

BAKER HUGHES				Realtime Log			
				Natural Formation Evaluation Gamma Ray			
Scale:	1:240 Measured Depth			Company: Kerr-McGee Oil & Gas Onshore LP			
				Well: Butterball 37N-10HZ			
				Field: Wattenberg			
				Region: Continental US Country: United States			
Status:	Final Print			Surface Location:		Other Services:	
API Number:	05123409910000			Latitude: 40° 9' 29.322" N Longitude: 104° 52' 20.852" W		Directional VSS	
		Section:10		TWN: 2N Range:67W			
Permanent Datum (P.D.):		Ground Level		Elevation:		Elevations:	
Log Measured From:		Rig Floor		16.00 ft.		Above P.D.	
Depth Reference:		Driller's Depth				KB: N/A DF: 4936.00 ft. GL: 4920.00 ft.	
Interval Logged		Dates		Magnetic Field Reference			
Top:	1120 ft.	Date From:	07/Apr/15	Dip Angle:	66.90 °	Azi Reference North:	True
Bottom:	12916 ft.	Date To:	11/Apr/15	Total	Mag to Reference		
		Spud Date:	13/Feb/15	Field Strength:	52684.4 nT	North Correction:	8.58 °
Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
13.000 in.	Surface ft.	1120 ft.	9.625 in.	32.30 lb/ft	0 ft.	1120 ft.	
7.875 in.	1120 ft.	12973 ft.					

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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	1	7.875	PDC	2.000	Steerable	N/A	N/A	1120	1626	07/Apr/2015 13:30	07/Apr/2015 19:02		2.4	
2	2	2	7.875	PDC	2.000	Steerable	6700	6828	1627	6876	07/Apr/2015 19:30	08/Apr/2015 21:00		17.4	
3	3	3	7.875	PDC	2.000	Steerable	6828	8213	6879	8260	08/Apr/2015 21:24	09/Apr/2015 17:00		11	
4	4	4	7.875	PDC	2.000	Steerable	8213	12916	8262	12973	09/Apr/2015 18:00	11/Apr/2015 10:00		25.1	

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Adam Harris	06/Apr/2015	11/Apr/2015	Matthew Leopold	06/Apr/2015	11/Apr/2015	Dan Pope	06/Apr/2015	08/Apr/2015

Jason Cross	08/Apr/2015	11/Apr/2015	Andrew Overbey	06/Apr/2015	11/Apr/2015			
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Mud Properties Record

Date / Time		LWD	Measured	Mud	Density	Viscosity	pH	Fluid	Oil /	Source	Total	K+
		Run No.	Depth	Type	(sg)	(cp)		Loss	Water		Chlorides	
			(ft.)					(cc)			(ppm)	(%)
08/Apr/2015	04:02	2	1626	Oil Based Mud	9.3	61	N/A	N/A	51 / 40	Active Mud Pit	77500	N/A
09/Apr/2015	18:00	4	8260	Oil Based Mud	9.3	55	N/A	N/A	55 / 34	Active Mud Pit	88000	N/A
10/Apr/2015	23:59	4	12084	Oil Based Mud	9.4	54	N/A	N/A	53 / 36	Active Mud Pit	89000	N/A

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRTX	Gamma Ray Time Since Drilled	Min.
GRIX	Gamma Ray Data Density	Unitless
GRSI	Gamma Ray Slide Indicator	Unitless
ROPA	Rate of Penetration, 3.0 ft. Avg.	Ft./Hr.
TCDX	Downhole Temperature	Deg. F.
TVD	True Vertical Depth	Ft.
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	K. lbs.

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12323368	Directional	52.38	6.750	3.125
1	SRIG	12041109	Gamma	49.01	6.750	3.125
2	DIR	12617359	Directional	50.62	6.750	3.125
2	SRIG	11814653	Gamma	47.25	6.750	3.125
3	DIR	12617359	Directional	49.31	6.750	3.125
3	SRIG	11814653	Gamma	45.94	6.750	3.125
4	DIR	12617359	Directional	57.89	6.750	3.125
4	SRIG	11814653	Gamma	54.52	6.750	3.125

Service and Tool Mnemonics

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

Comments

1) Baker Hughes INTEQ runs 1, 2, 3 and 4 utilized a 6 1/2 inch NaviGamma (Directional and Gamma Ray) tool ran behind an 7 7/8 inch bit with a steerable assembly from 1120 to 12973 feet MD (1119 to 7362 feet TVD).

2) A sliding indicator is shown on the left side of track 1 as a heavy line. The indicator has been shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.

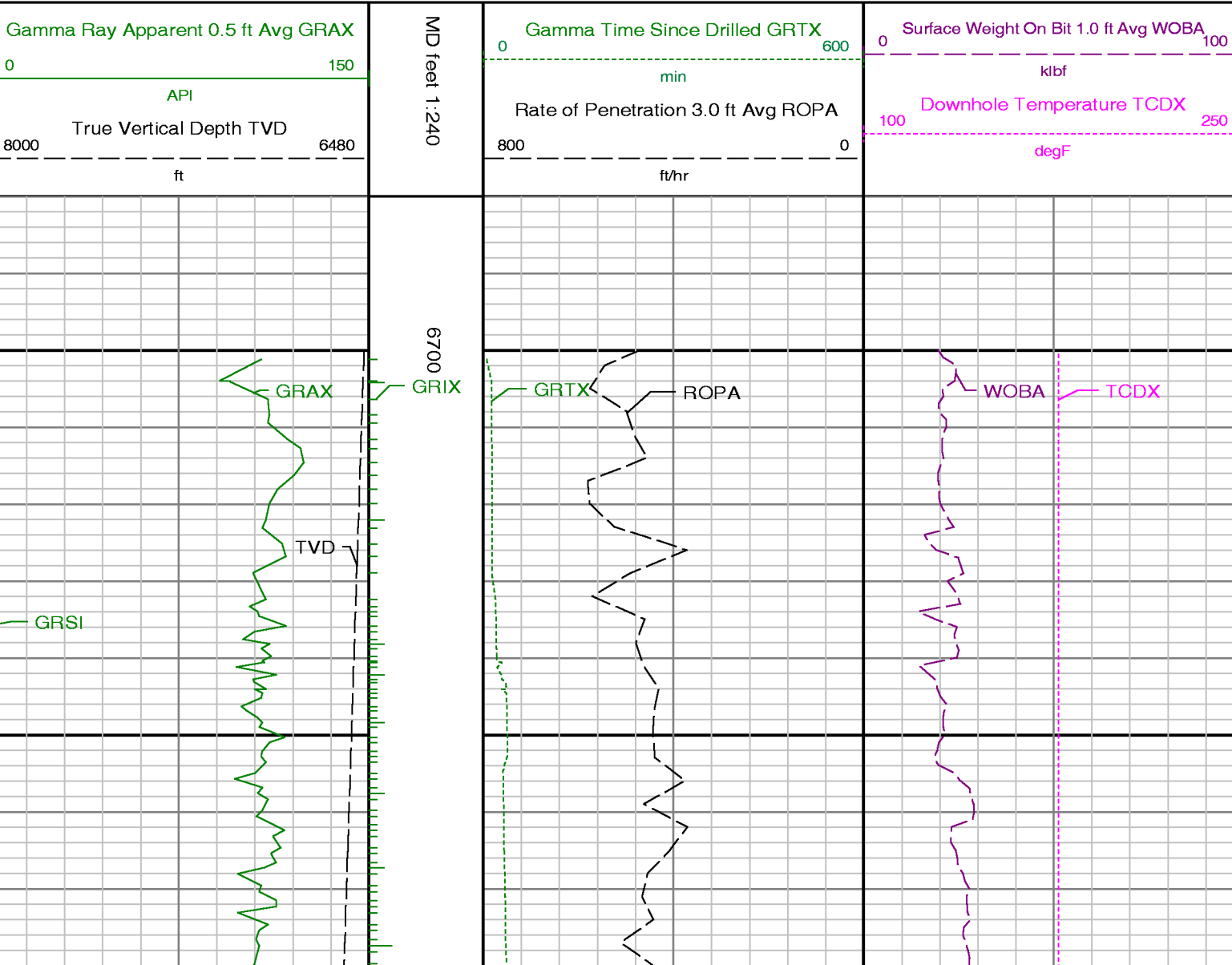
3) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes INTEQ. Due to lack of control by Baker Hughes INTEQ logging engineers, depth calibration and measurements could not be independently verified.

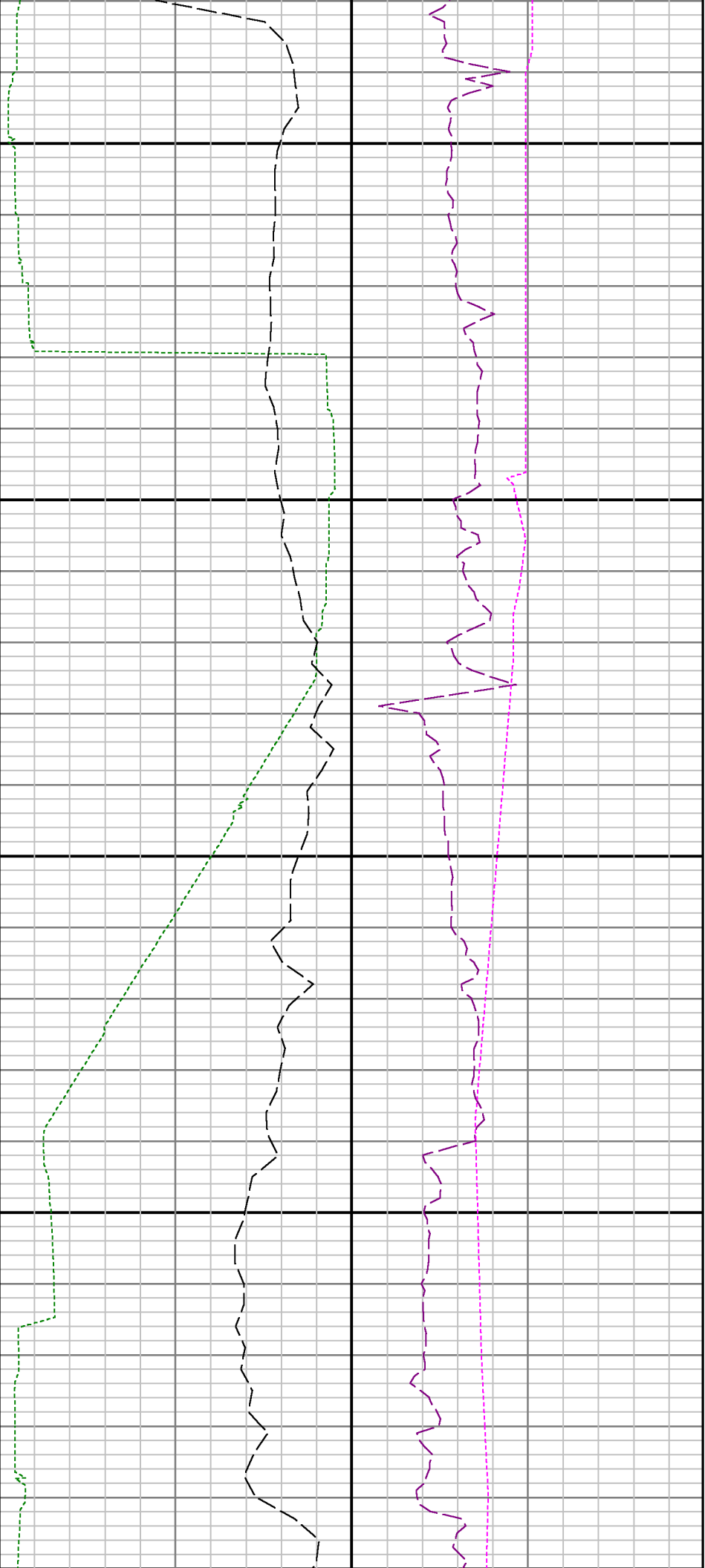
Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6690	7.875	2	The interval from surface to 6700 feet MD (0 to 6499 feet TVD) was not logged due to directional only services required up to the curve.
2	8215	7.875	3	The interval from 8212 to 8264 feet MD (7315 feet TVD) was logged up to 11 hours after being drilled due to trip out of hole to change BHA.
3	12922	7.875	4	The interval from 12914 to 12973 feet MD (7362 feet TVD) has no GRAX, GRIX or GRTX due to the Gamma Ray sensor offset to bit.



