



Realtime Log

Natural Formation Evaluation
Gamma Ray

Scale:

Company: Anadarko

1:240 MD

Well: Summit 29N-29HZ

Measured Depth

Field: Weld County (Kerr McGee)

County: Weld State: Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 6' 11.952" N

Longitude: 104° 41' 36.859" W

Other Services:

Directional
VSS

API Number:

SEC: 29

TWP: 2N

RNG: 65W

Permanent Datum (P.D.): Ground Level Elevation: 4941.00 ft.

Log Measured From: Rig Floor 16.00 ft. Above P.D.

Elevations: N/A

Depth Reference: Drillers Depth

KB: N/A
DF: 4957.00 ft.
GL: 4941.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6440.0 ft. Date From: 05/Nov/14 Dip Angle: 66.80° Azi Reference North: True

Bottom: 12081.0 ft. Date To: 11/Nov/14 Total Mag to Reference

Spud Date: 05/Nov/14 Field Strength: 52754.6 nT North Correction: 8.19°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13,500 in.	Surface	1115.0 ft.	9.625 in.	36.00 lb/ft	Surface	1105.0 ft.
8,750 in.	1105.0 ft.	7501.0 ft.	7.000 in.	26.00 lb/ft	Surface	7491.0 ft.
6,125 in.	7491.0 ft.	12081.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	5000.0 ft.	13,500 in.	1099.0 ft.	0.0° / 186.7°	0.8° / 247.2°
Water Based Mud	5000.0 ft.	12081.0 ft.	8,750 in.	6396.0 ft.	0.7° / 247.0°	86.3° / 359.4°
			6,125 in.	4580.0 ft.	89.3° / 1.2°	88.5° / 359.3°
					/	/
					/	/
					/	/

Acquisition System

Software Version

Other

Advantage	2.20U4	Rig: Xtreme 6	/ Xtreme Coil Drilling Corp
PAIS	6.4.1.34	Job No: 6708707	/ D&E
		District / Unit: RMD	

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	2	8.750	PDC	3.000	Steerable	6440.0	7501.0	1023.0	7501.0	05/Nov/2014 22:00	08/Nov/2014 12:40	48.1
2	2	3	6.125	PDC	4.000	Steerable	7450.0	12081.0	7501.0	12081.0	09/Nov/2014 09:15	11/Nov/2014 11:00	32.5

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	05/Nov/2014	11/Nov/2014	Chad Hough	05/Nov/2014	11/Nov/2014			
Stephen Gray	05/Nov/2014	11/Nov/2014	Courtney Koerner	05/Nov/2014	06/Nov/2014			
			Ryan Keilian	06/Nov/2014	11/Nov/2014			

Witness	
Name	LWD Run Number
David Cornett	1, 2
Joe Wallem	1, 2

Mud Properties Record												
Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (s/qt)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (mg/L)	K+ (%)
06/Nov/2014	08:00	1	2480.0	Fresh Water	8.4	27	9.0	N/A	0 / 100	Active Mud Pit	6400	0.0
06/Nov/2014	20:30	1	4617.0	Fresh Water	8.5	28	9.3	N/A	0 / 100	Active Mud Pit	6000	0.0
07/Nov/2014	07:00	1	6634.0	Water Based Mud	10.1	44	9.1	4.7	0 / 91	Active Mud Pit	5400	0.0
07/Nov/2014	21:30	1	6952.0	Water Based Mud	10.2	45	9.5	4.5	0 / 91	Active Mud Pit	5000	0.0
09/Nov/2014	15:00	2	7451.0	Water Based Mud	10.0	45	9.6	4.5	0 / 91	Active Mud Pit	4800	0.0
09/Nov/2014	19:00	2	8155.0	Water Based Mud	10.0	45	9.5	4.6	0 / 91	Active Mud Pit	4700	0.0
10/Nov/2014	10:00	2	9880.0	Water Based Mud	10.2	45	9.4	4.5	0 / 90	Active Mud Pit	4600	0.0
10/Nov/2014	20:30	2	11693.0	Water Based Mud	10.3	48	9.4	4.4	1 / 89	Active Mud Pit	4600	0.0

Mnemonics		
Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft.
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	klbs

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
1	CS	1265144	-	65.10	7.031	2.165
1	BCPM	10574986	Telemetry	53.73	7.031	2.165
1	STAB	11850776	-	49.65	8.375	2.165
1	OTK	12131318	Directional	44.84	7.031	2.165
1	OTK	12131318	Resistivity	39.03	7.031	2.165
1	OTK	12131318	Gamma	34.99	7.031	2.165
1	OTK	12131318	Pressure	34.11	7.031	2.165
1	CS	13270829	-	30.93	7.031	2.165
2	DIR	12546339	Directional	52.42	4.750	2.750
2	SRIG	10392040	Gamma	49.05	4.750	2.750

Service and Tool Mnemonics


Mnemonic	Name	Description
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
STAB	Stabilizer	Stabilizer assembly
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments

1. Baker Hughes LWD run 1 utilized 6 3/4 inch Ontrak Services. (Multiple Propagation Resistivity, Gamma Ray, VSS, and Directional) behind an 8 3/4 inch bit and steerable assembly from 1115 to 7501 feet MD (1114.99 to 7089.62 feet TVD).
- 2.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7501 to 12081 feet MD (7089.62 to 7109.22 feet TVD) behind an 6 1/8 inch bit and steerable assembly.
- 3.) A sliding indicator is shown on the left edge of track 1 as a heavy line. This indicator has been depth-shifted to the gamma ray sensor offset to correspond with gamma ray data.
- 4.) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	6755	8.750	1	The interval from 6735 to 6773 feet MD (6693.23 to 6727.68 feet TVD) was logged up to 10.6 hours after being drilled due to rig repairs.
2	7485	6.125	2	The interval from 6786 to 6826 ft. MD (6761.08 to 6798.78 ft. TVD) was logged up to 36 hours after being drilled due to a trip out of the hole to lay down the vertical/curve assembly, run intermediate casing, cementing operations, and to pick up the lateral assembly.
3	12045	6.125	2	The interval from 12033 to 12081 feet MD (7107.90 to 7109.22 feet TVD) contains no logging data due to the sensor to bit offset at the end of the run.



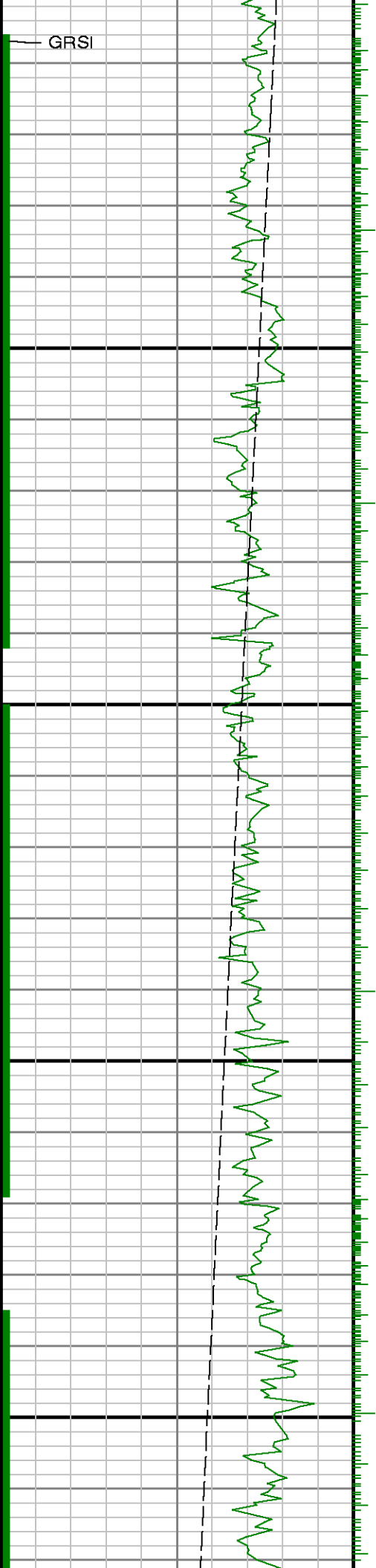
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Well : Summit 29N-29HZ

Interval : 6430.00 - 12100.00 feet

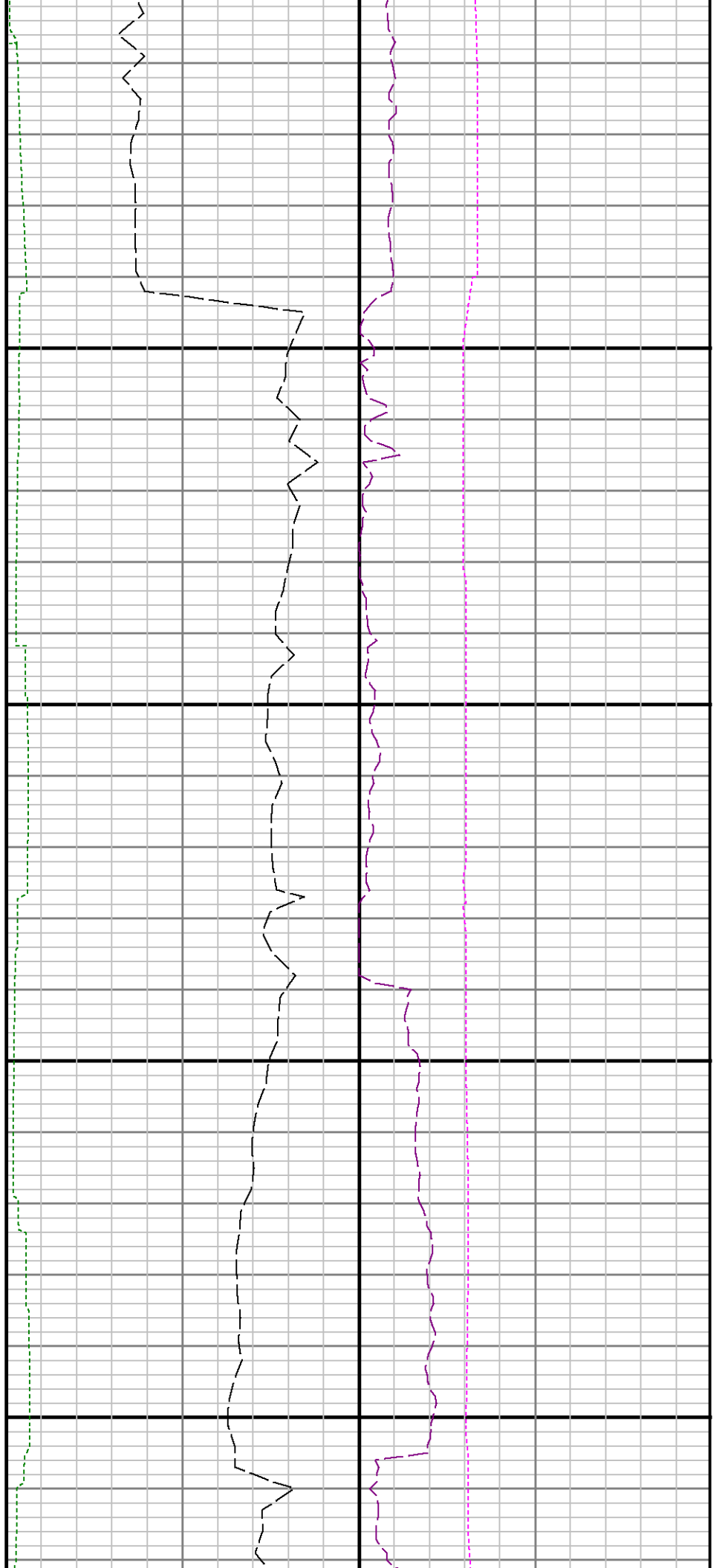
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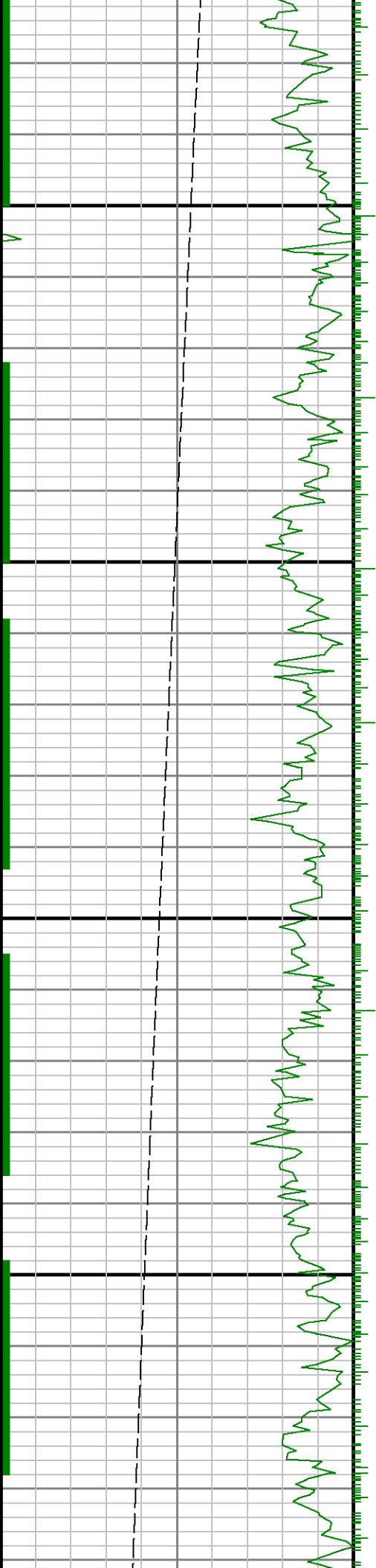
<div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0150</div> <div>API</div> <div>True Vertical Depth TVD</div> <div>72006200</div> <div>ft</div>	MD feet 1:240	<div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>5000</div> <div>ft/hr</div> <div>Gamma Time Since Drilled GRTX</div> <div>0600</div> <div>min</div>	<div>Surface Weight On Bit 1.0 ft Avg WOBA</div> <div>0100</div> <div>klbf</div> <div>Downhole Temperature TCDX</div> <div>100300</div> <div>degF</div>
<div>GRAX</div> <div>TVD</div> <div>GRIX</div> <div>> Run 1</div>		<div>GRTX</div> <div>ROPA</div>	<div>WOBA</div> <div>TCDX</div>



