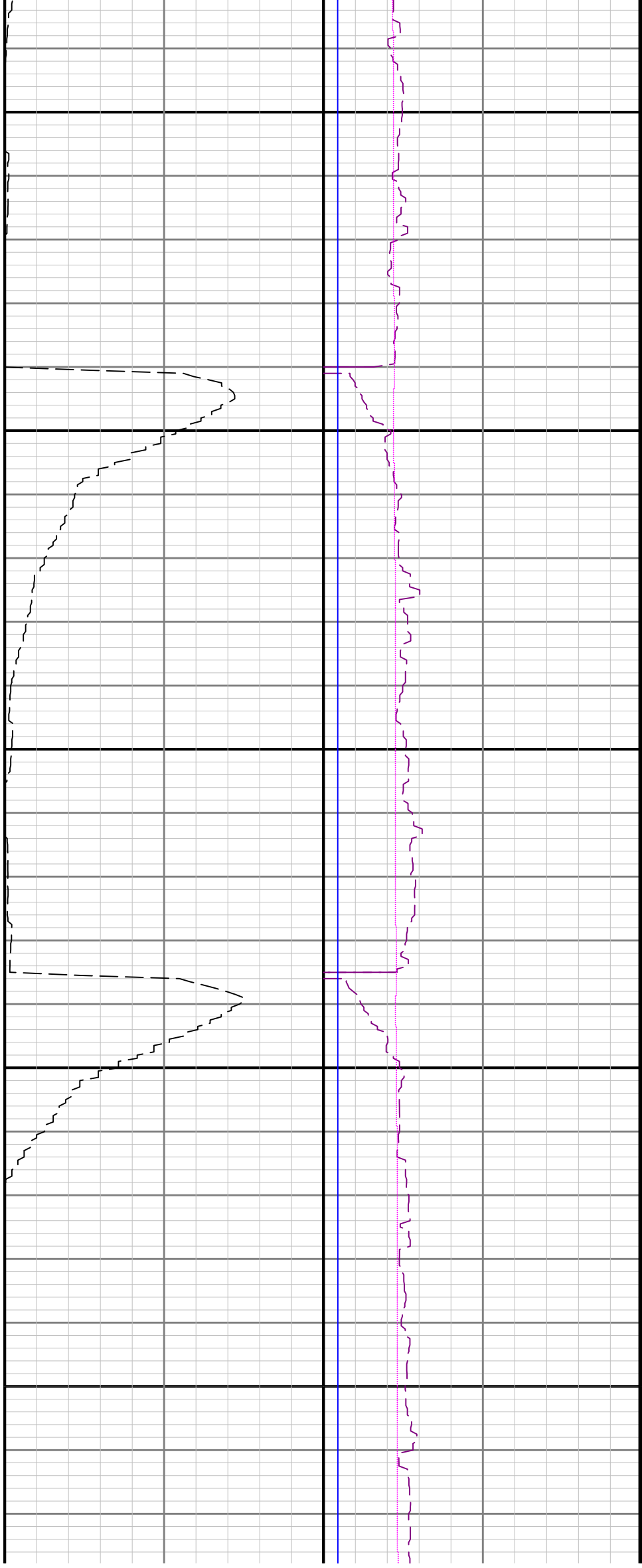


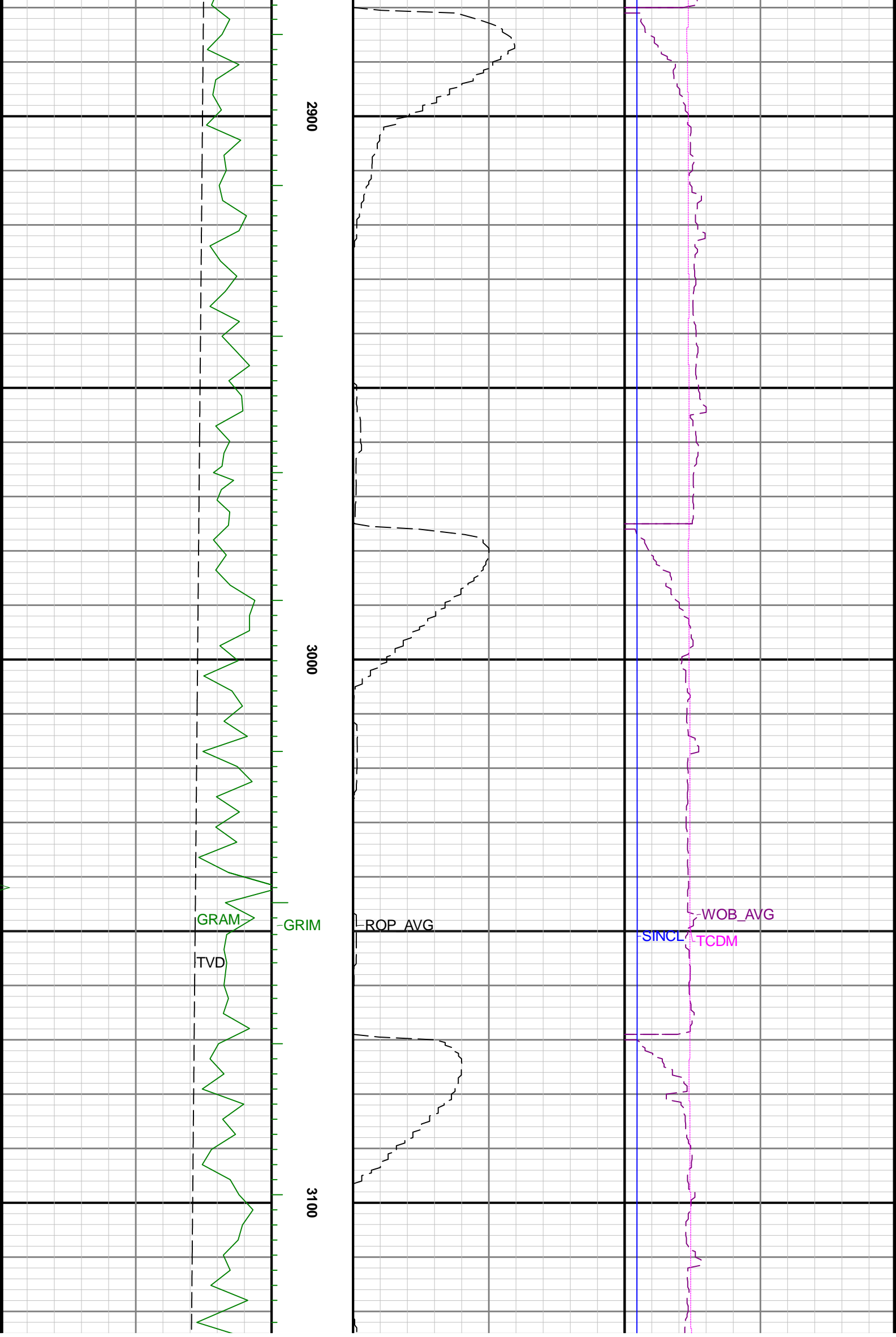


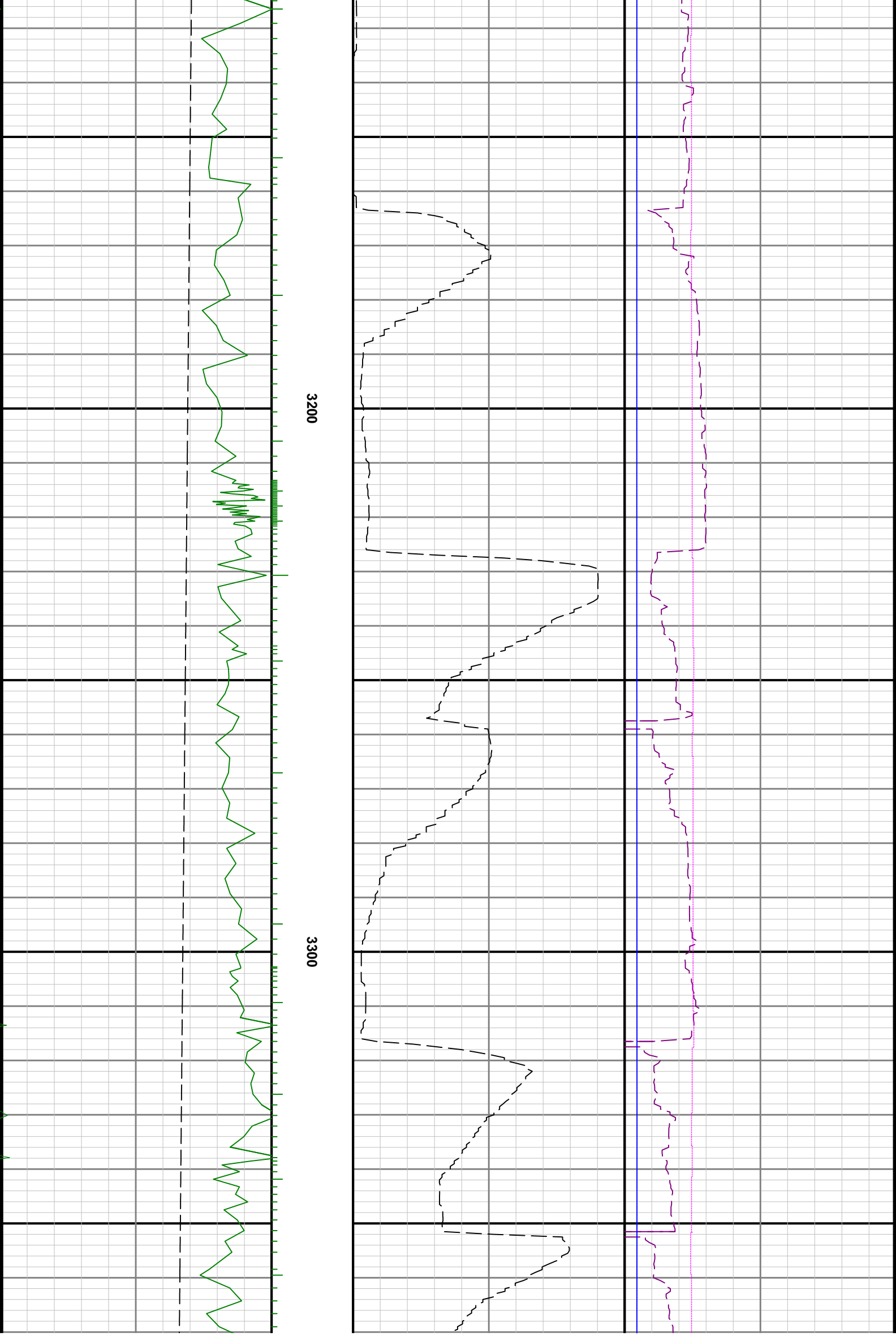


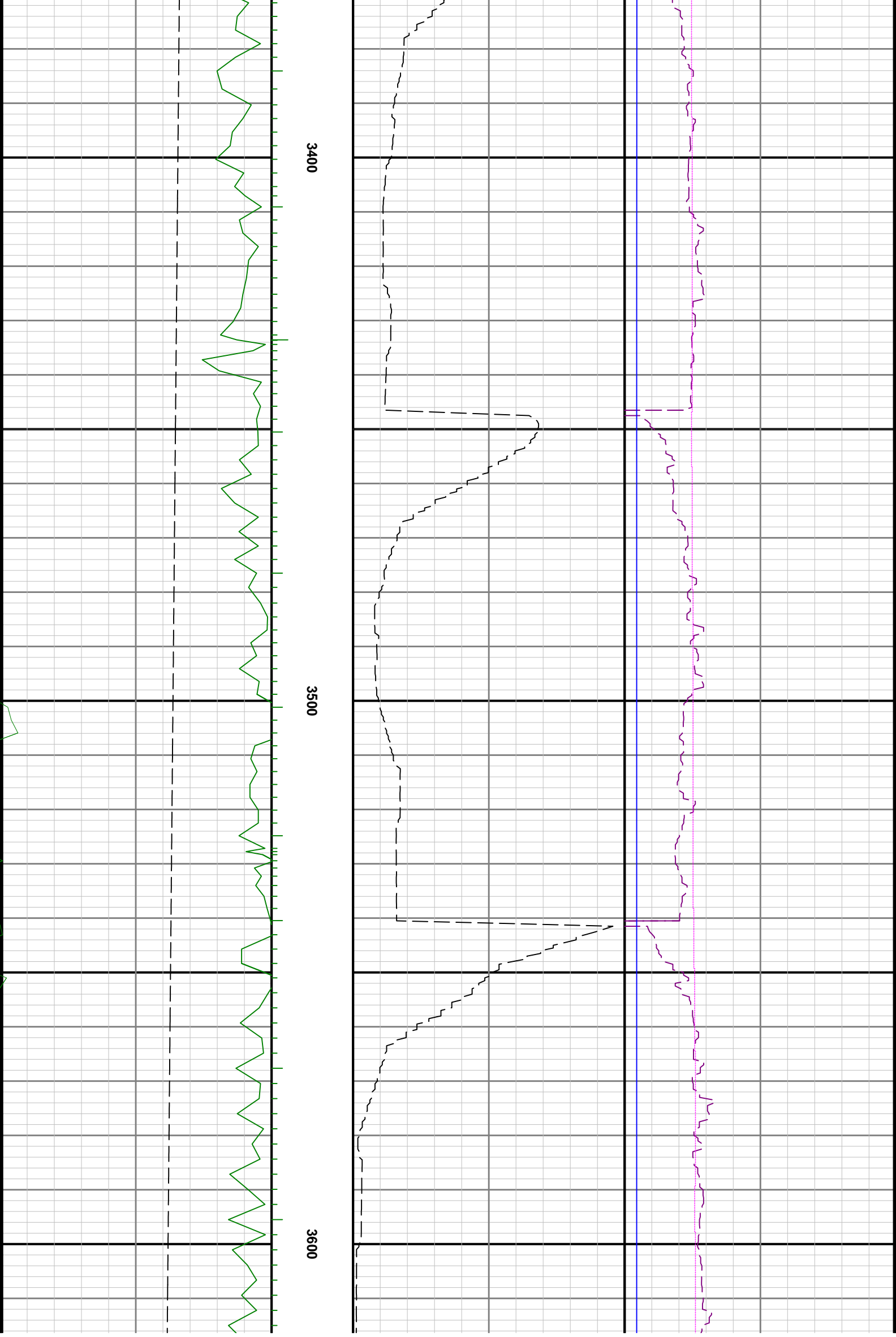
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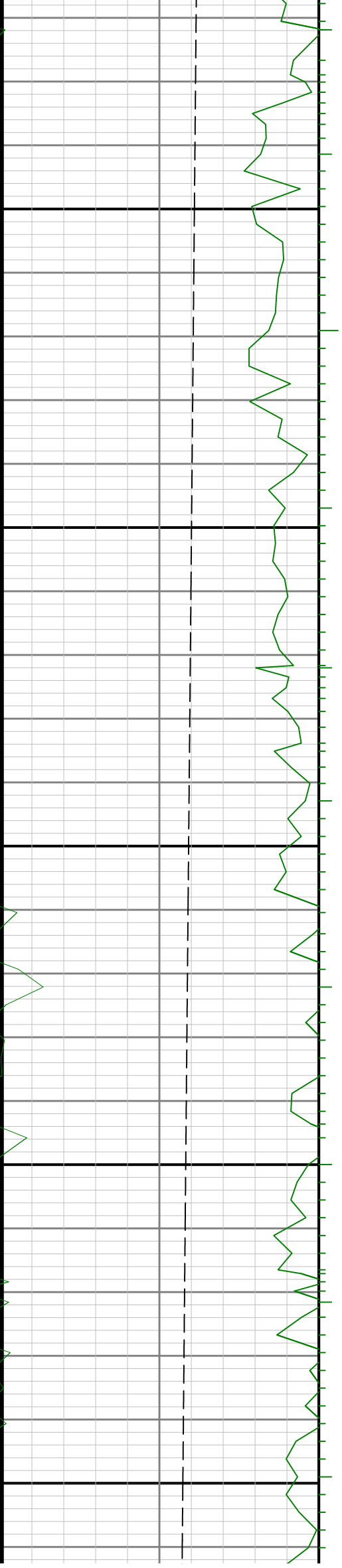
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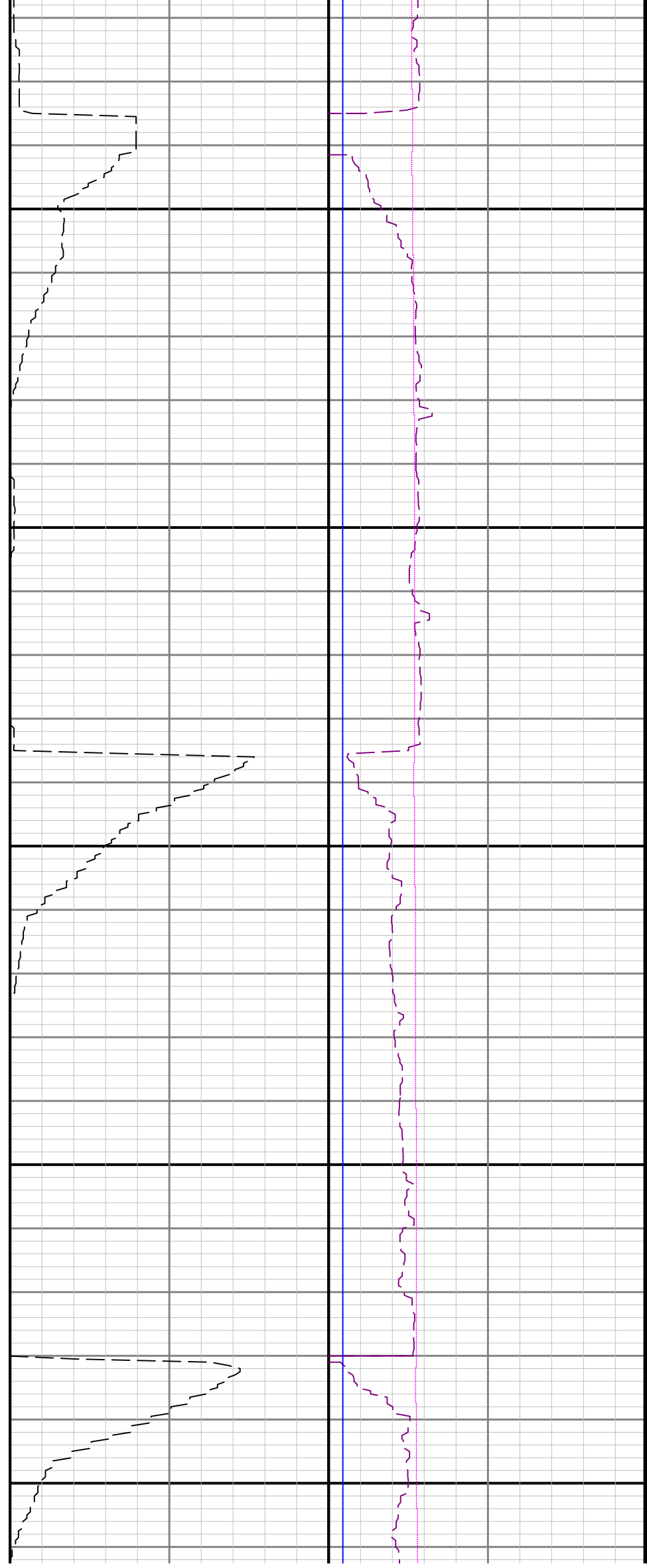