Company : Kerr-McGee Oil & Gas Onshore LP
 Well : Butterball 37N-10HZ
 Interval : 6680.00 - 12980.00 feet
 Created : 11/Apr/2015 3:14:40 AM



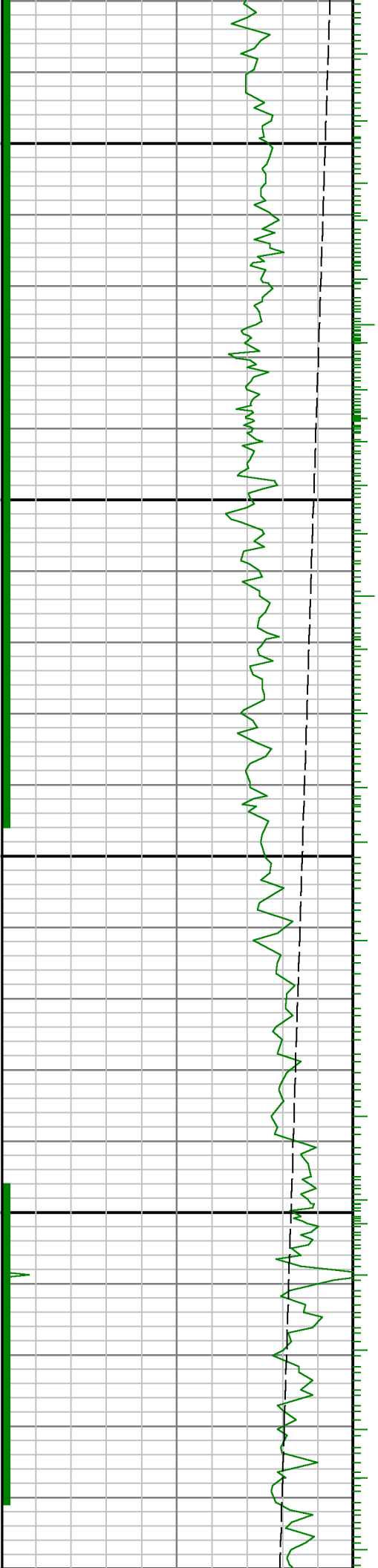


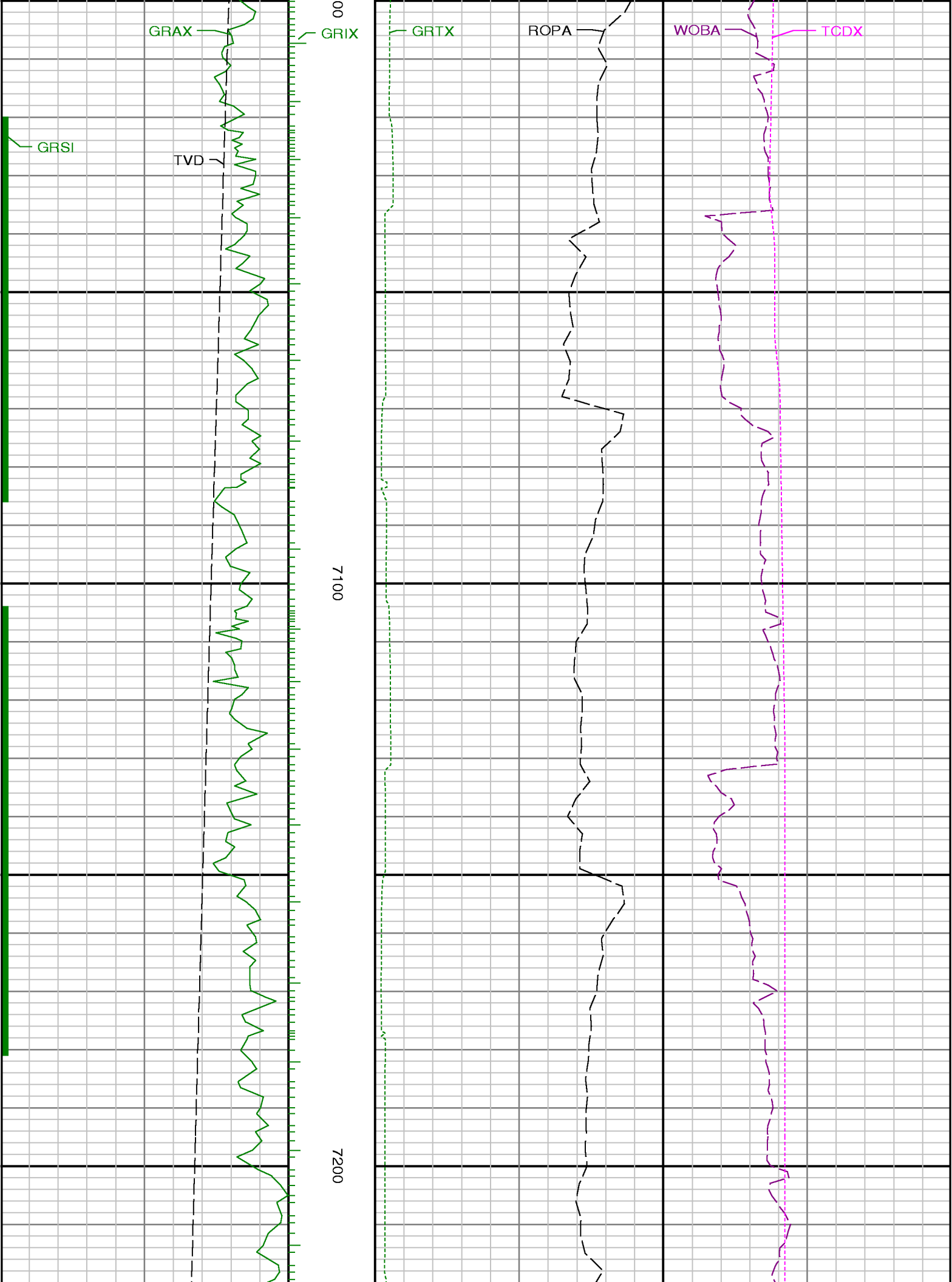
Run 2 <> Run 3

6800

6900

70

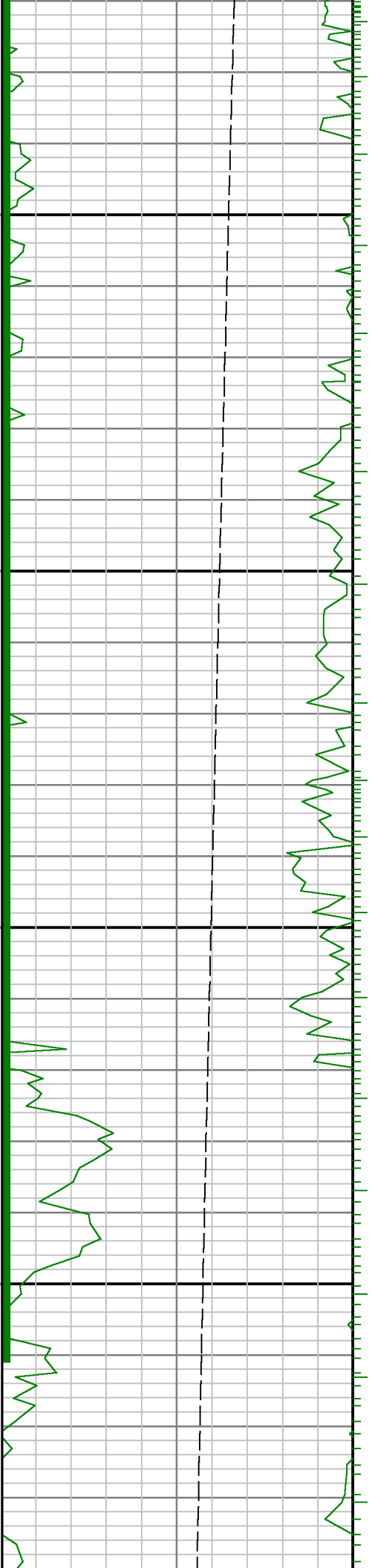


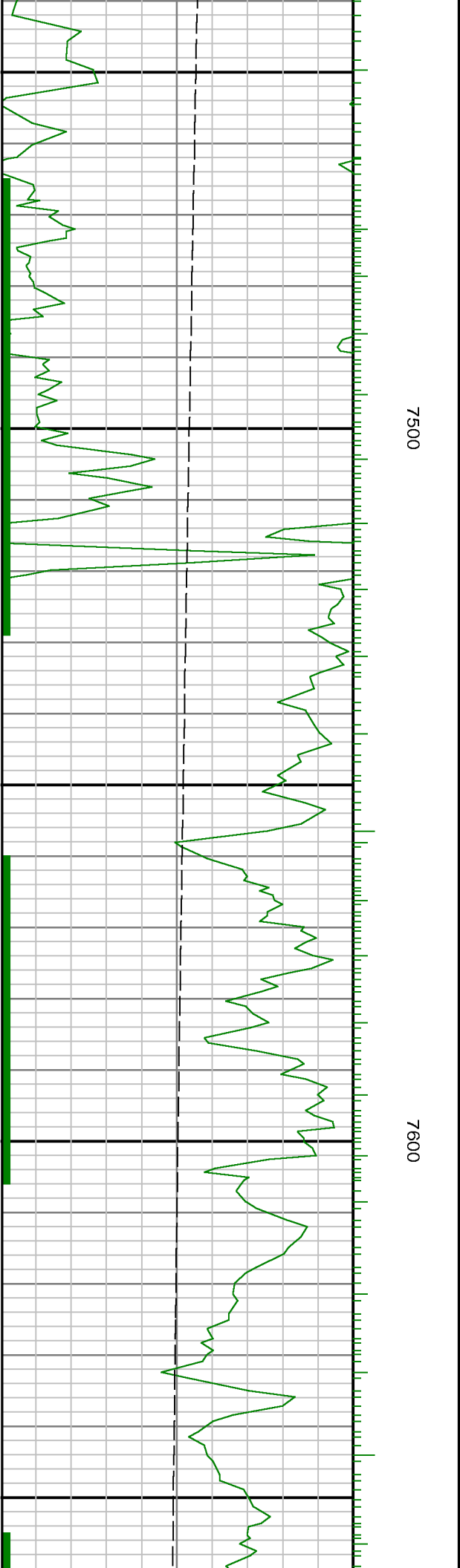