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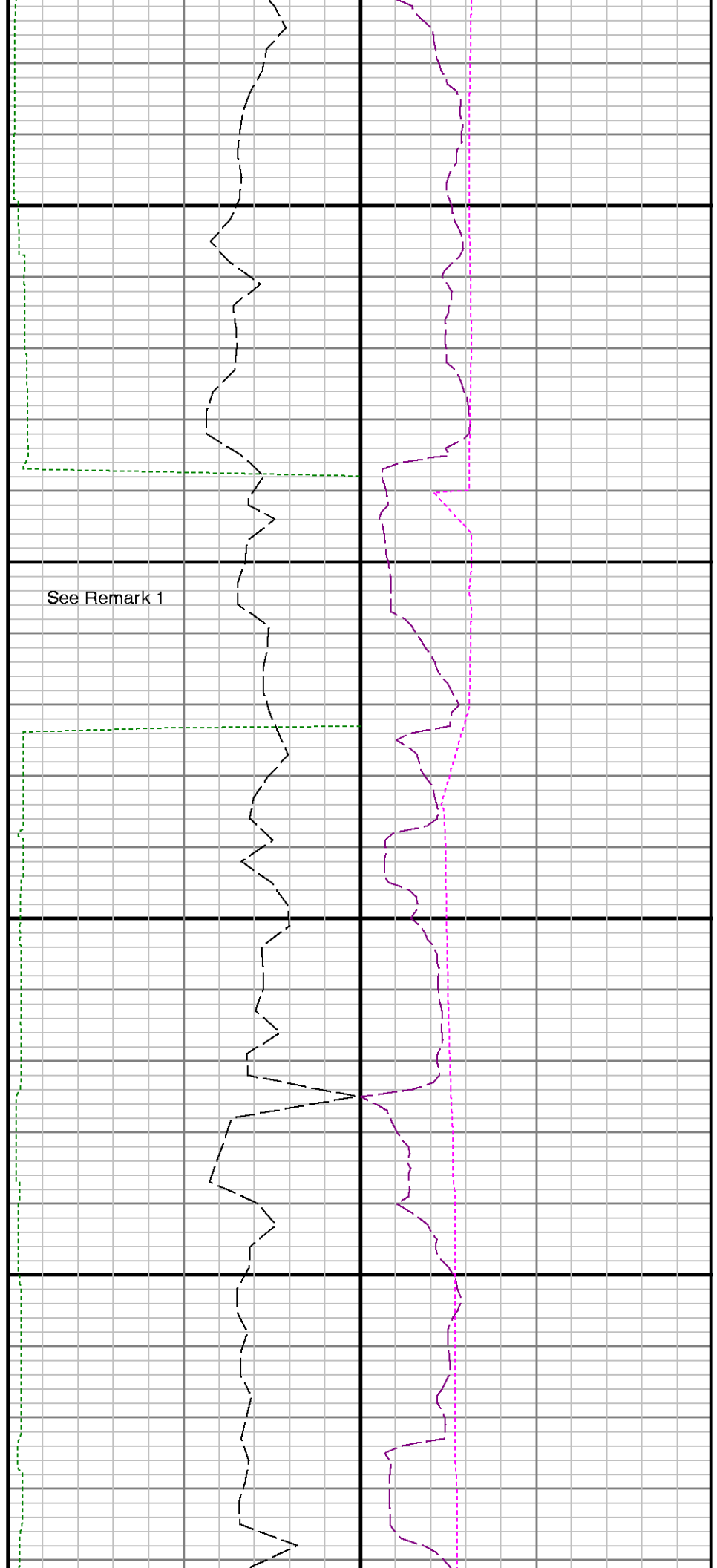
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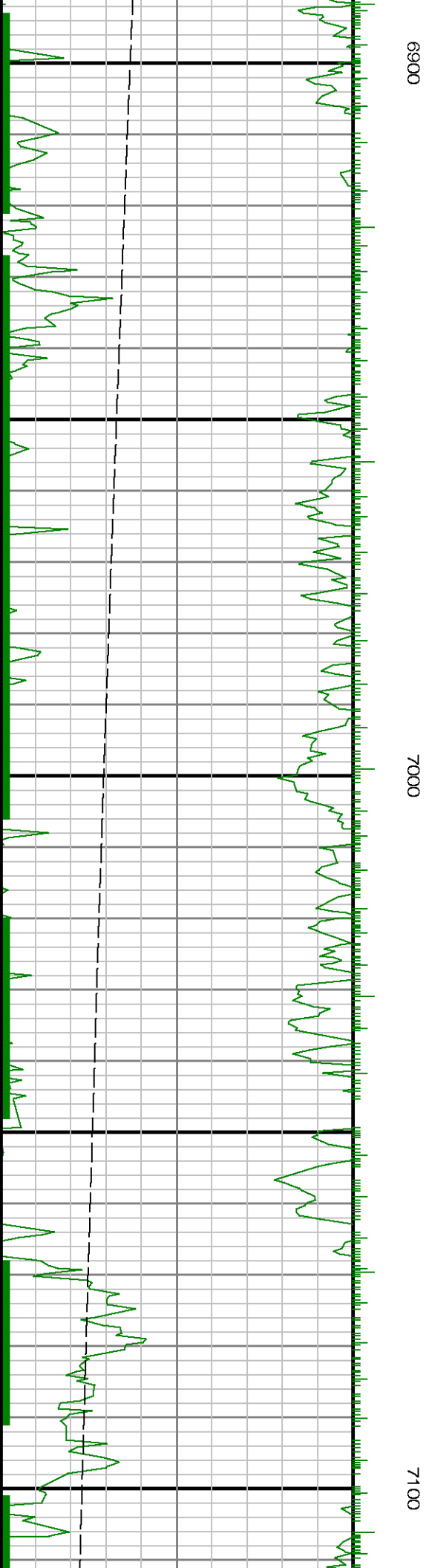
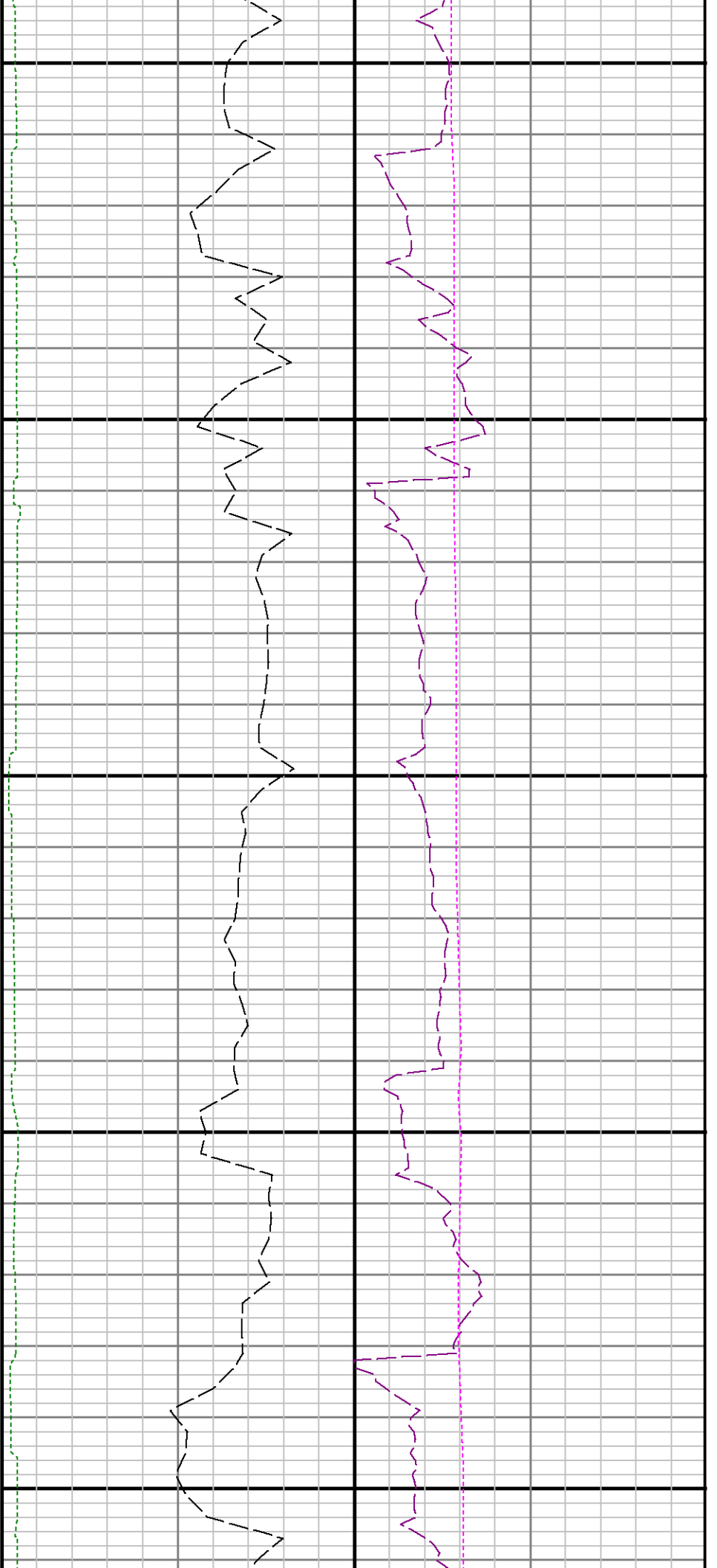


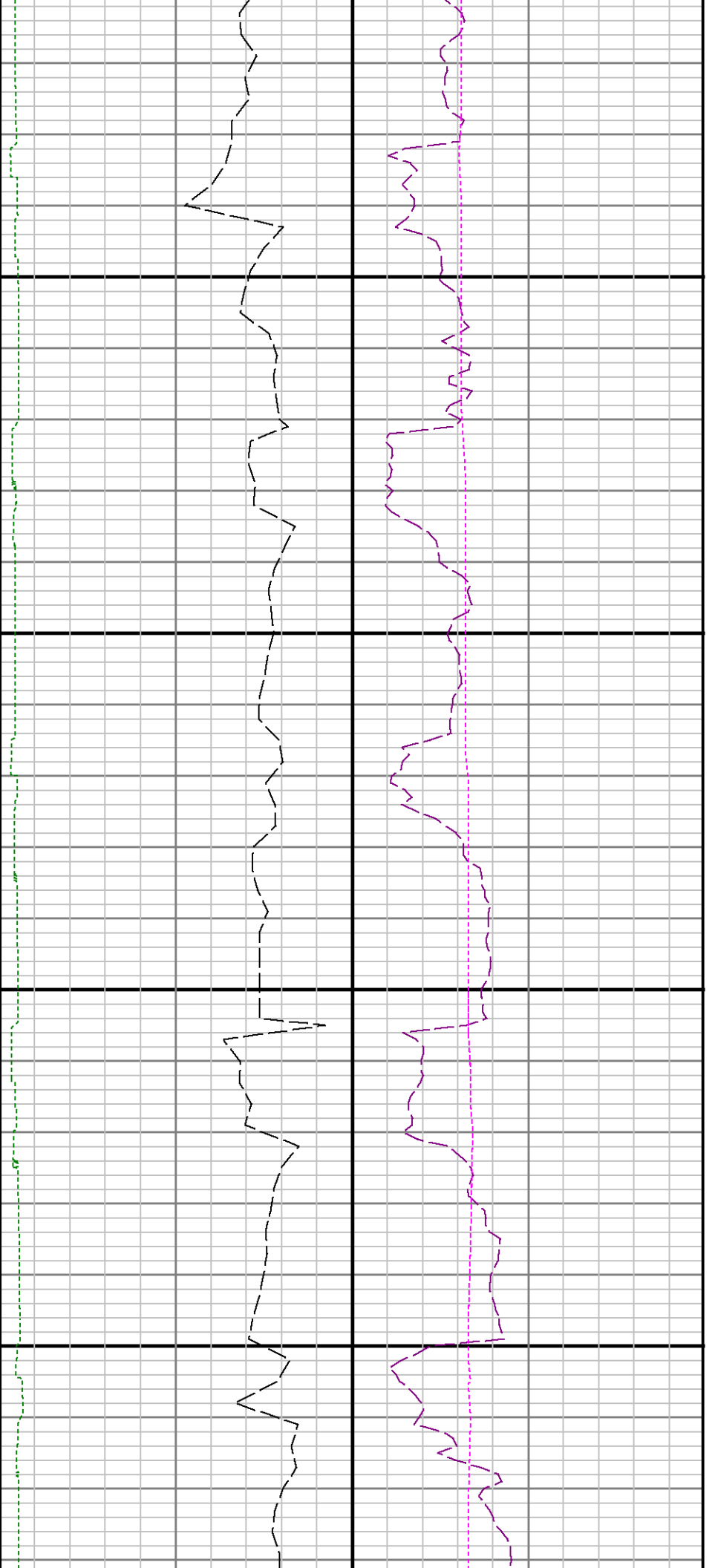


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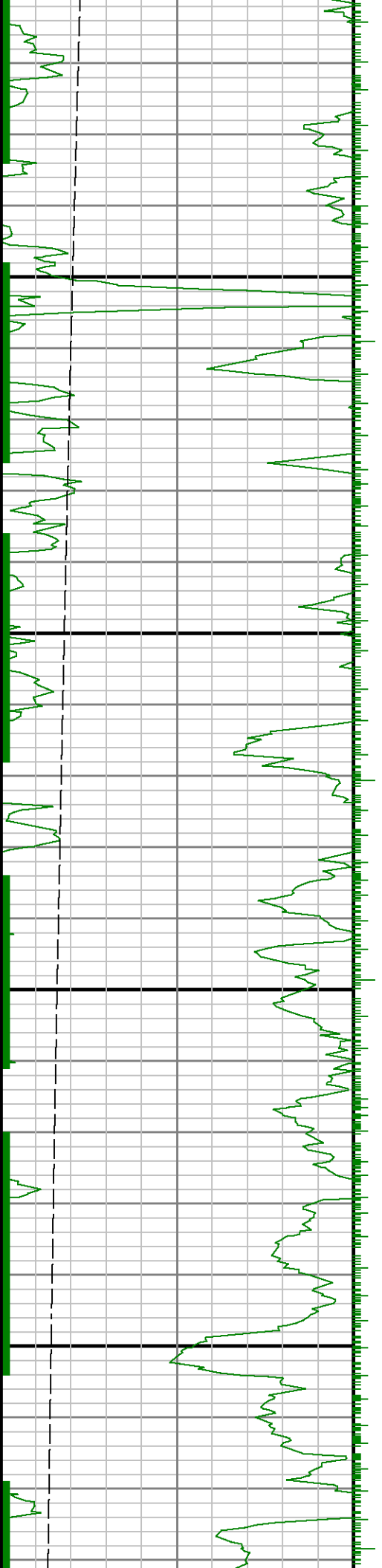