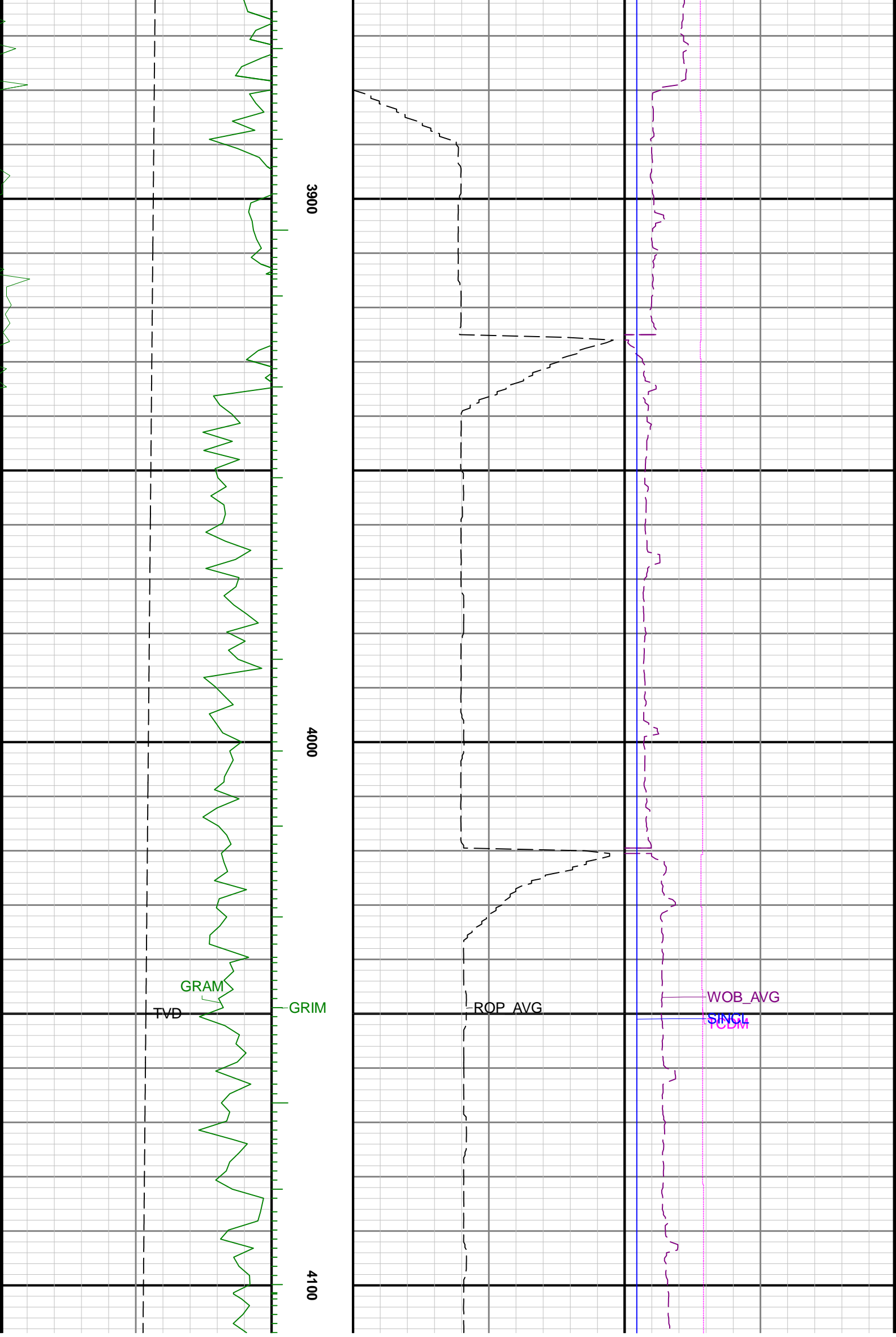


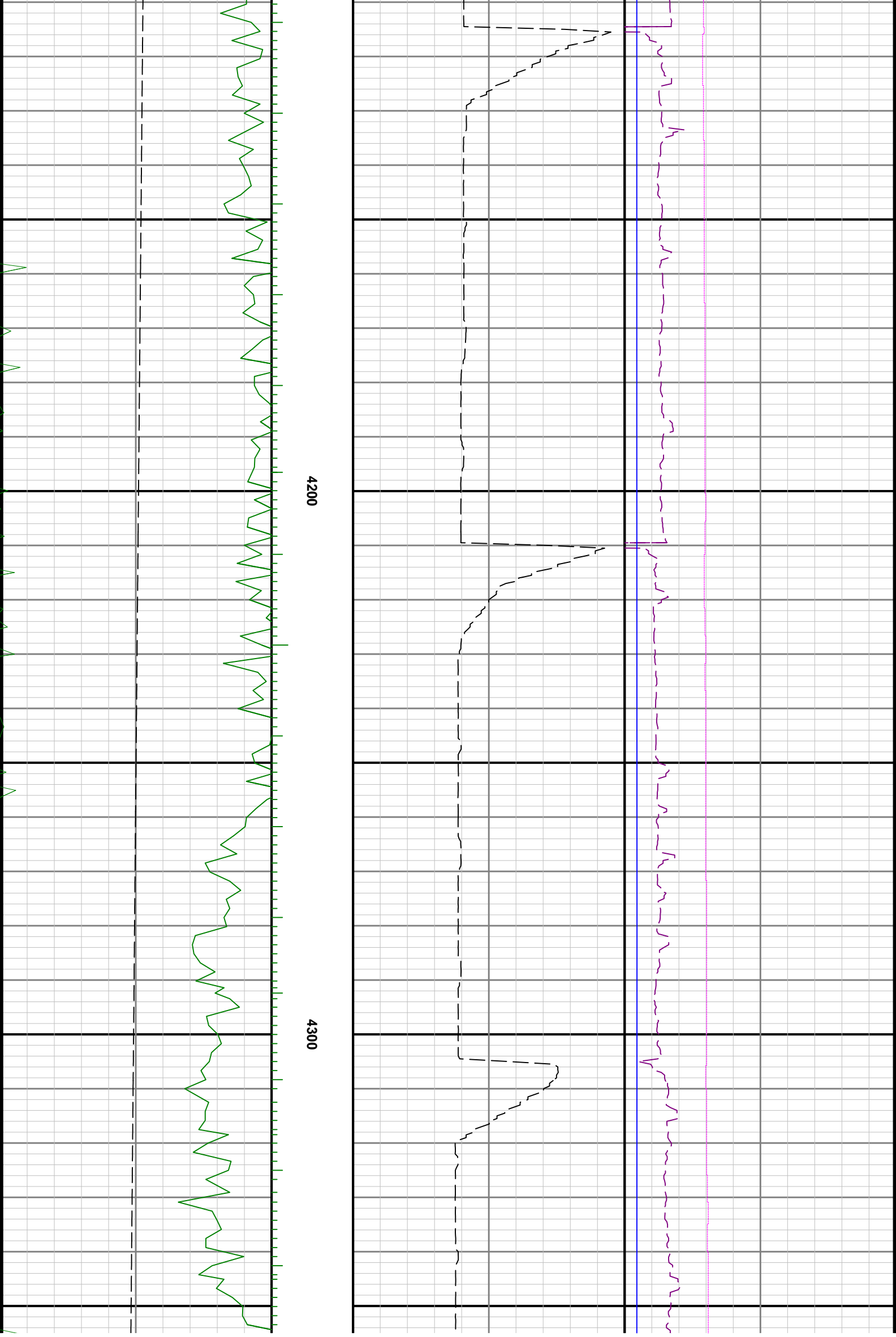


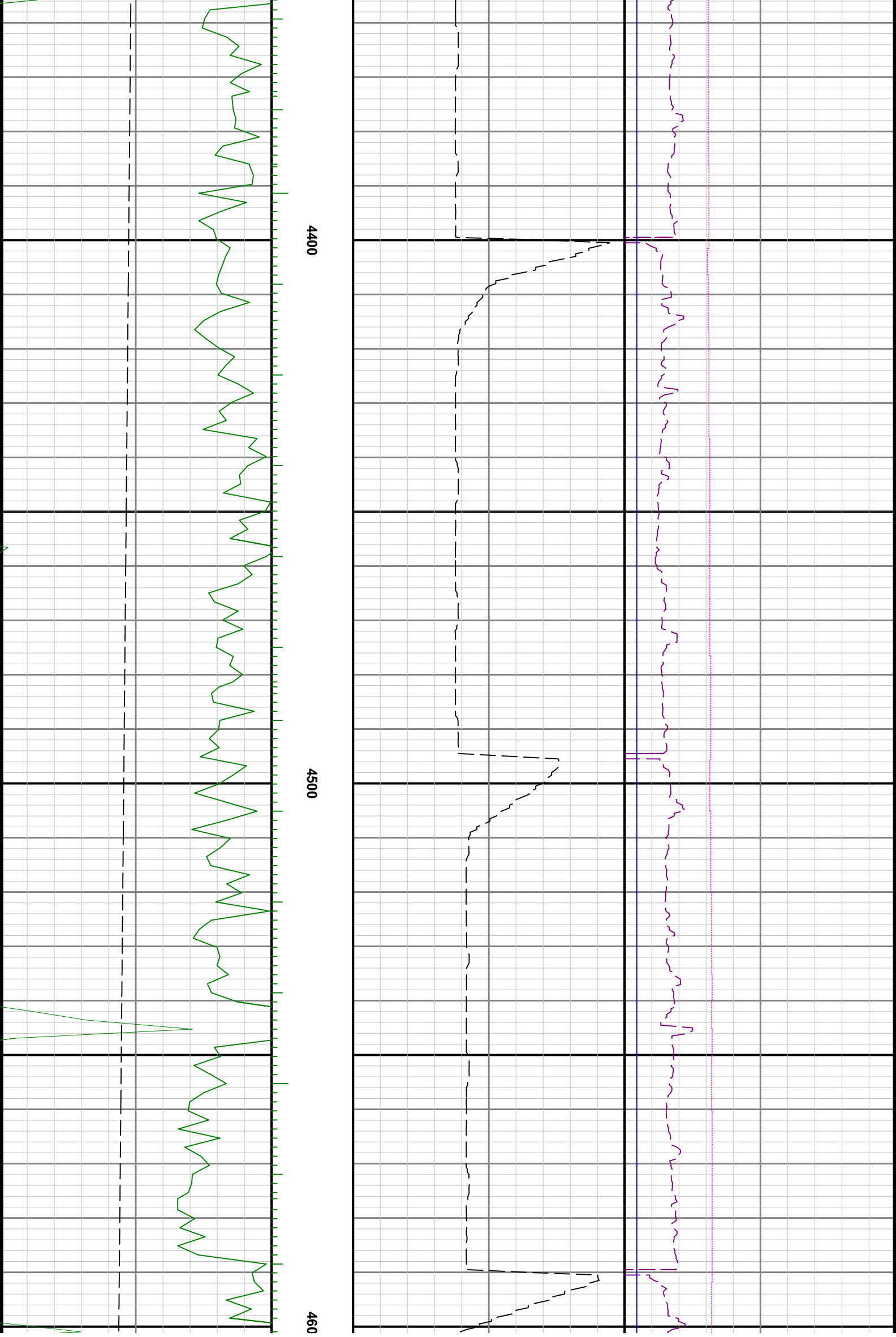
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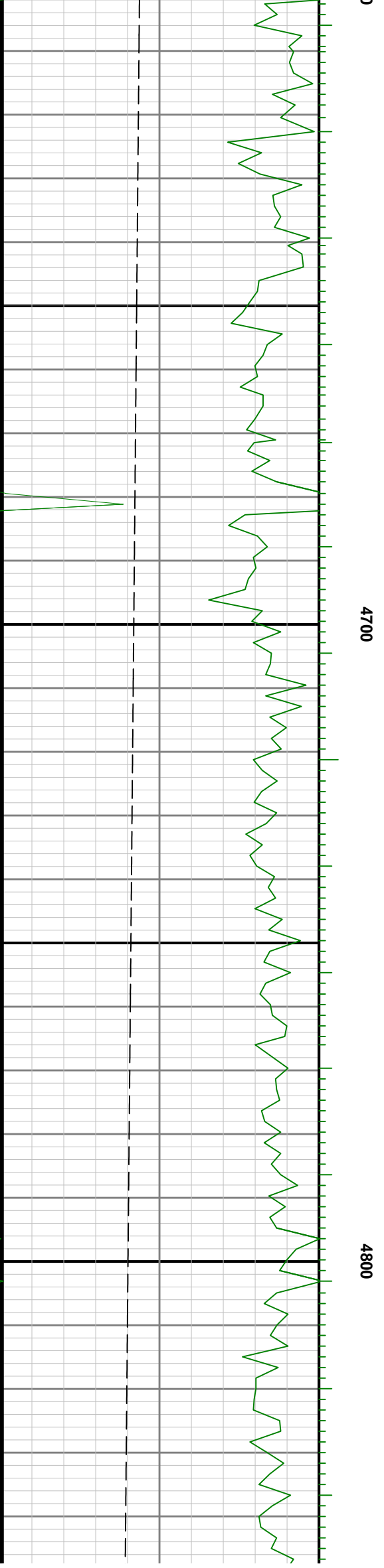
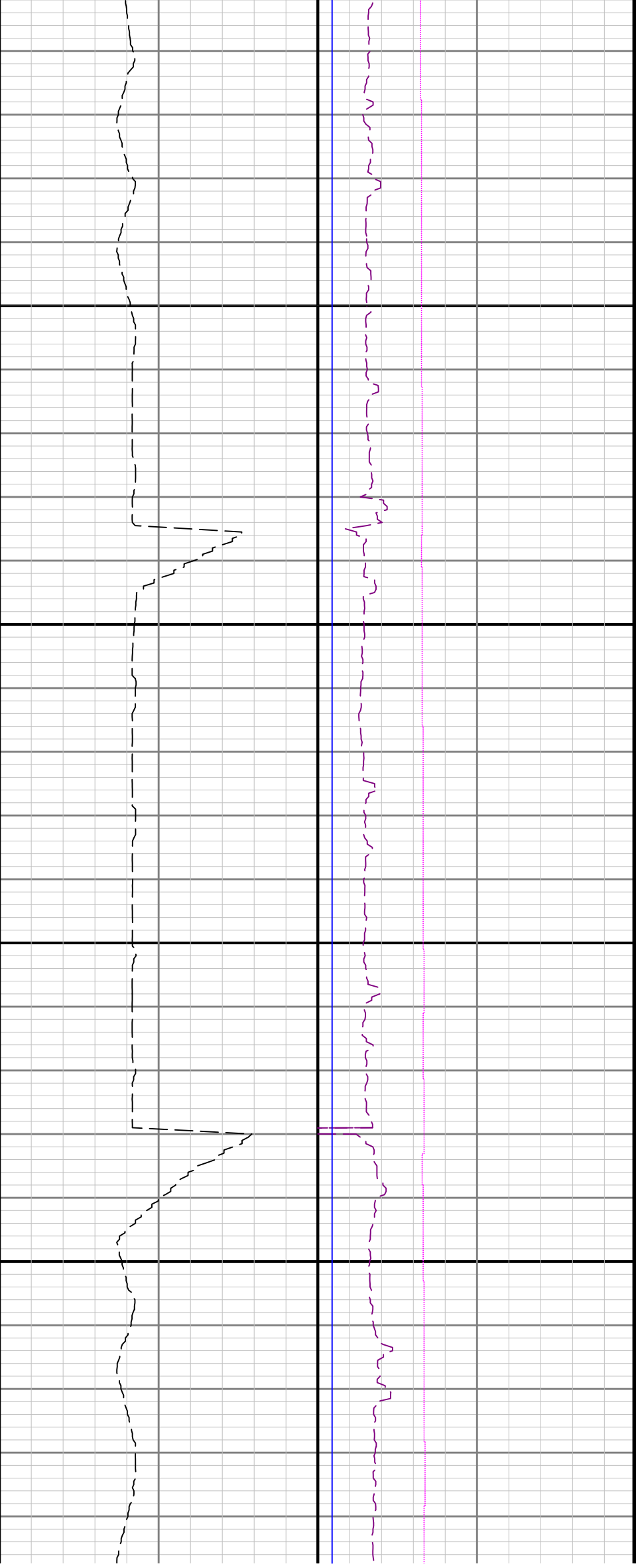
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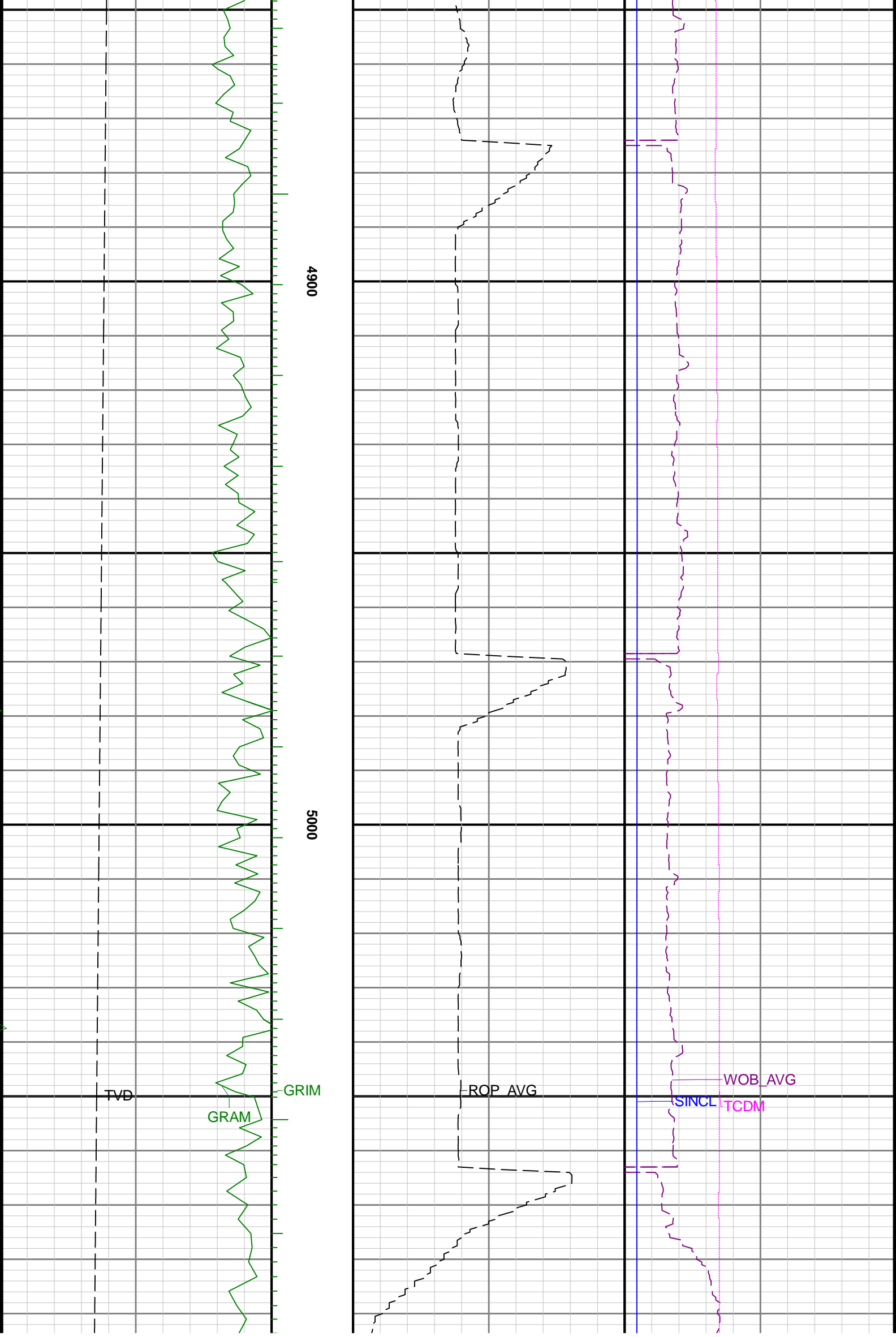


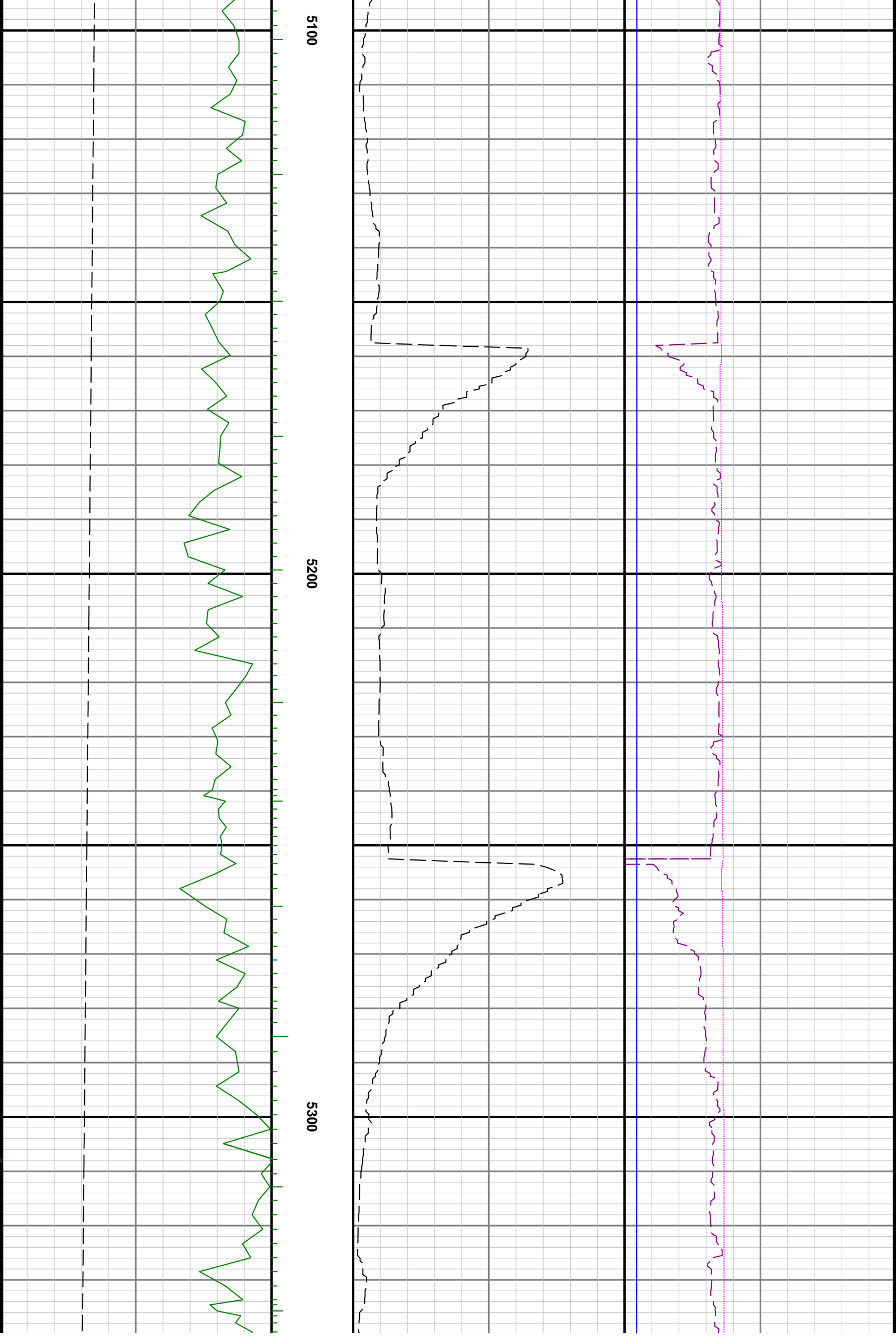


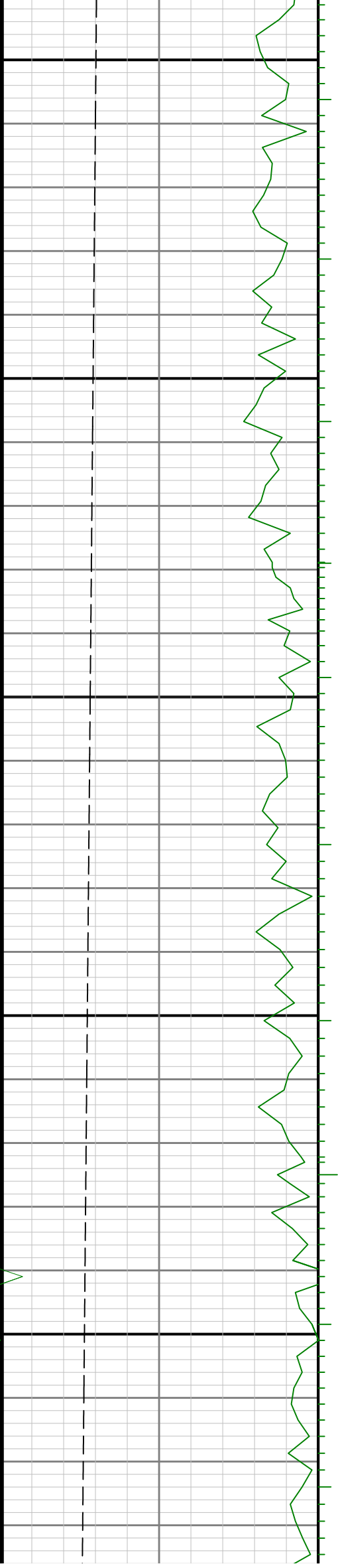






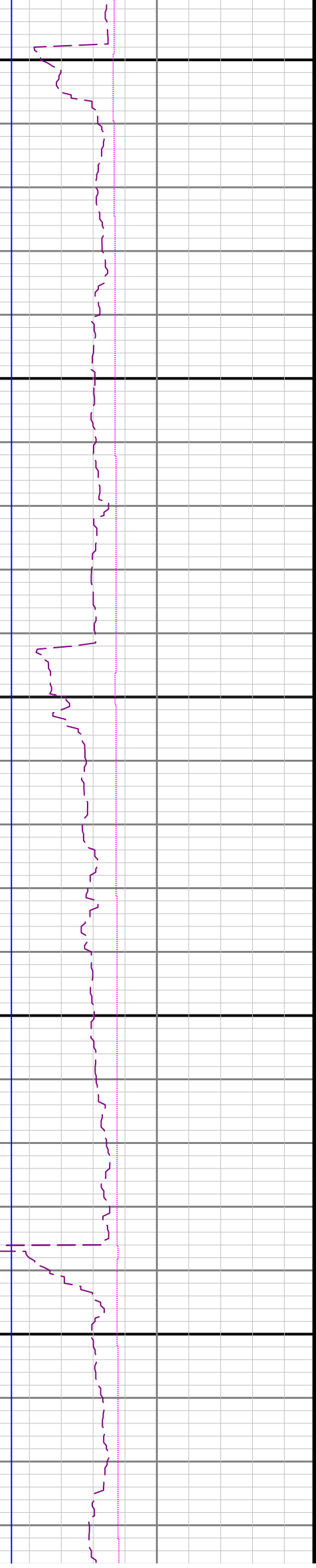
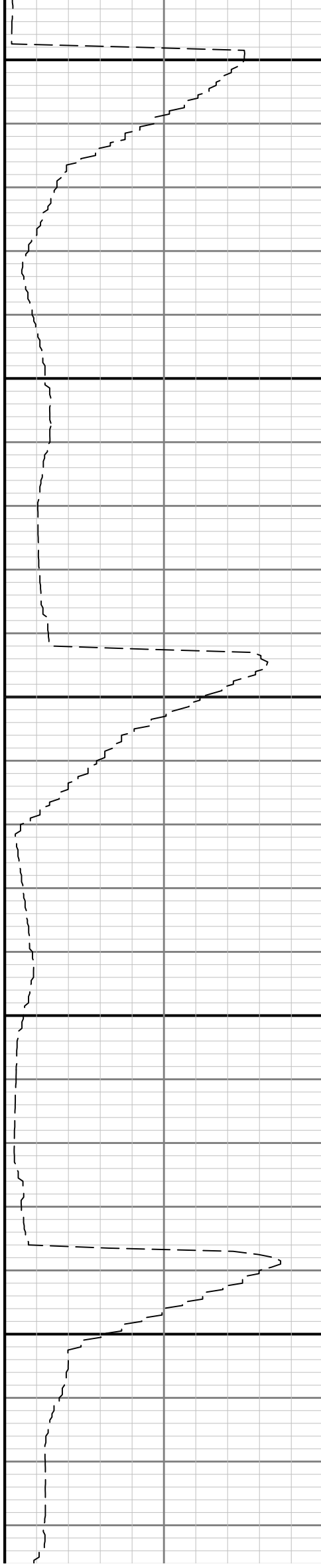


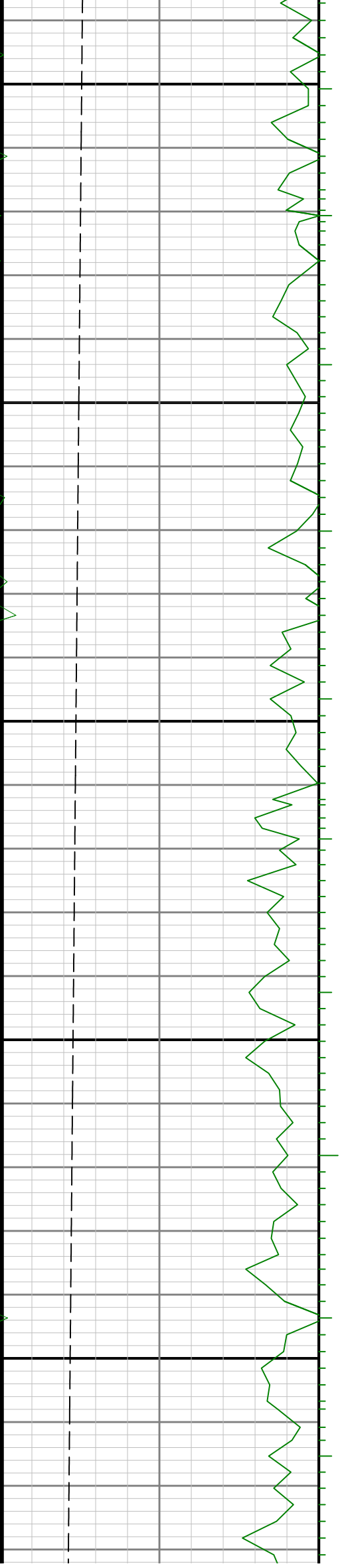




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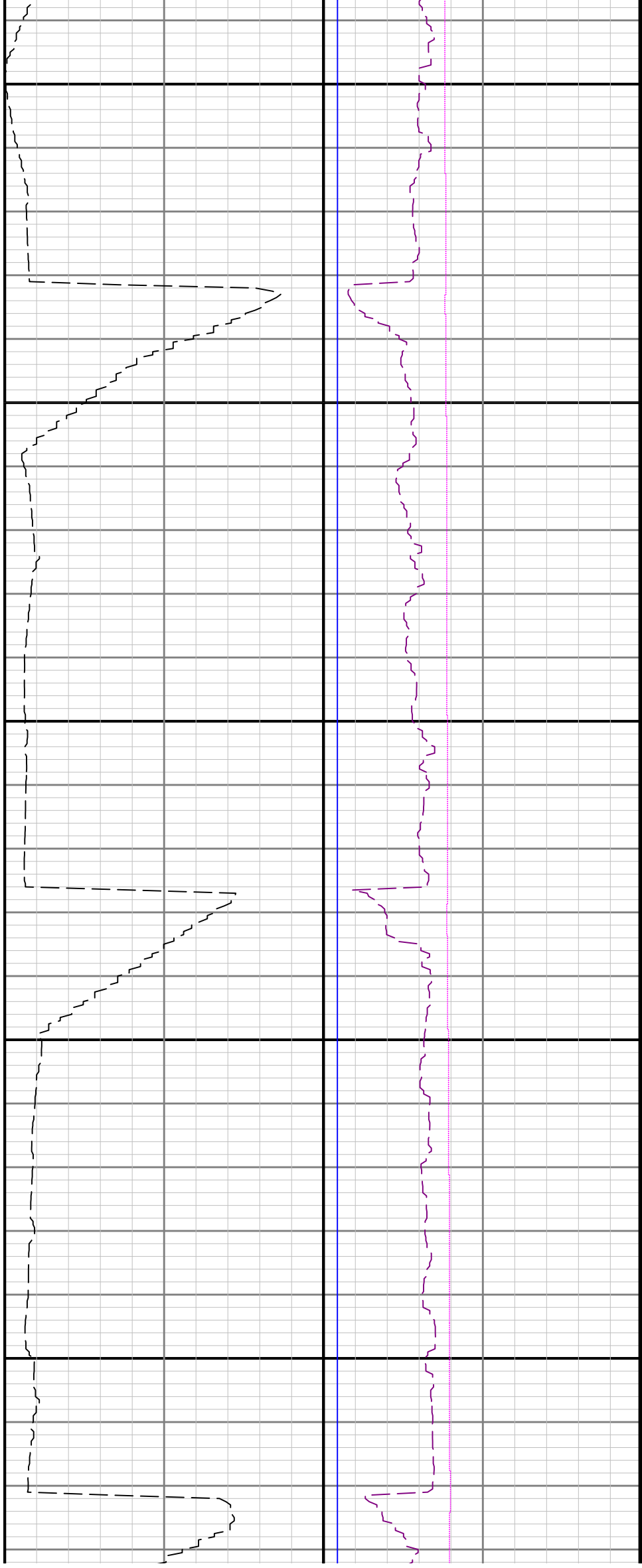


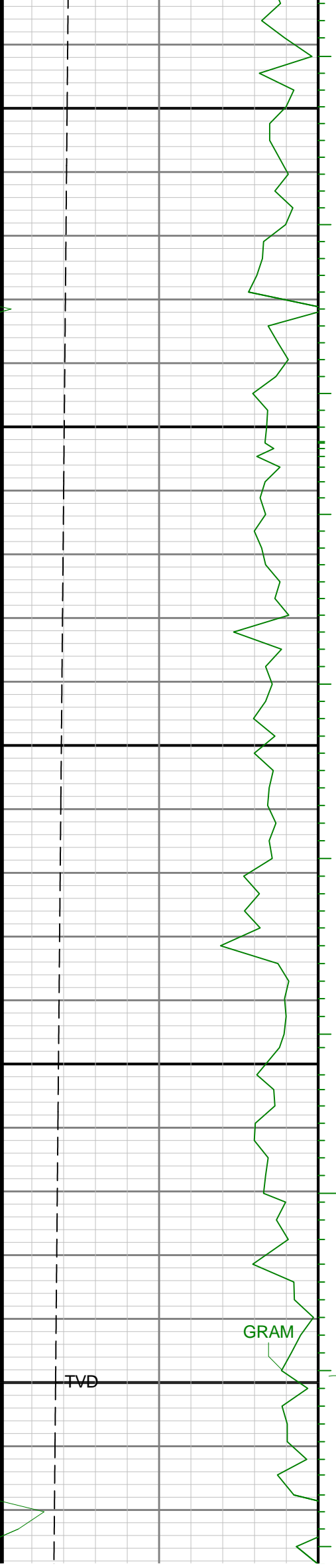


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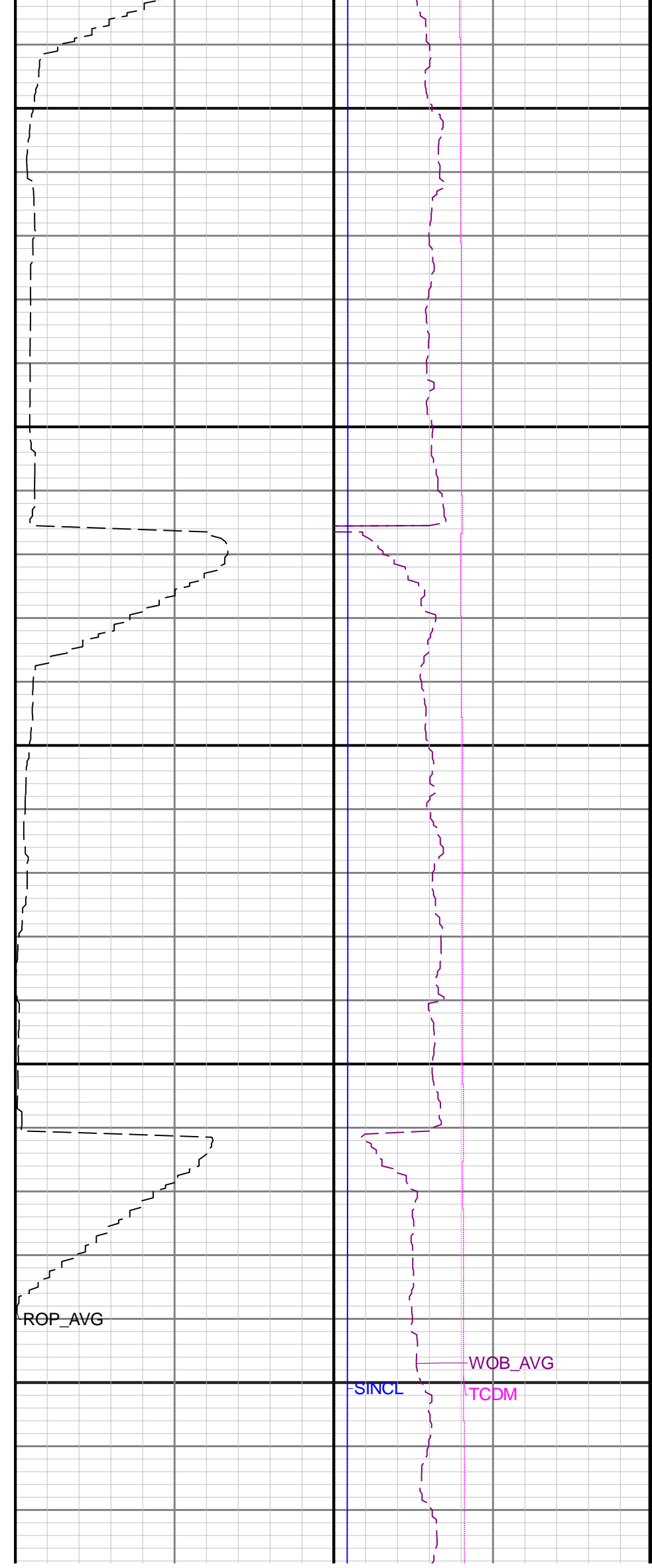
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GRAM