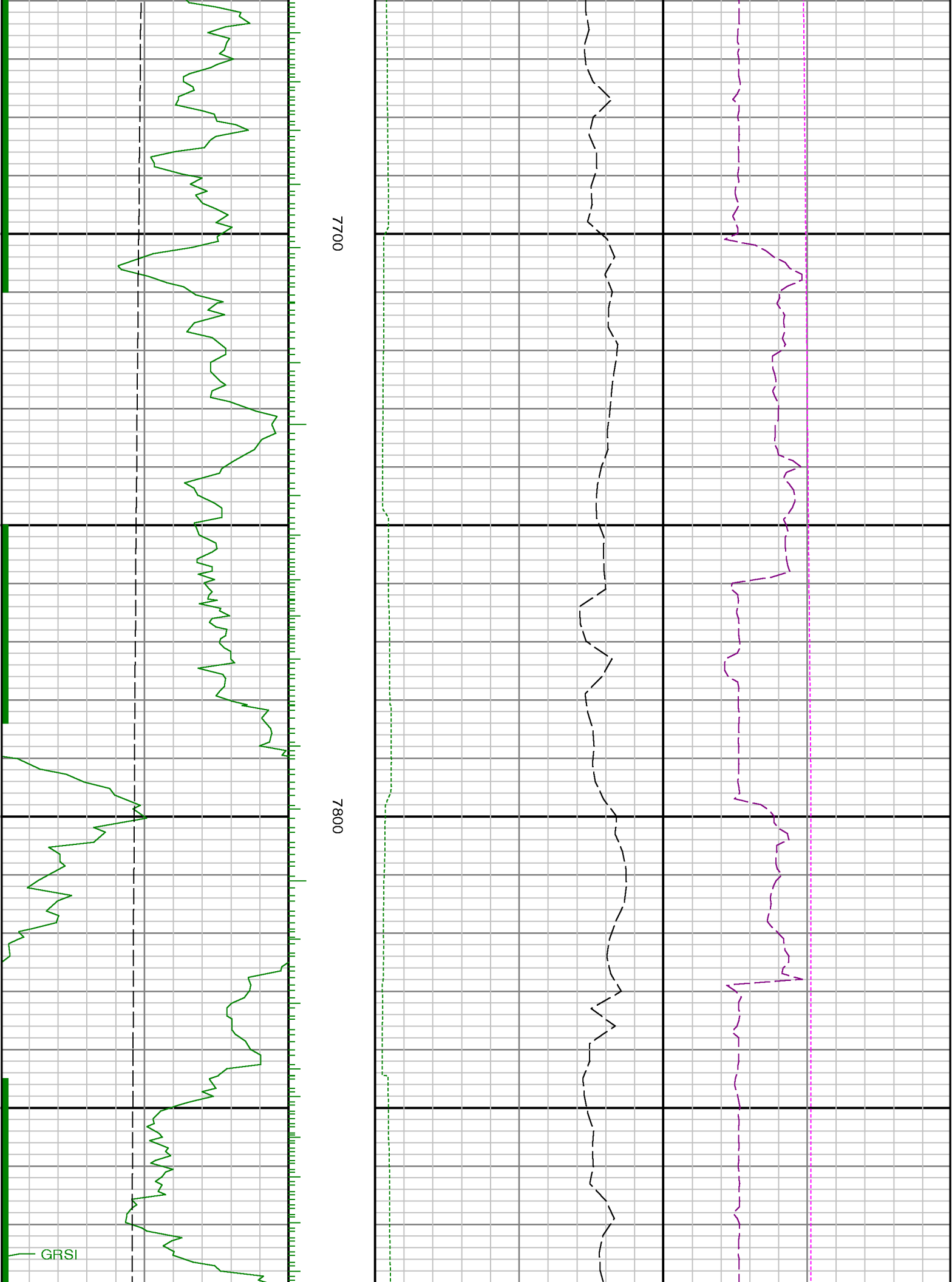


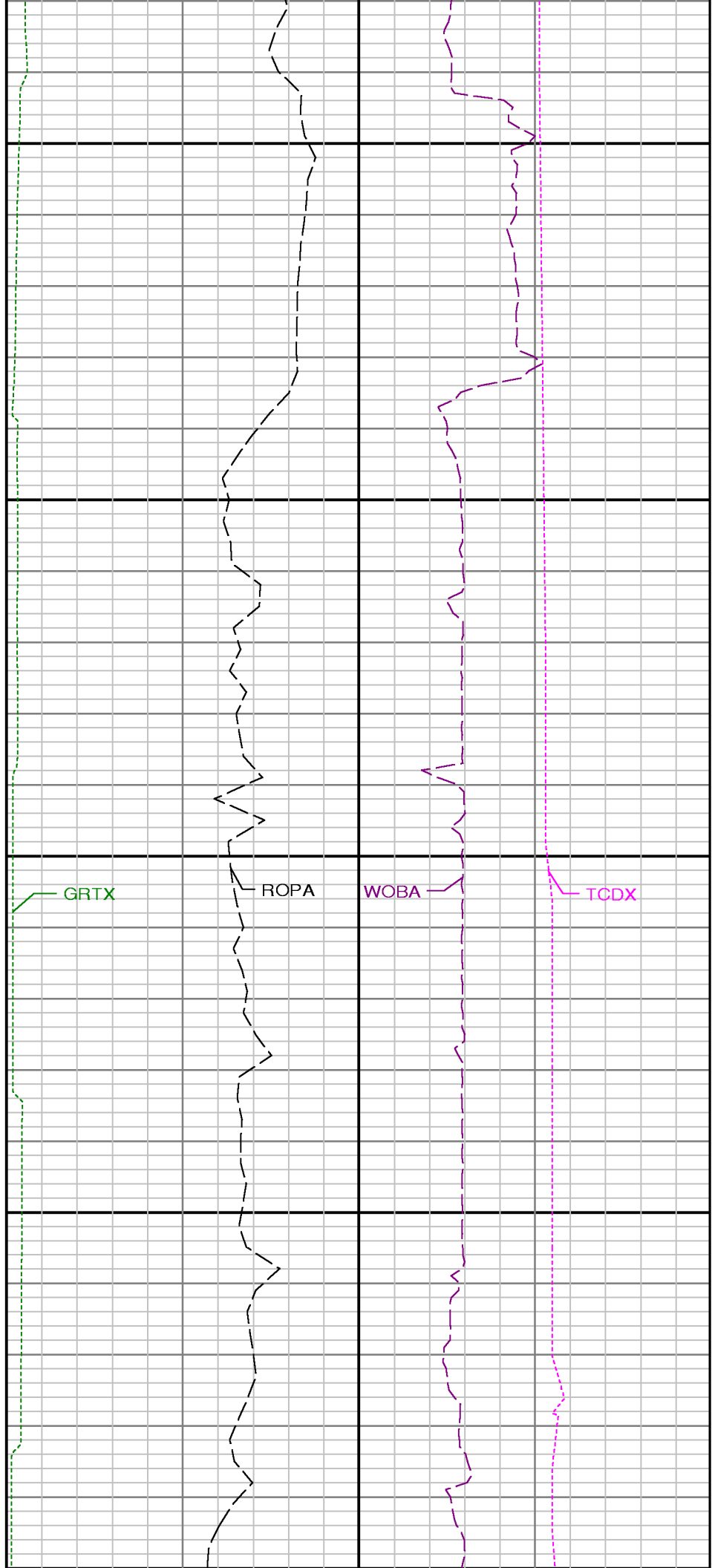
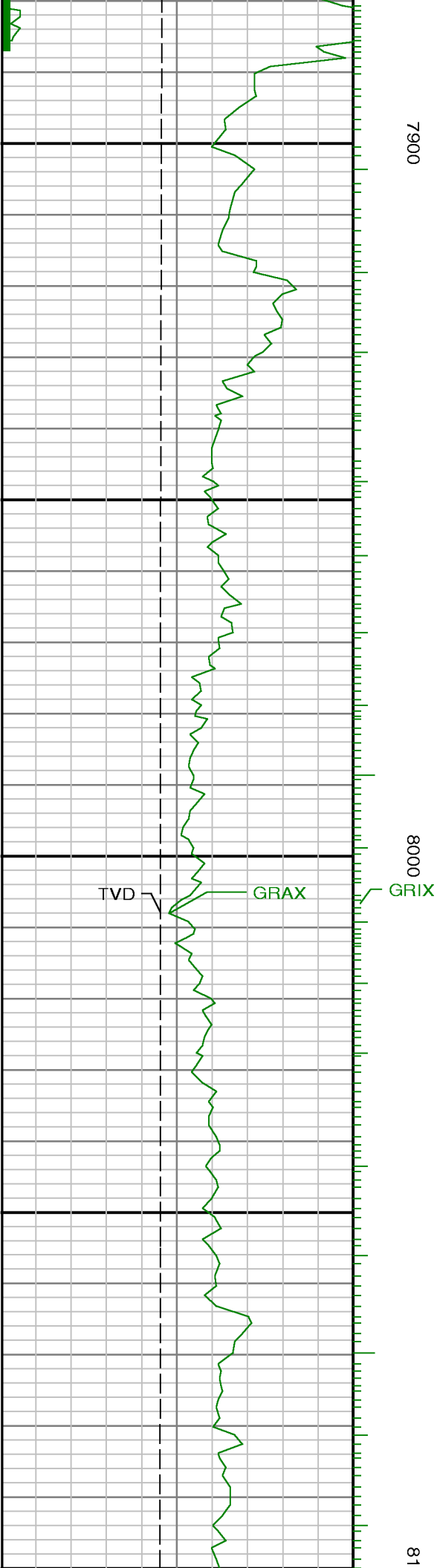
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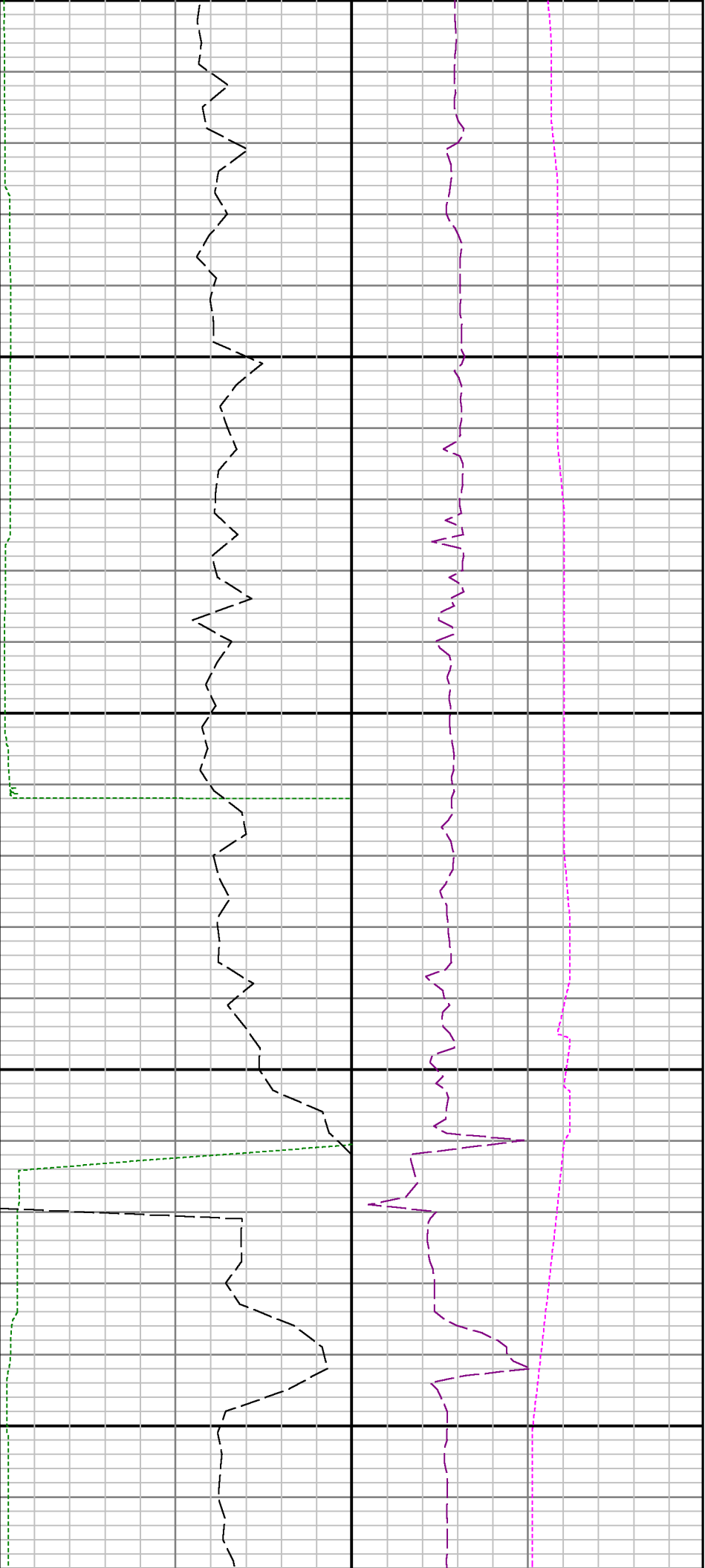
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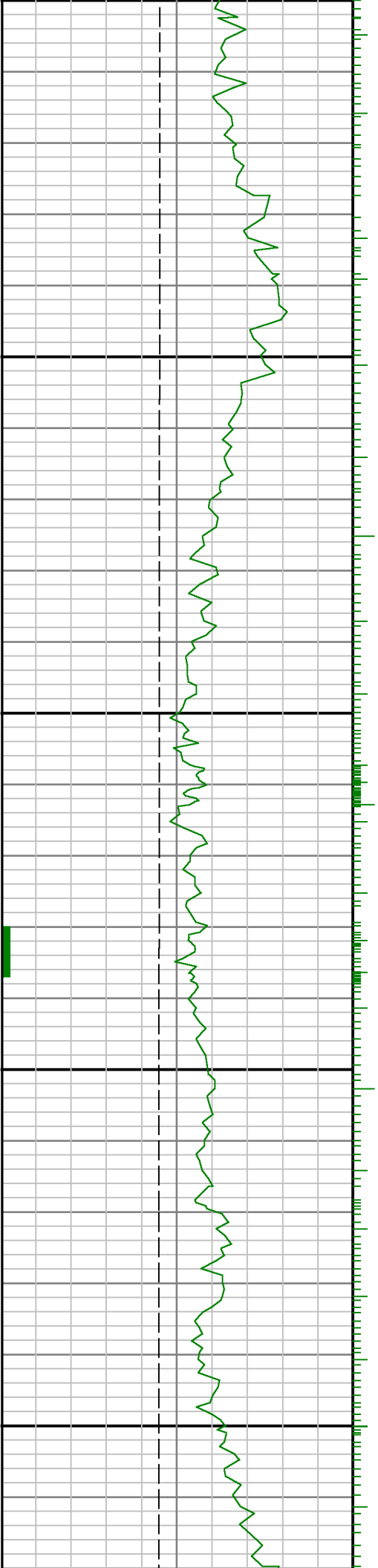