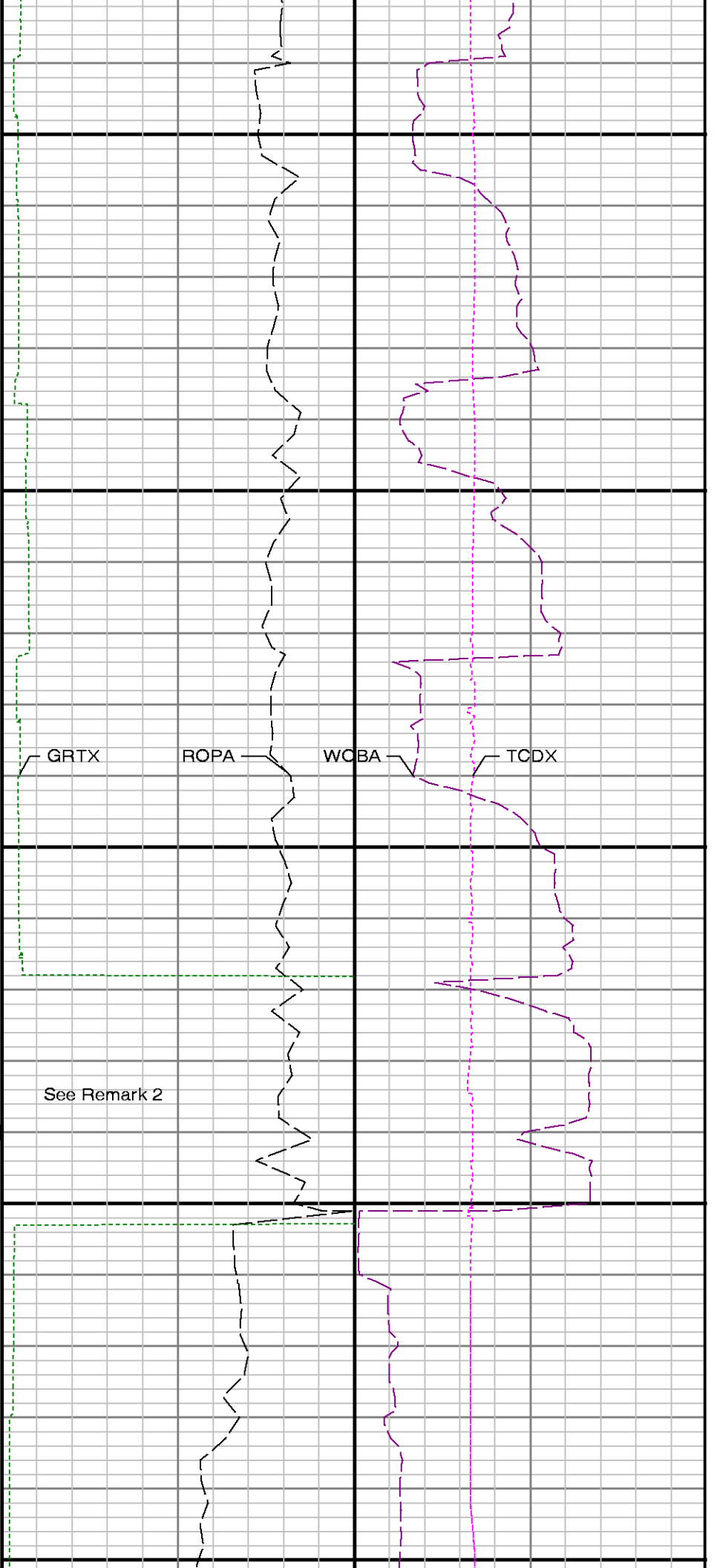
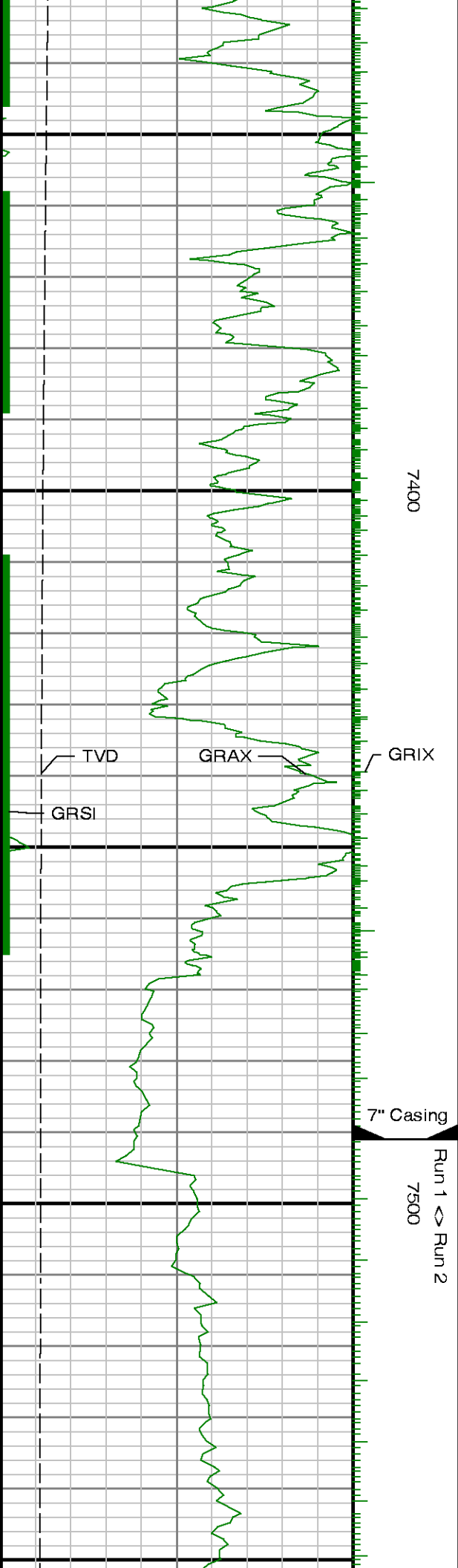


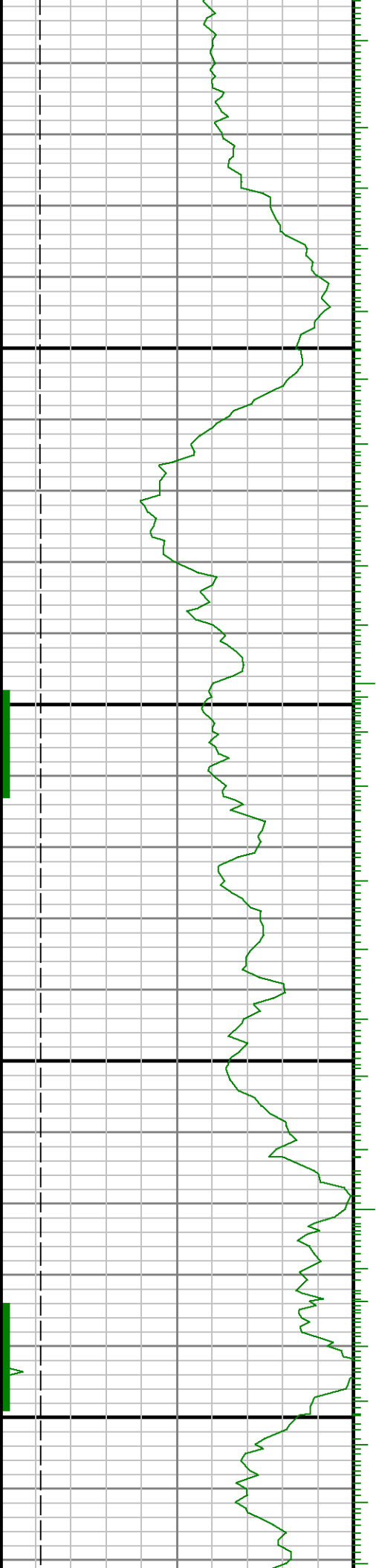


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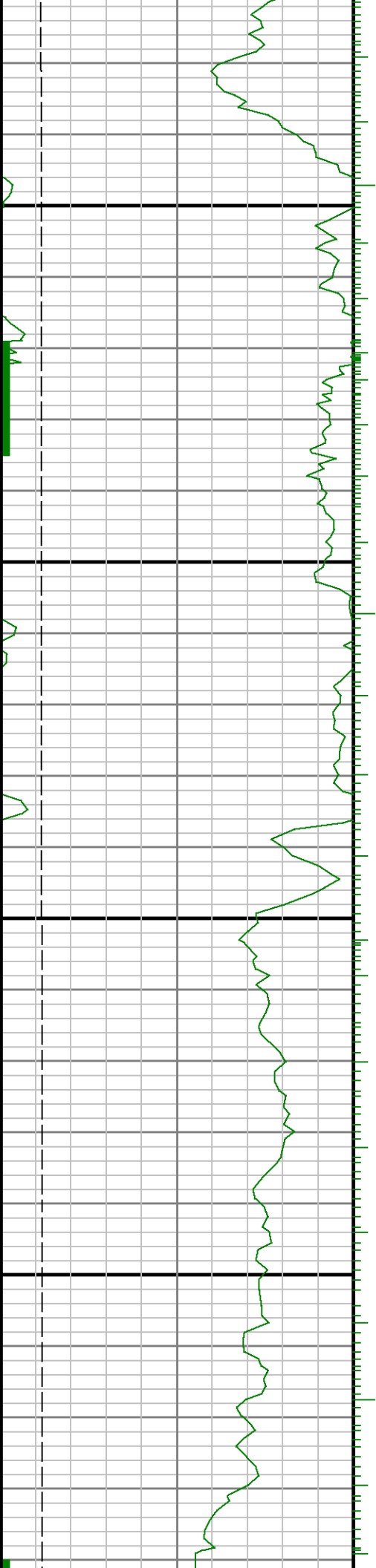




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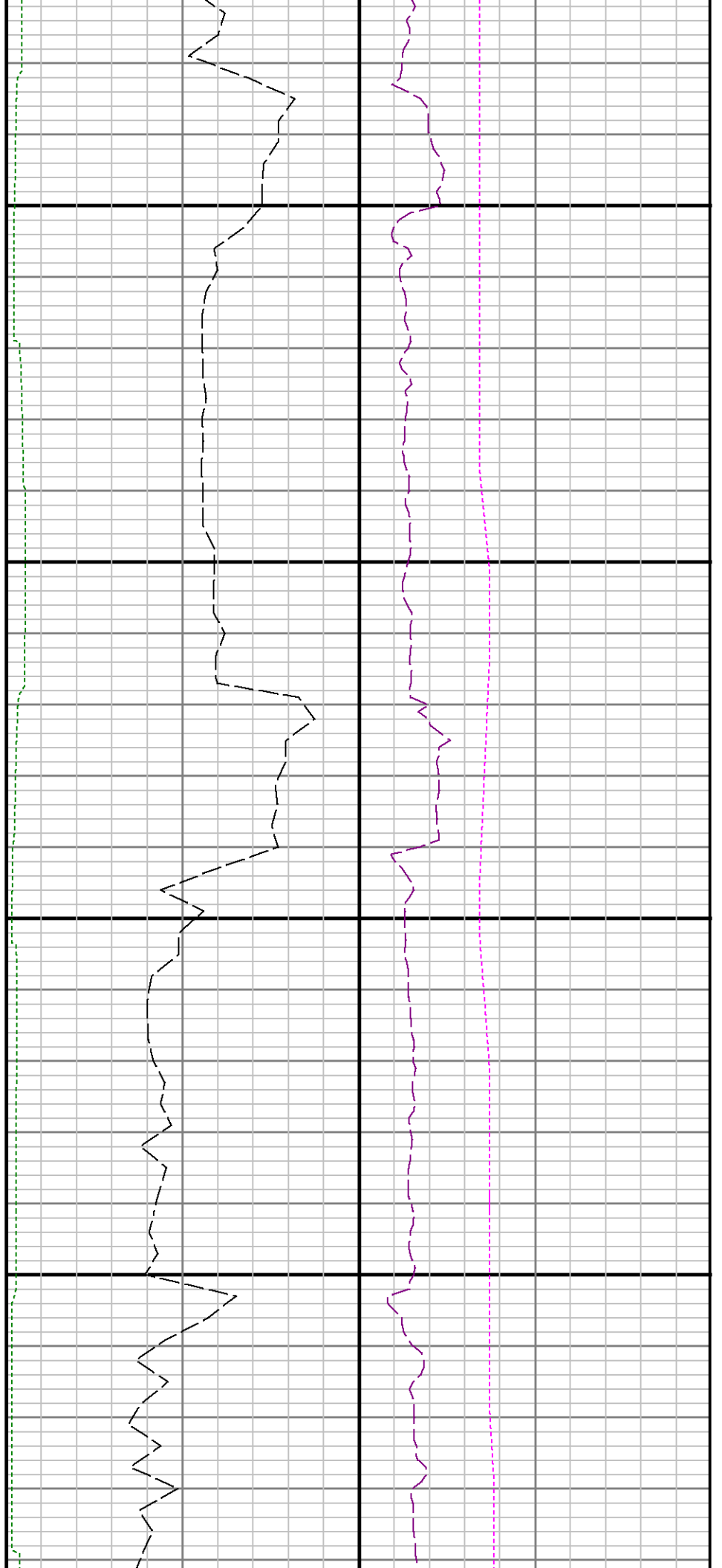
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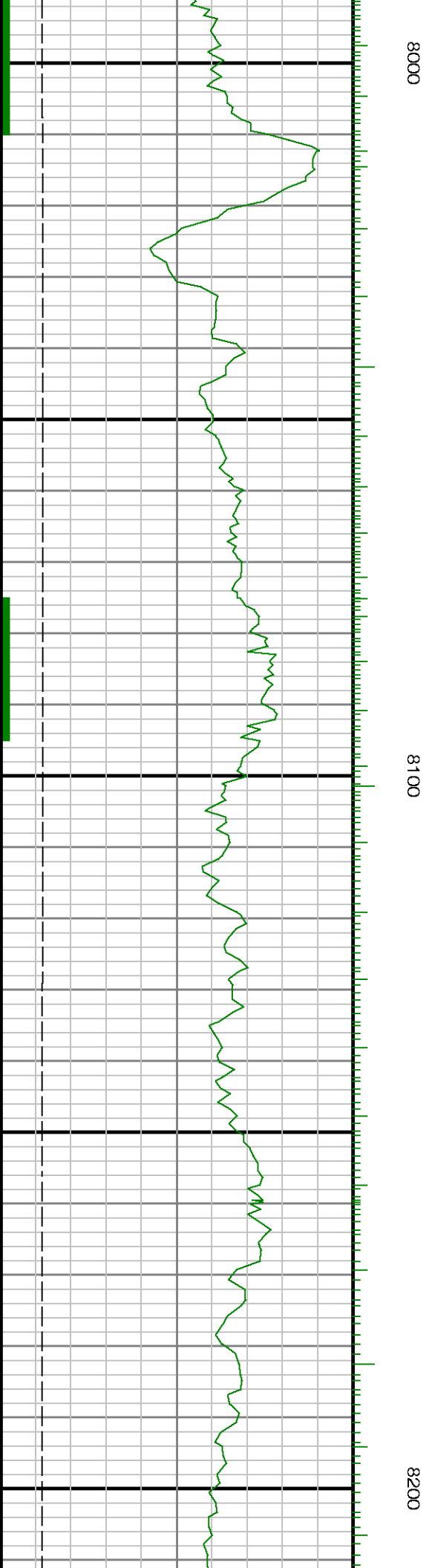
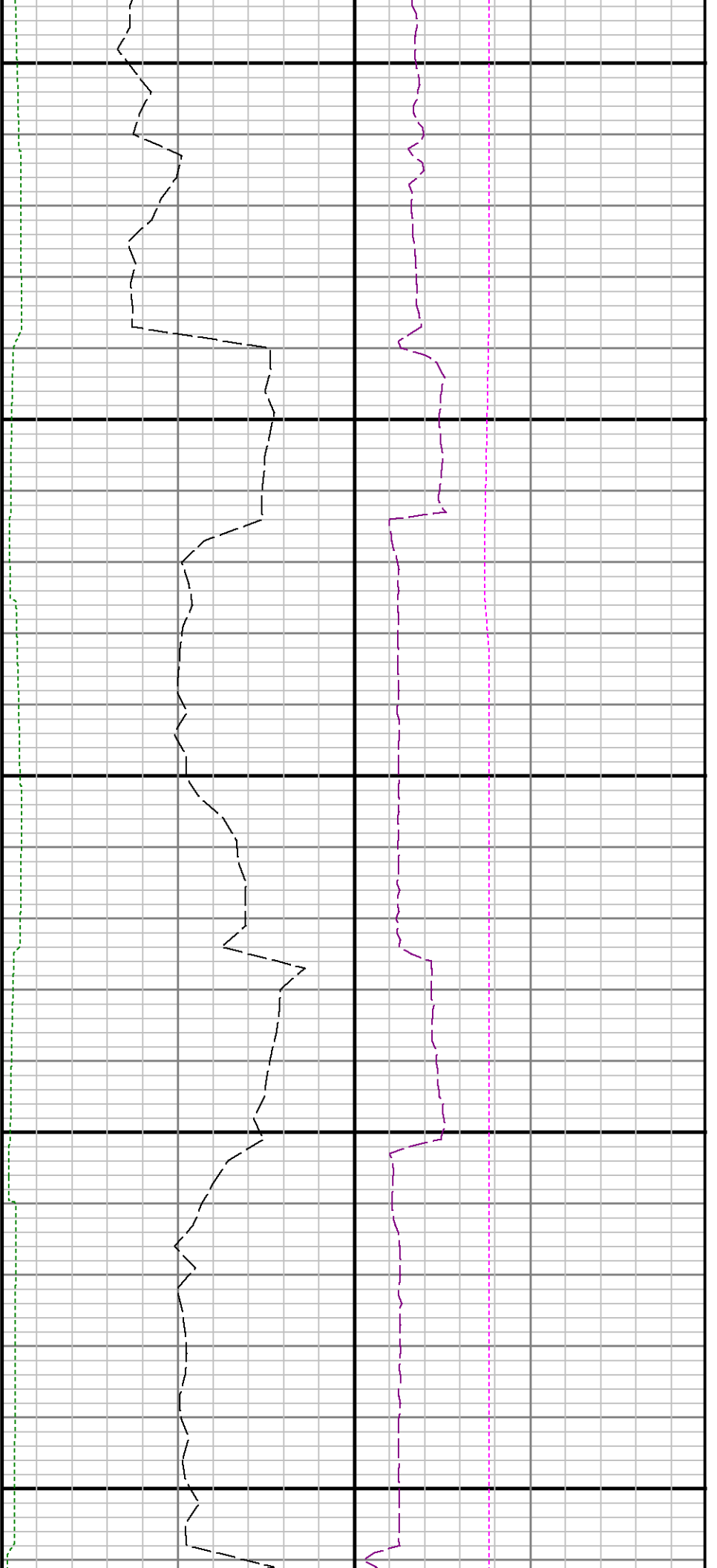