GRIM

TVD

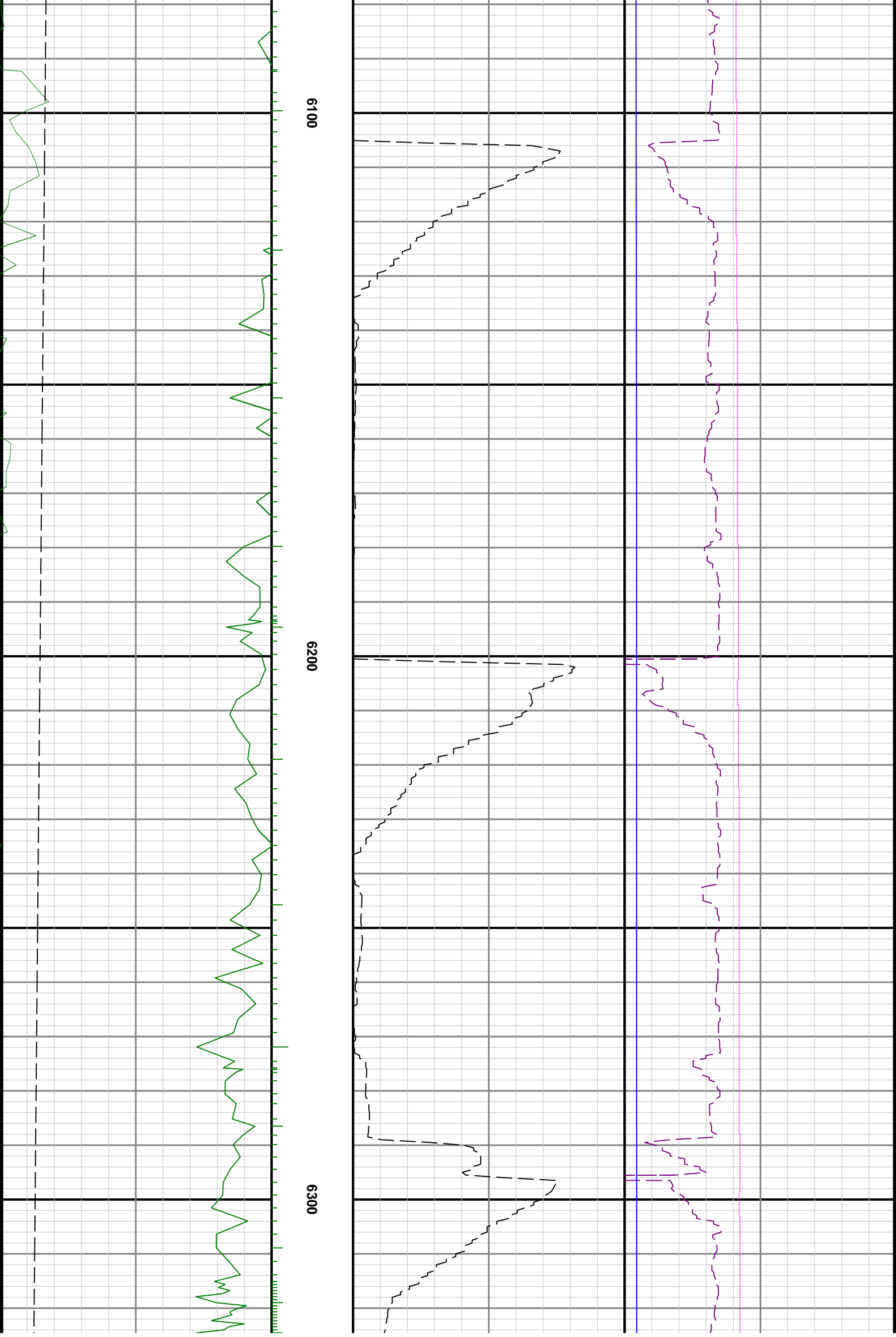


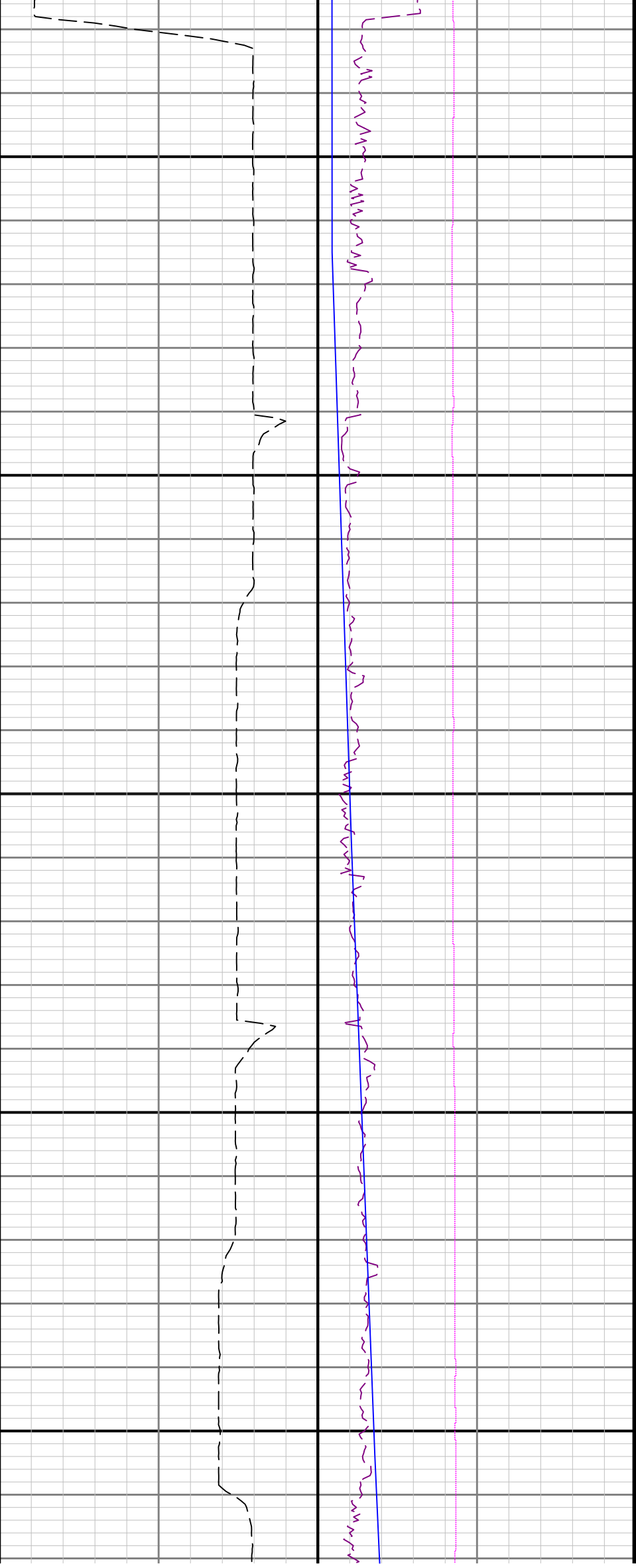
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SINCL

WOB_AVG

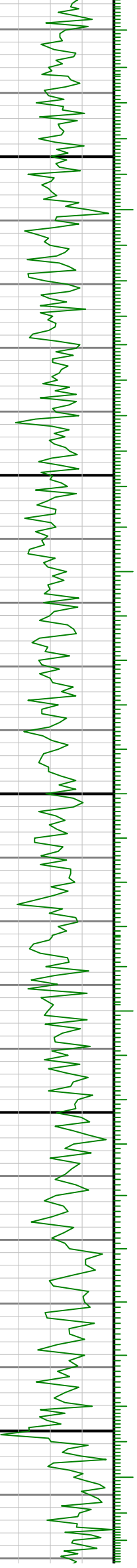
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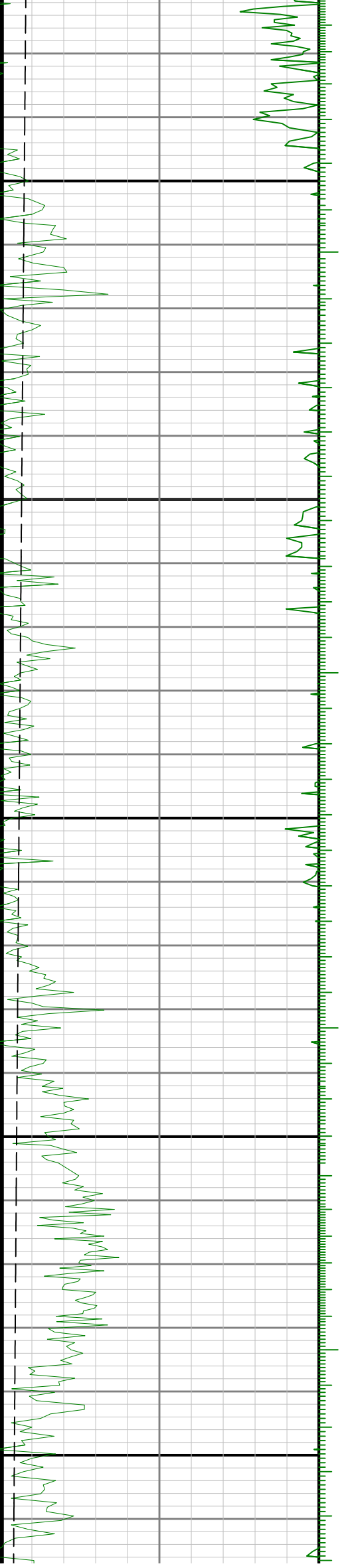




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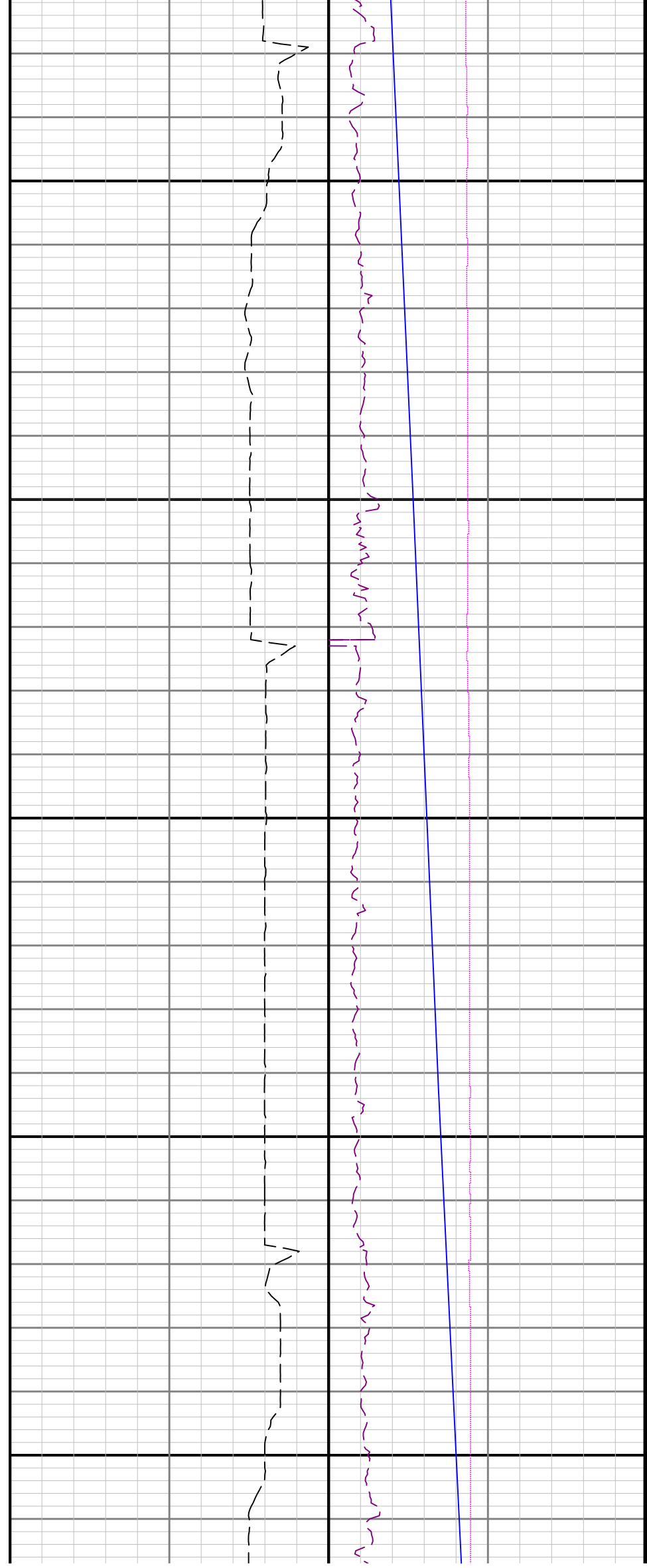


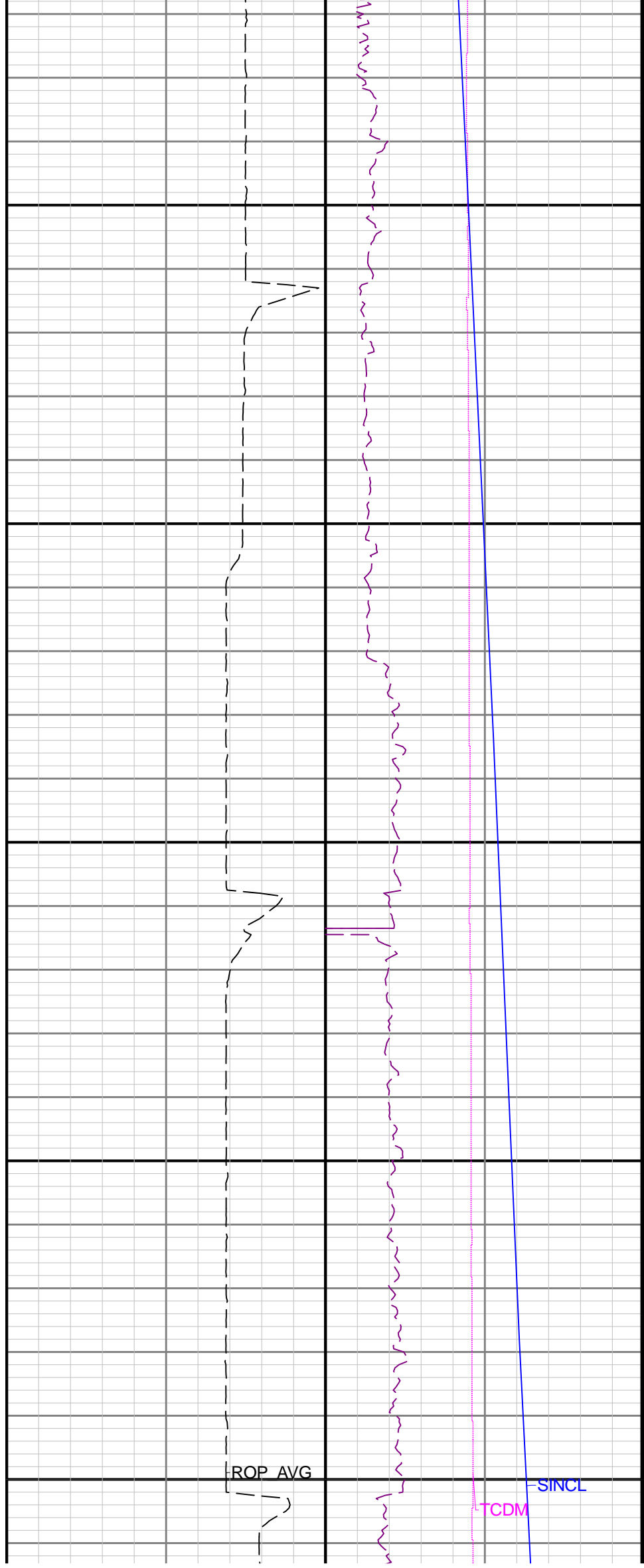
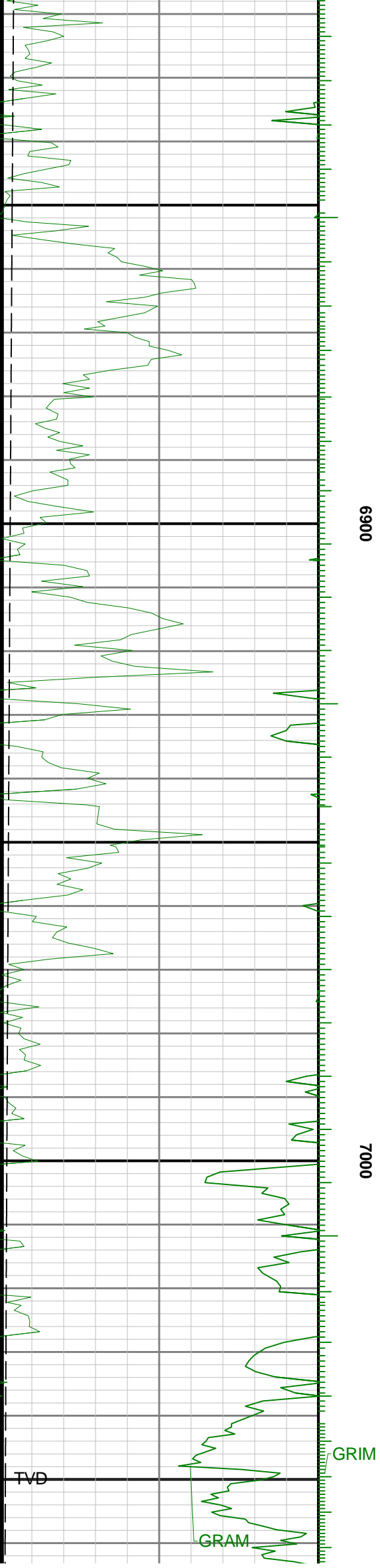


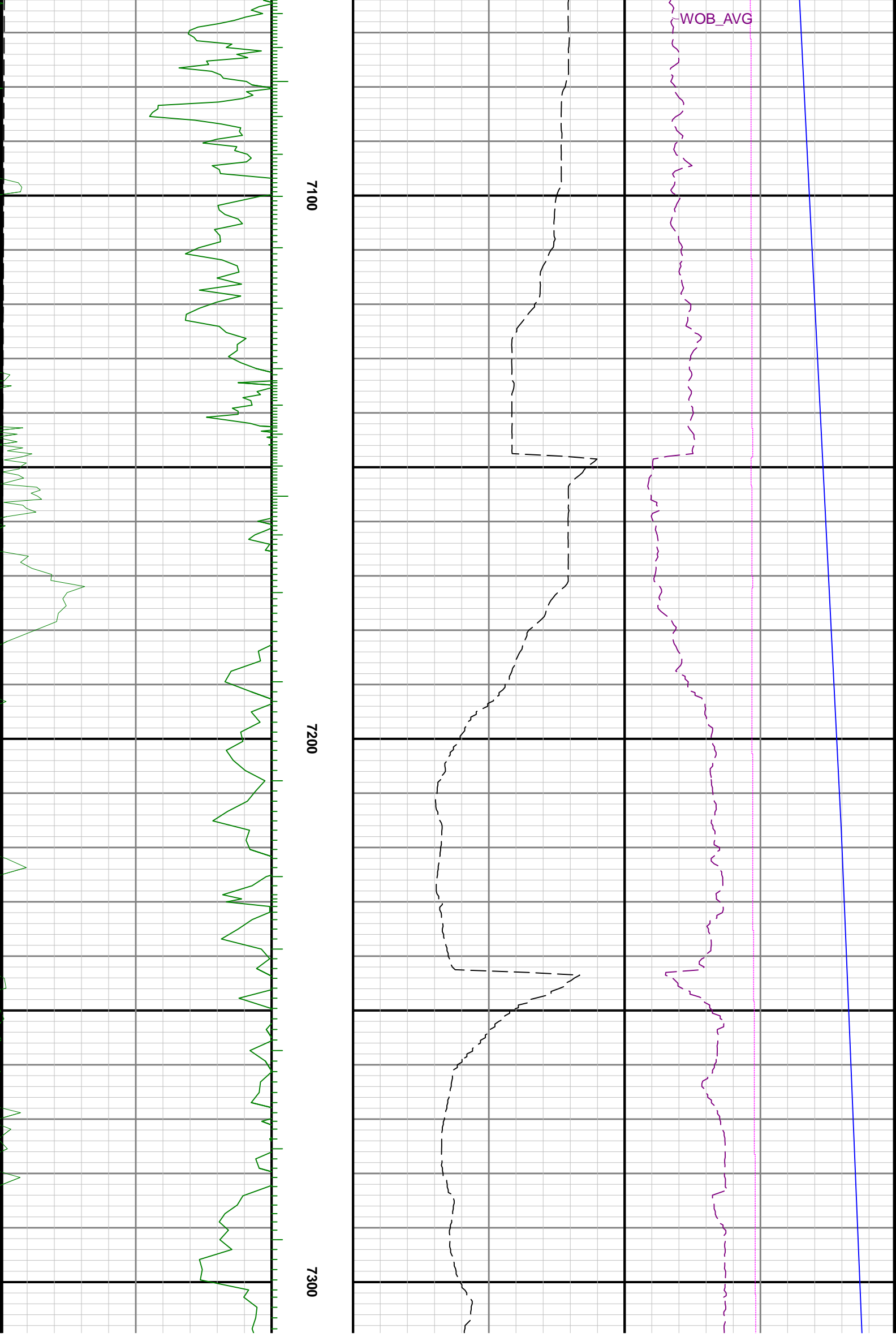
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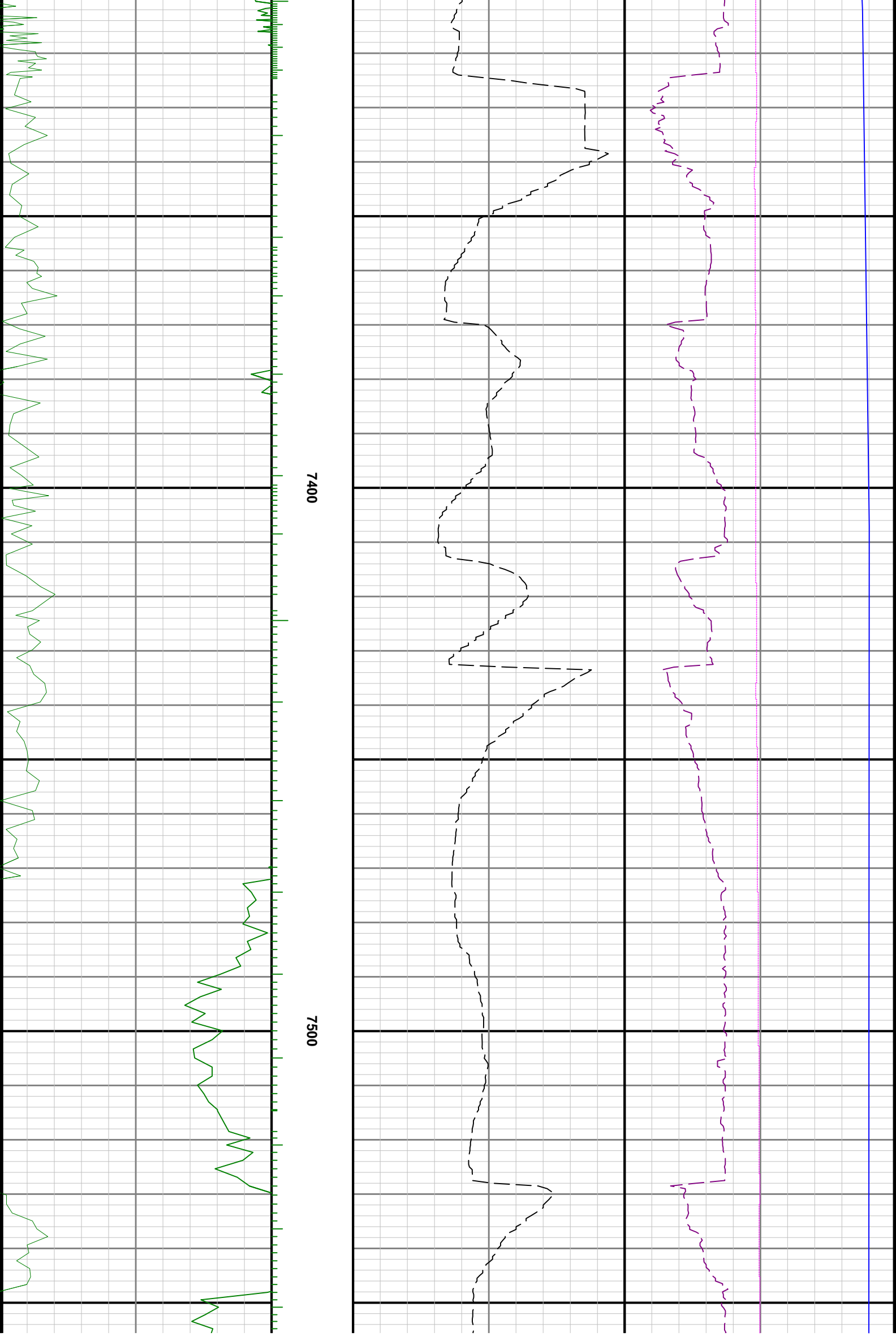


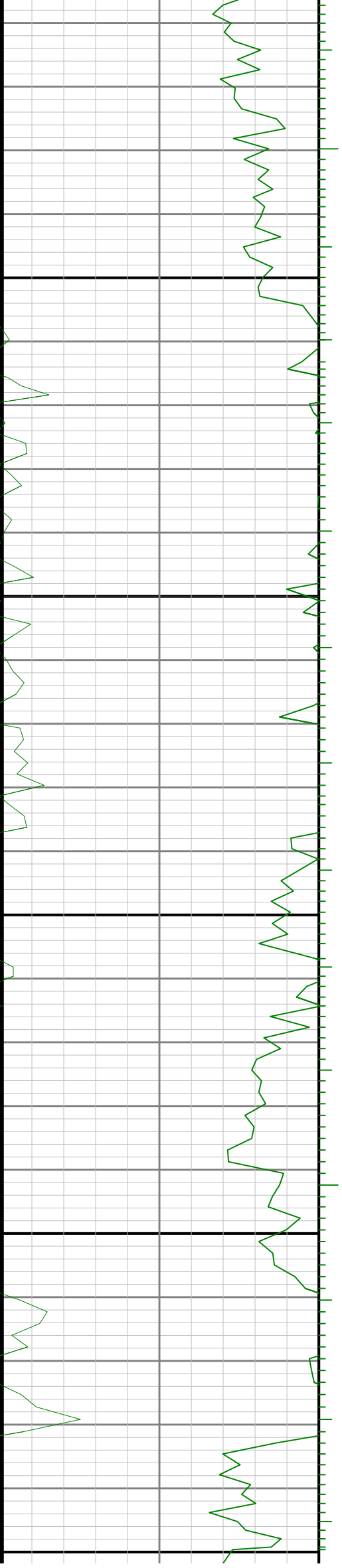
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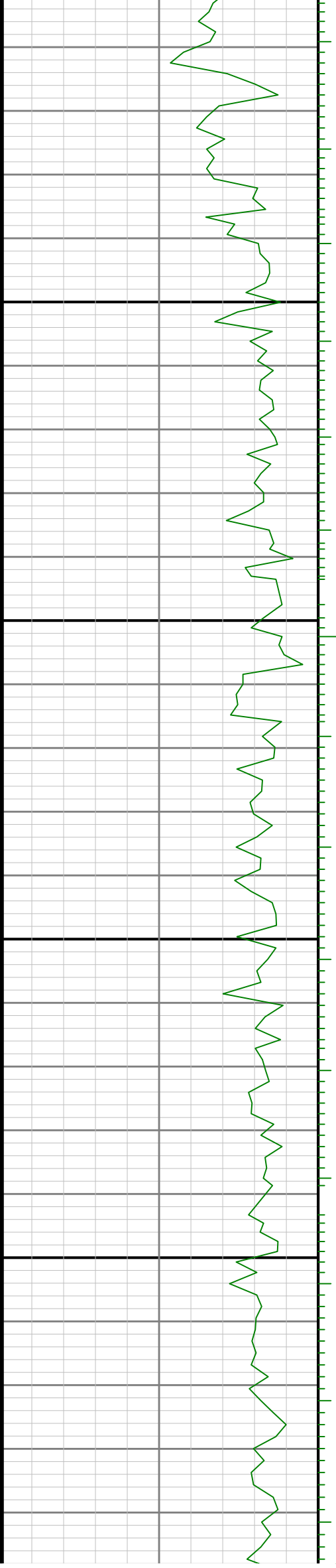


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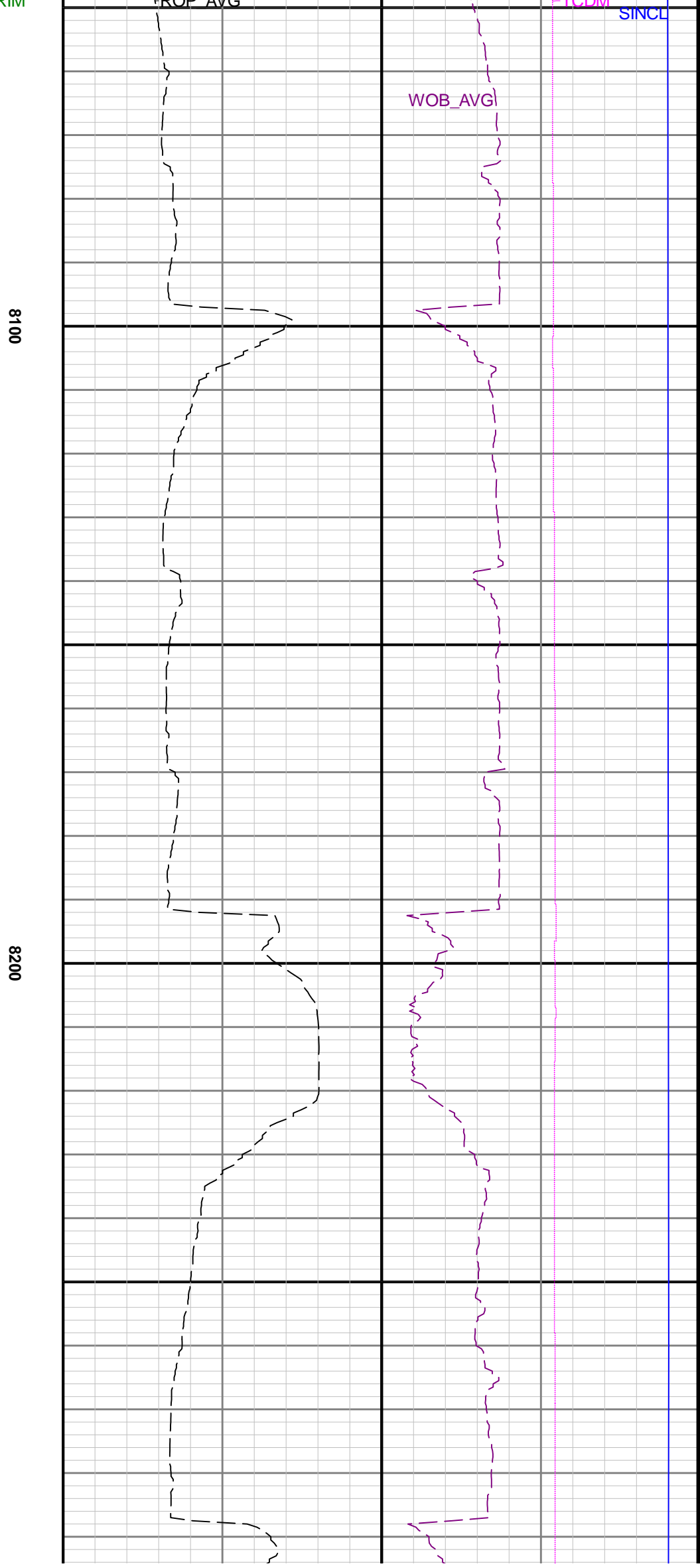
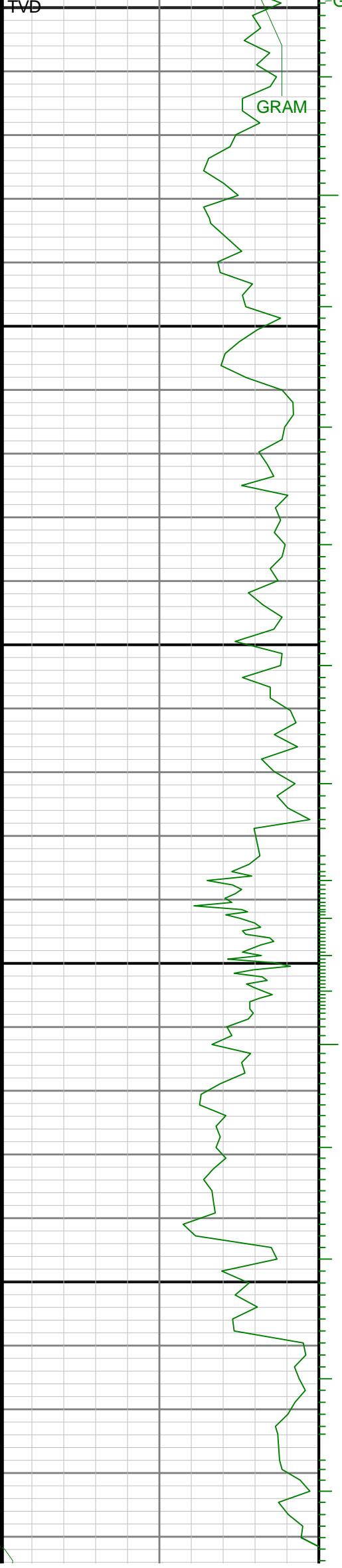