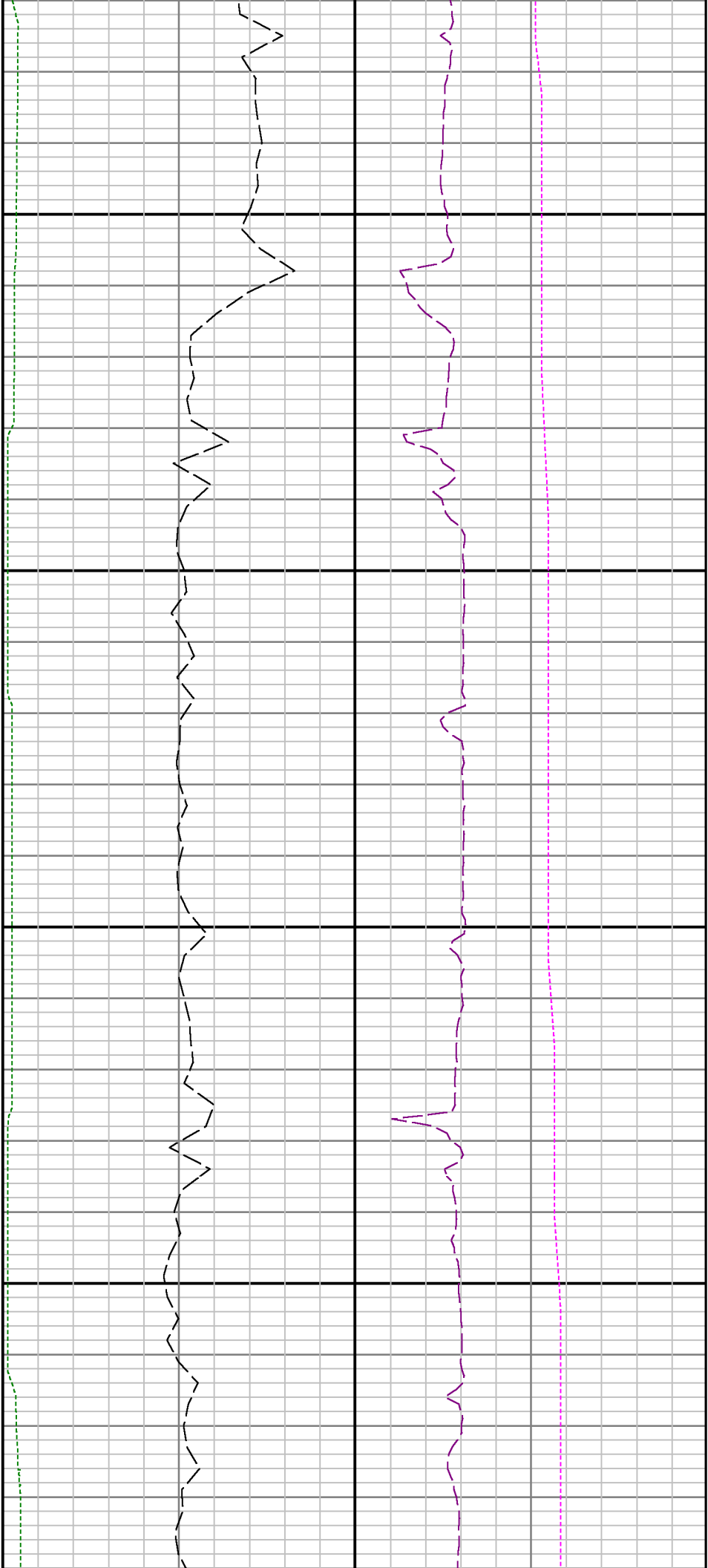
Run 3 <> Run 4

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8200

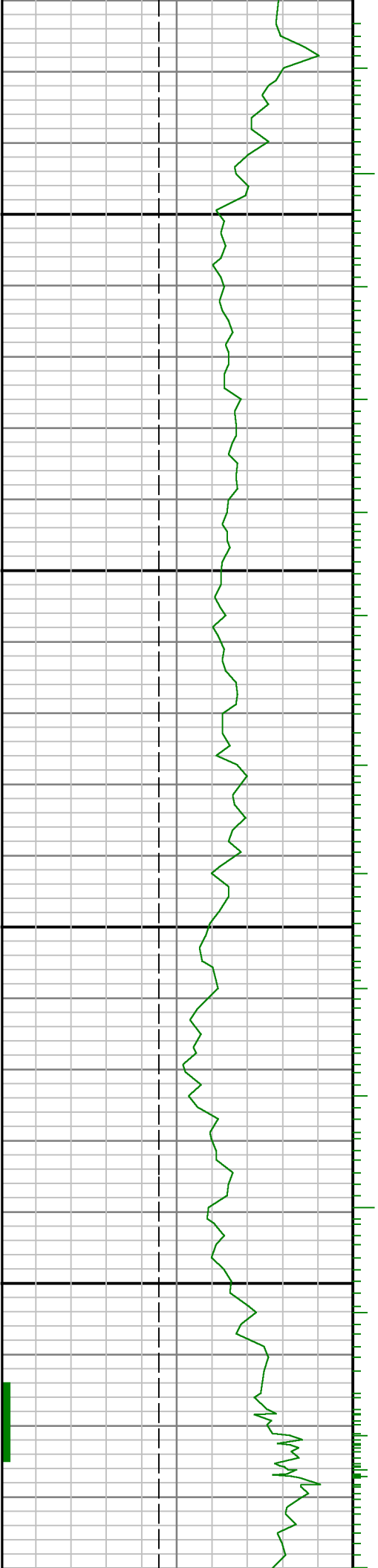
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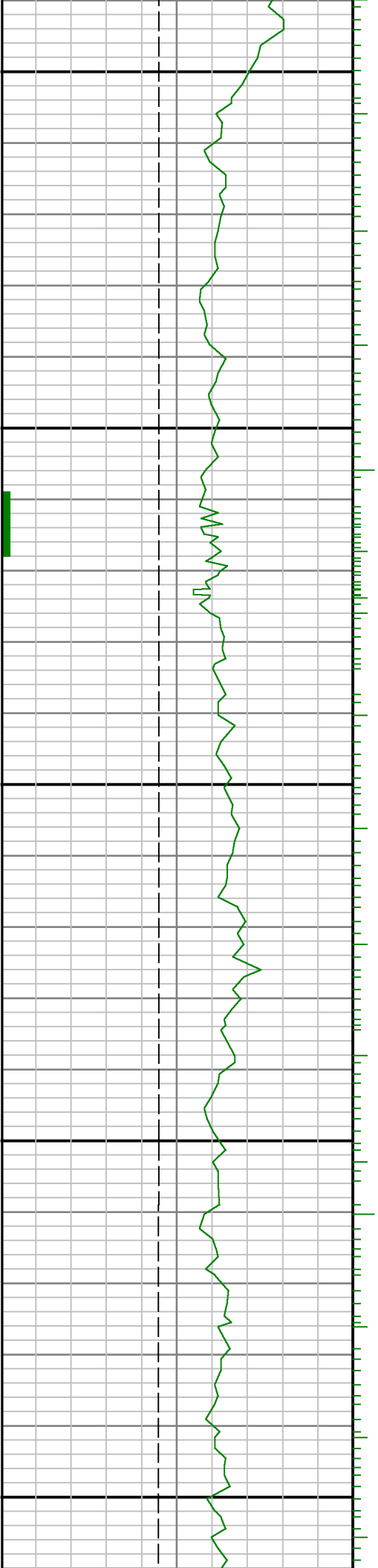