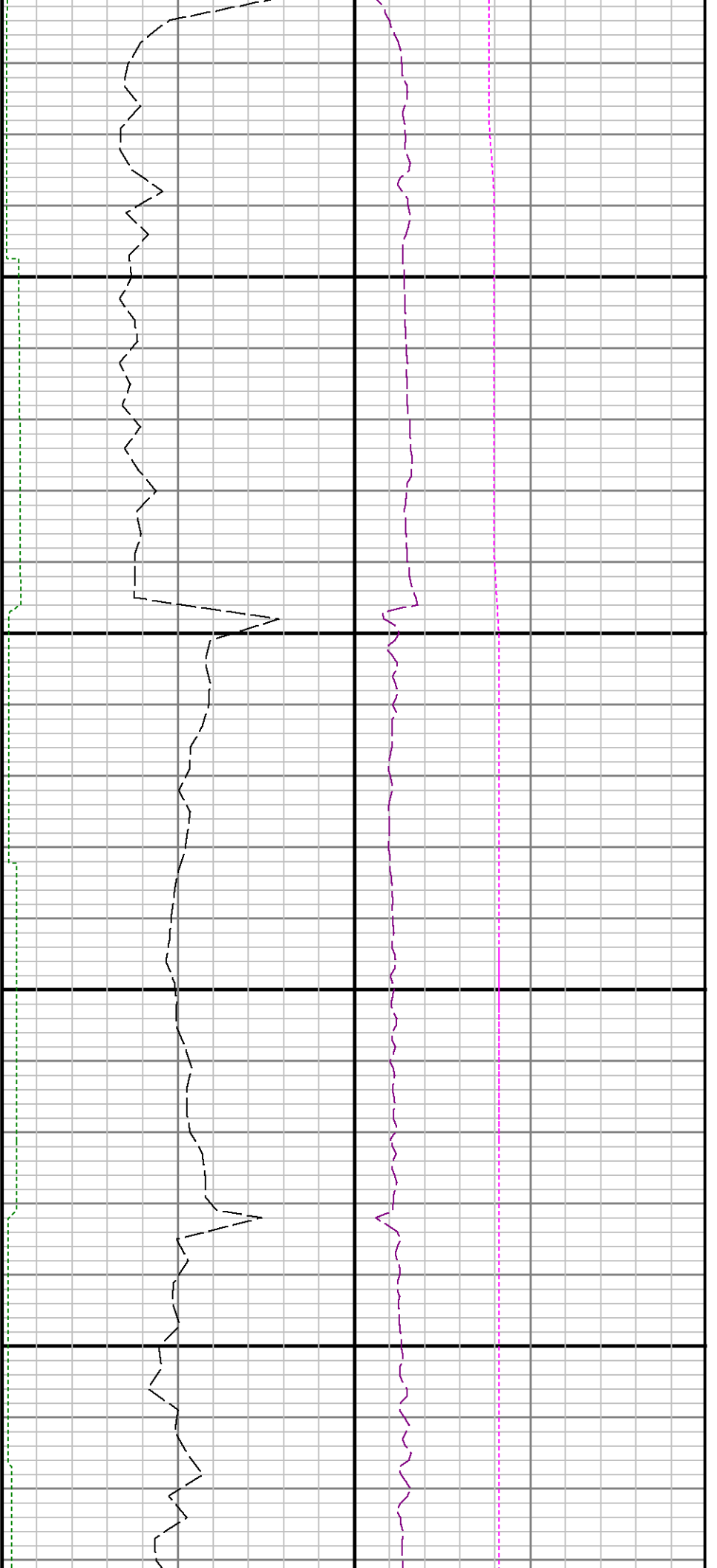


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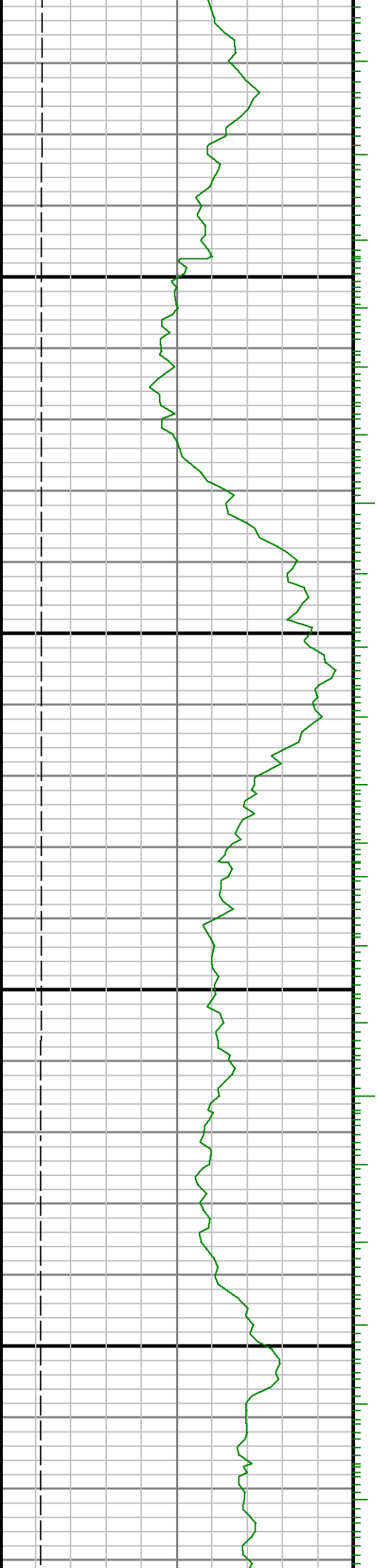