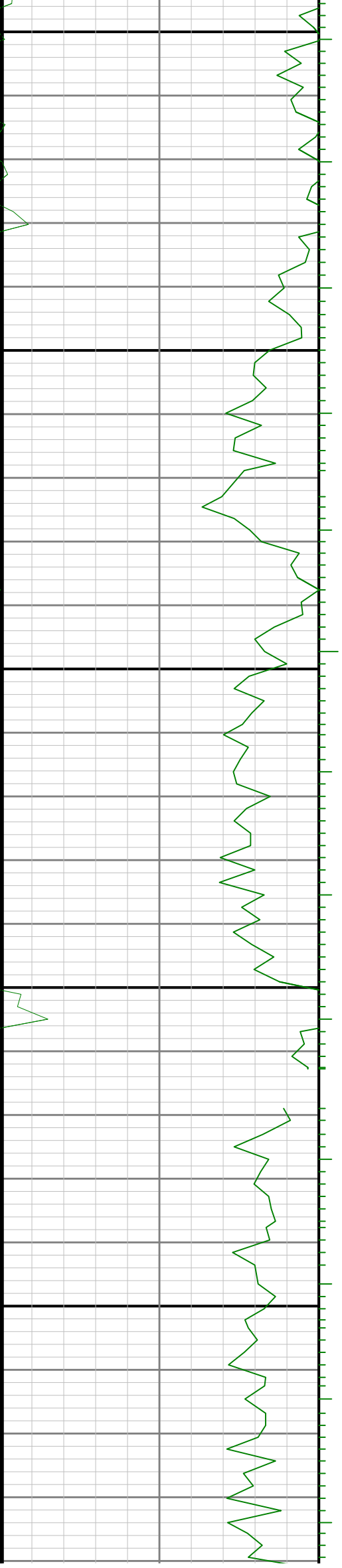


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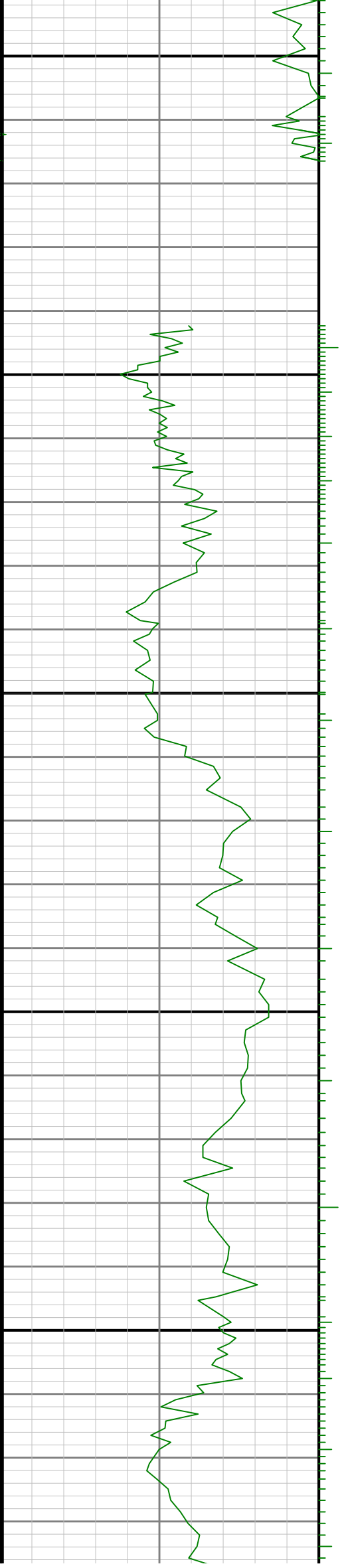


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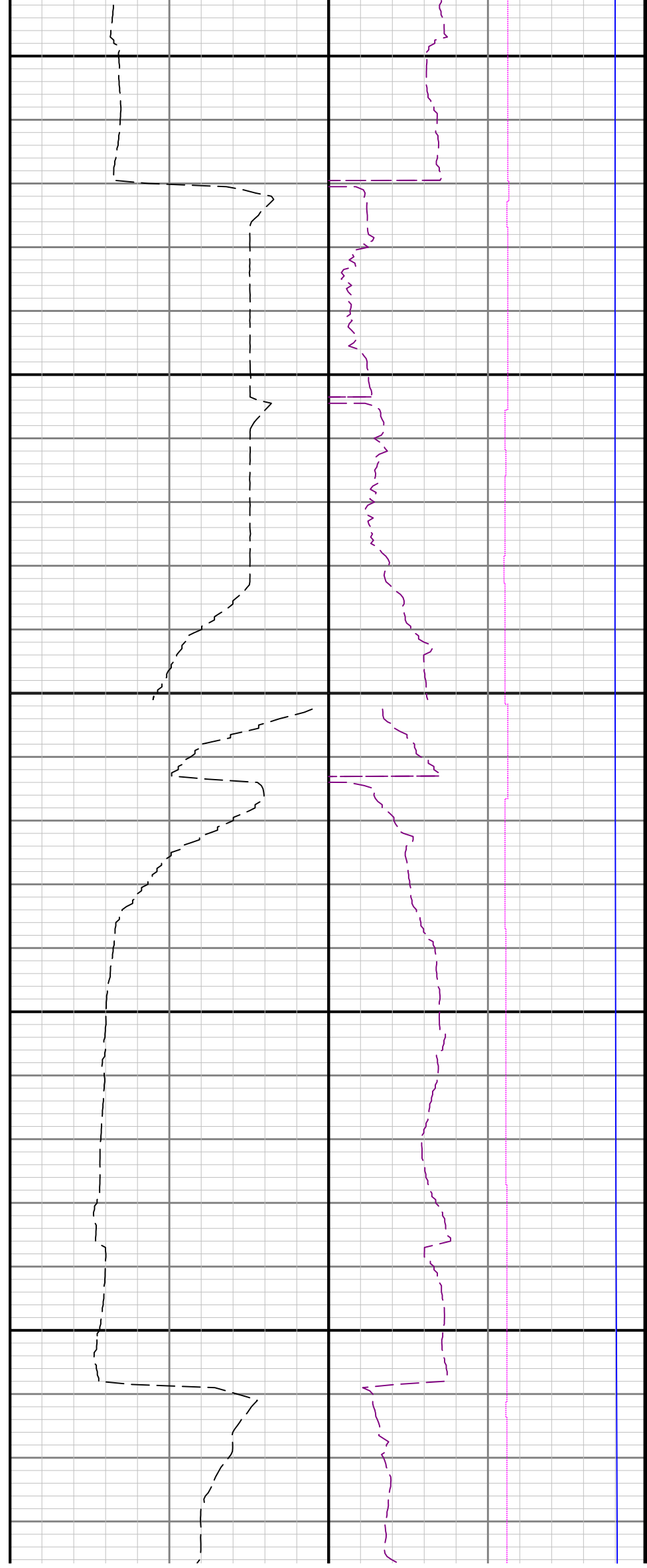
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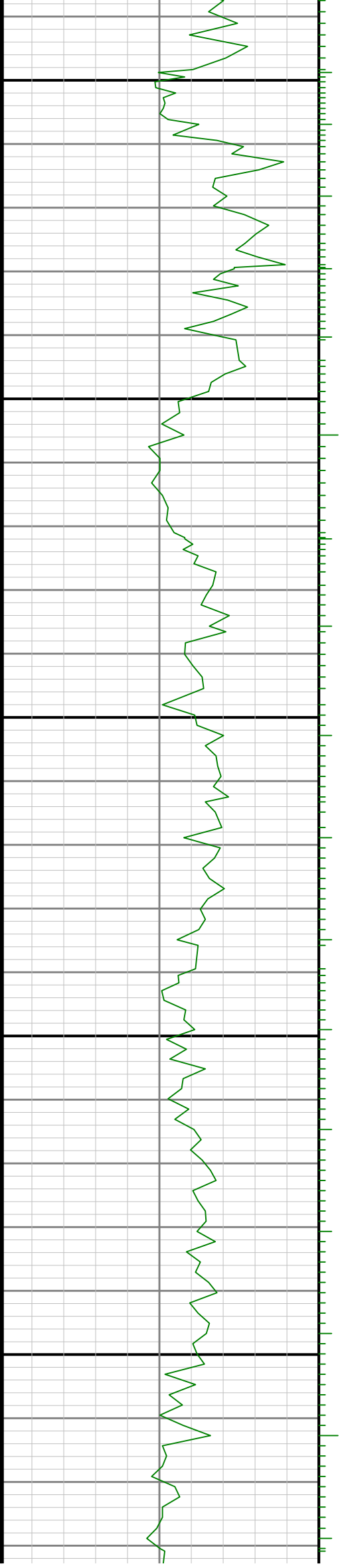




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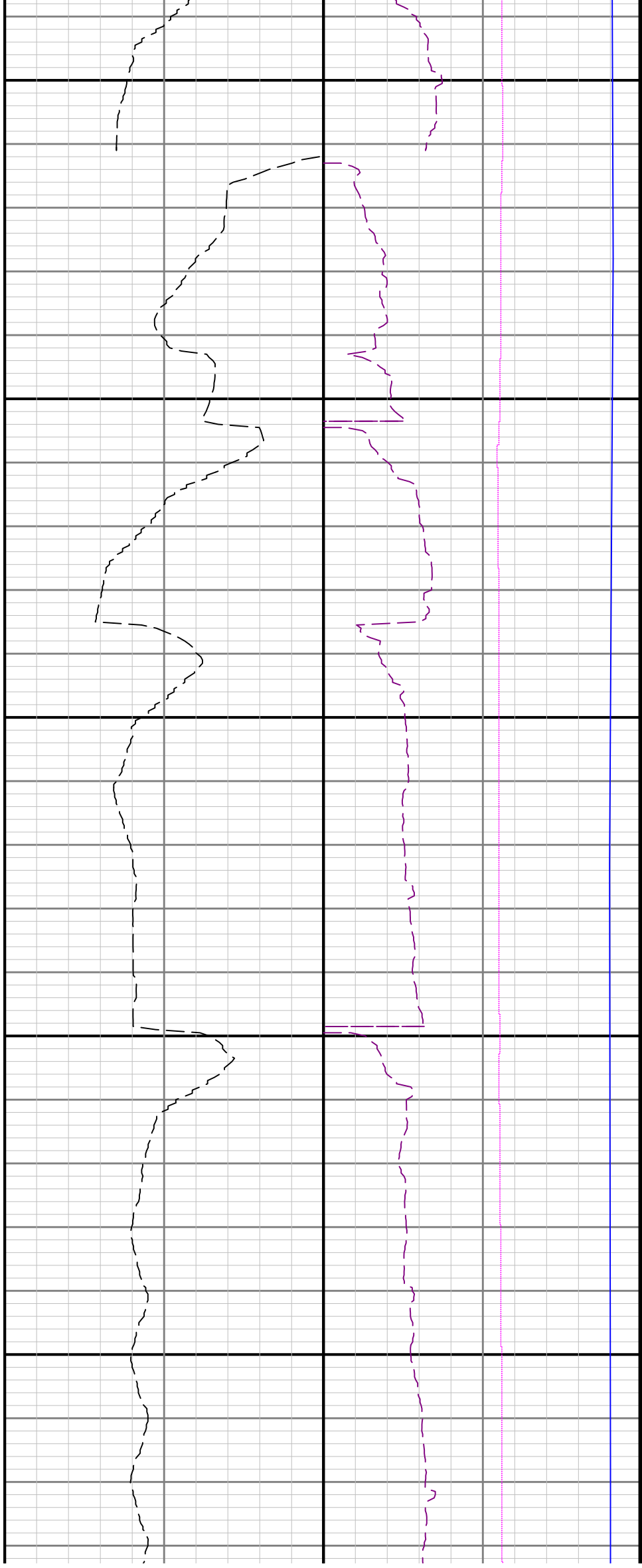


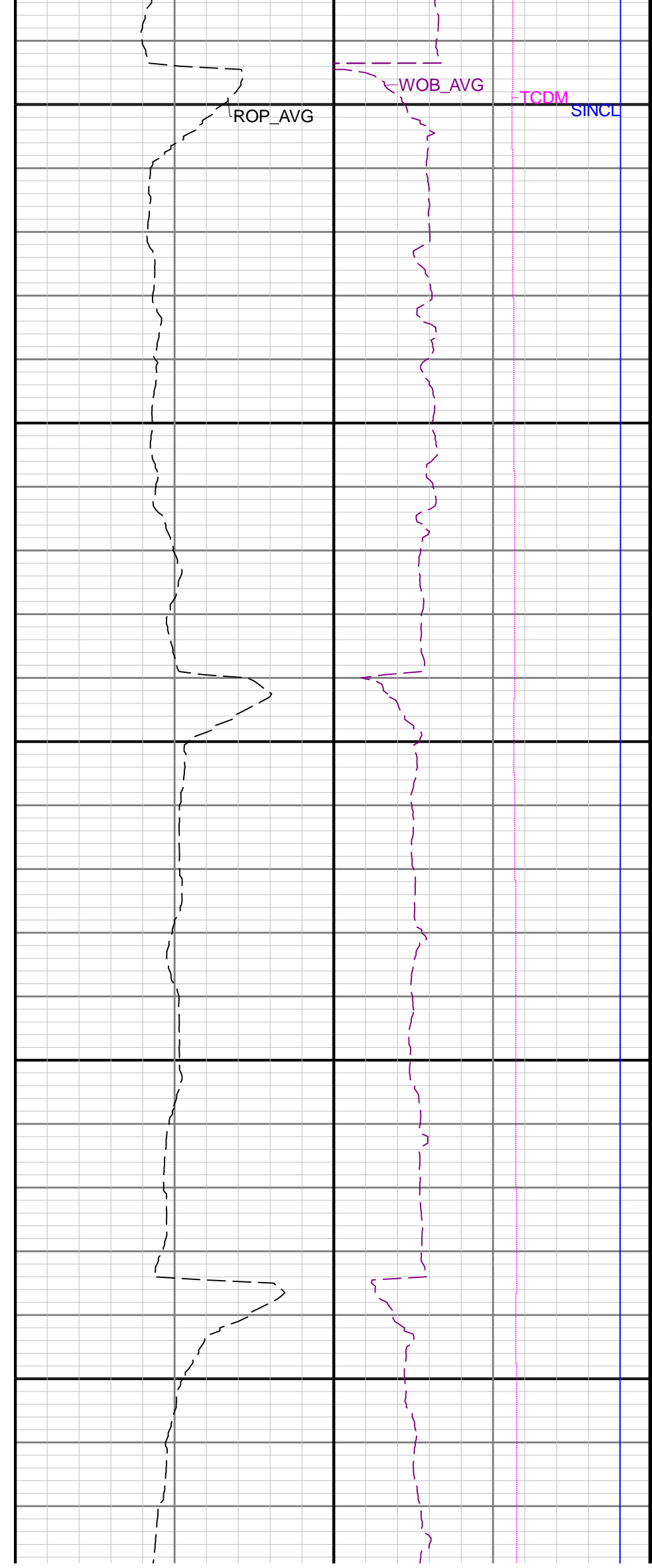
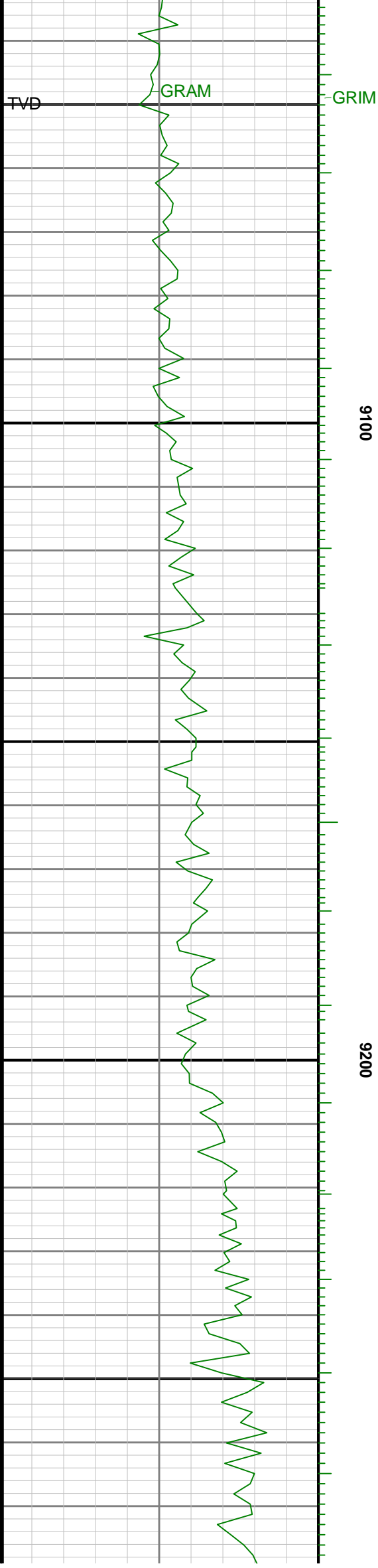


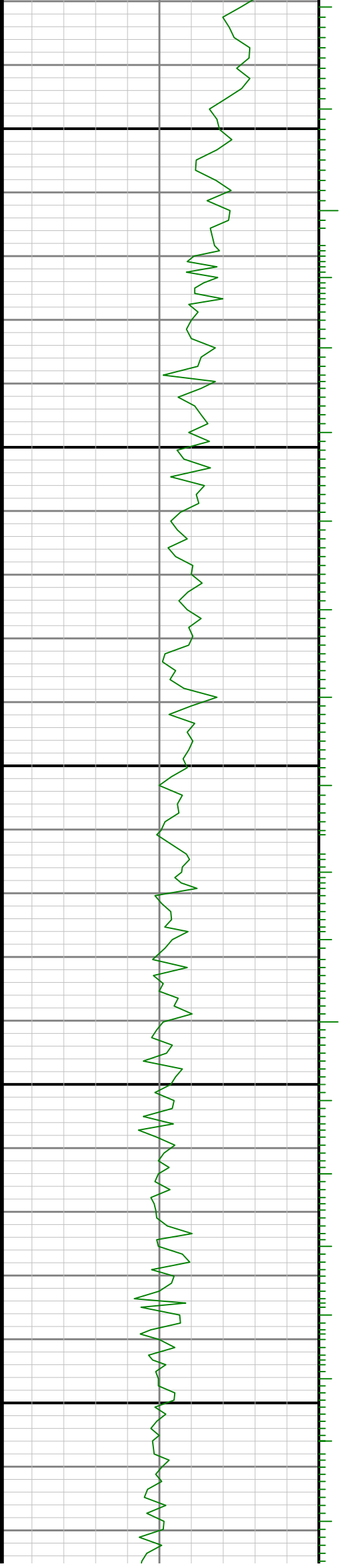
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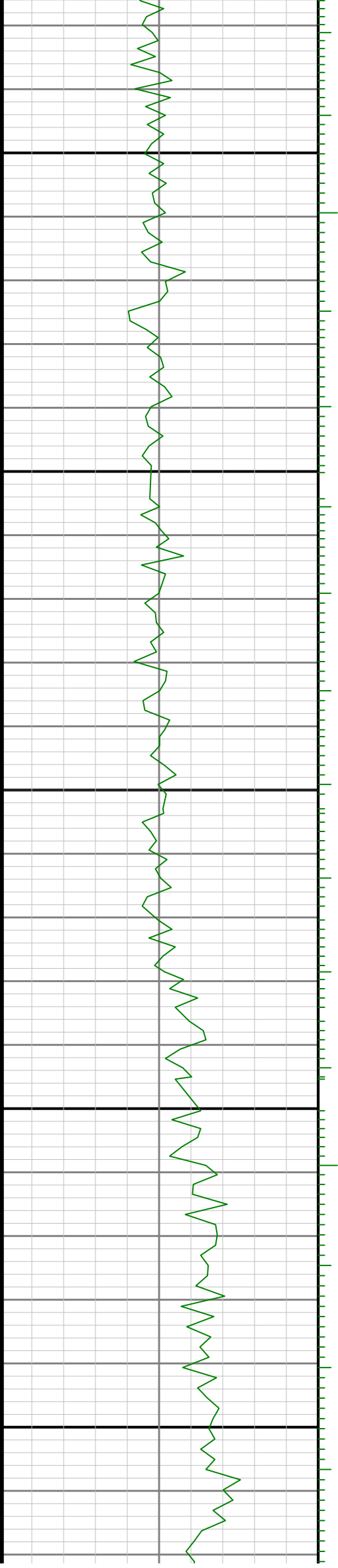


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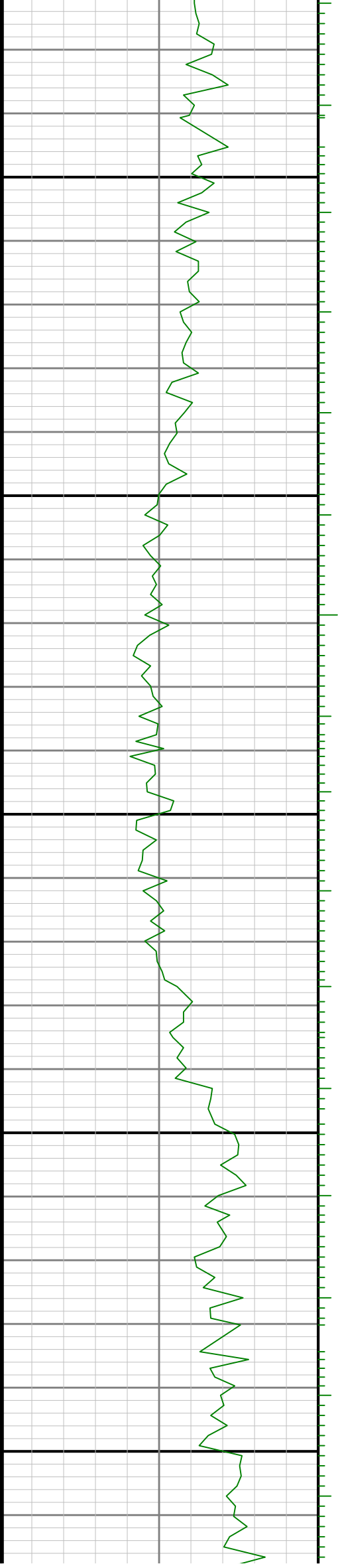




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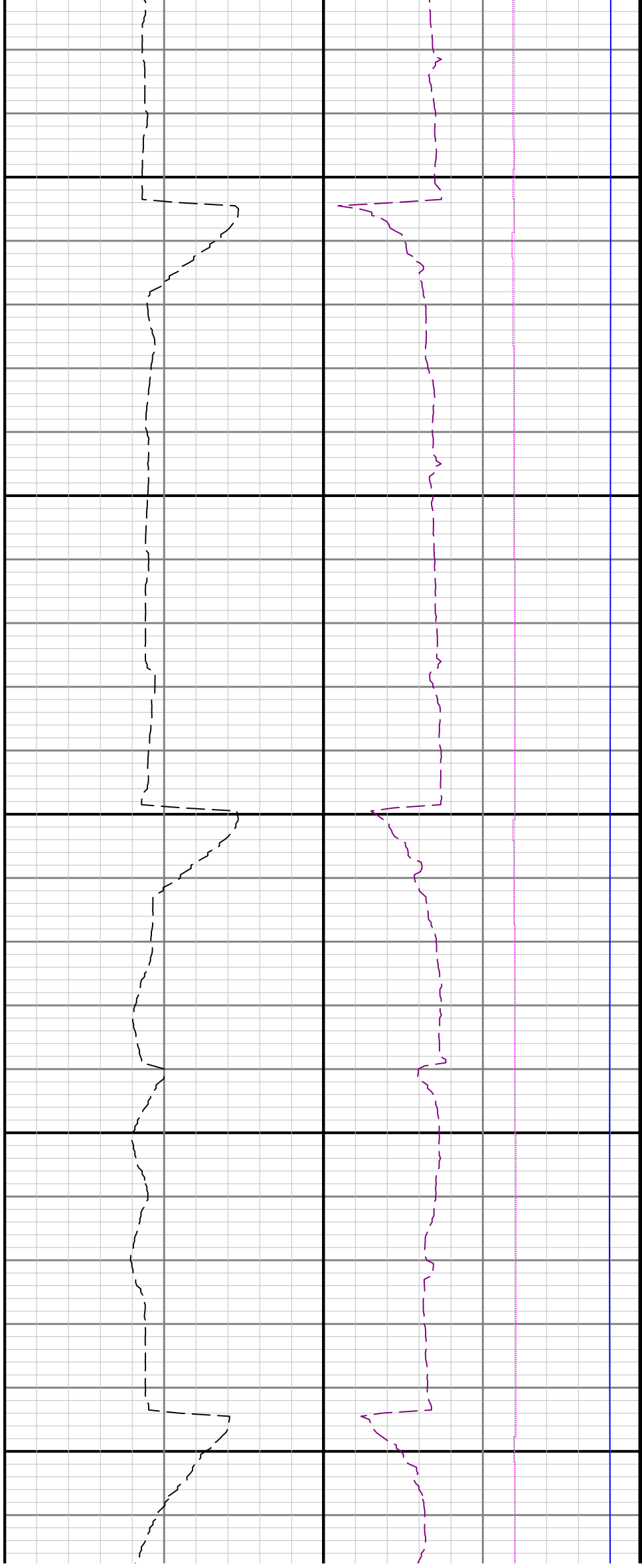


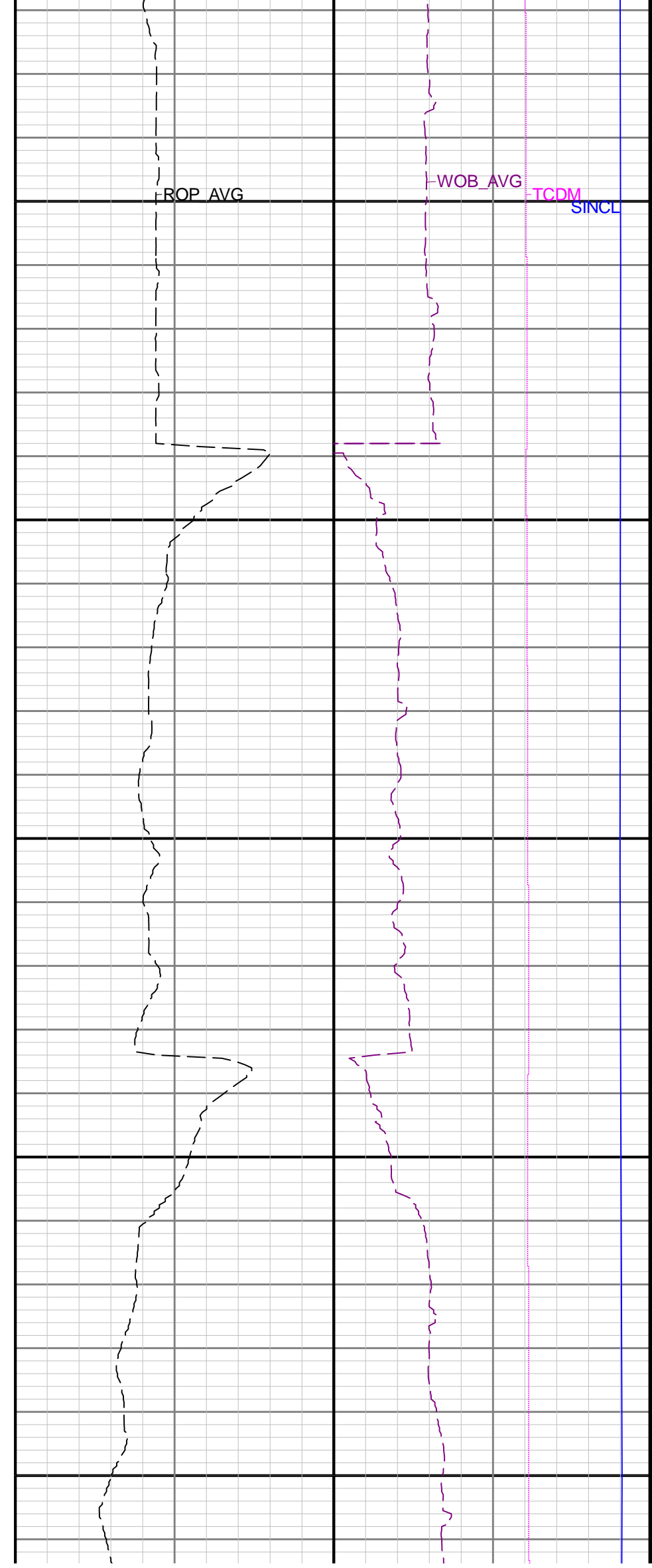
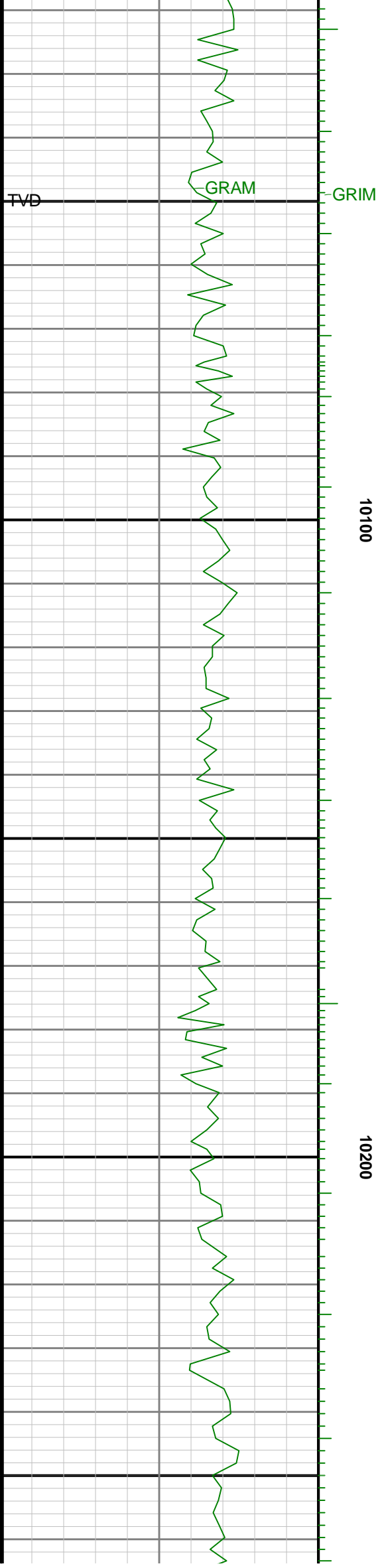