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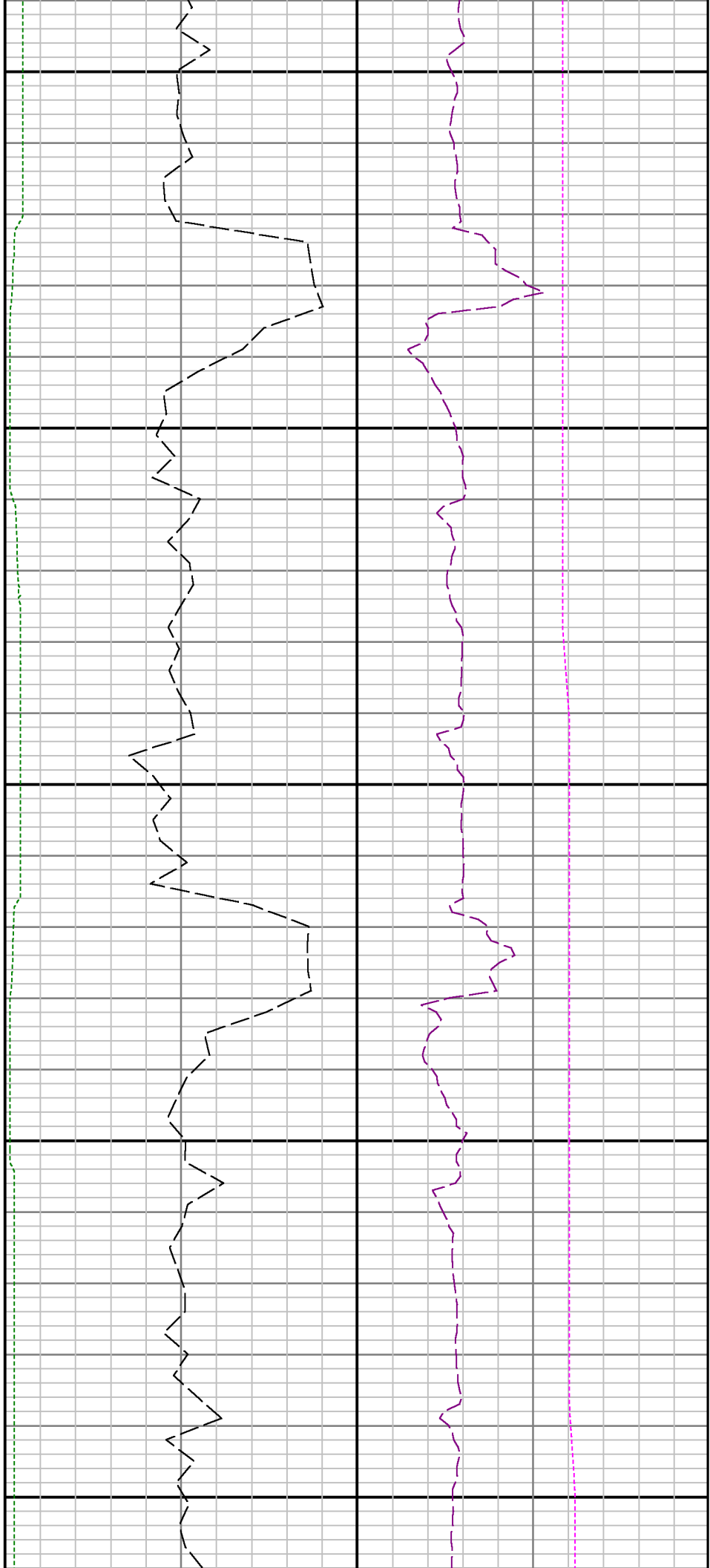
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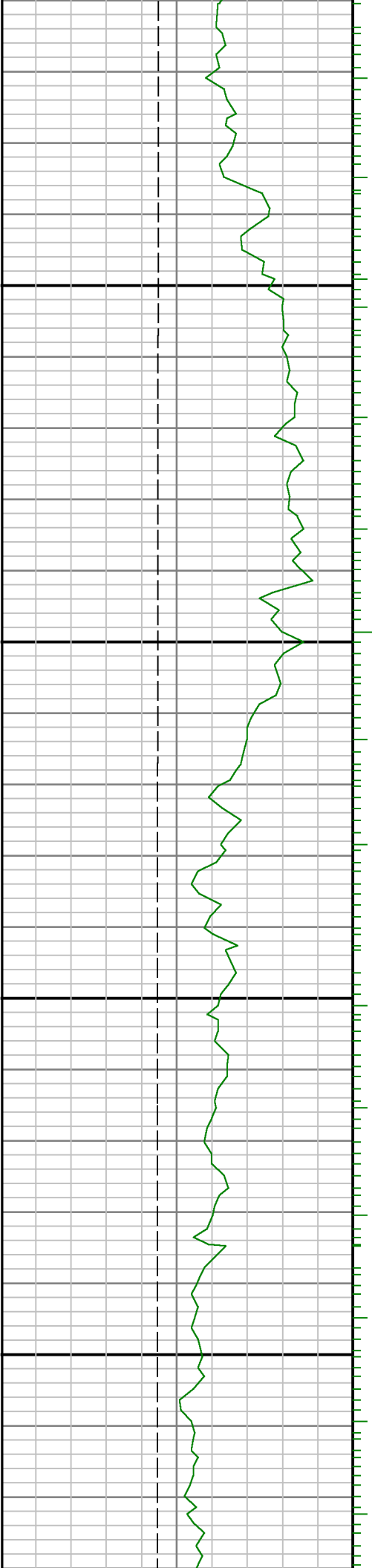