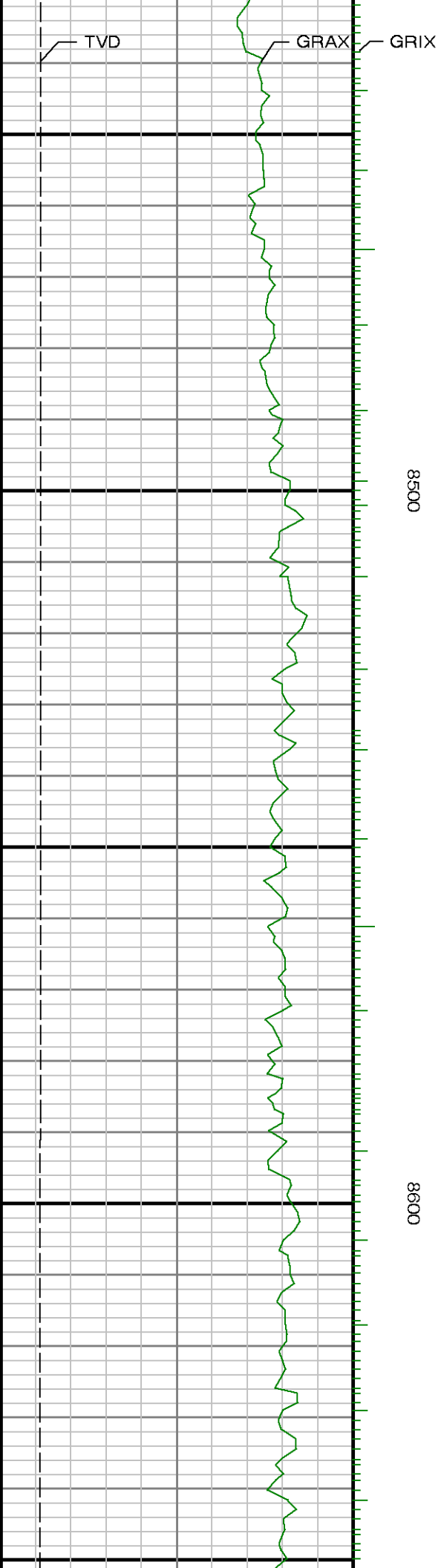


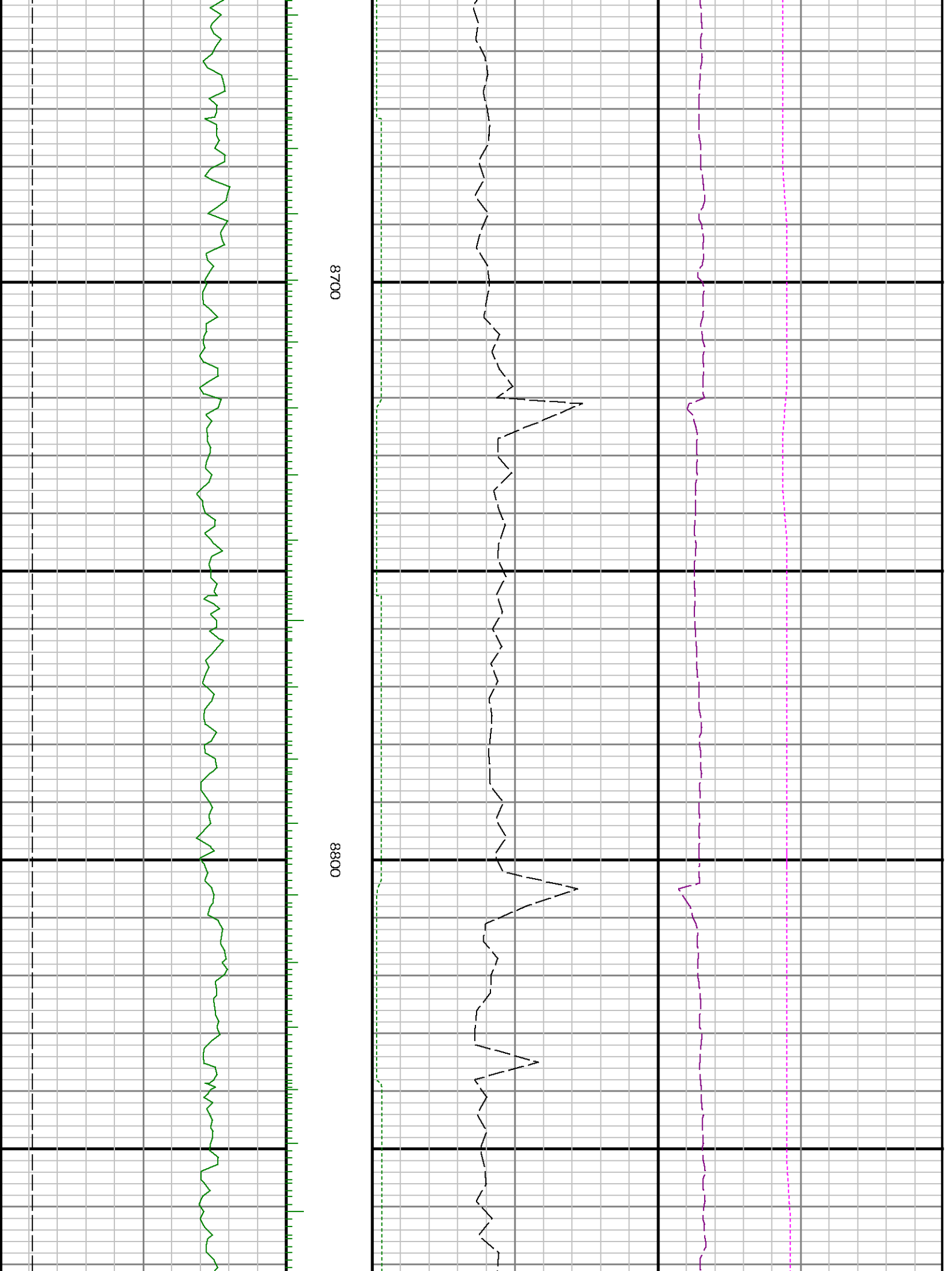


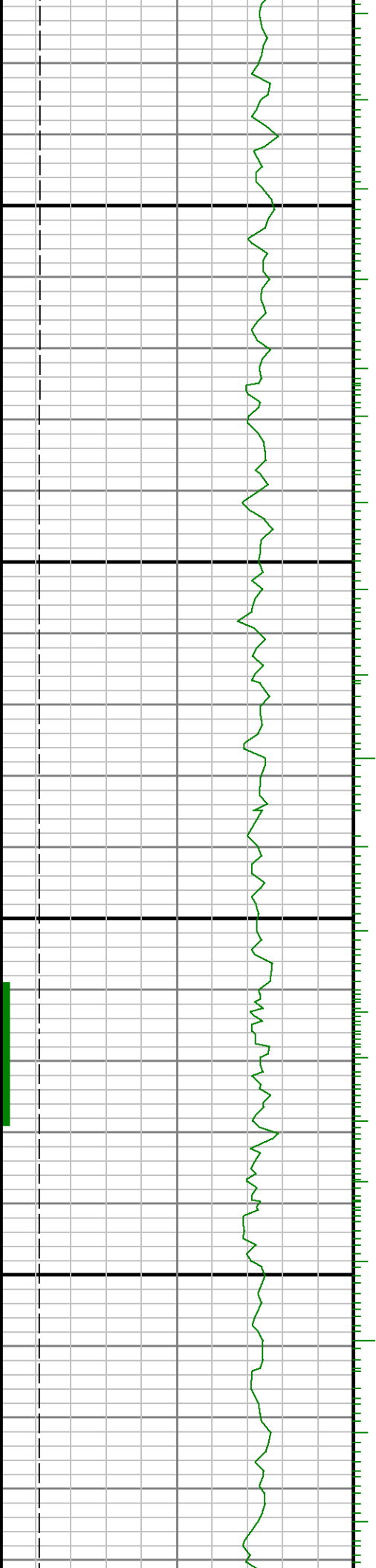
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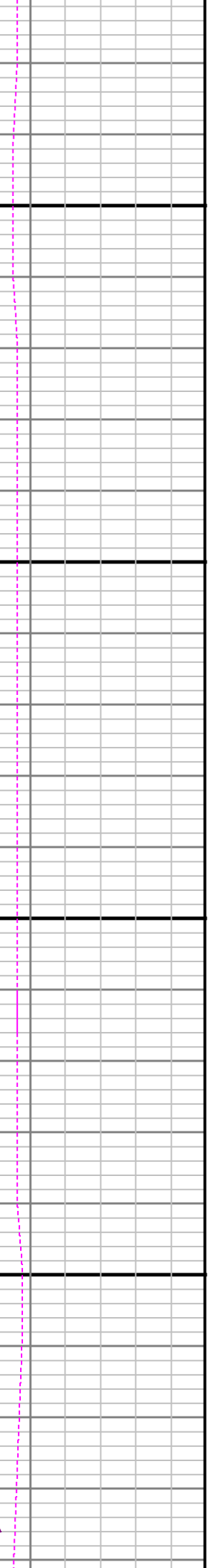
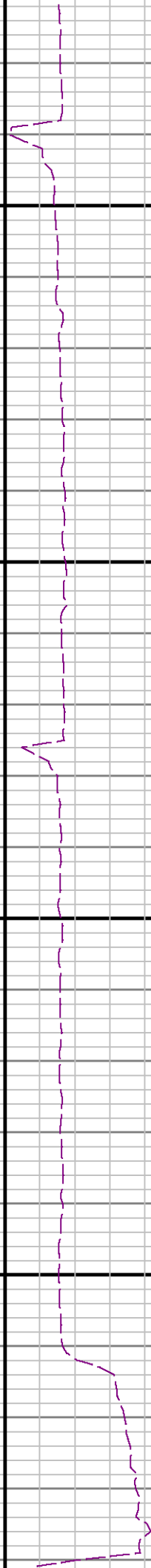
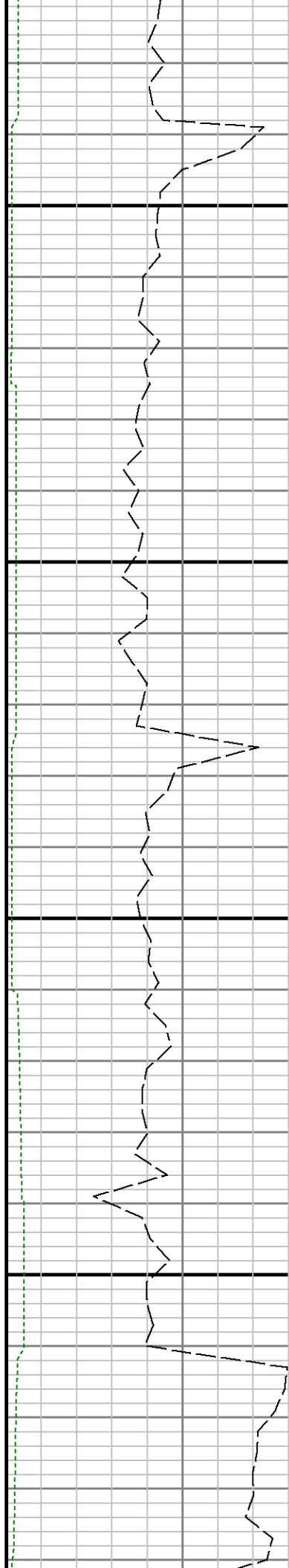


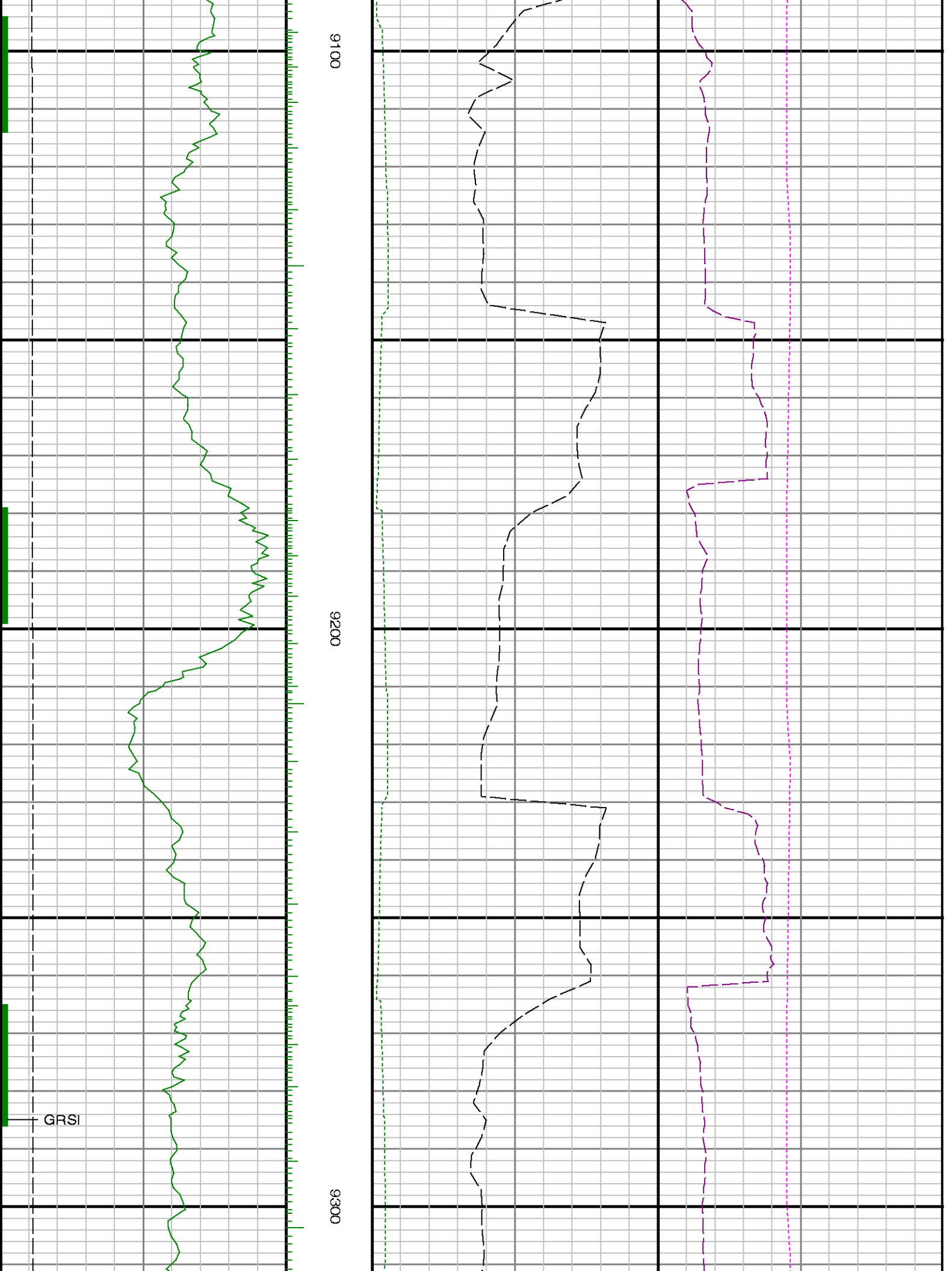


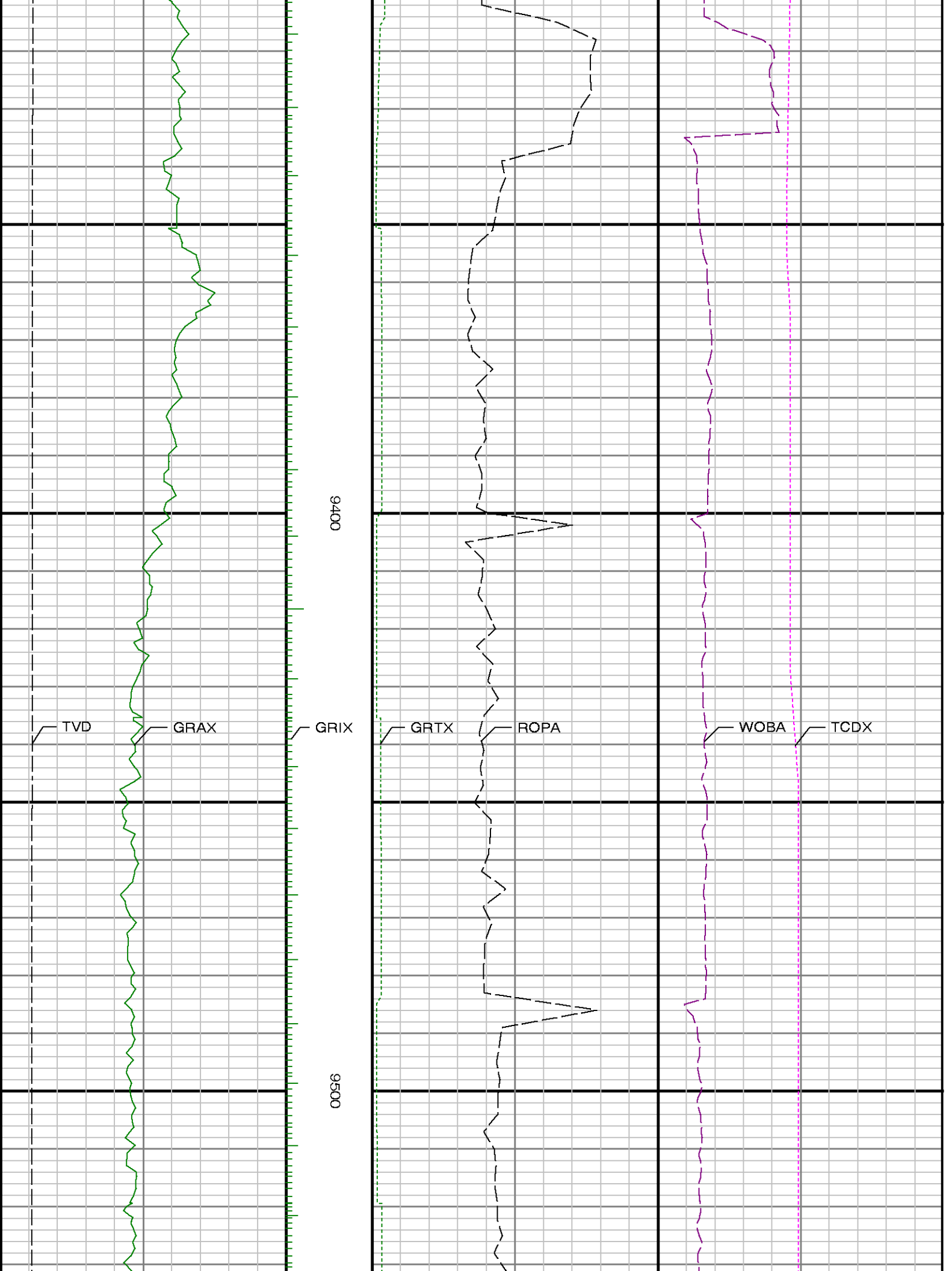


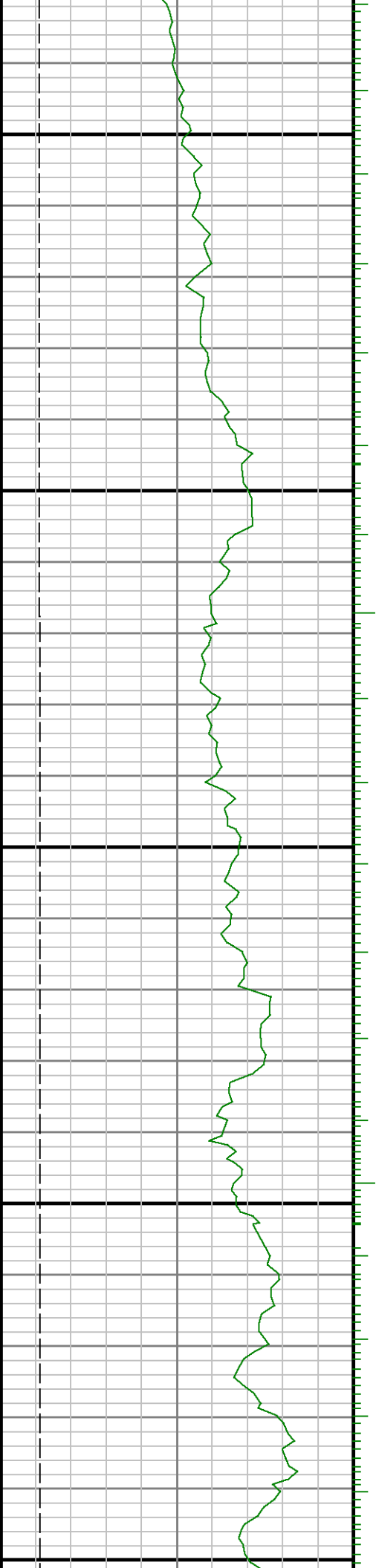
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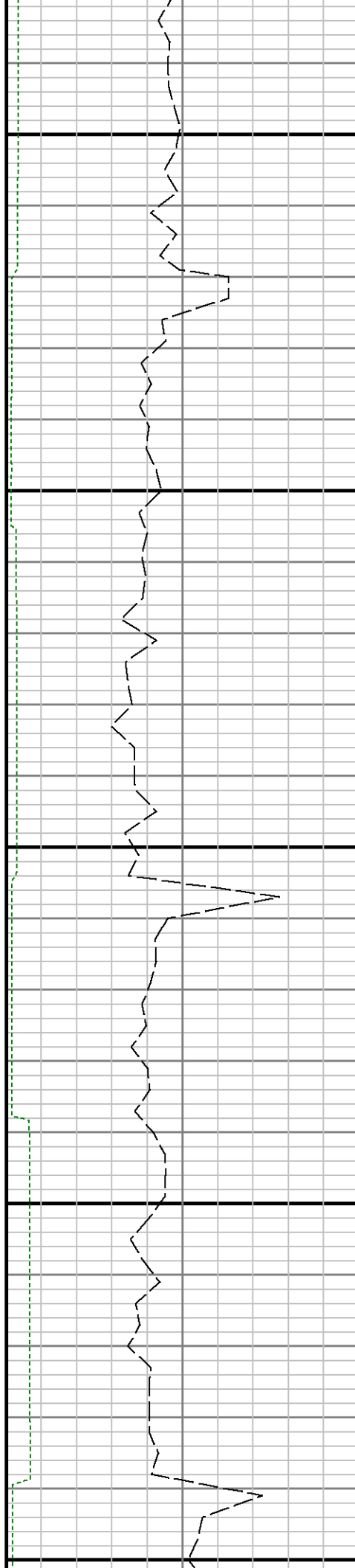