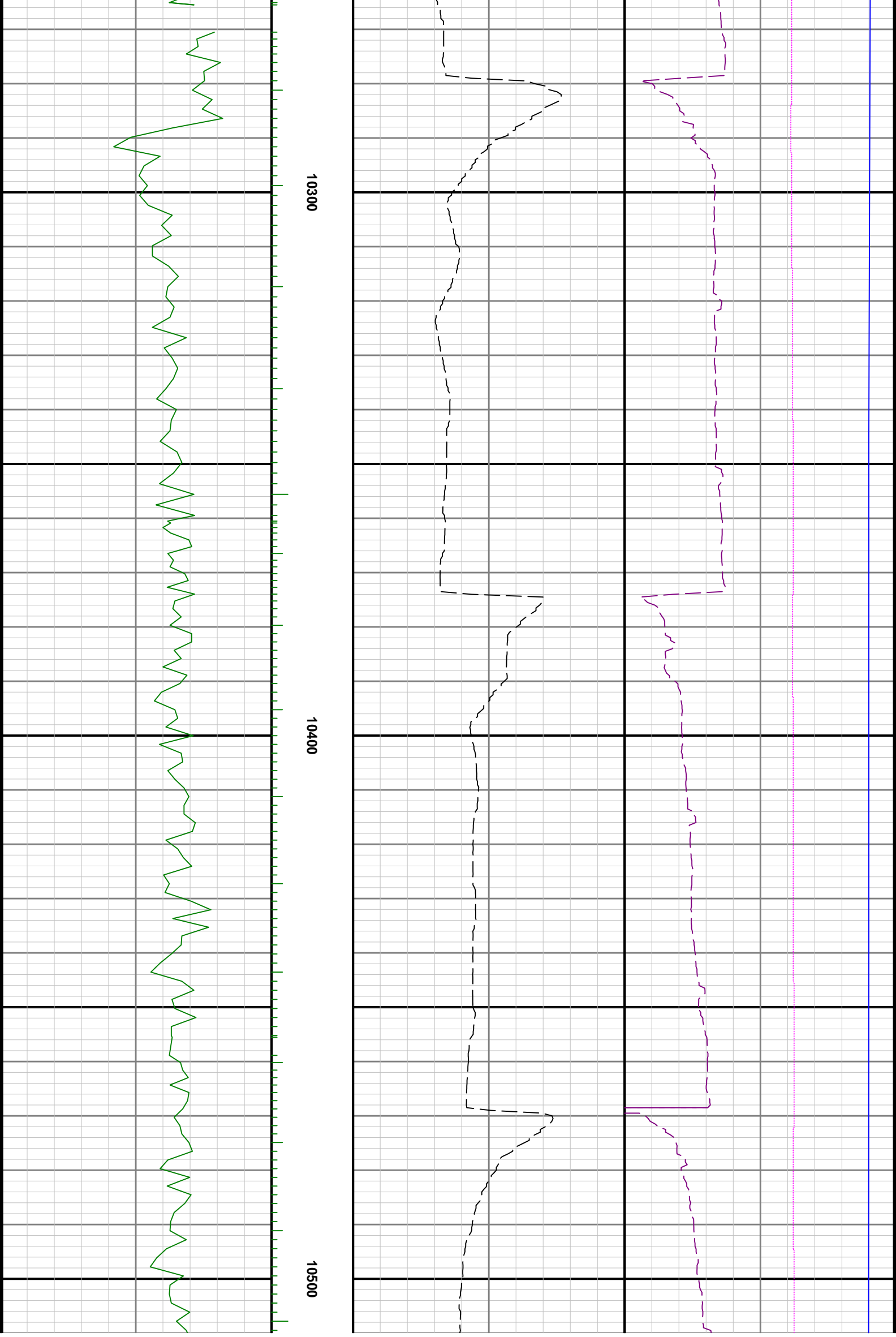
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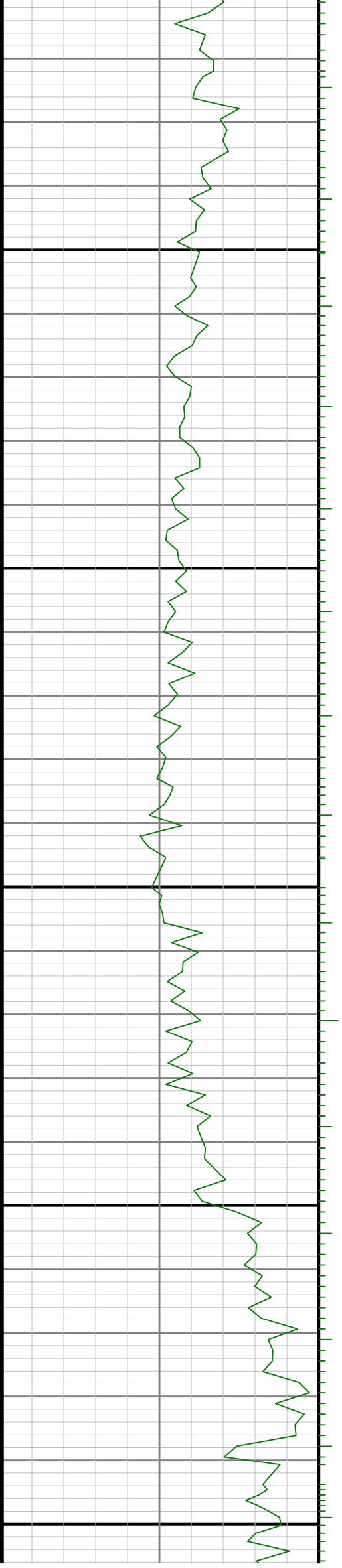
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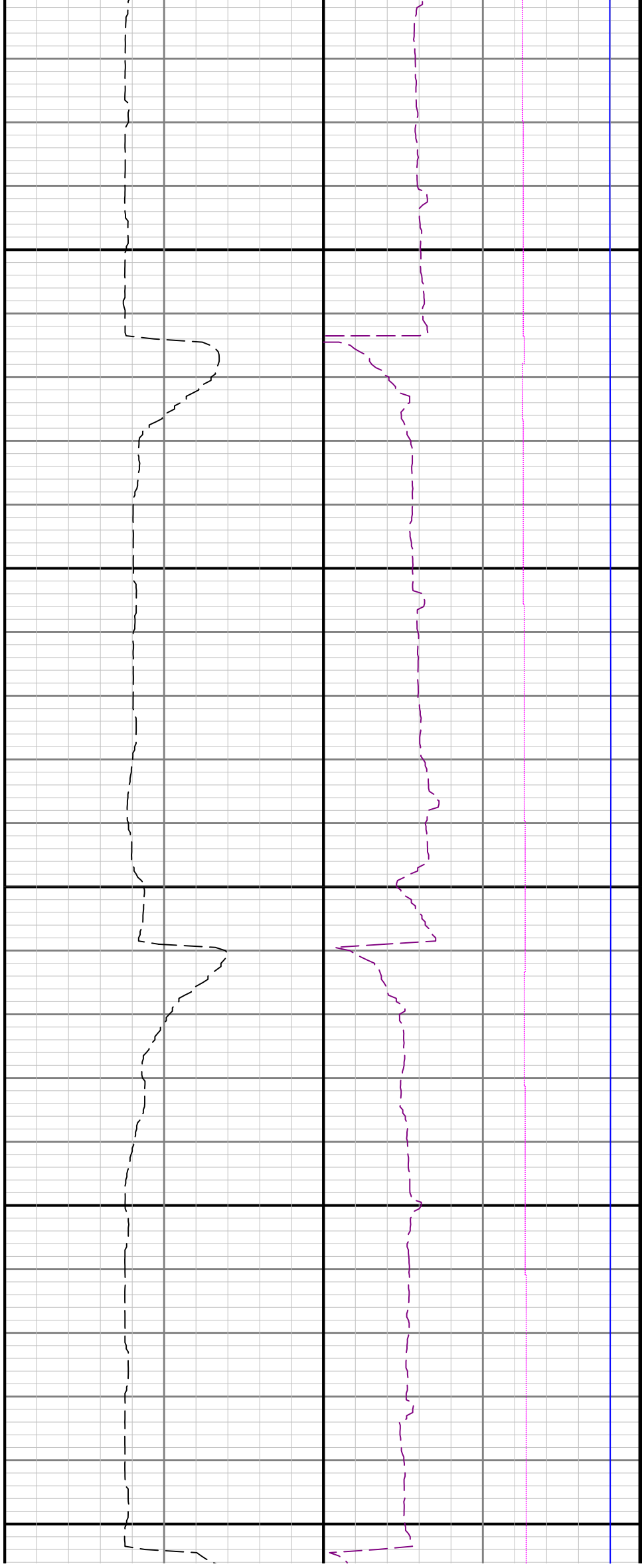


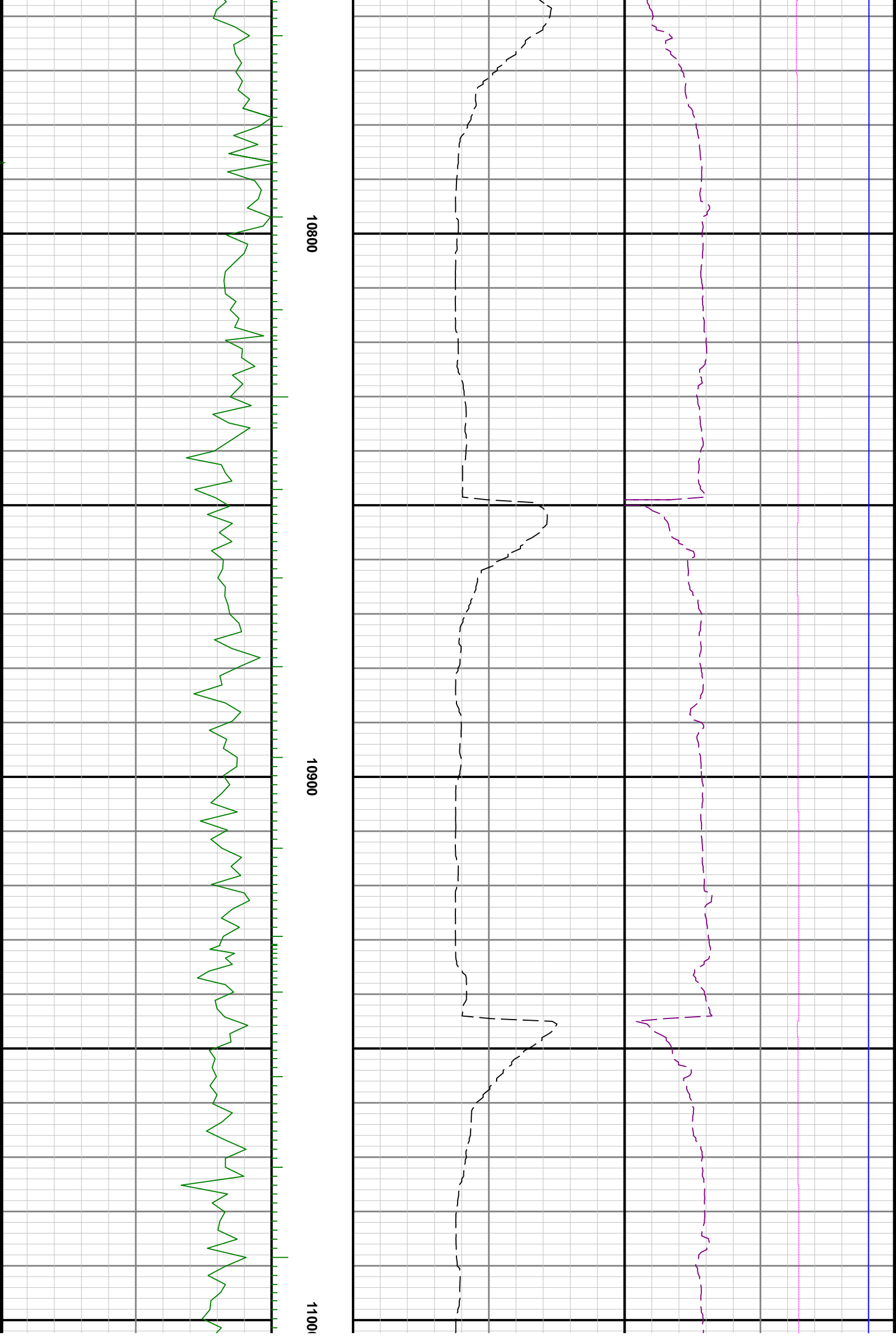


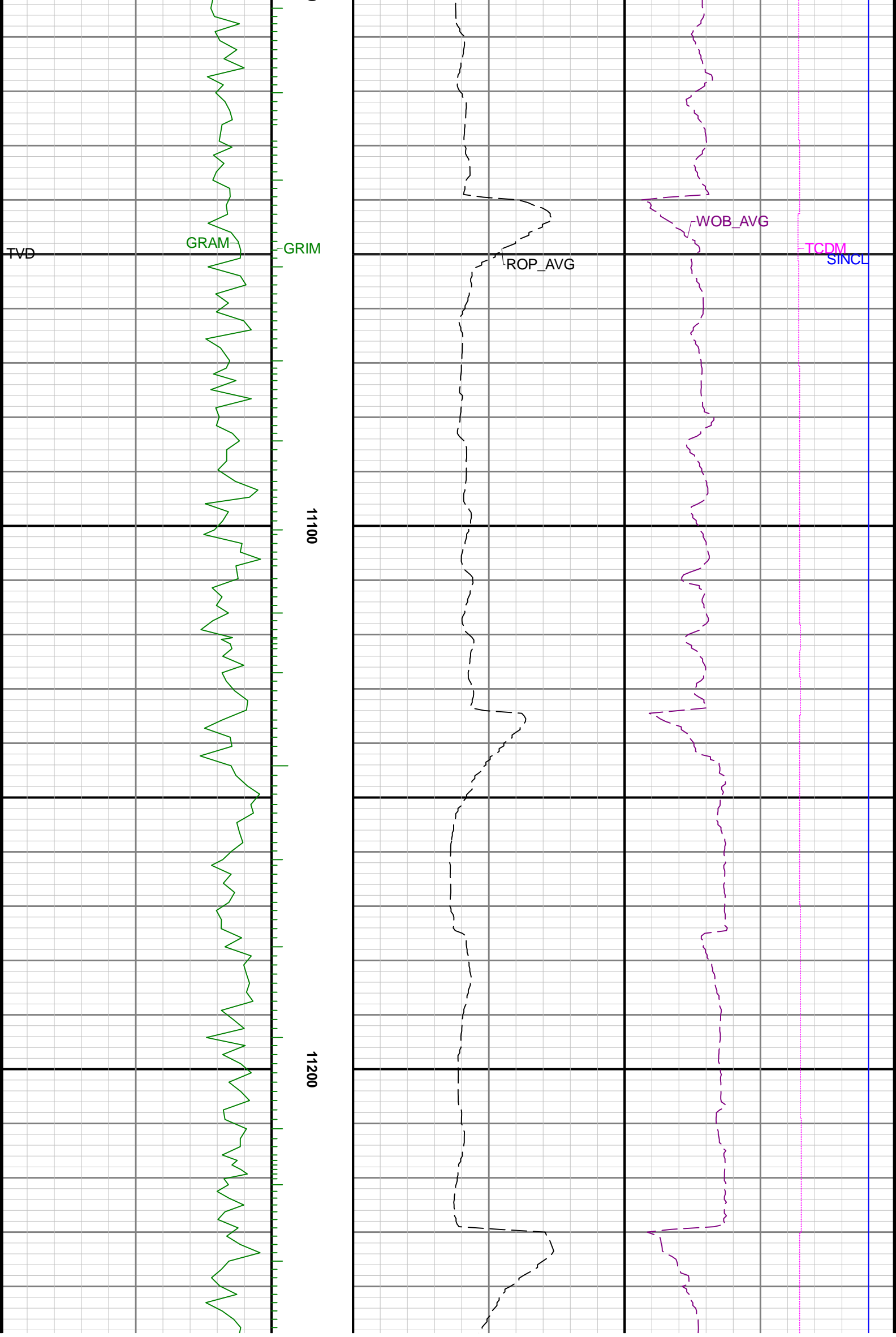


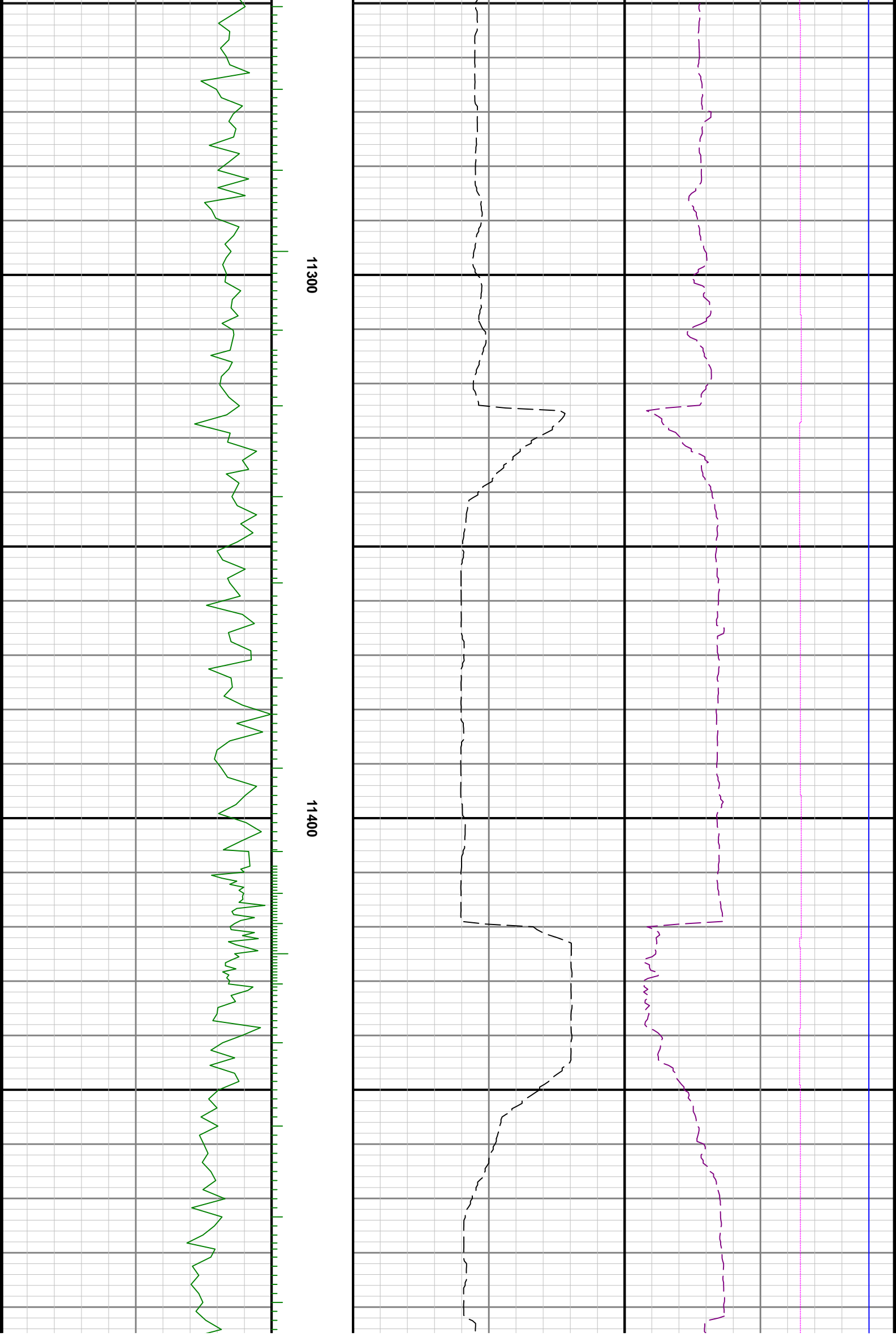
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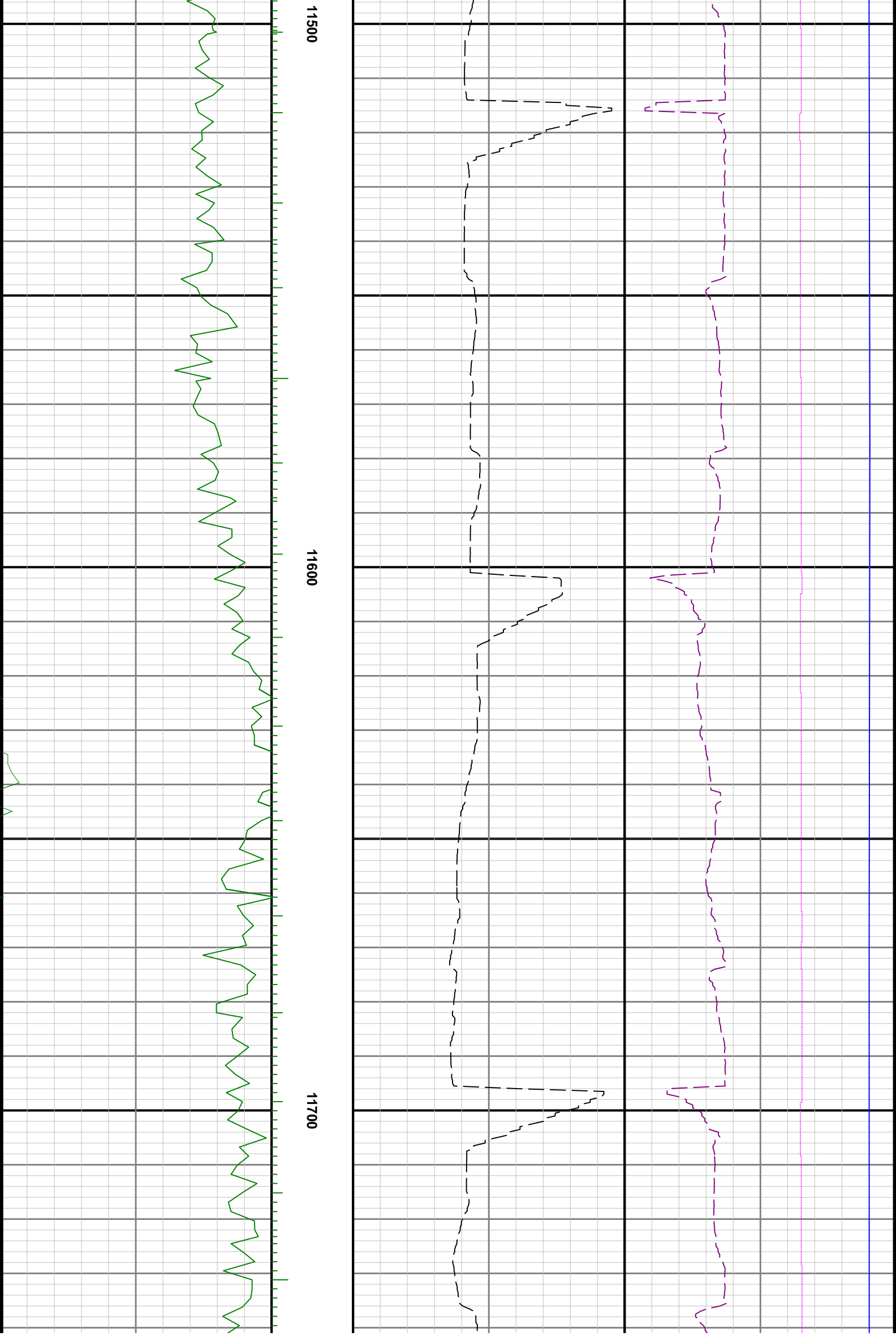
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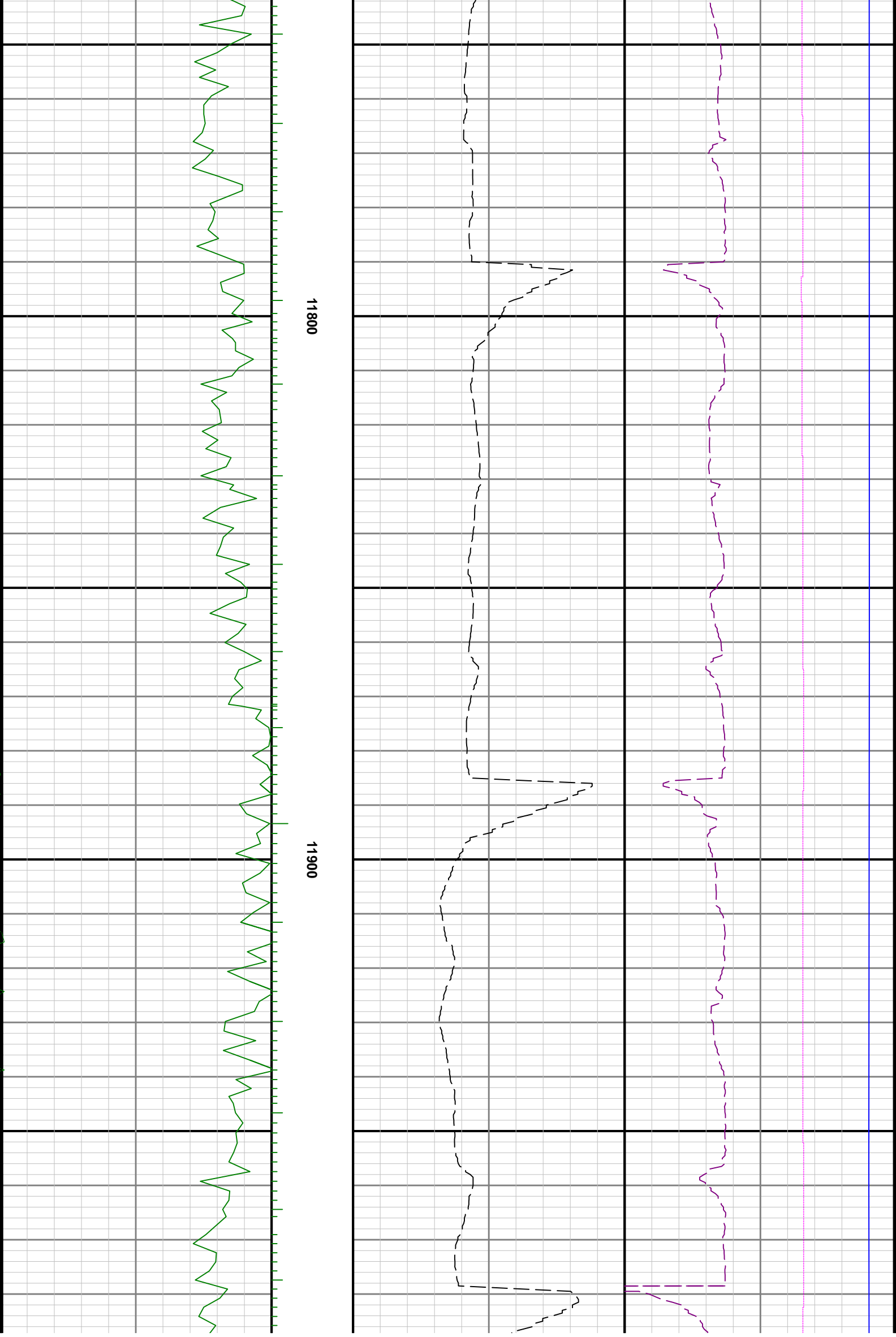