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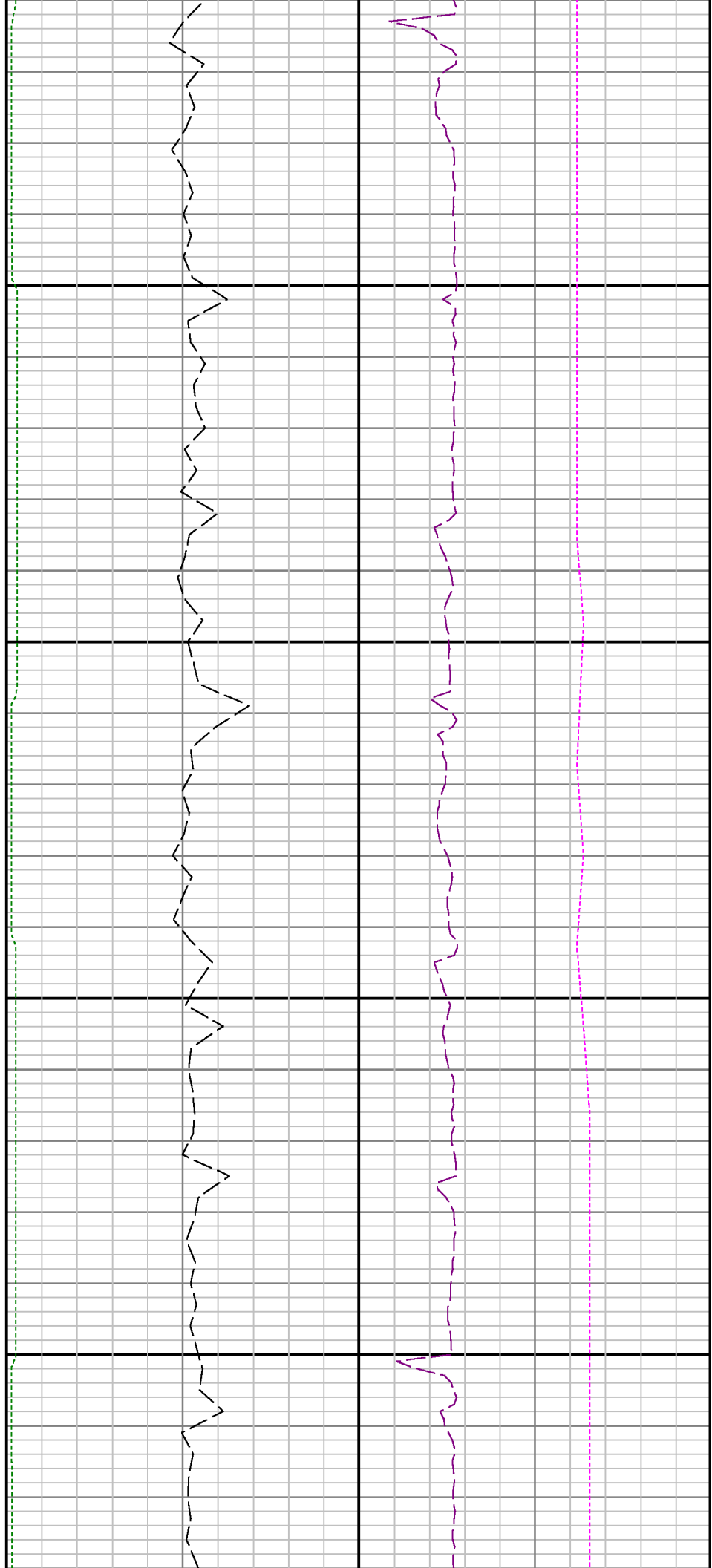
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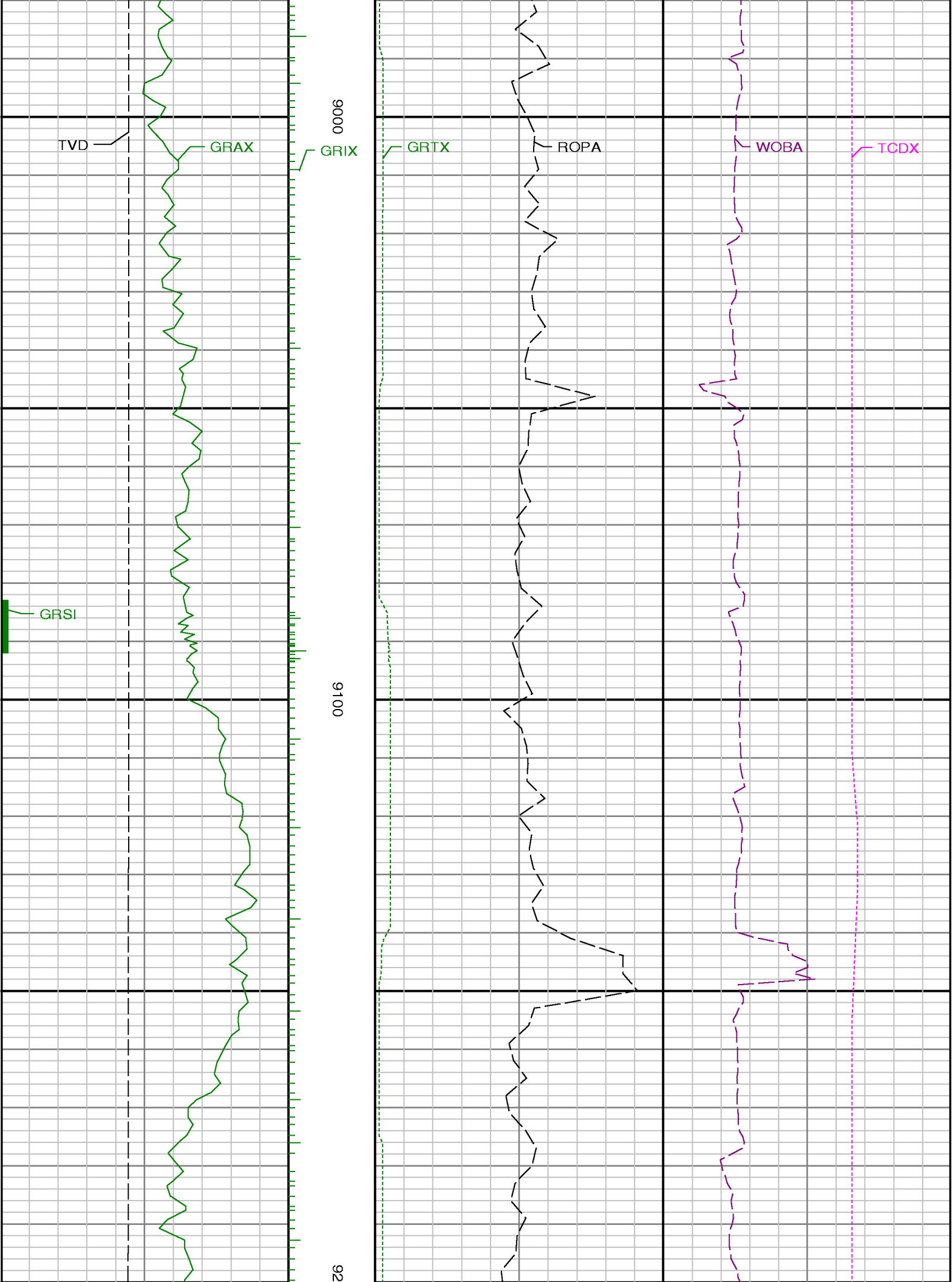


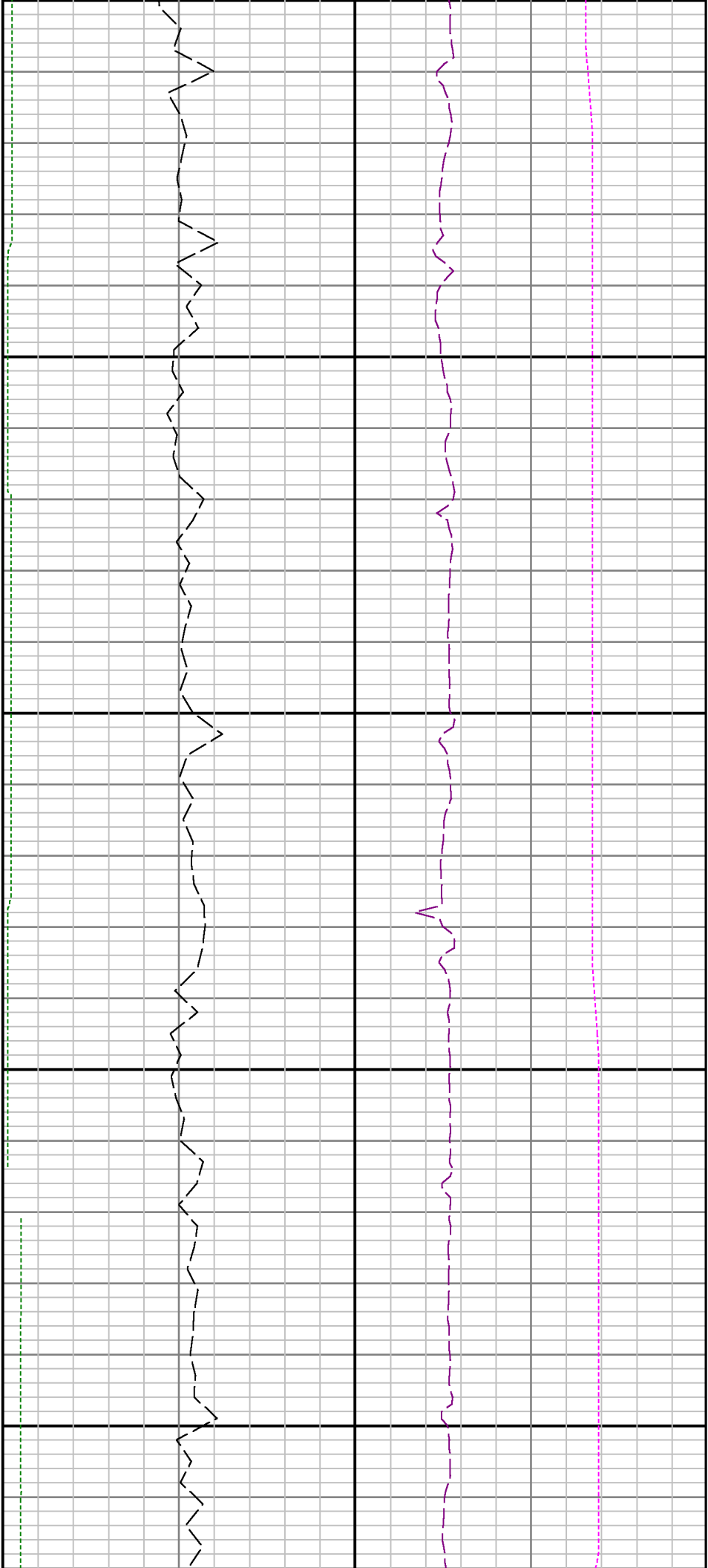


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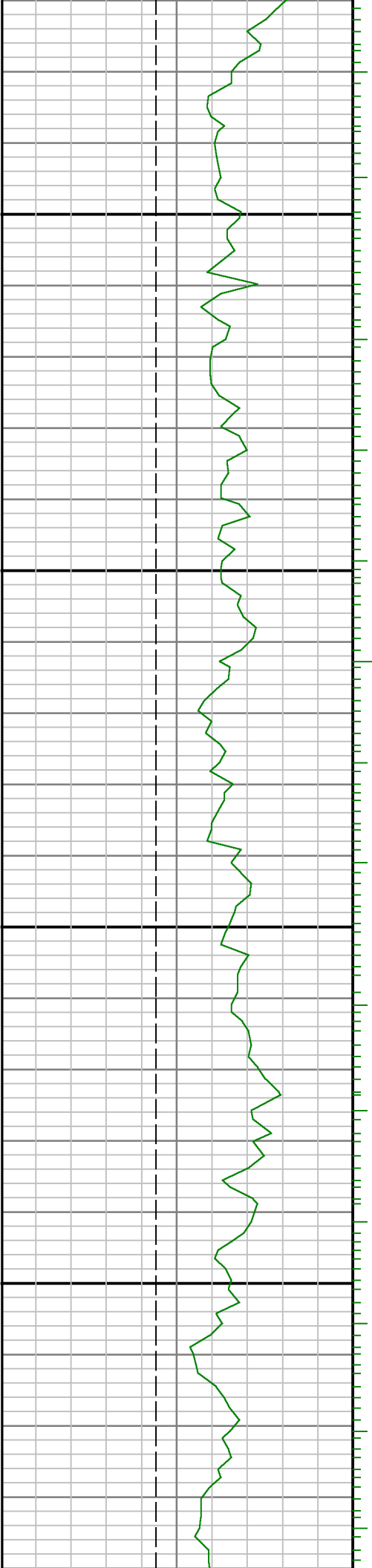