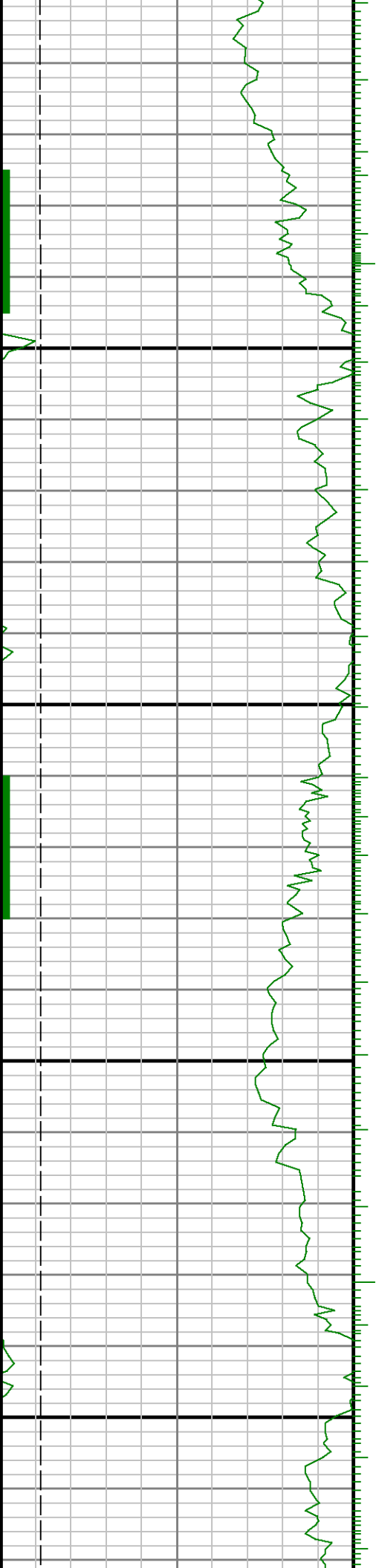




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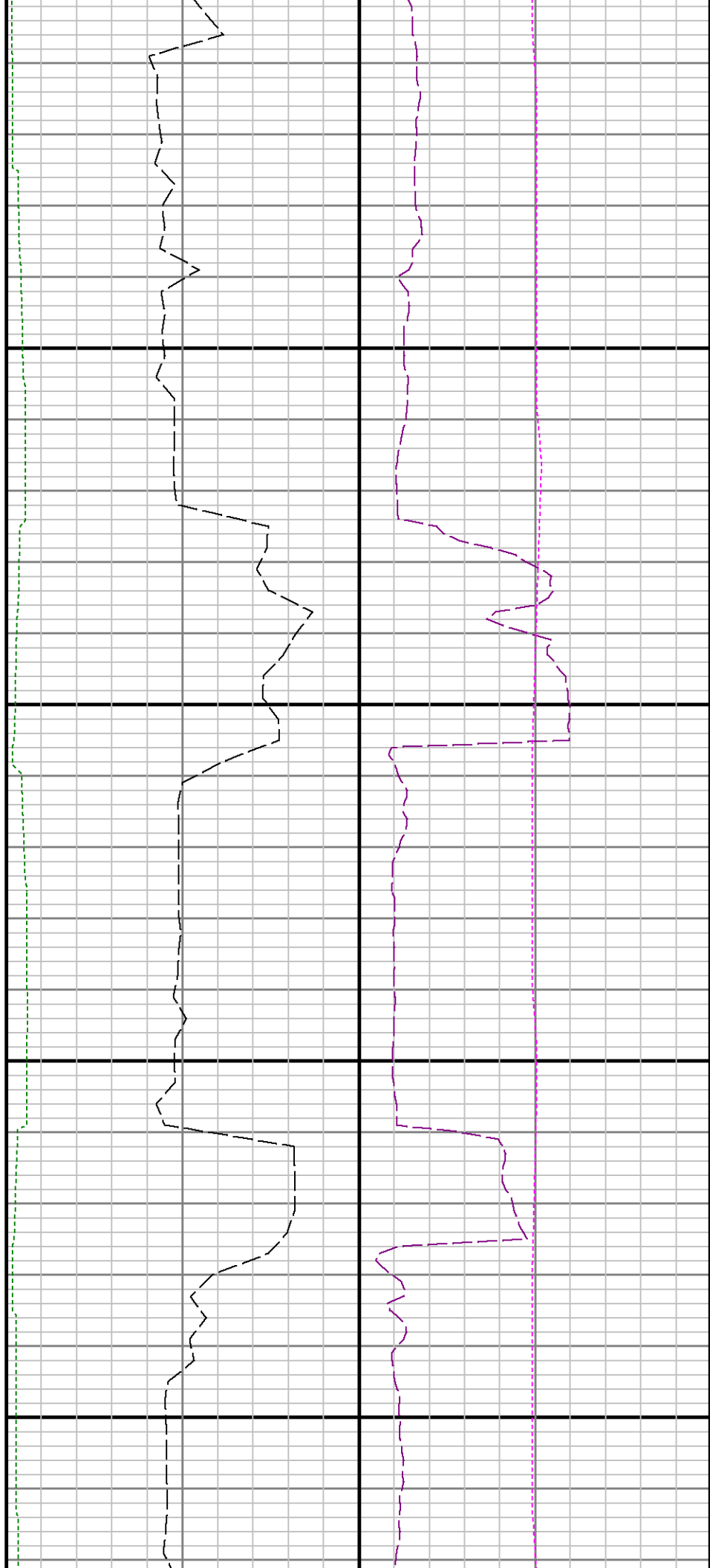
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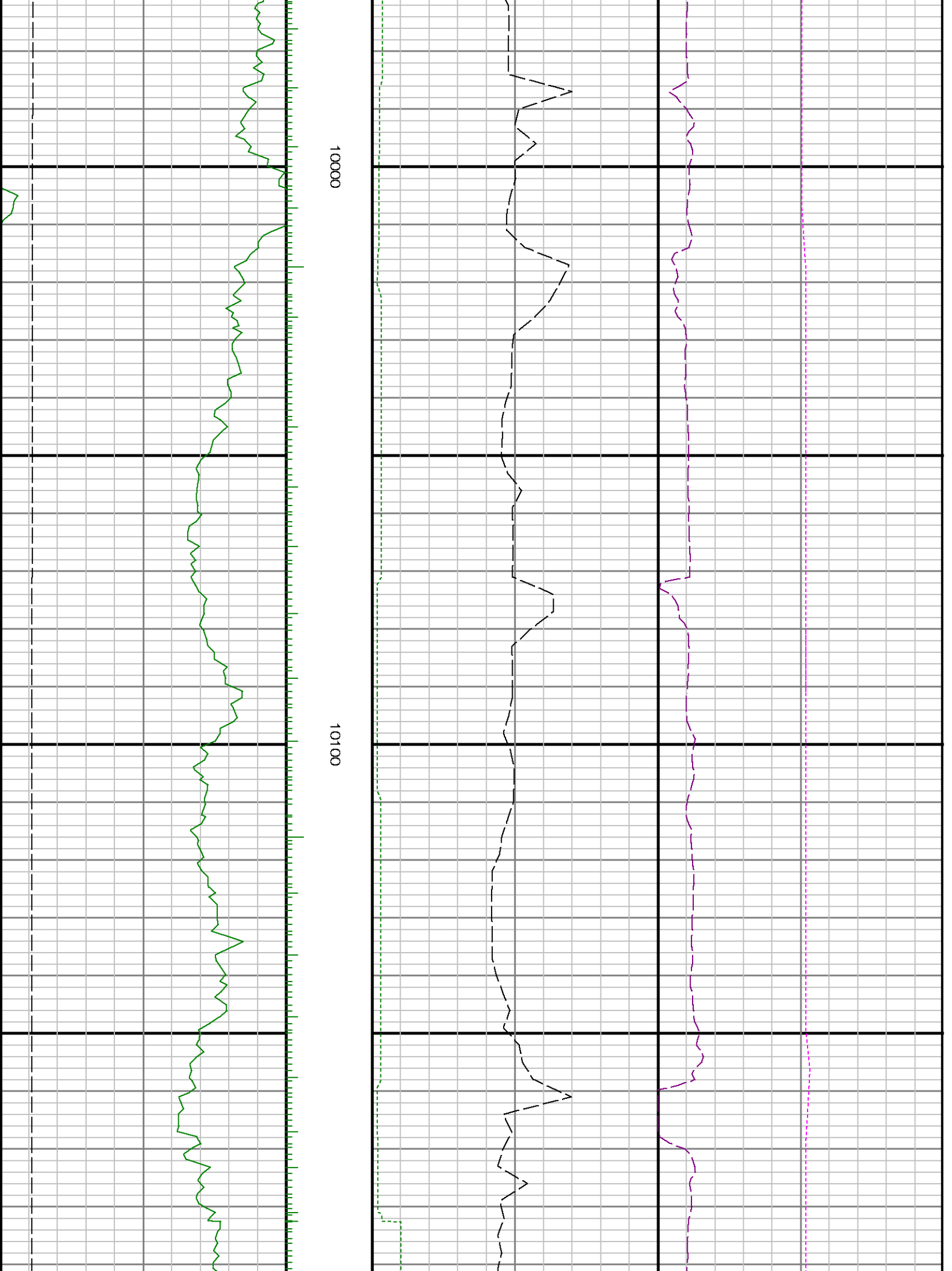


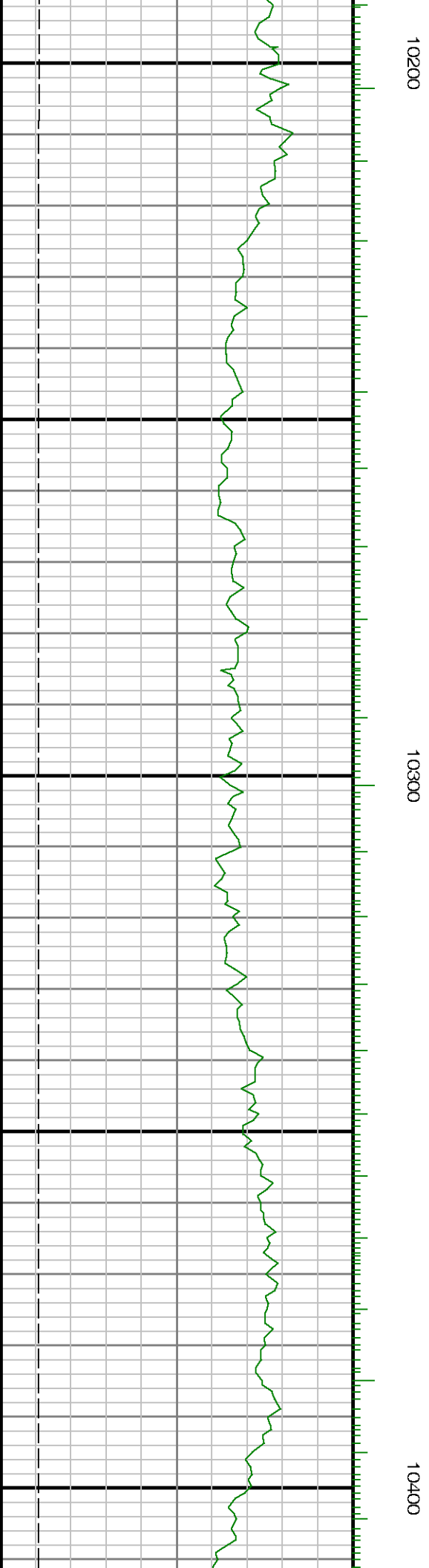
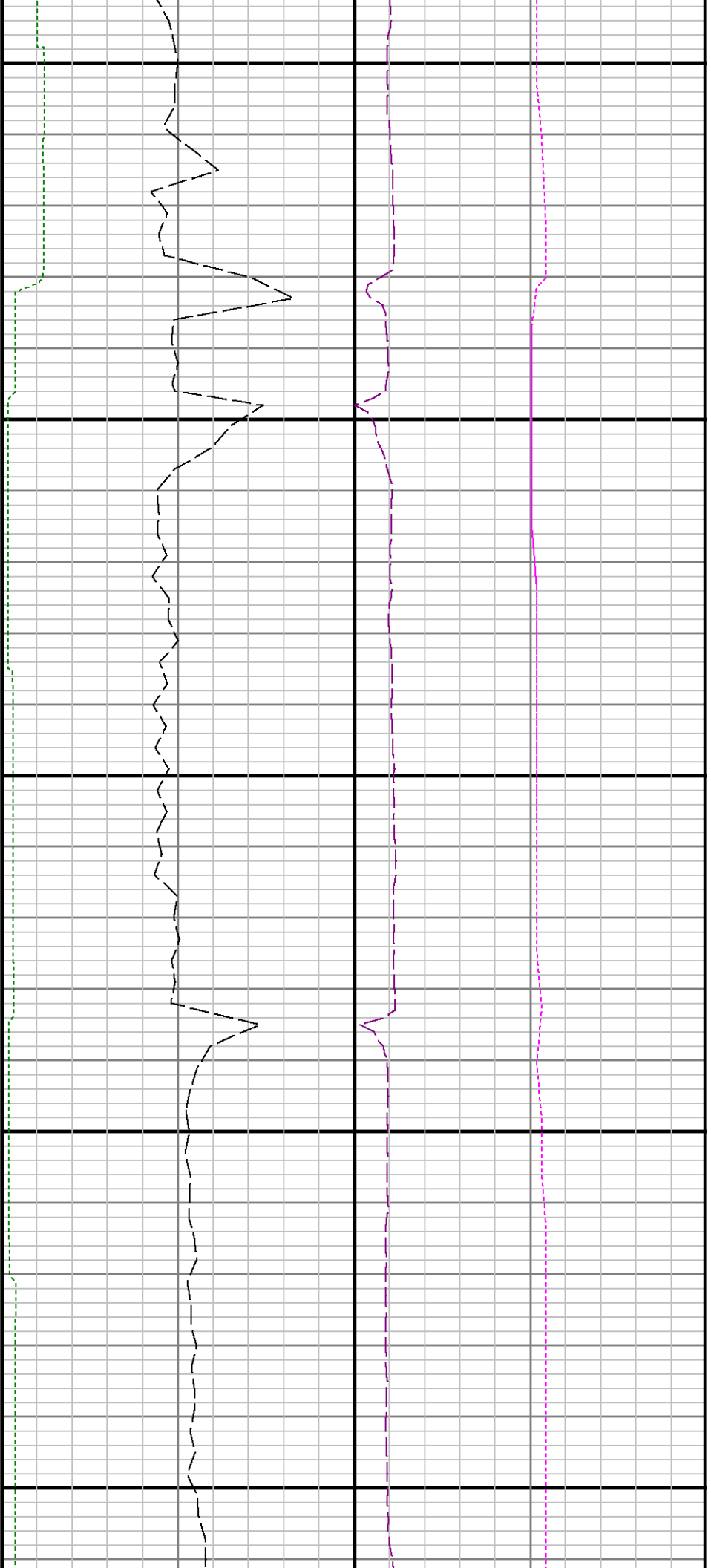