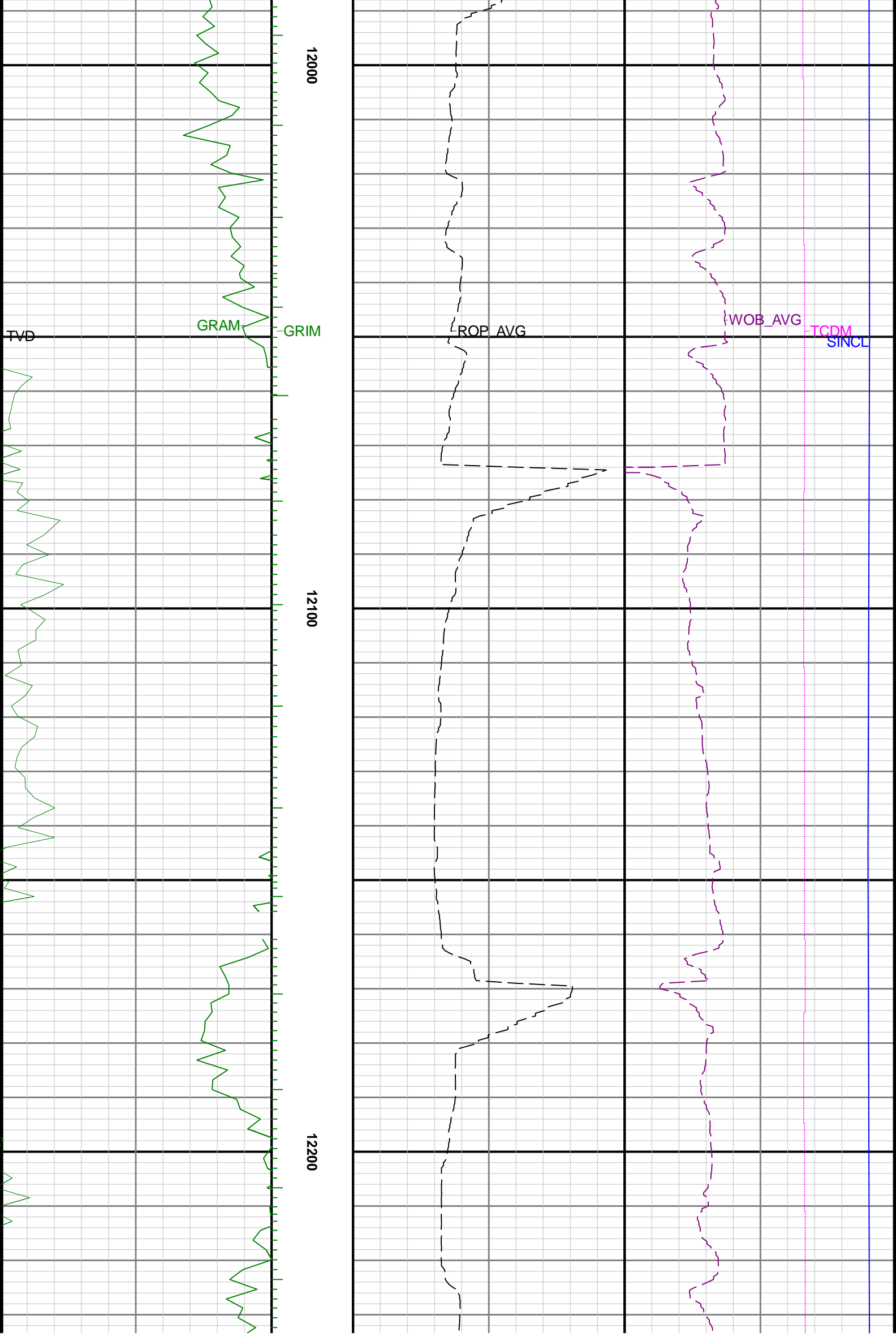


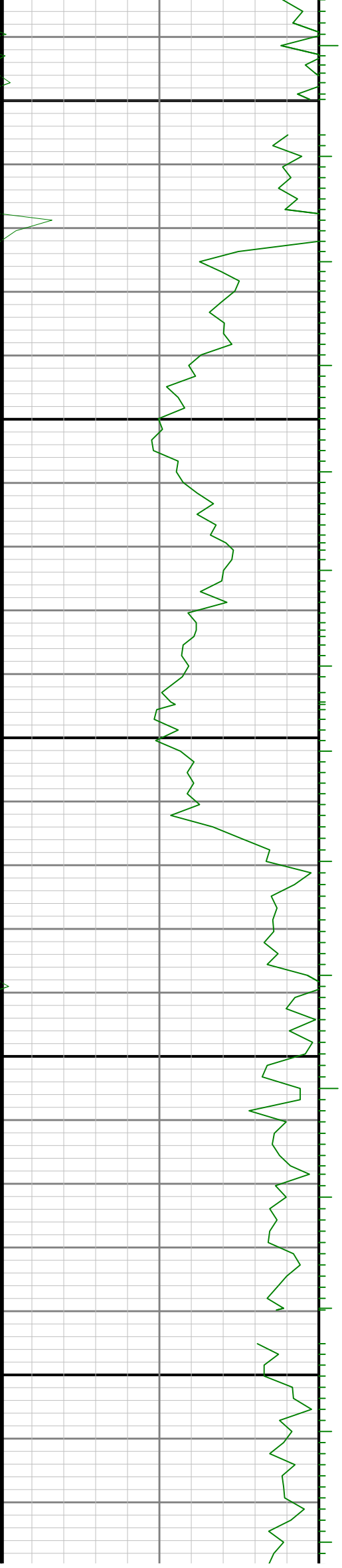






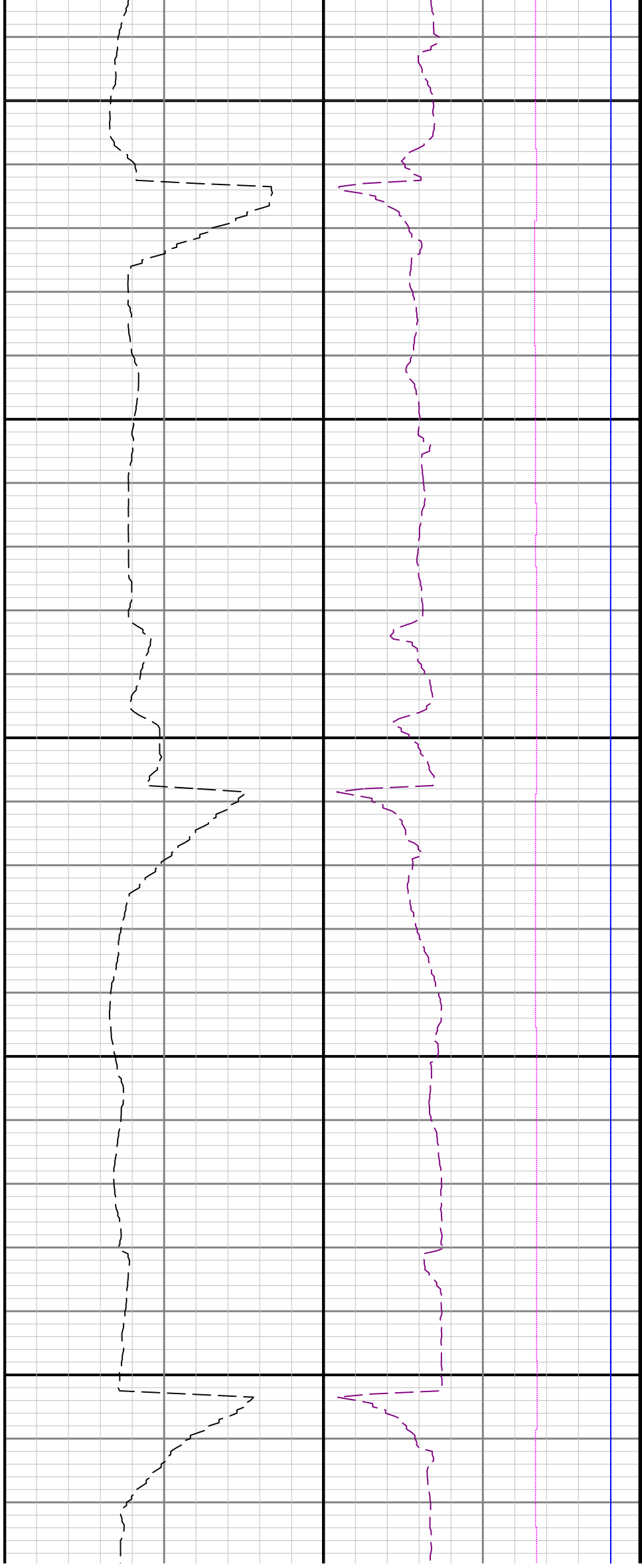


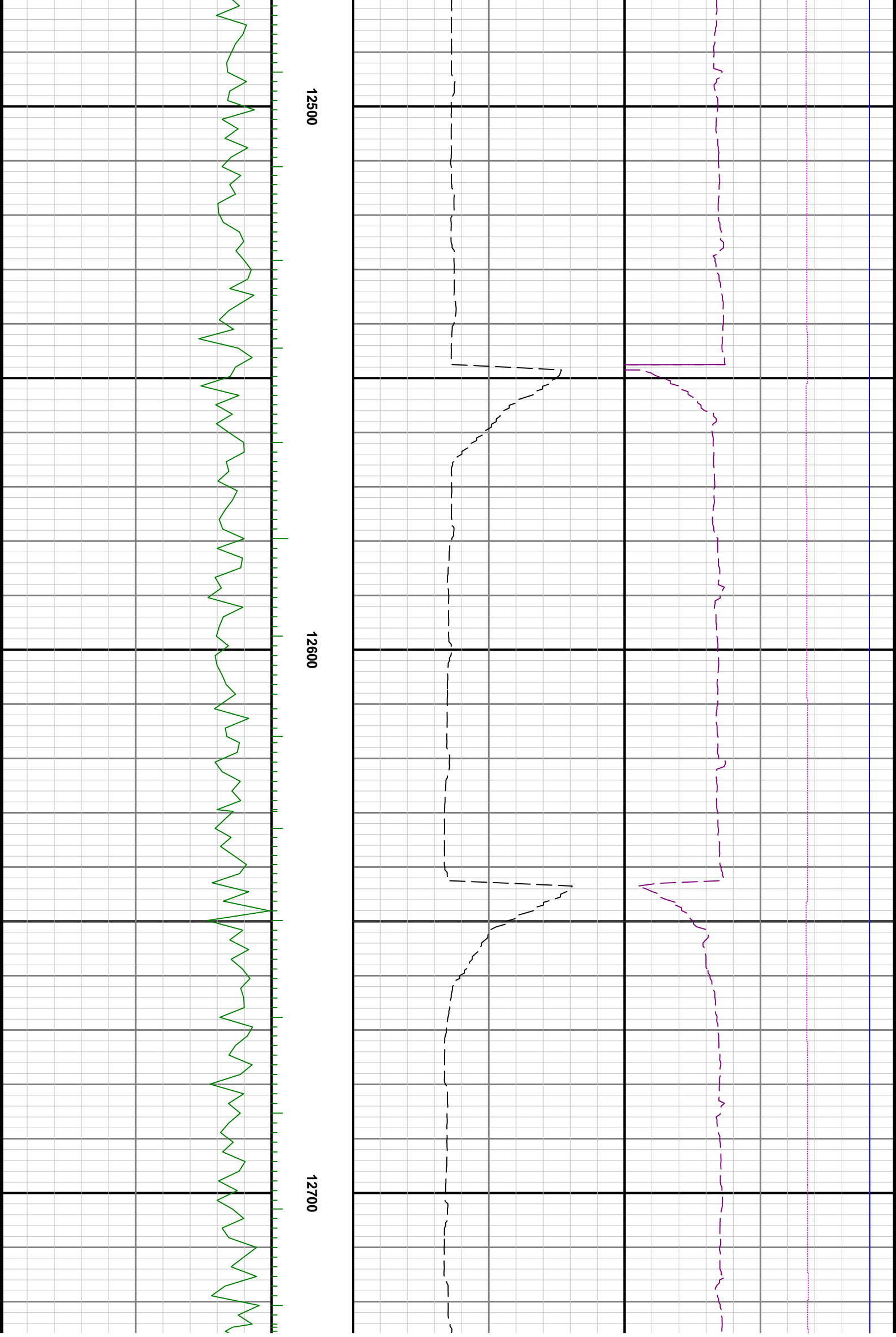


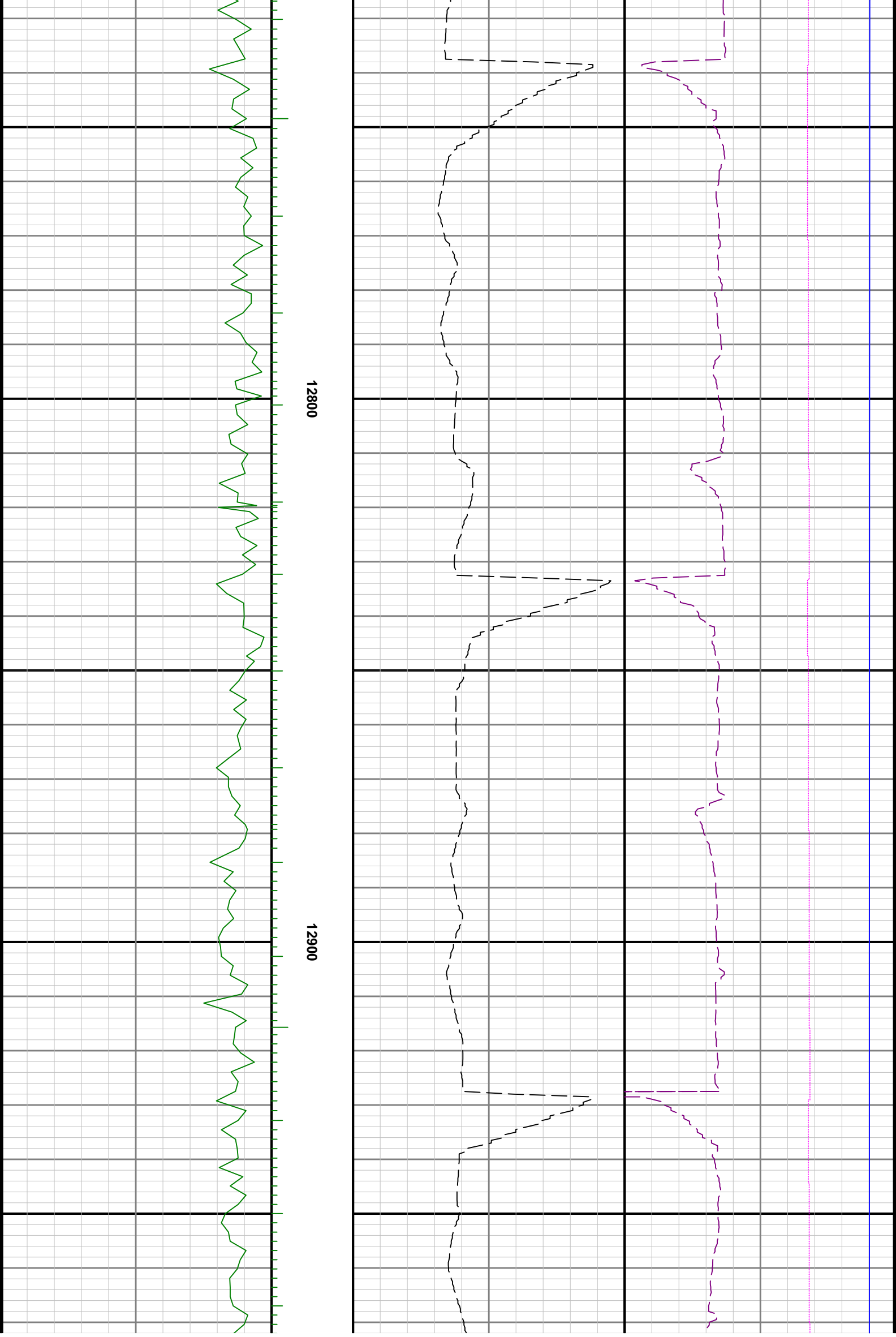


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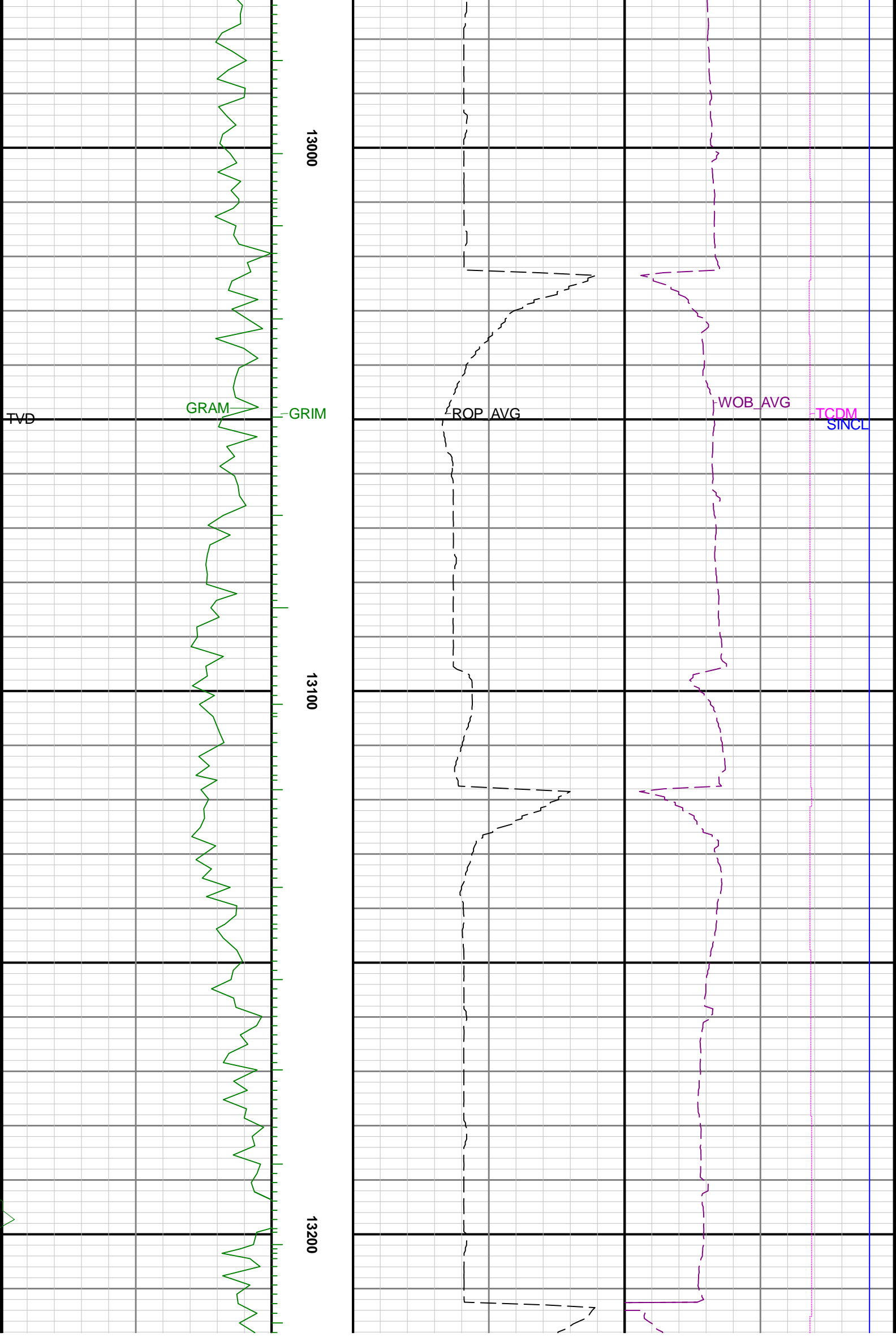


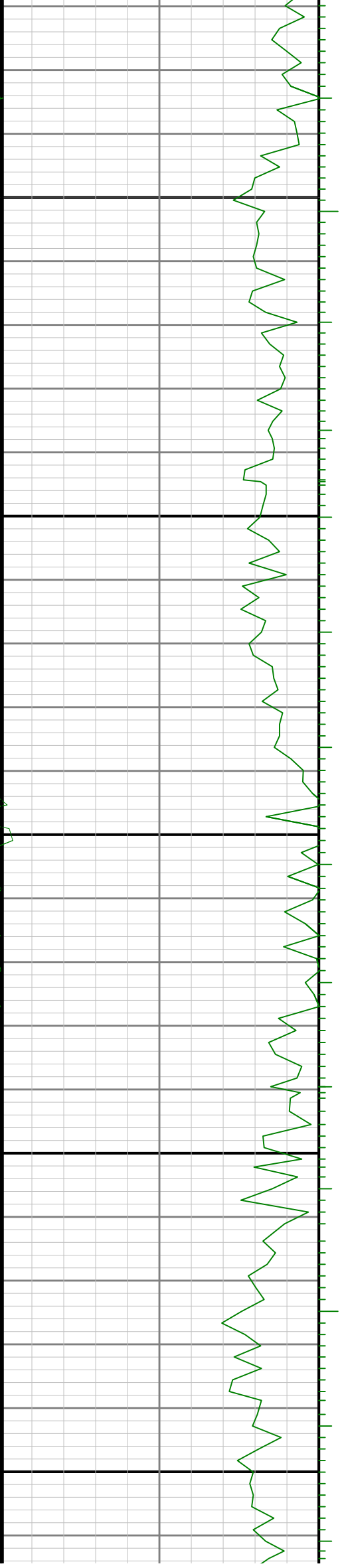




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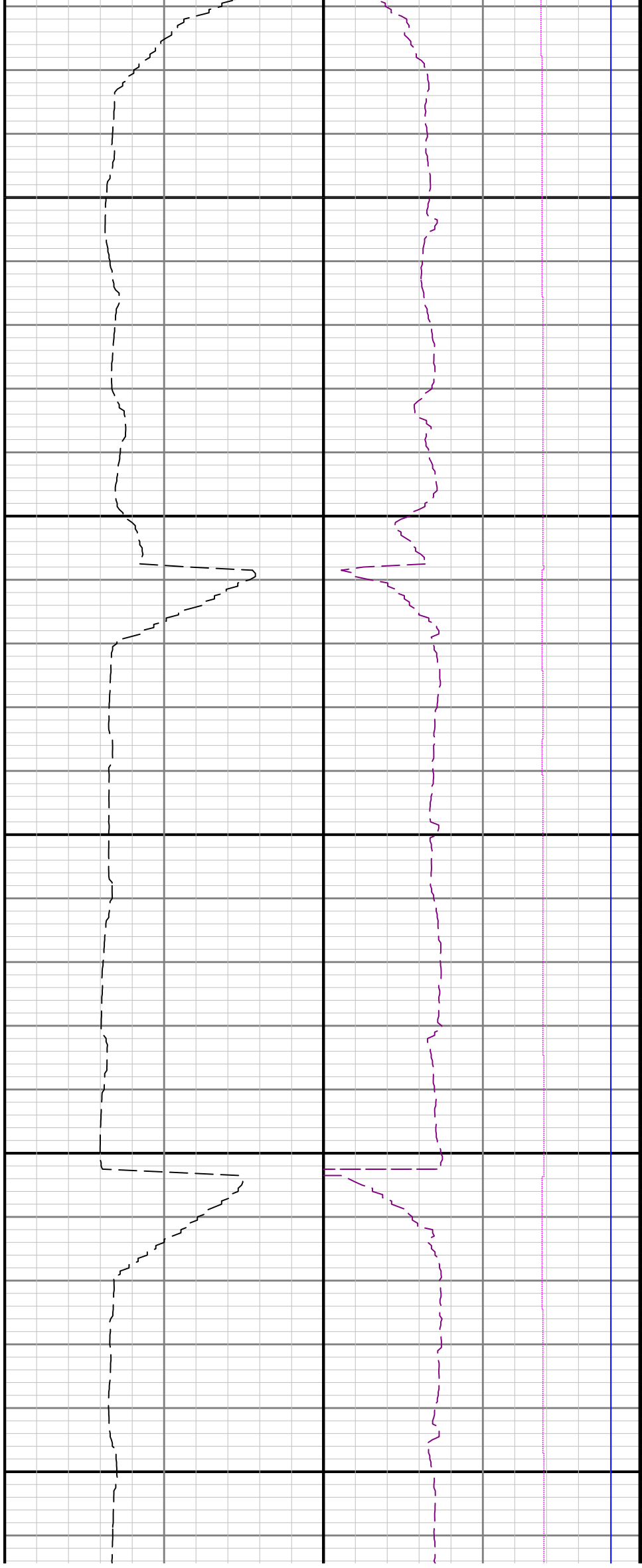
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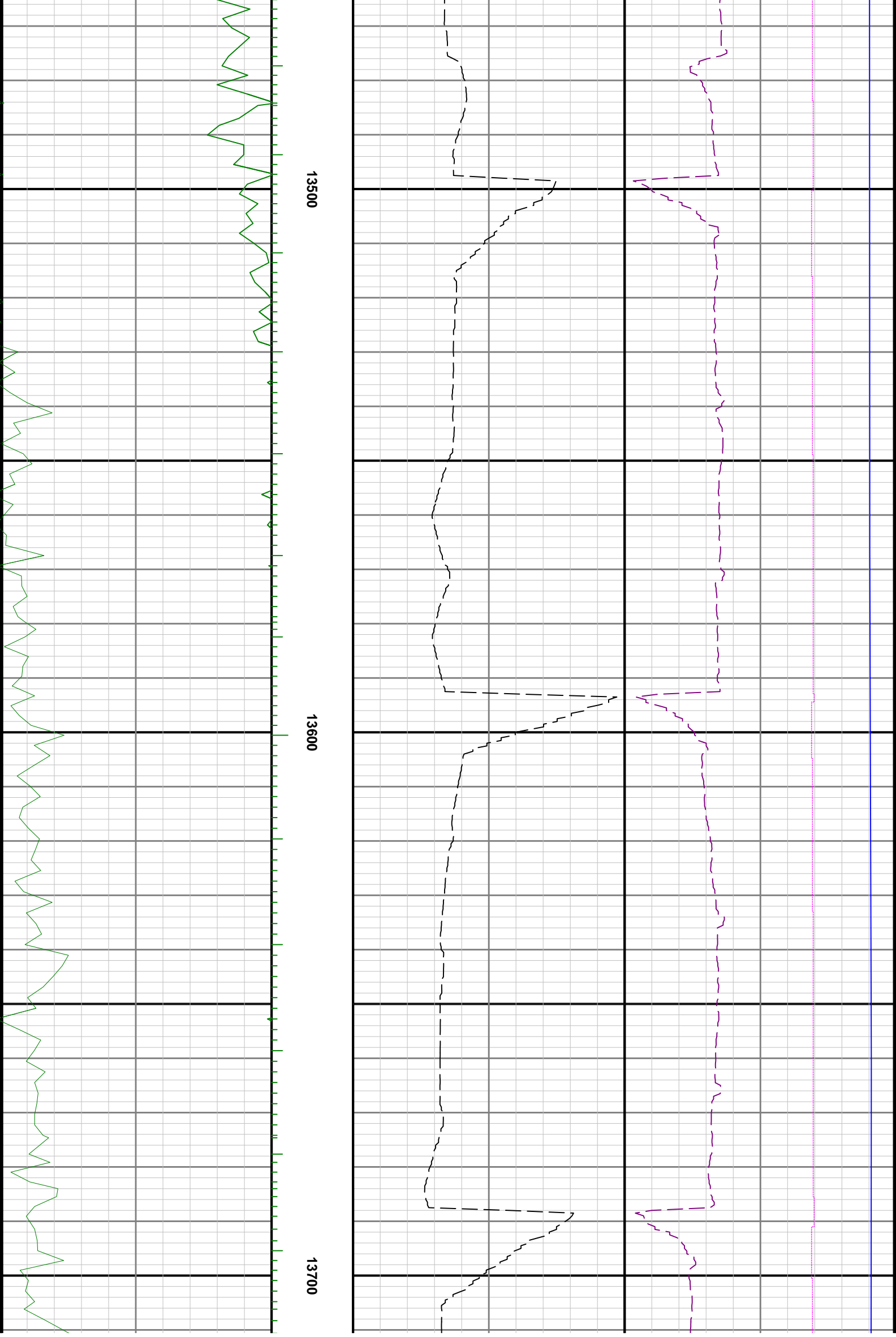