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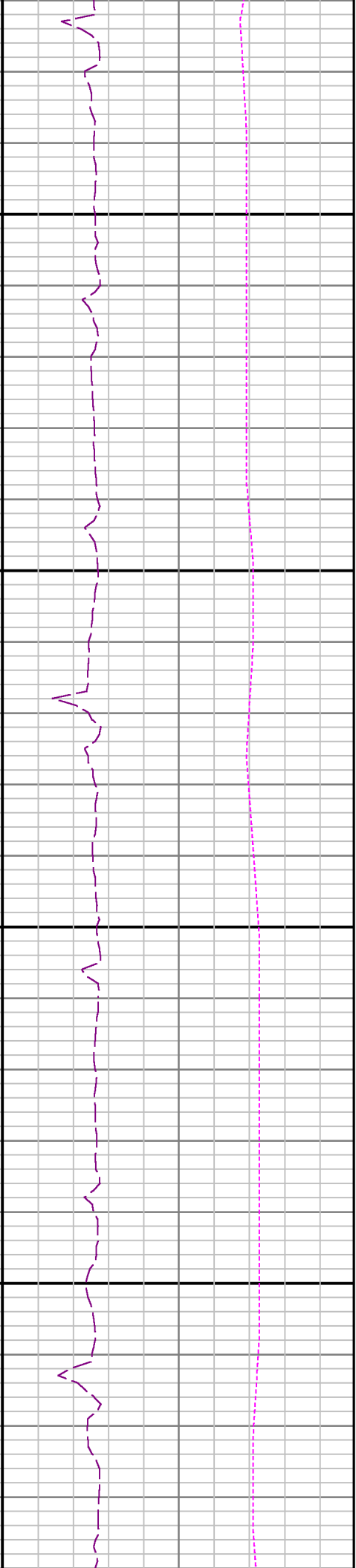
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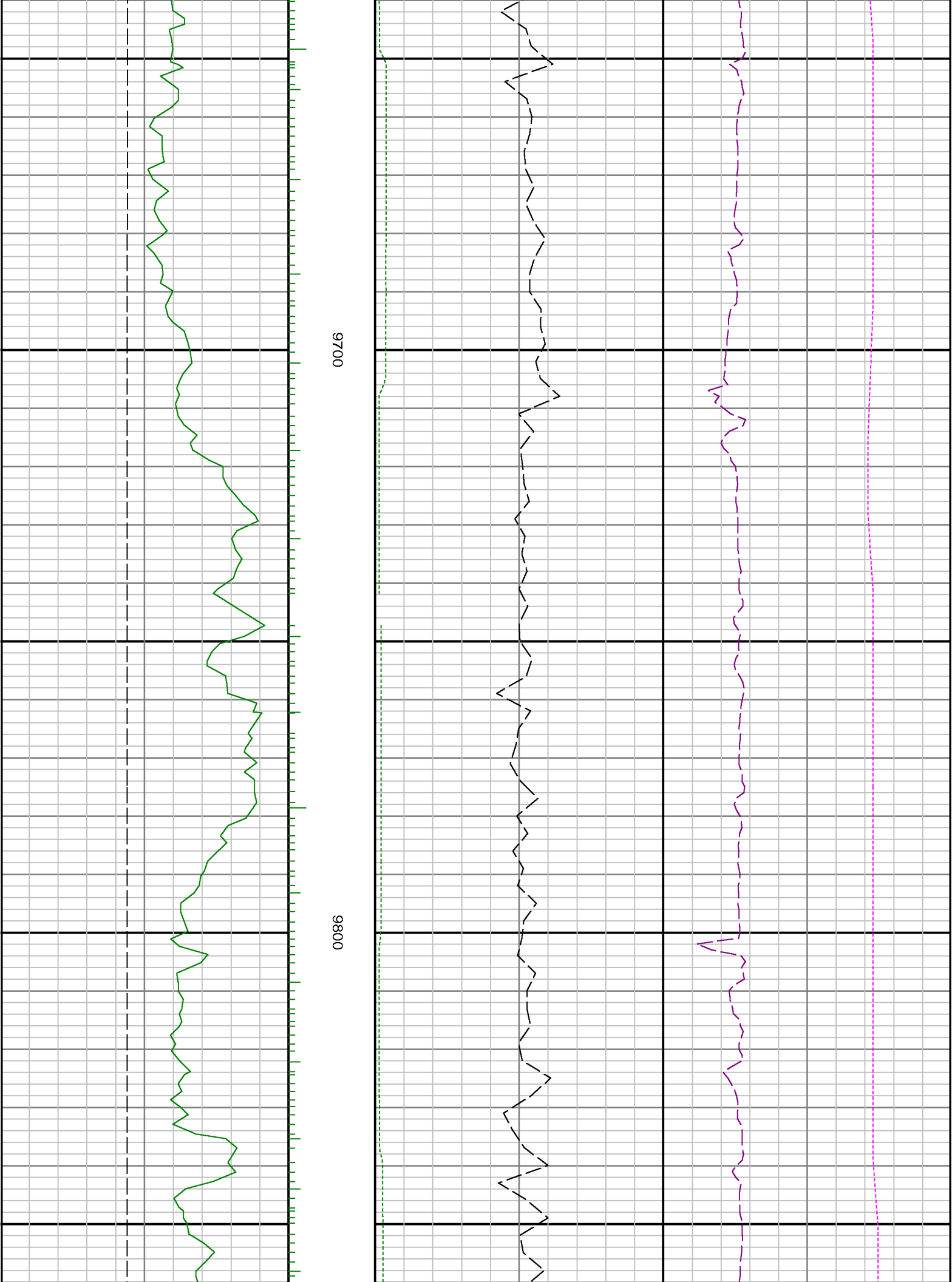
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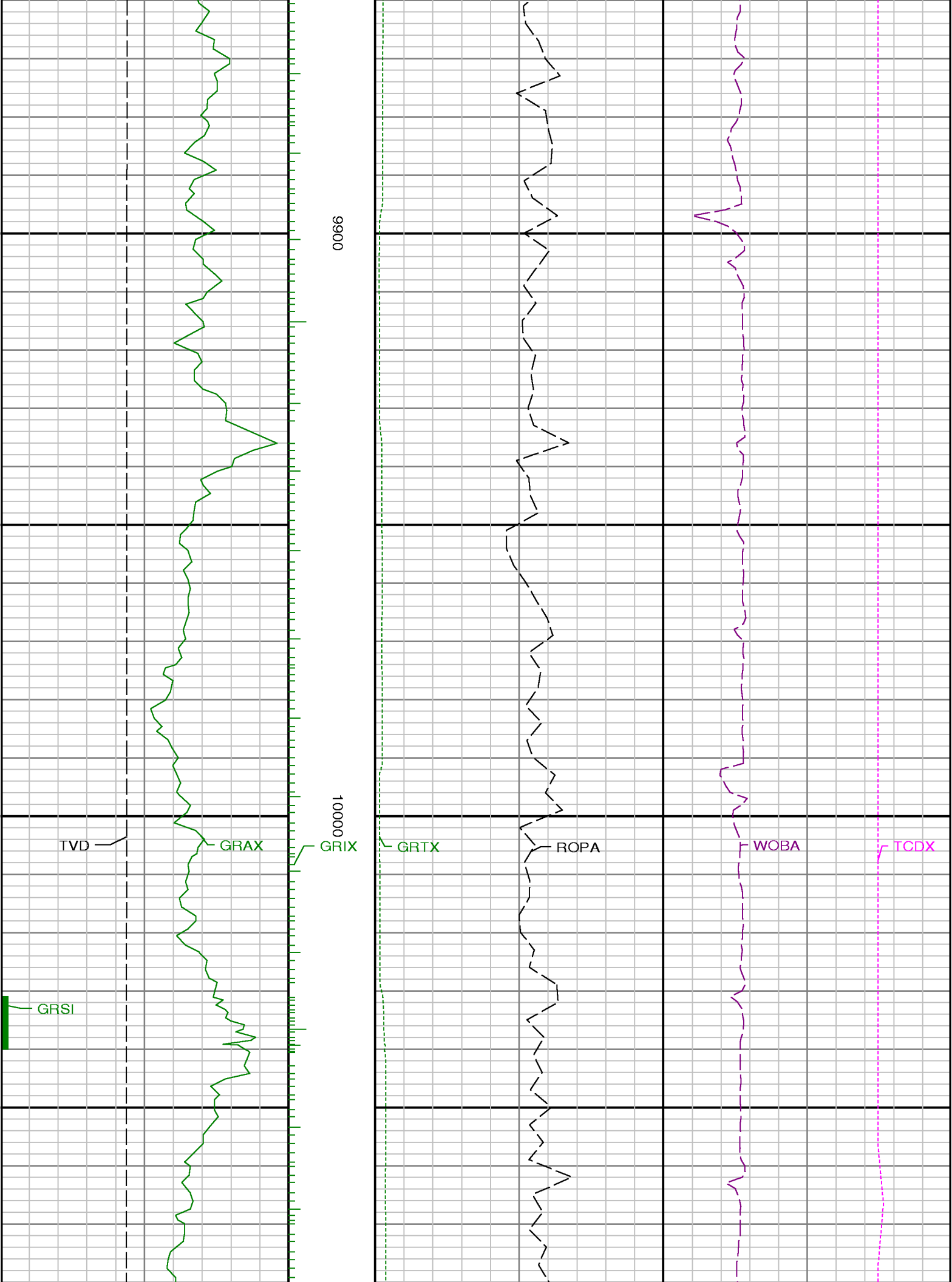