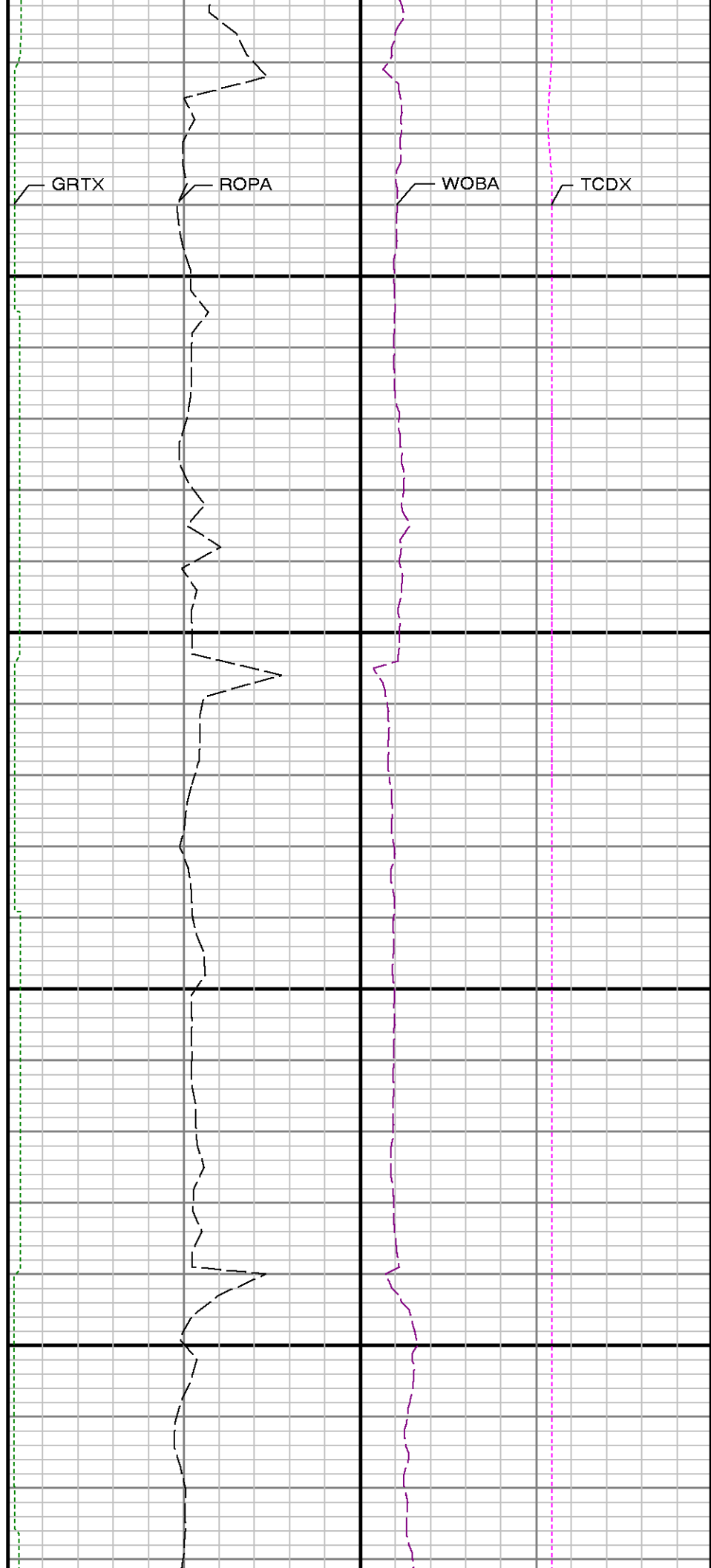
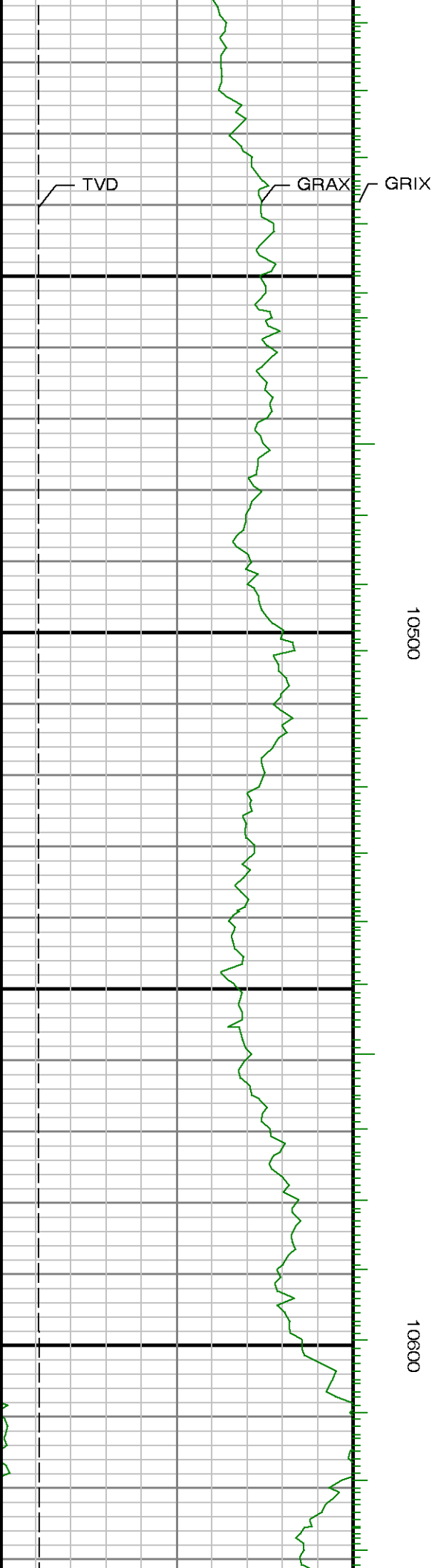
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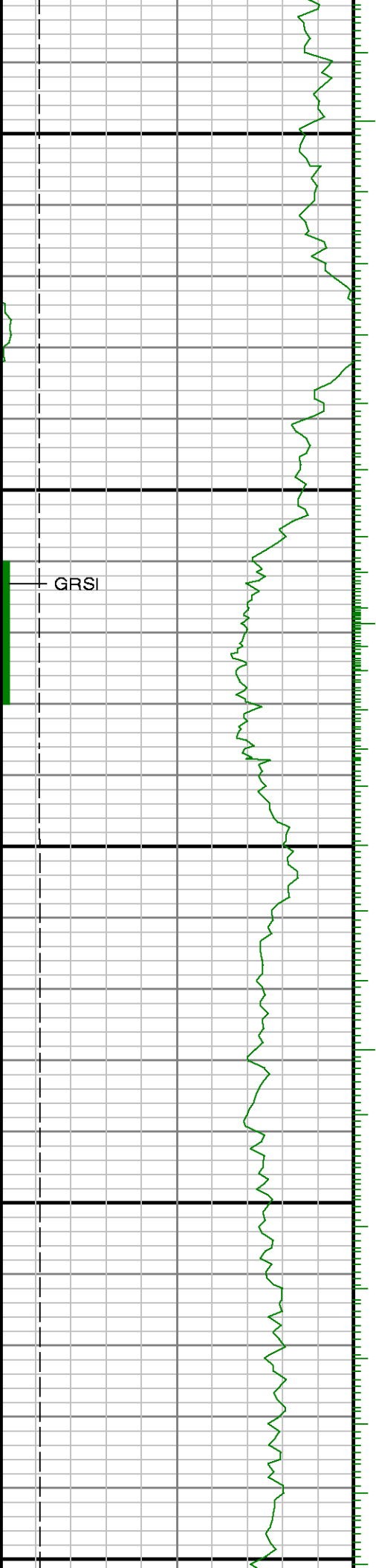
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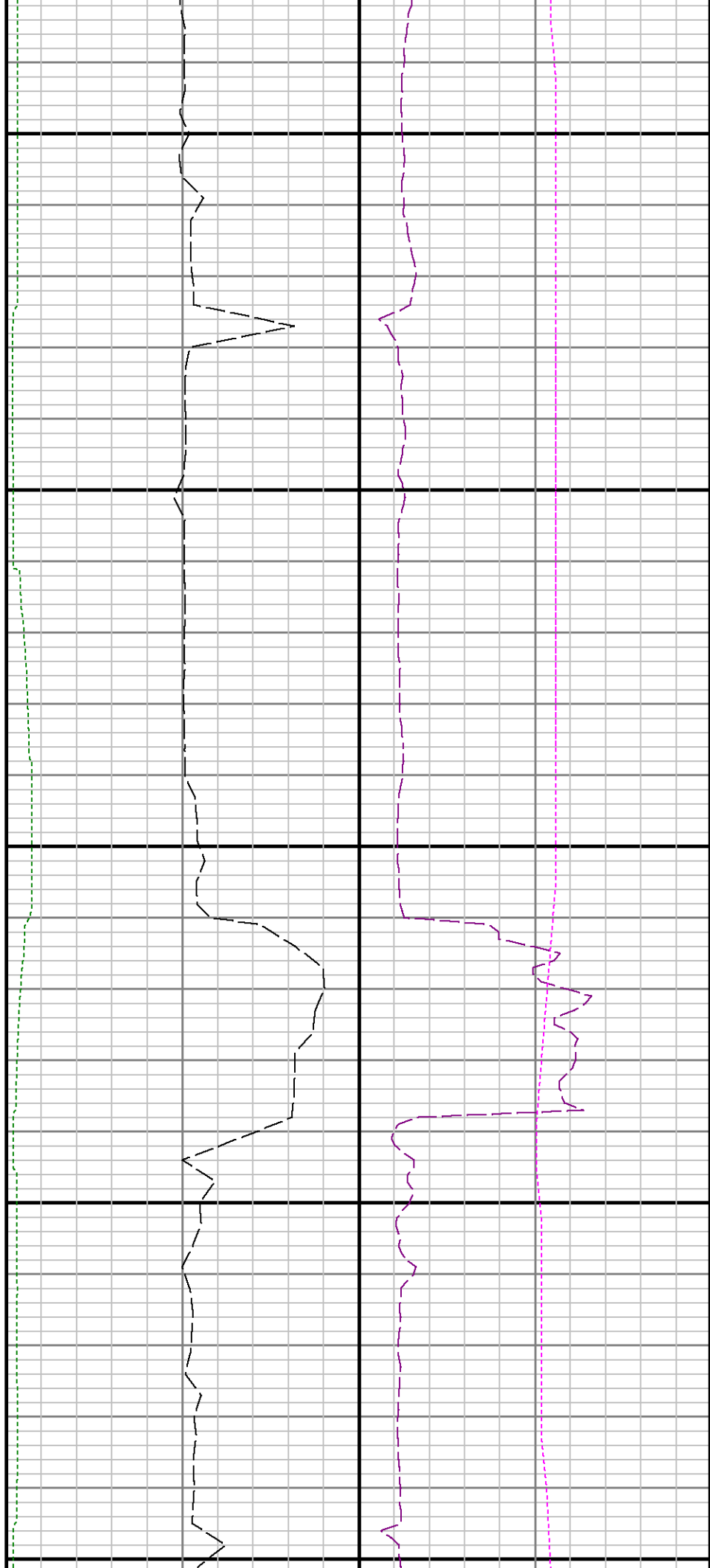