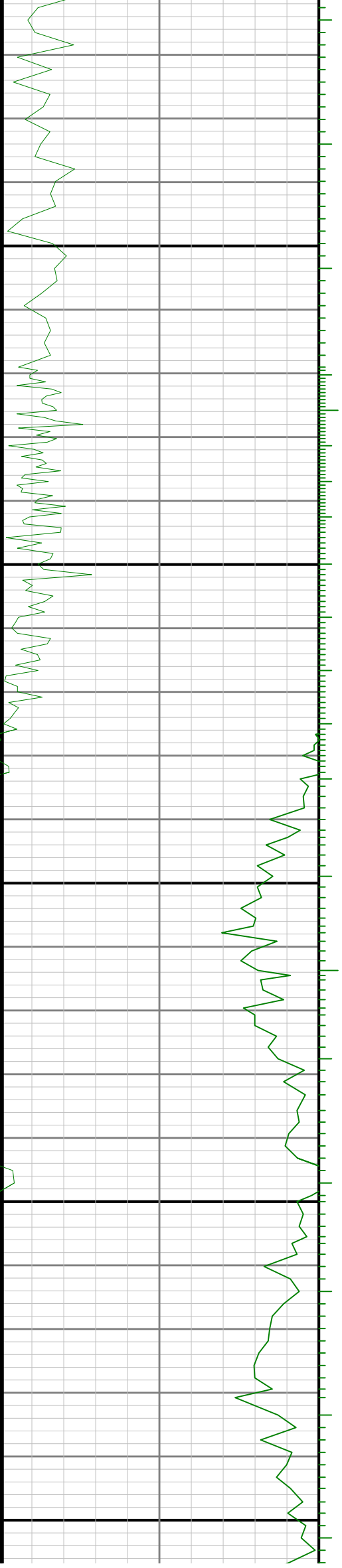


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13400

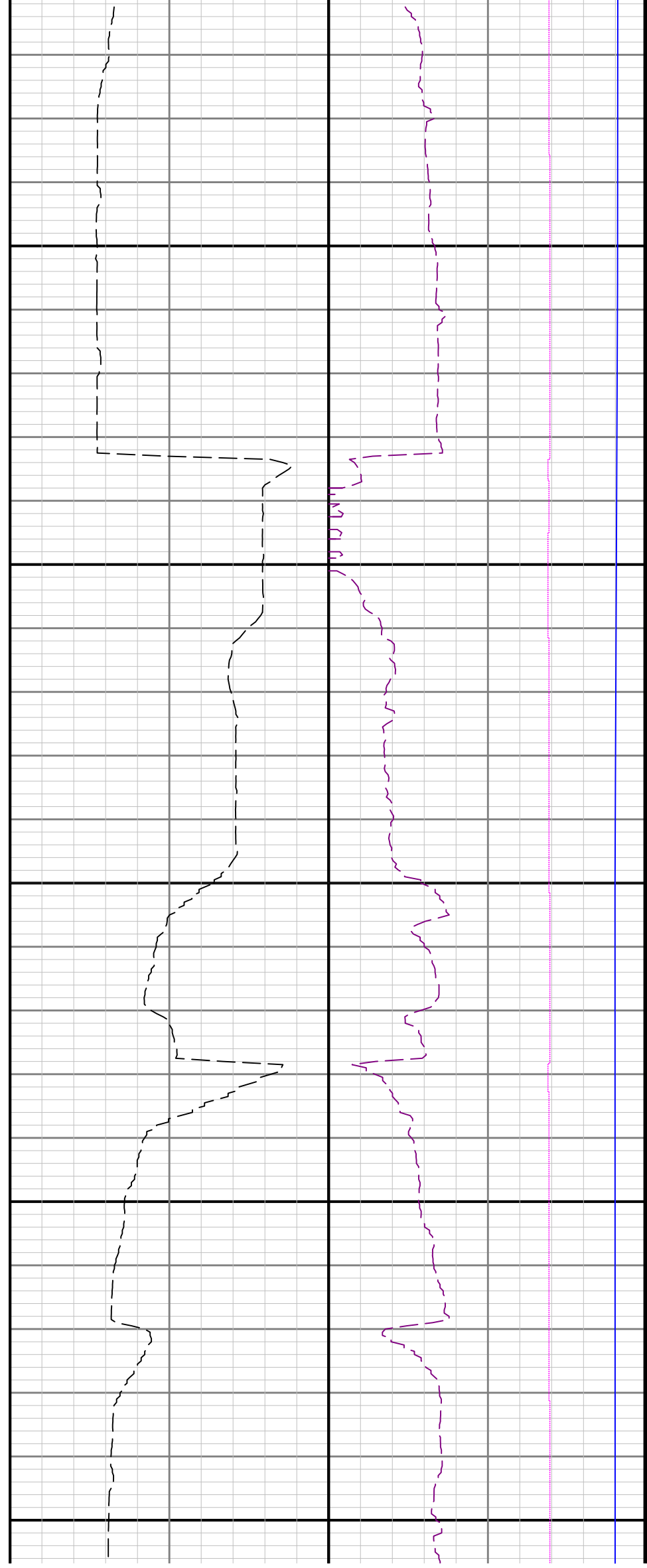


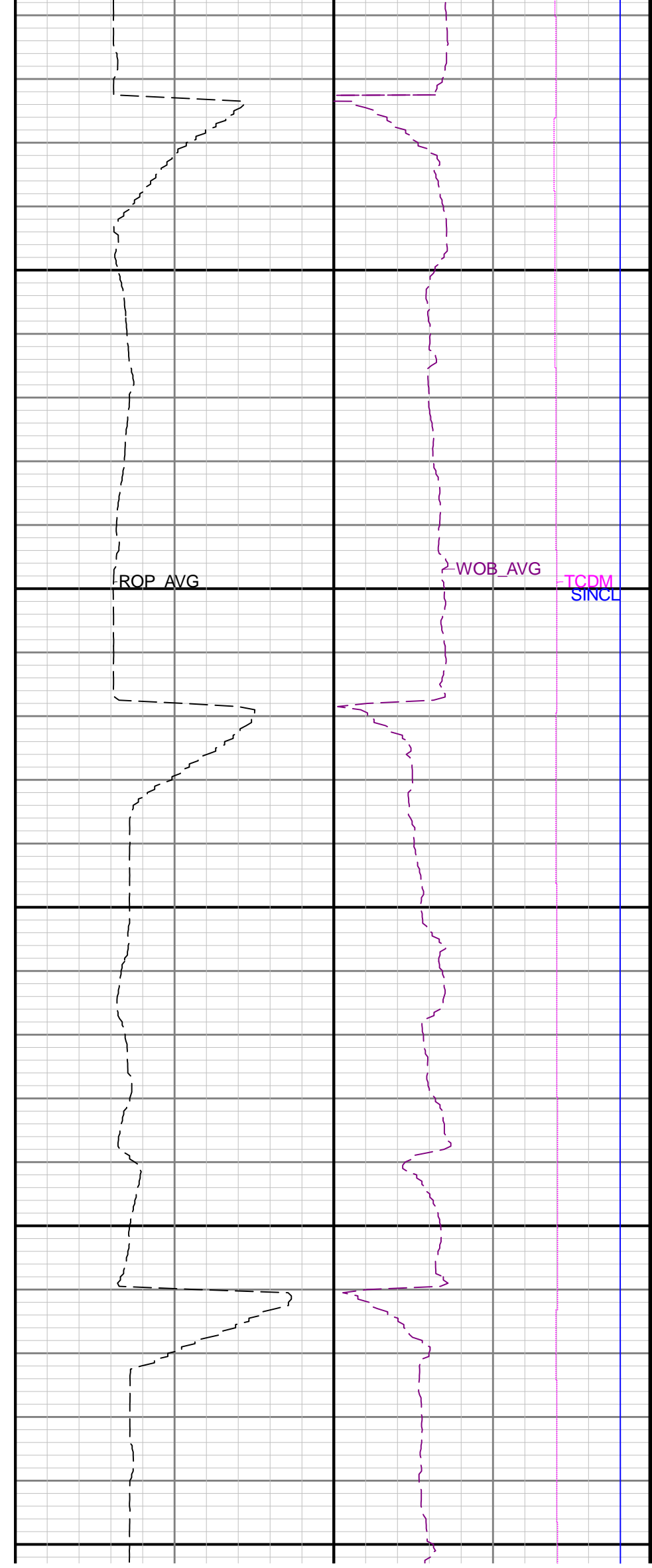
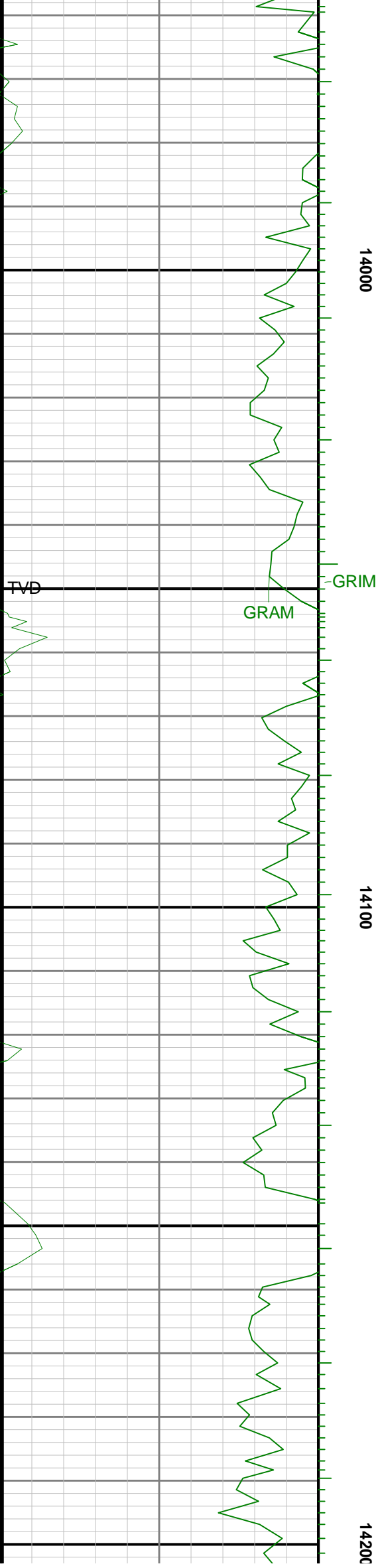


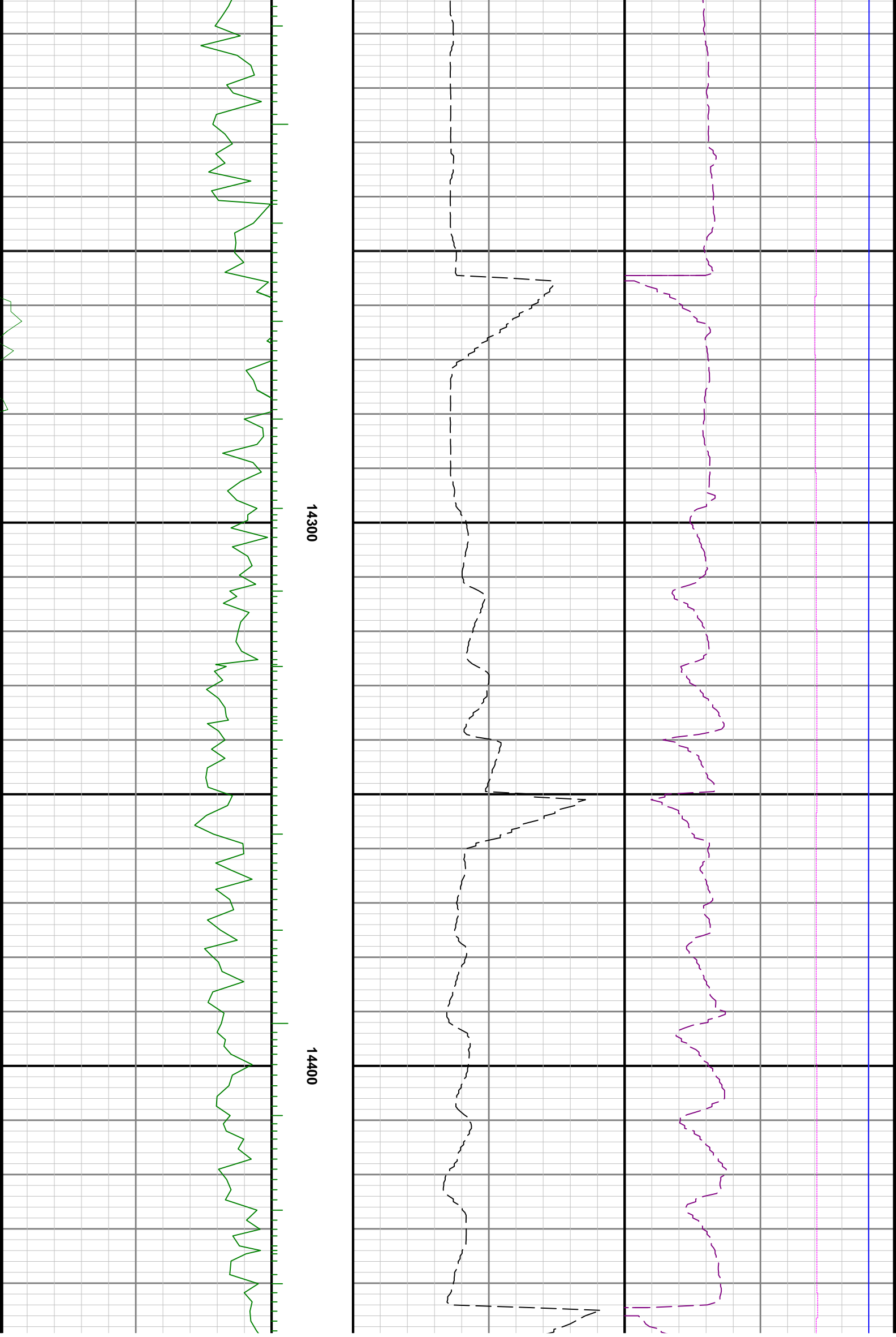


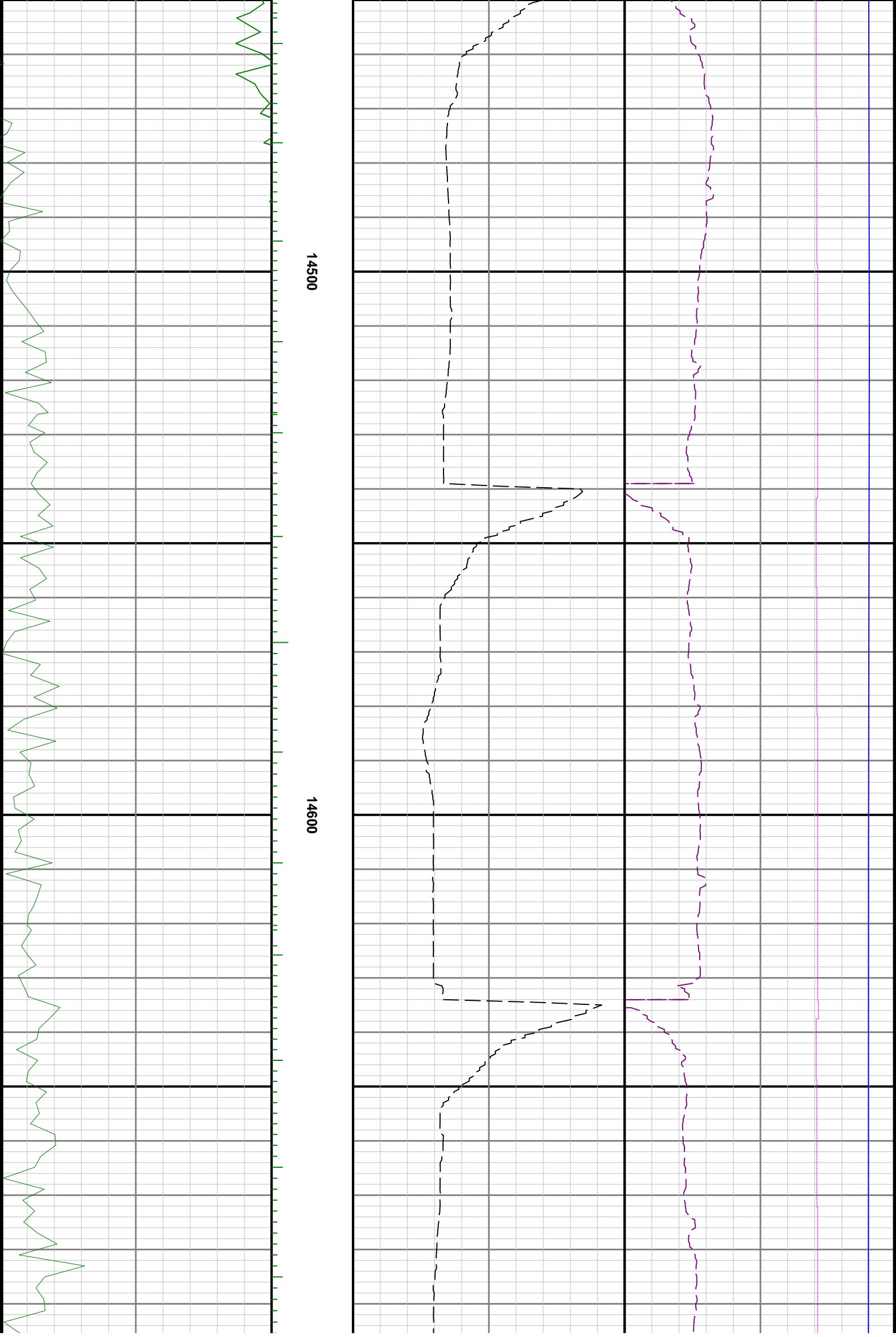
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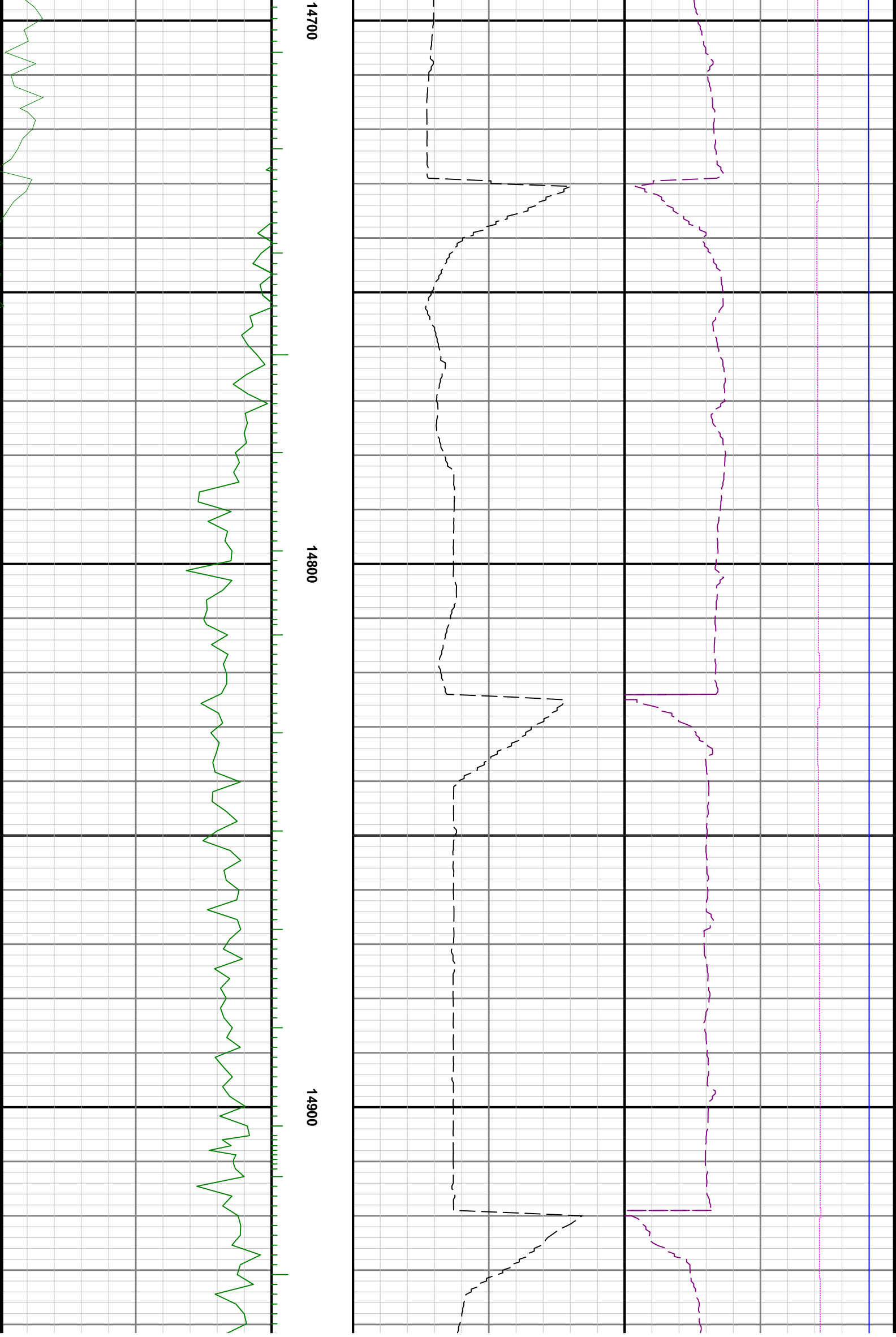
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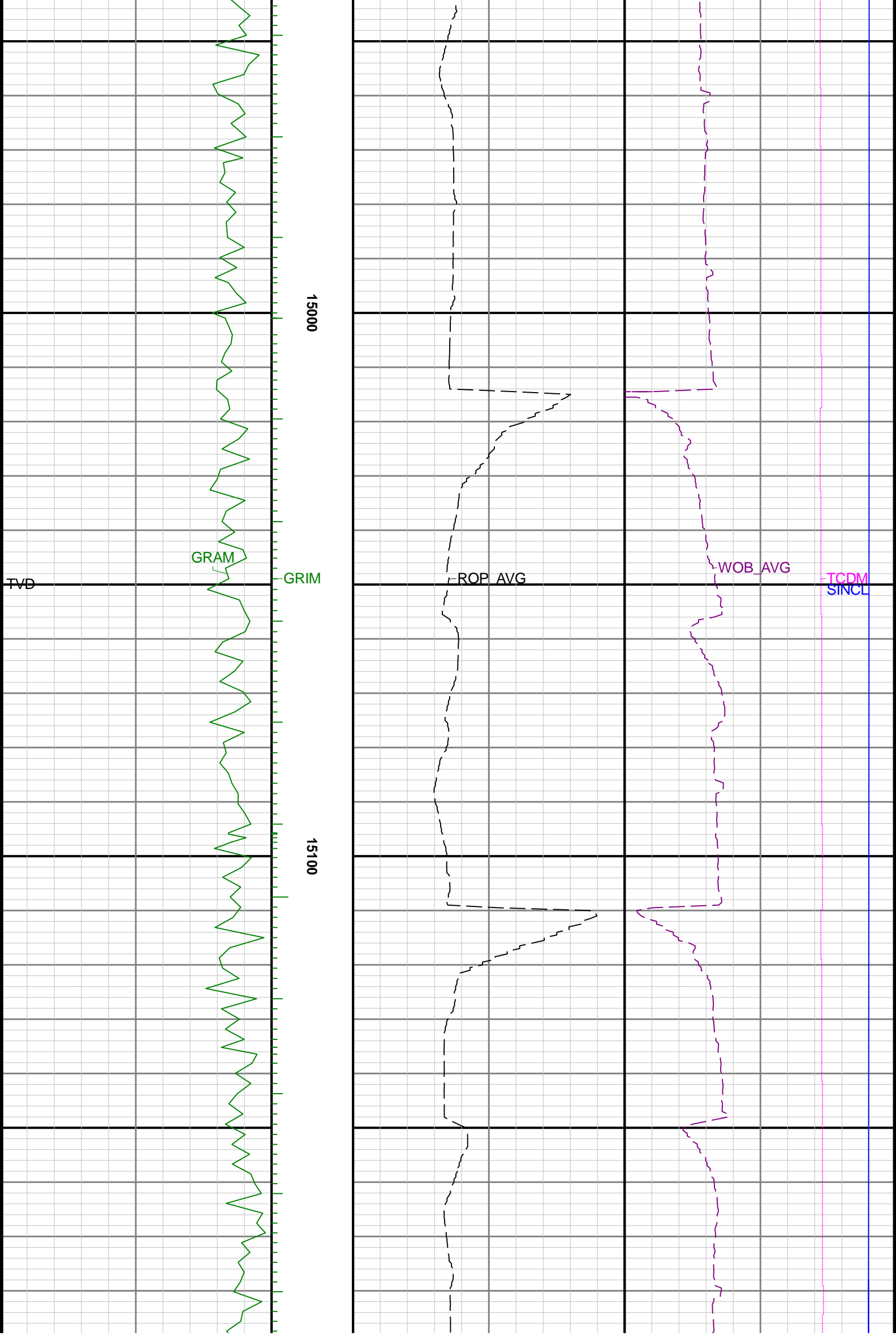


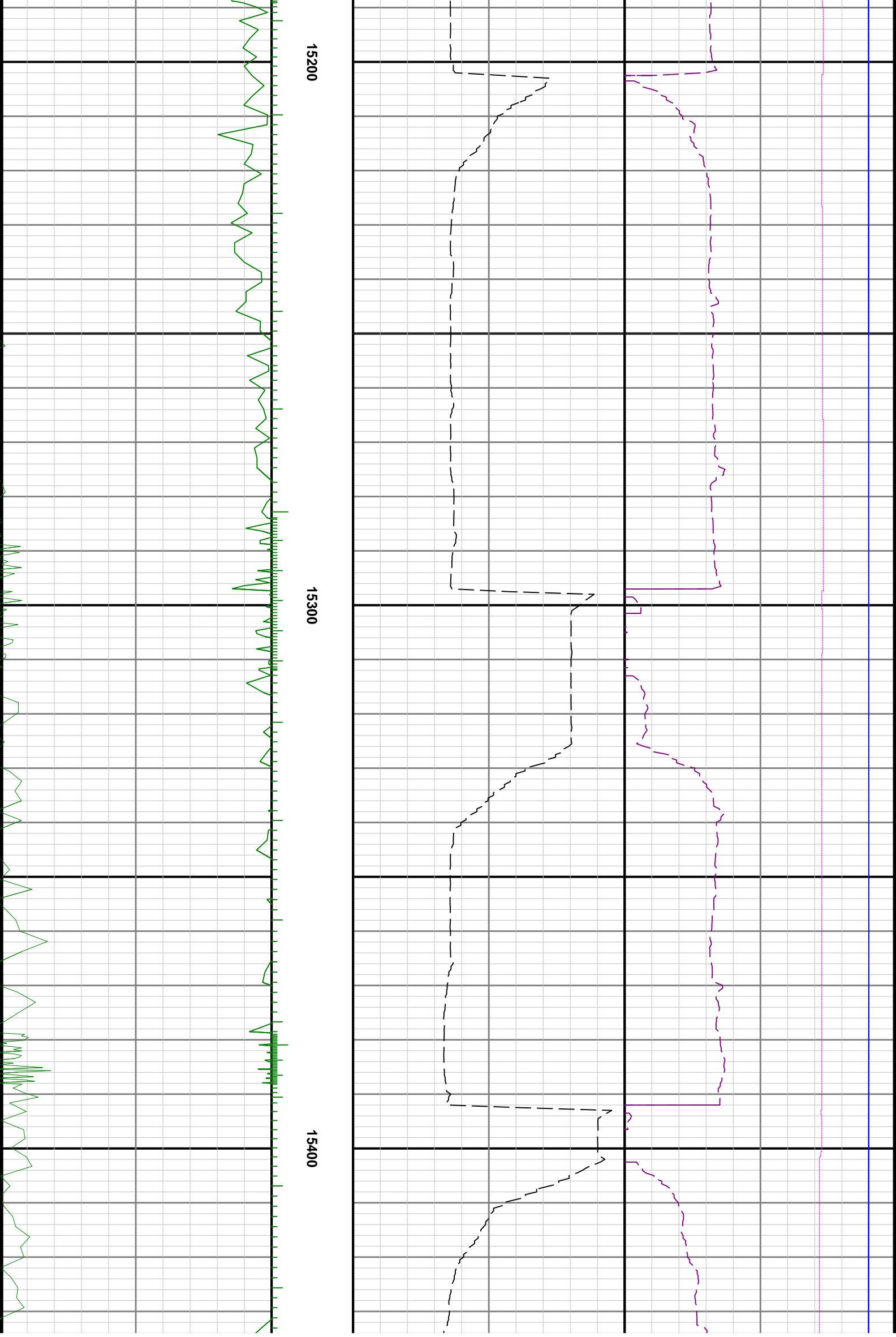


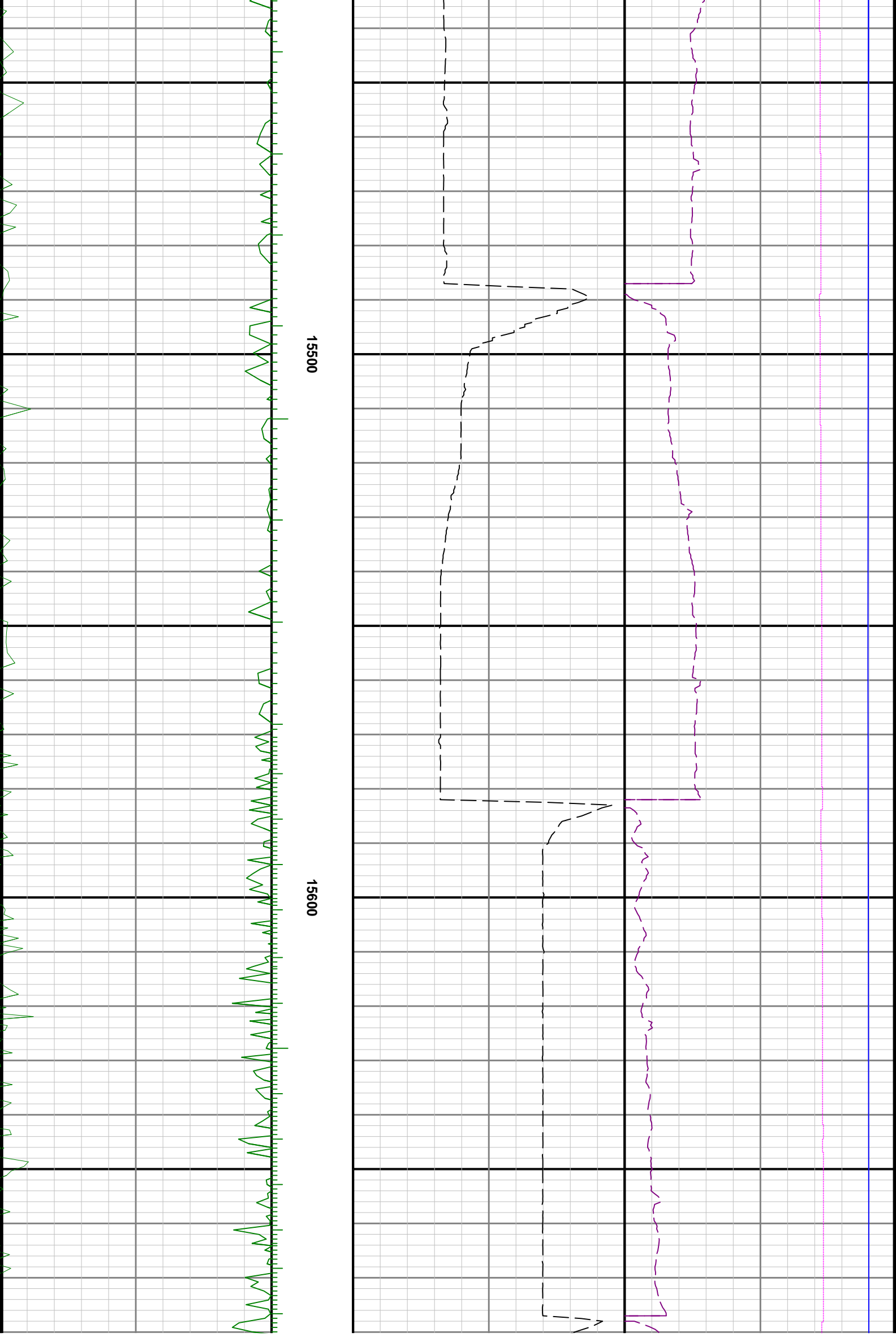






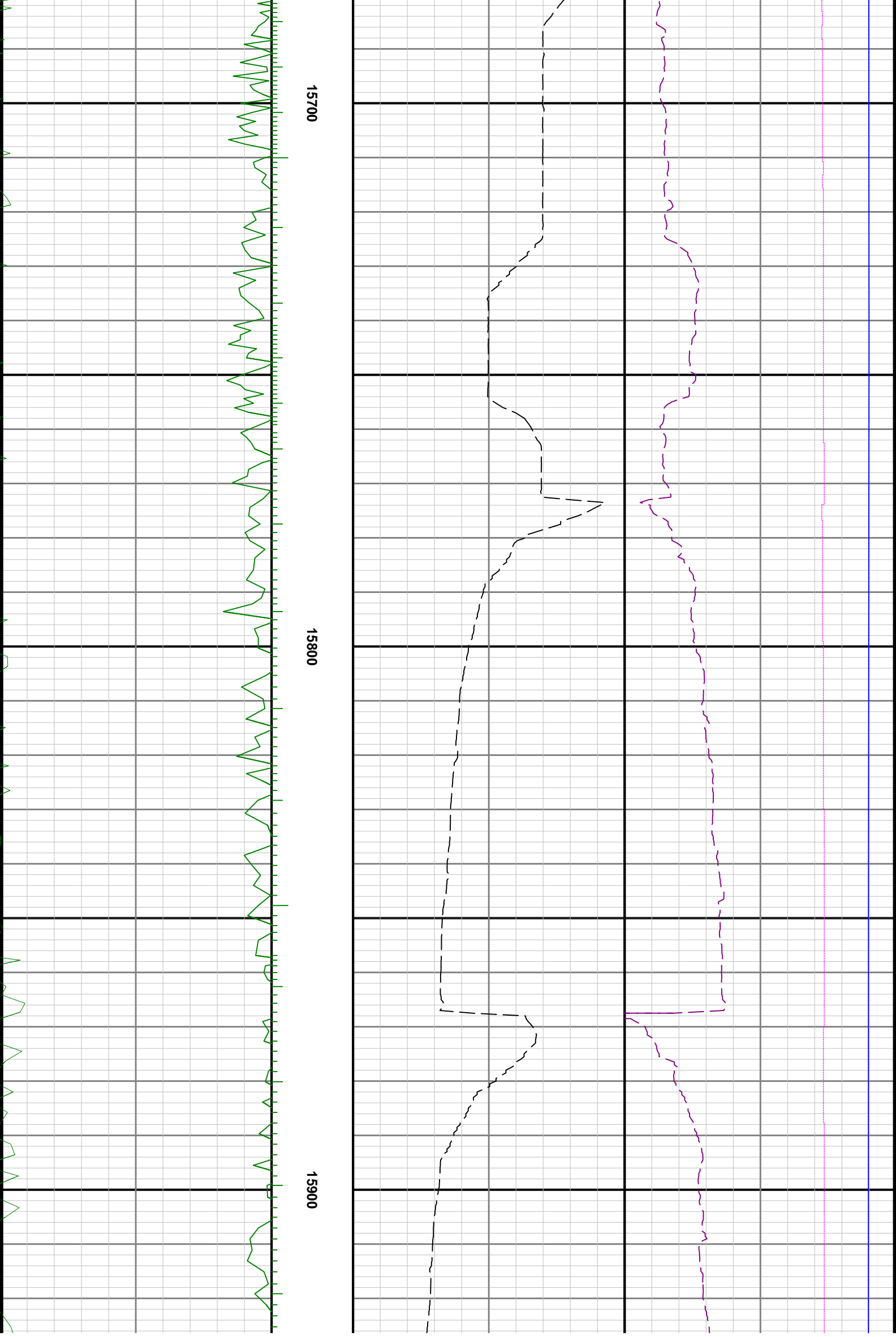


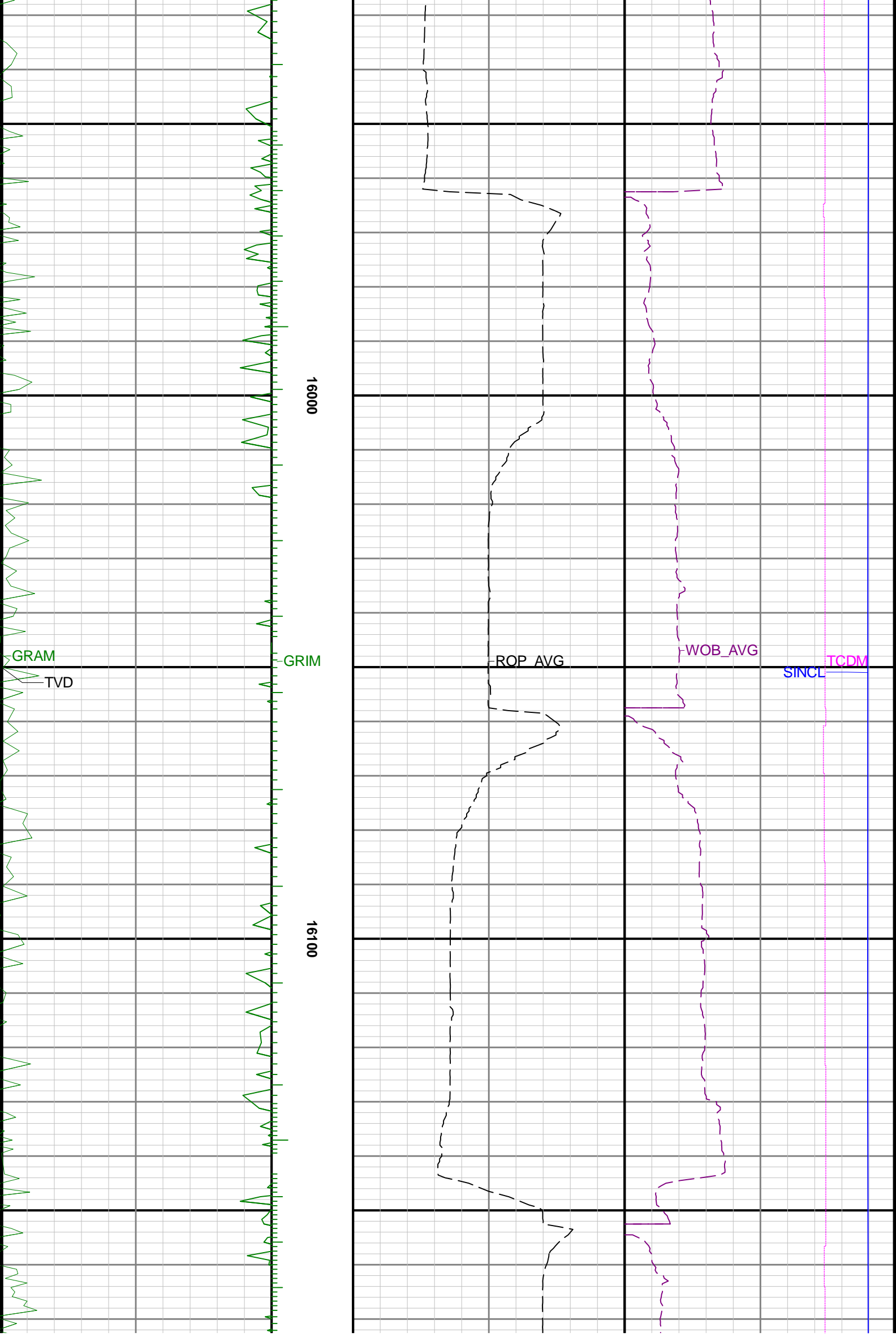


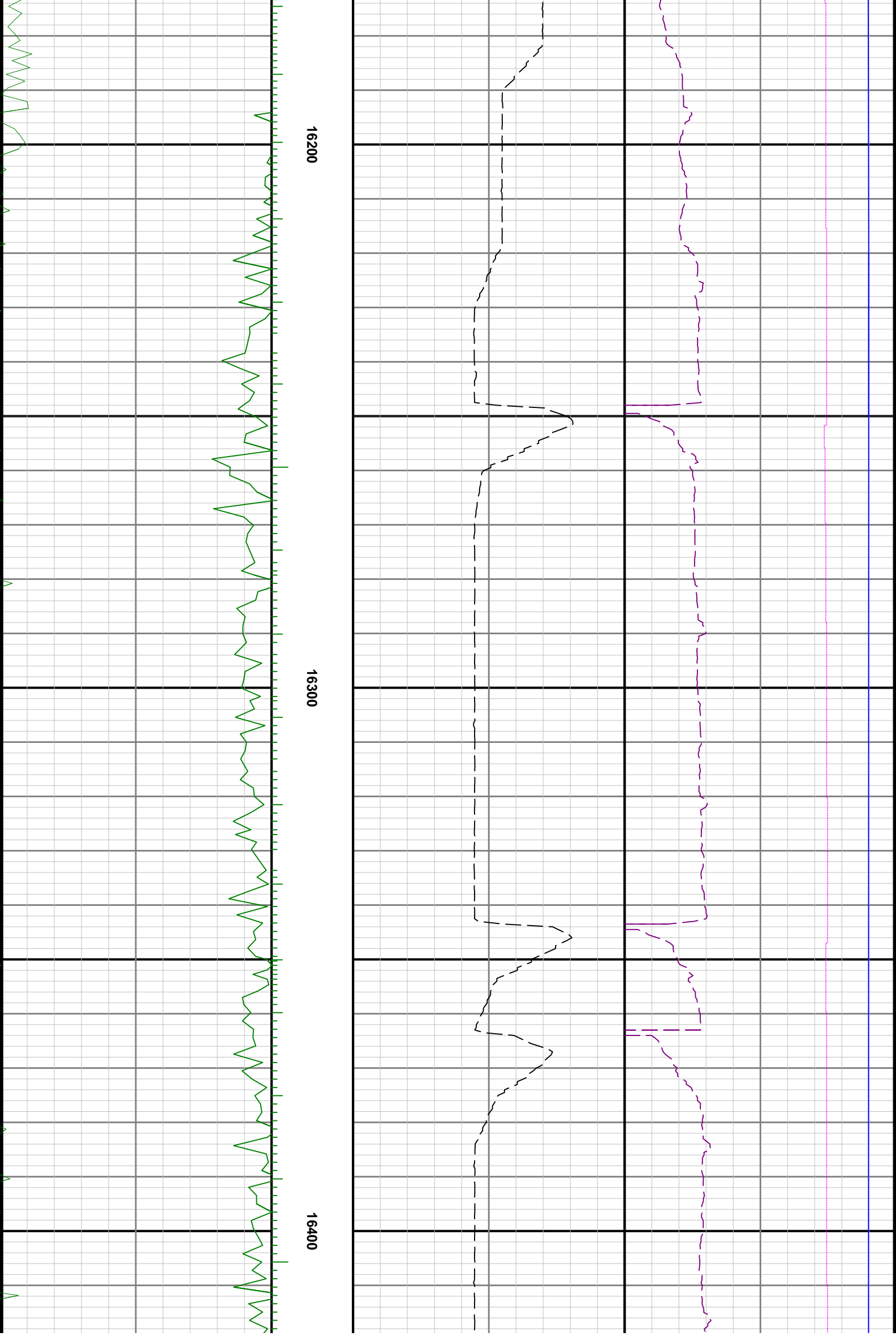


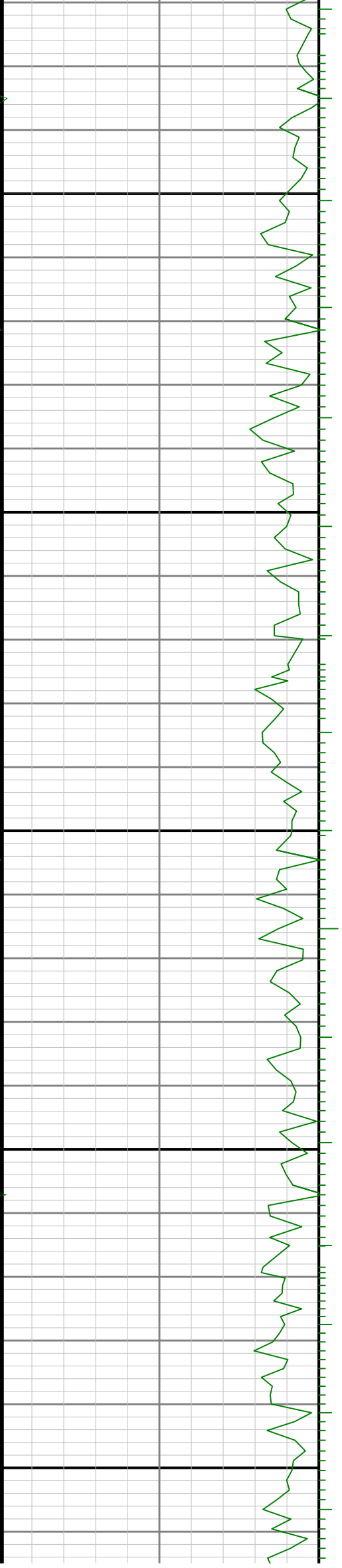
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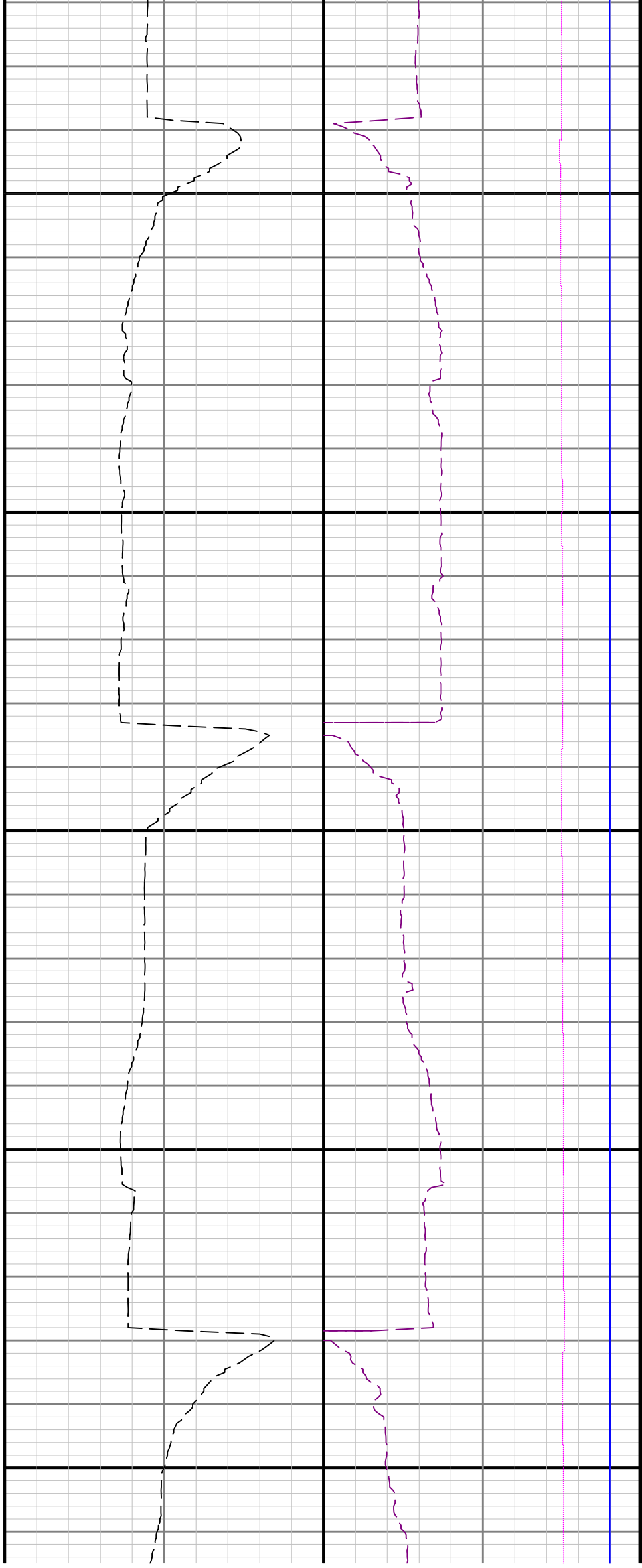


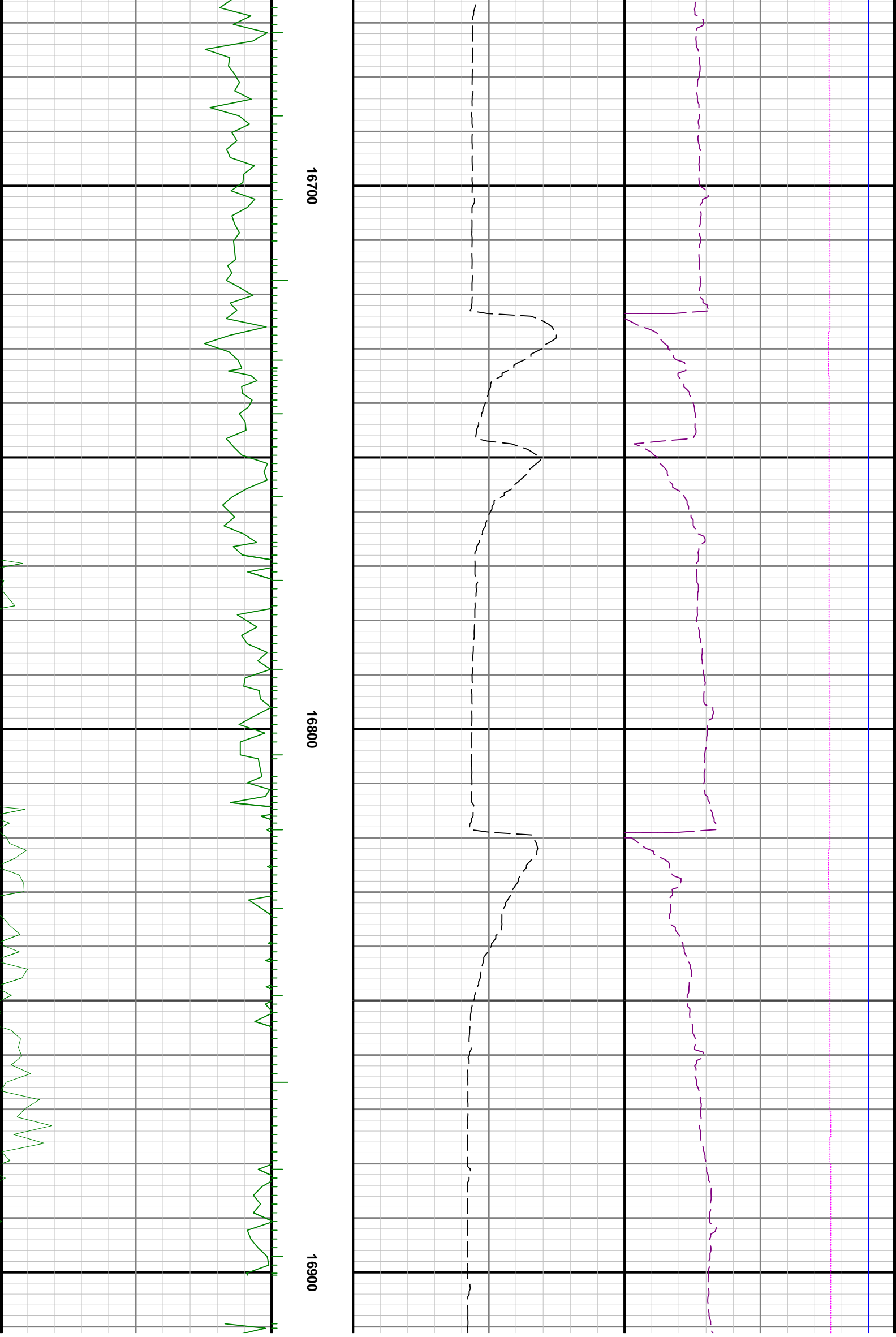


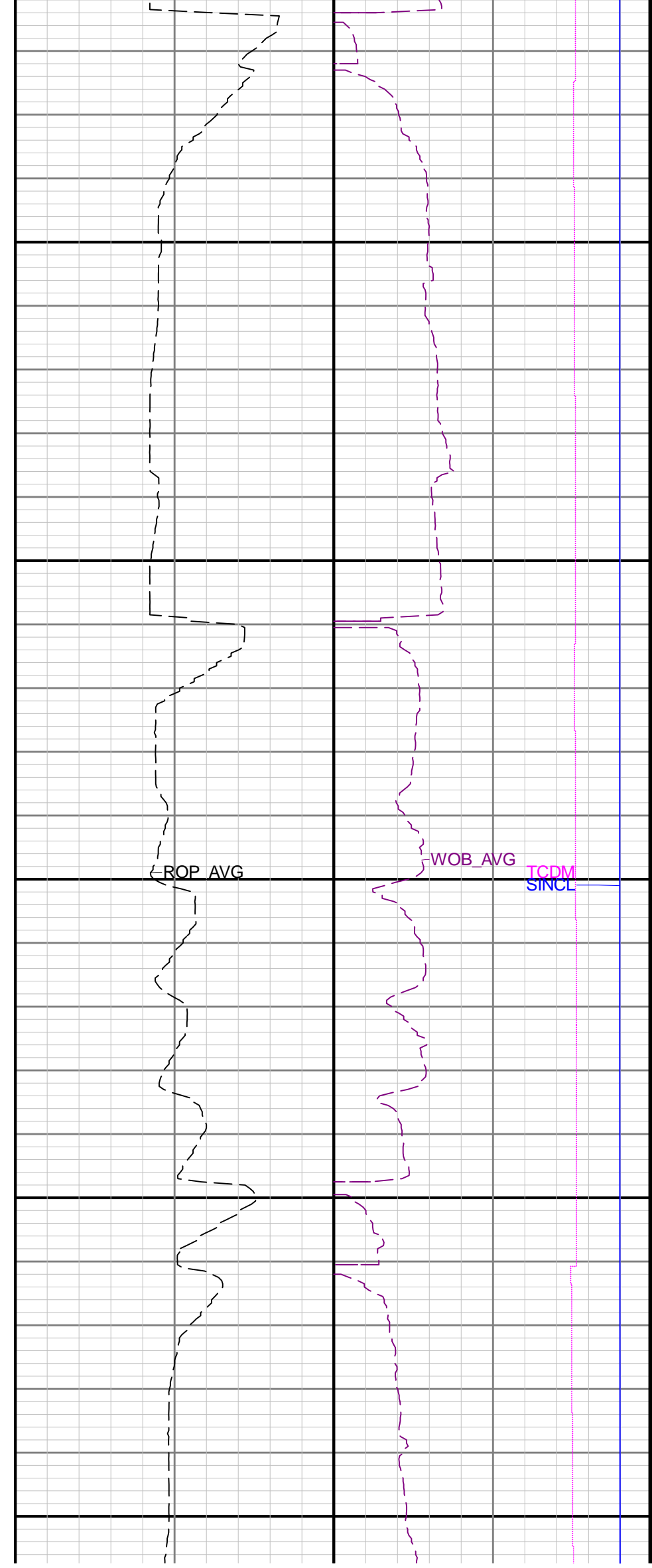
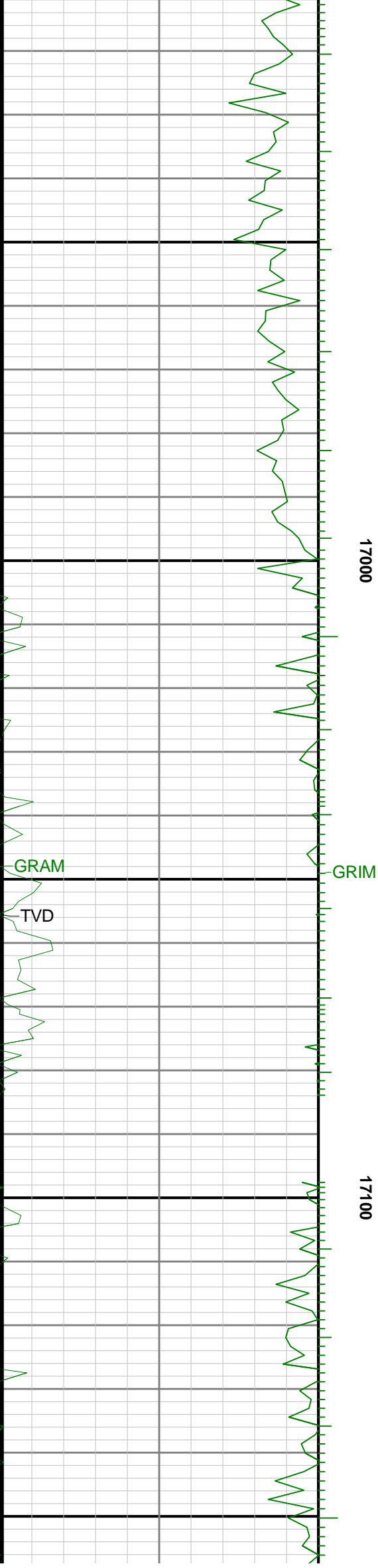


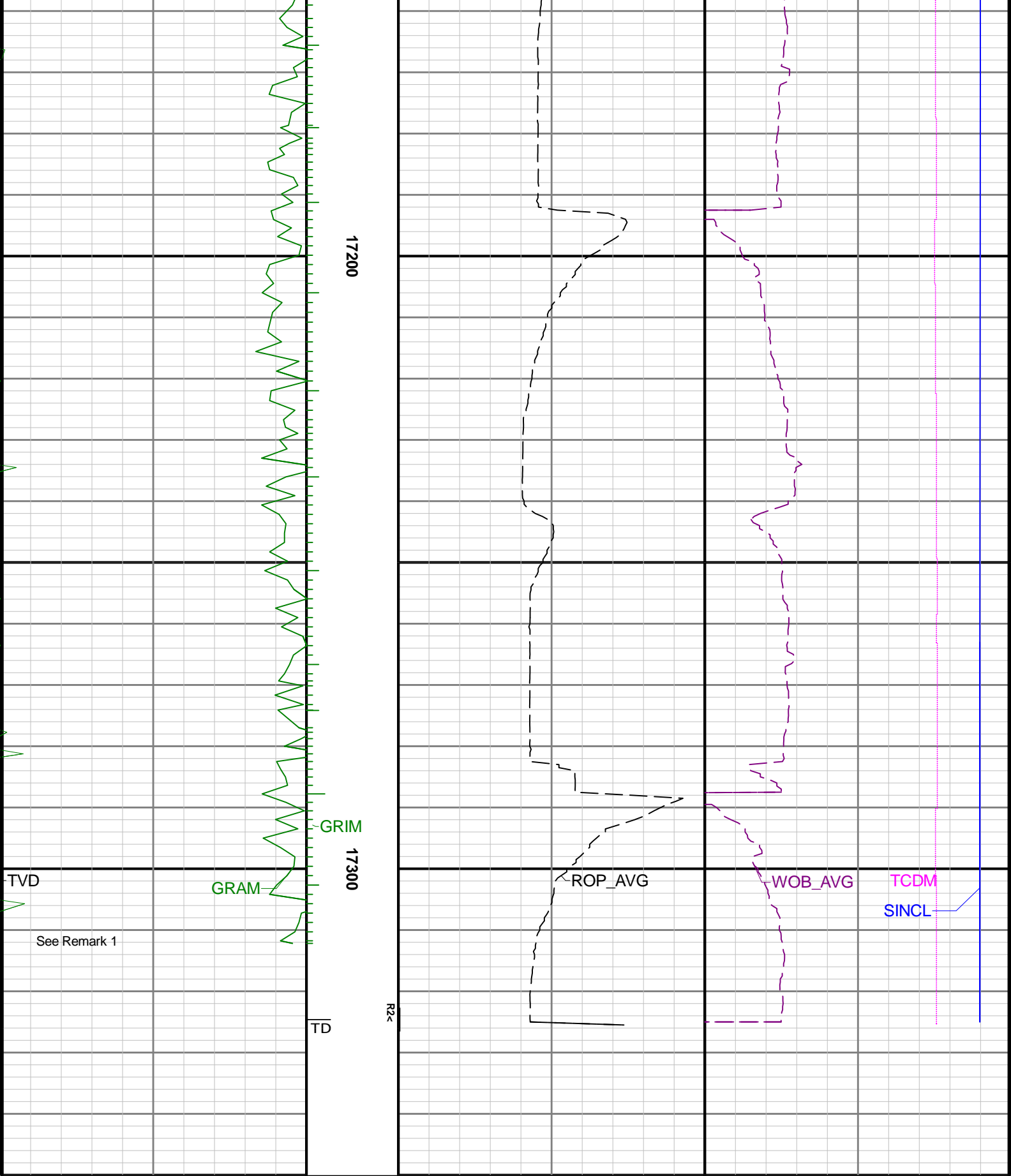
16500

16600









<p>Gamma Ray - Apparent 0.5 ft Average GRAM</p> <p>0 150</p>	<p>MD 1:240 feet</p>	<p>Rate of Penetration 0.5 ft Average ROP_AVG</p> <p>1000 0</p>	<p>Weight on Bit 0.5 ft Average WOB_AVG</p> <p>0 100</p>
<p>API</p>		<p>ft/h</p>	<p>klb</p>
<p>True Vertical Depth TVD</p> <p>7000 1500</p>			<p>Downhole Temperature TCDM</p> <p>50 350</p>
<p>ft</p>		<p>degF</p> <p>Survey Inclination SINCL</p> <p>0 100</p>	
		<p>deg</p>	