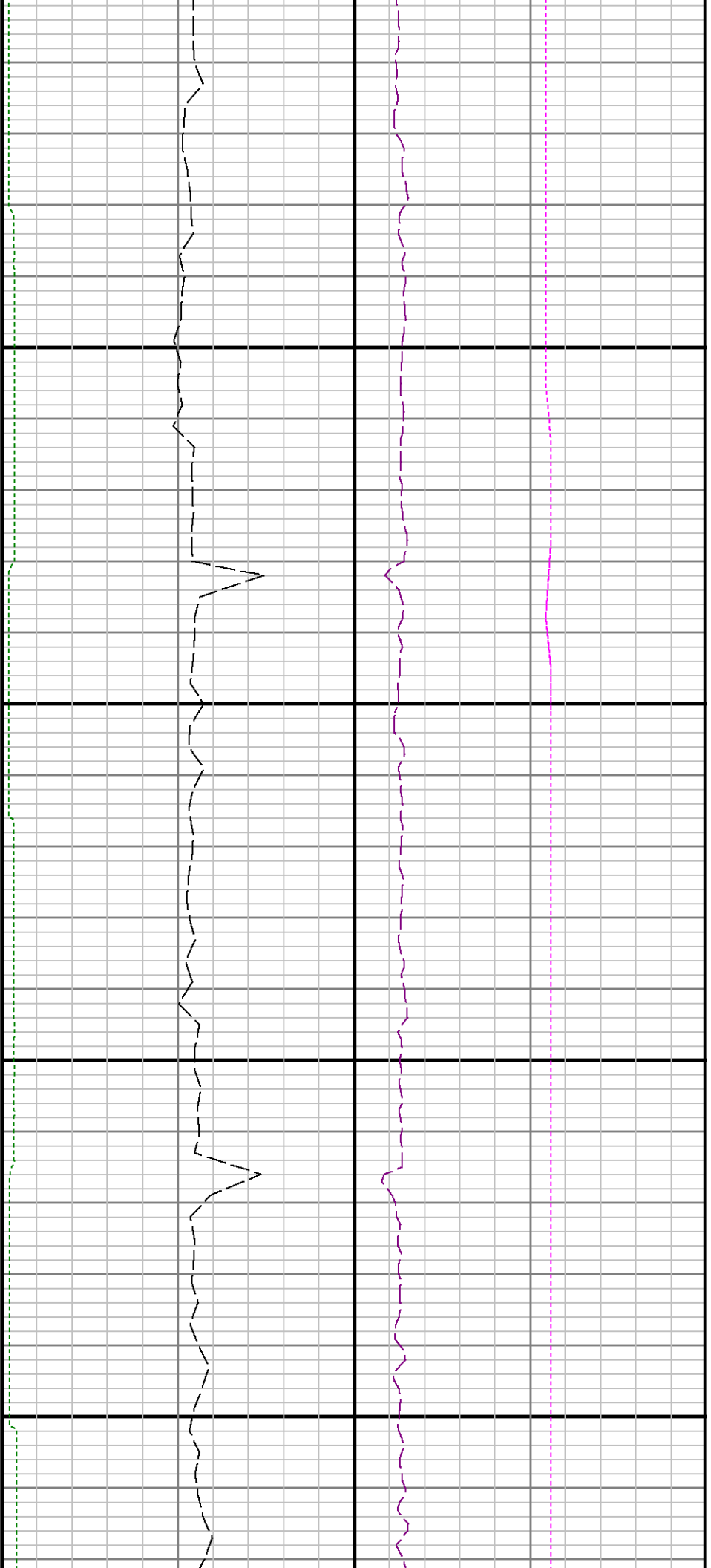




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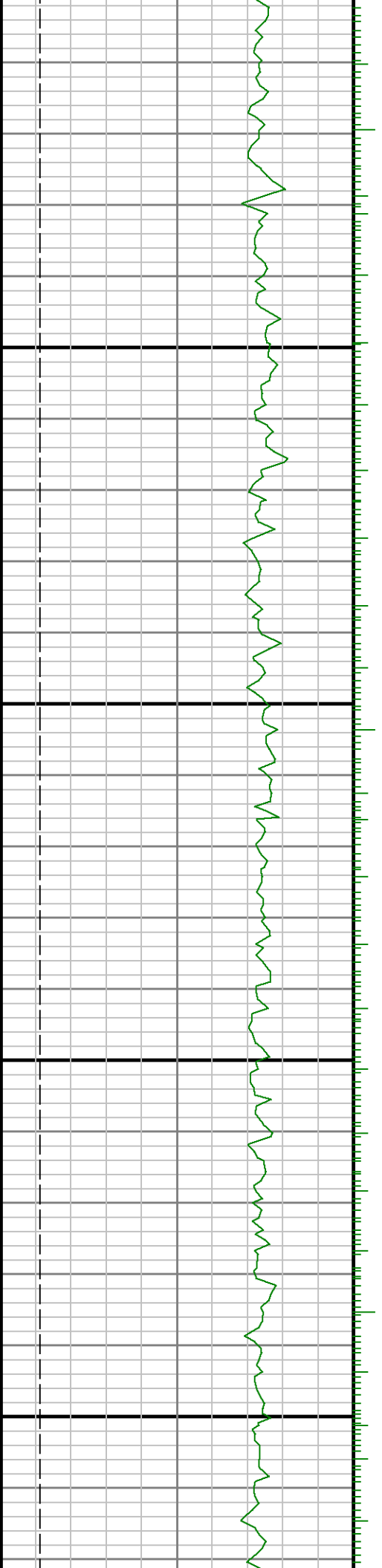
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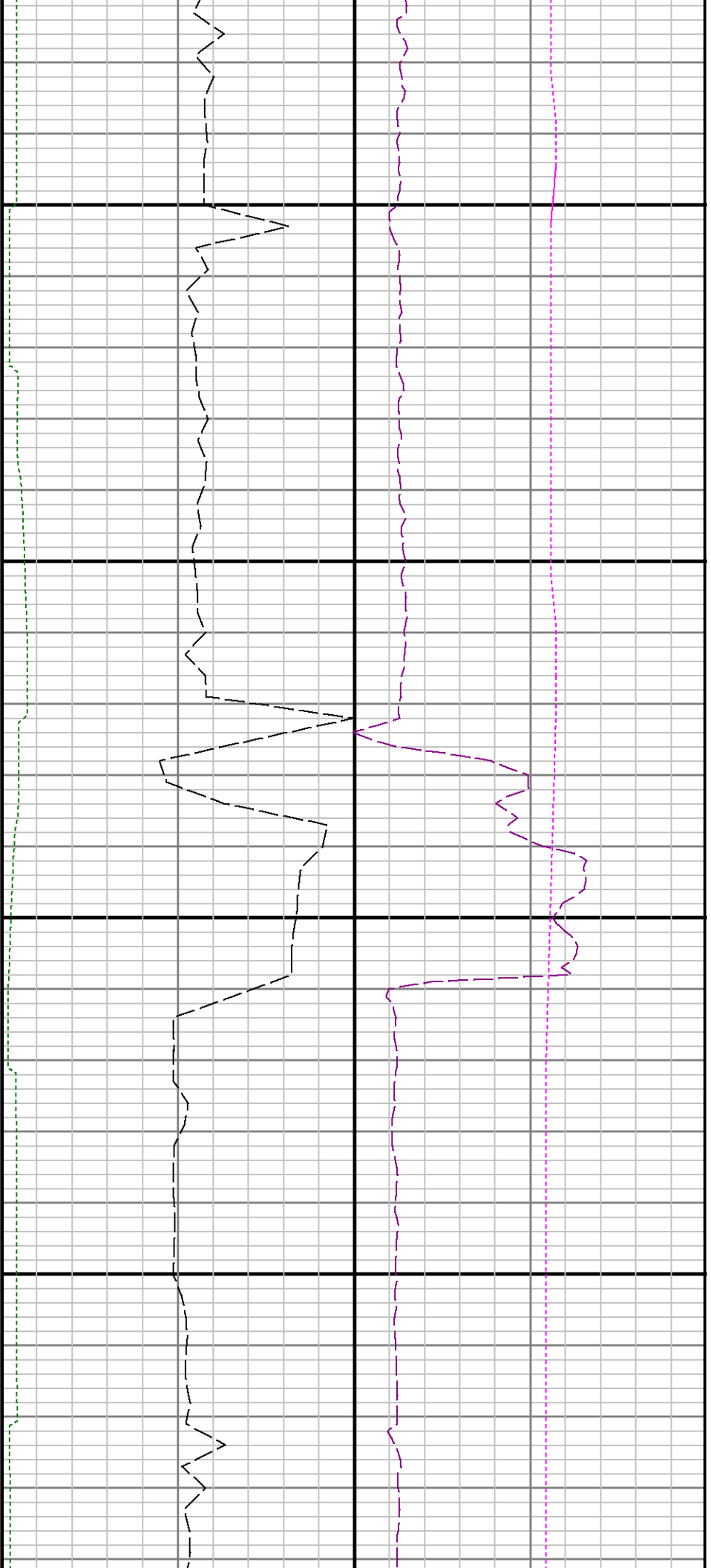




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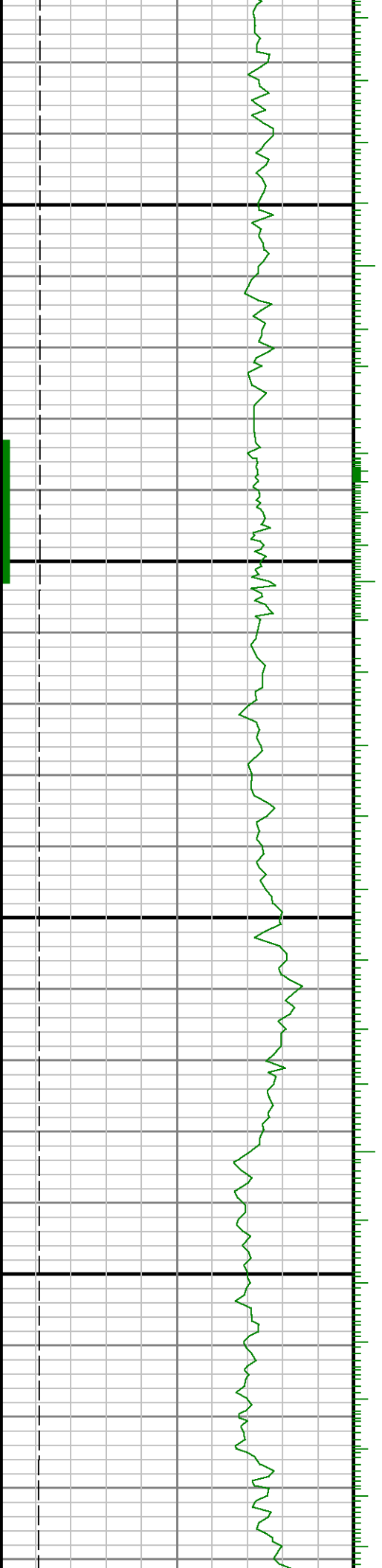
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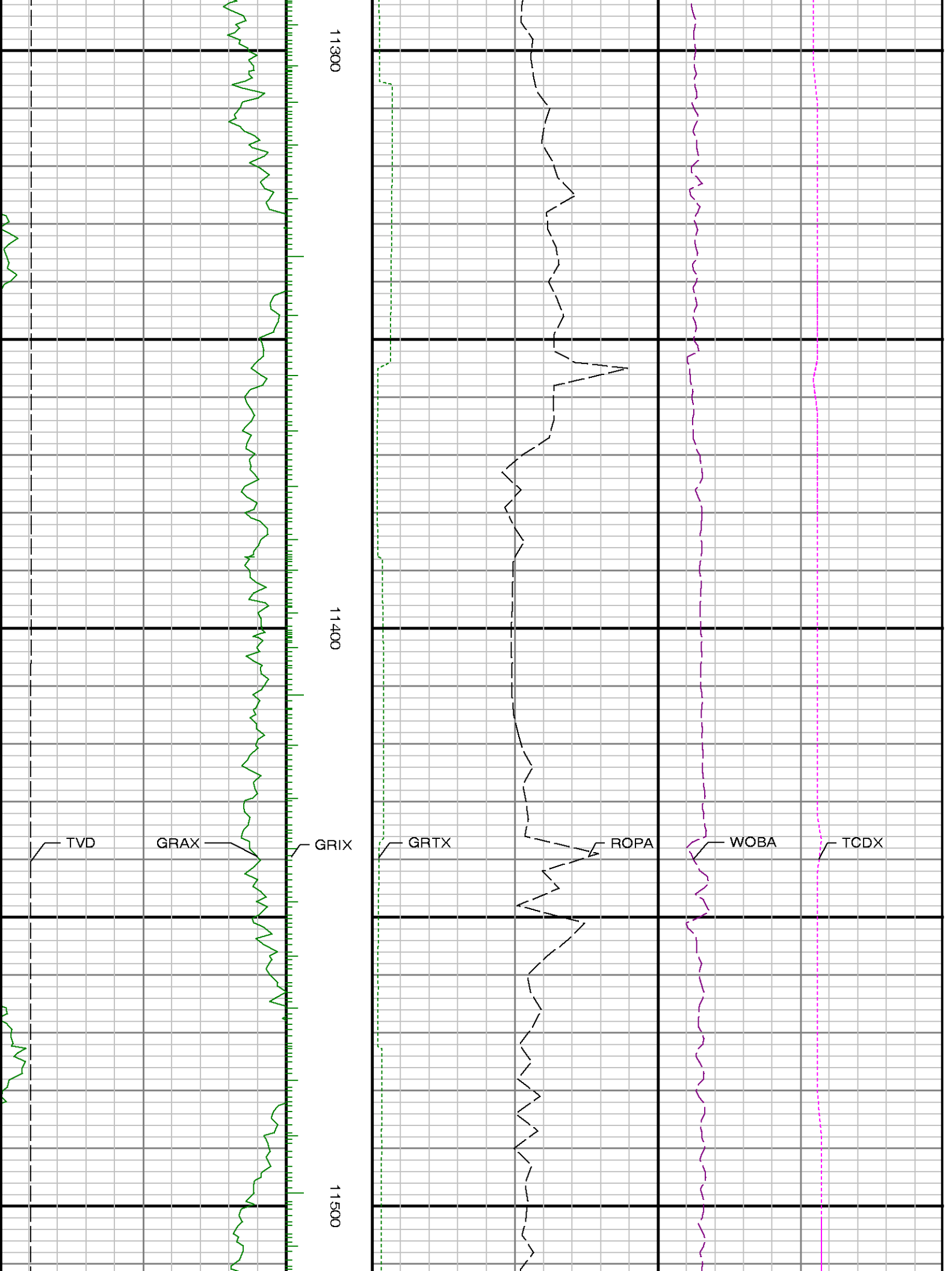


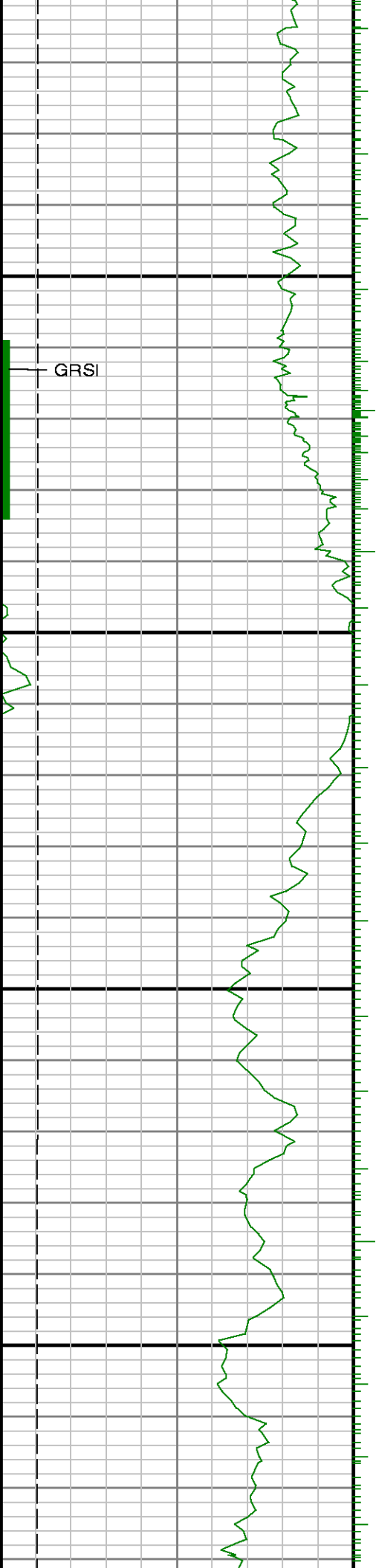


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