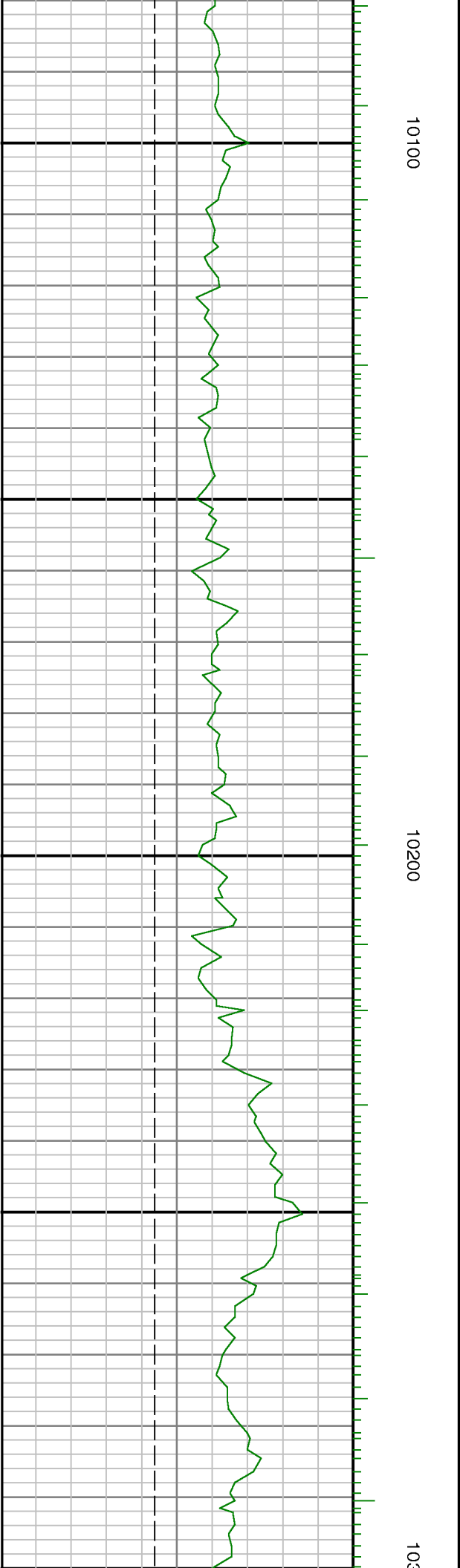
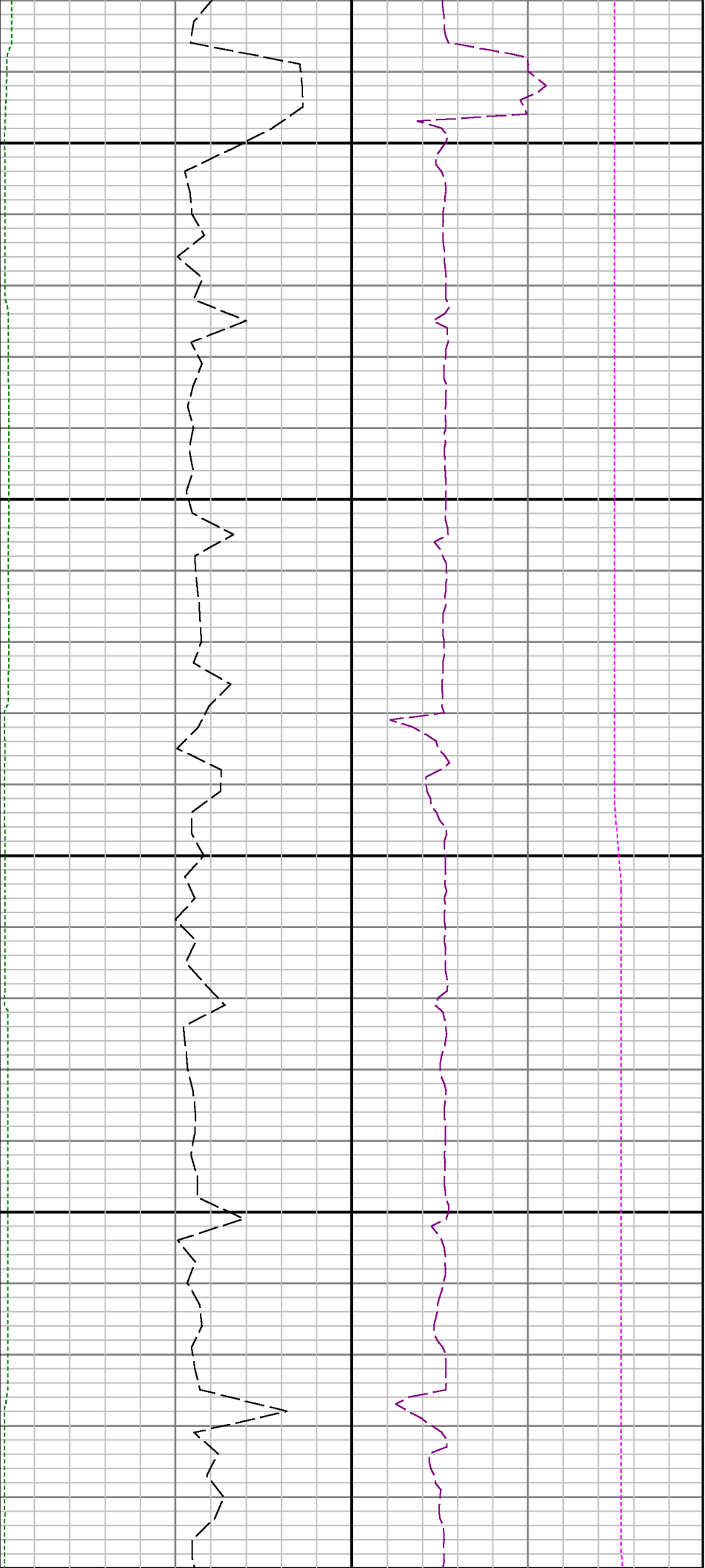
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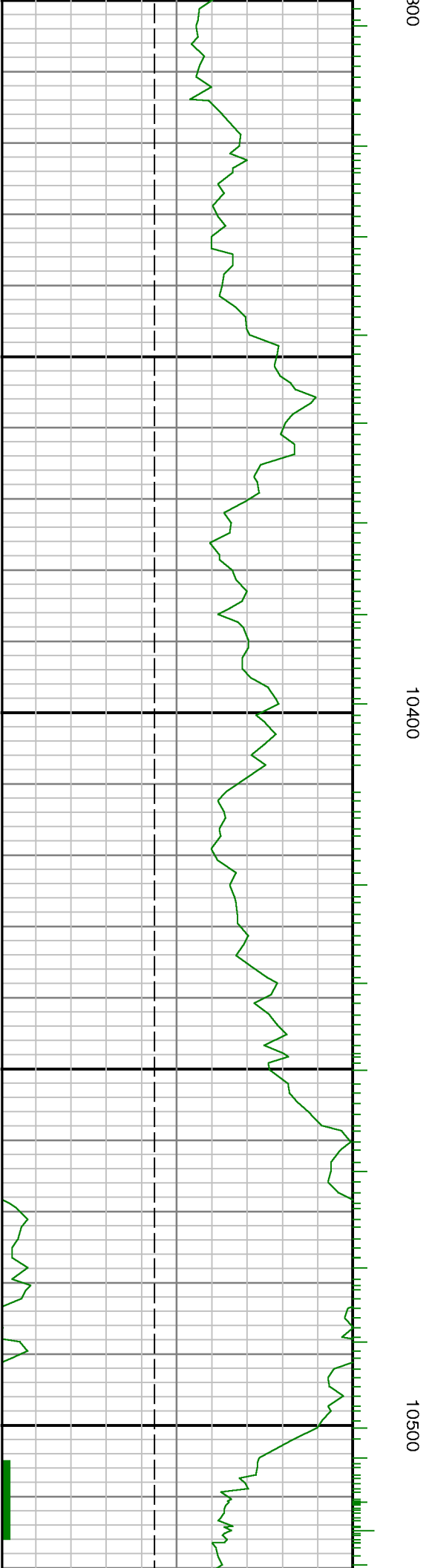
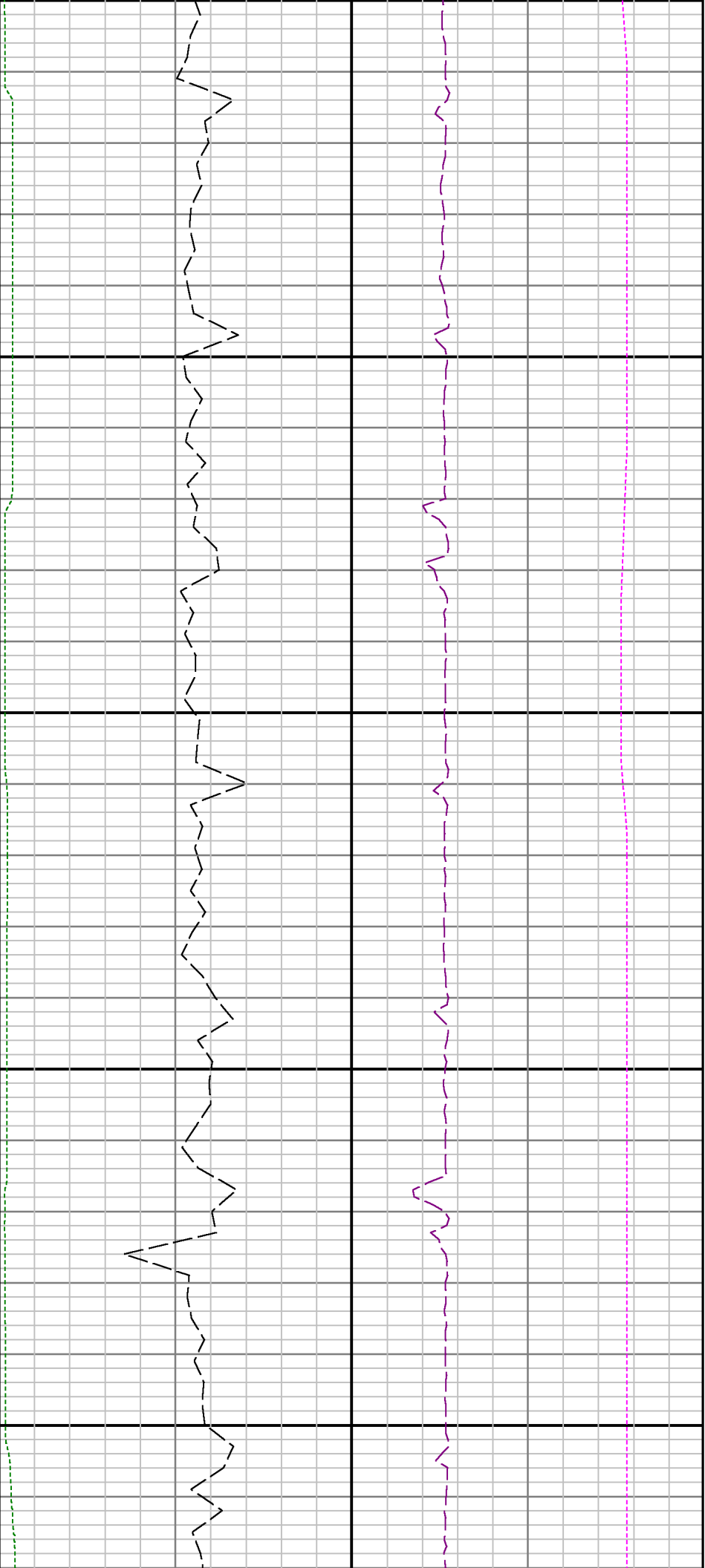
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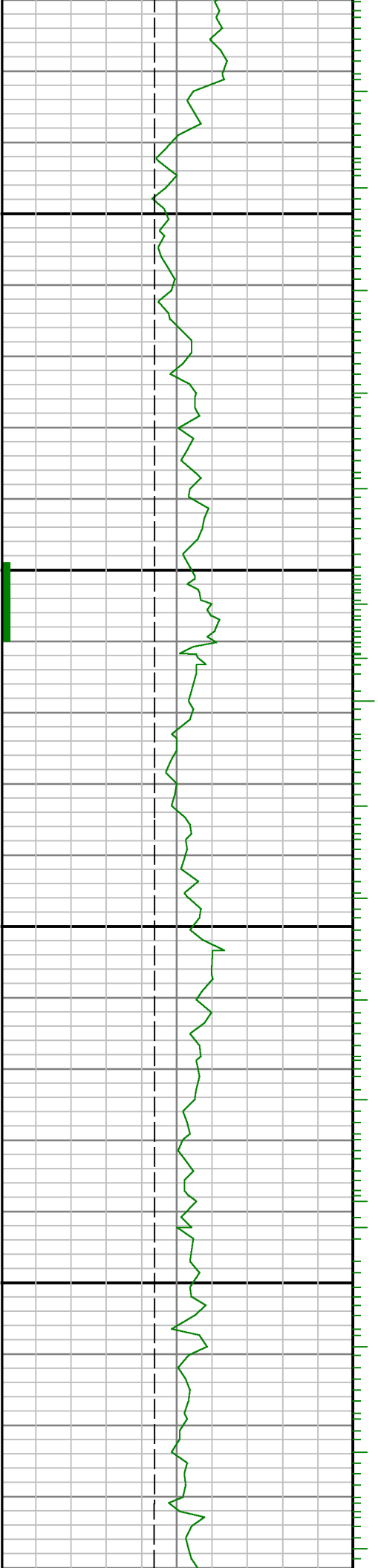


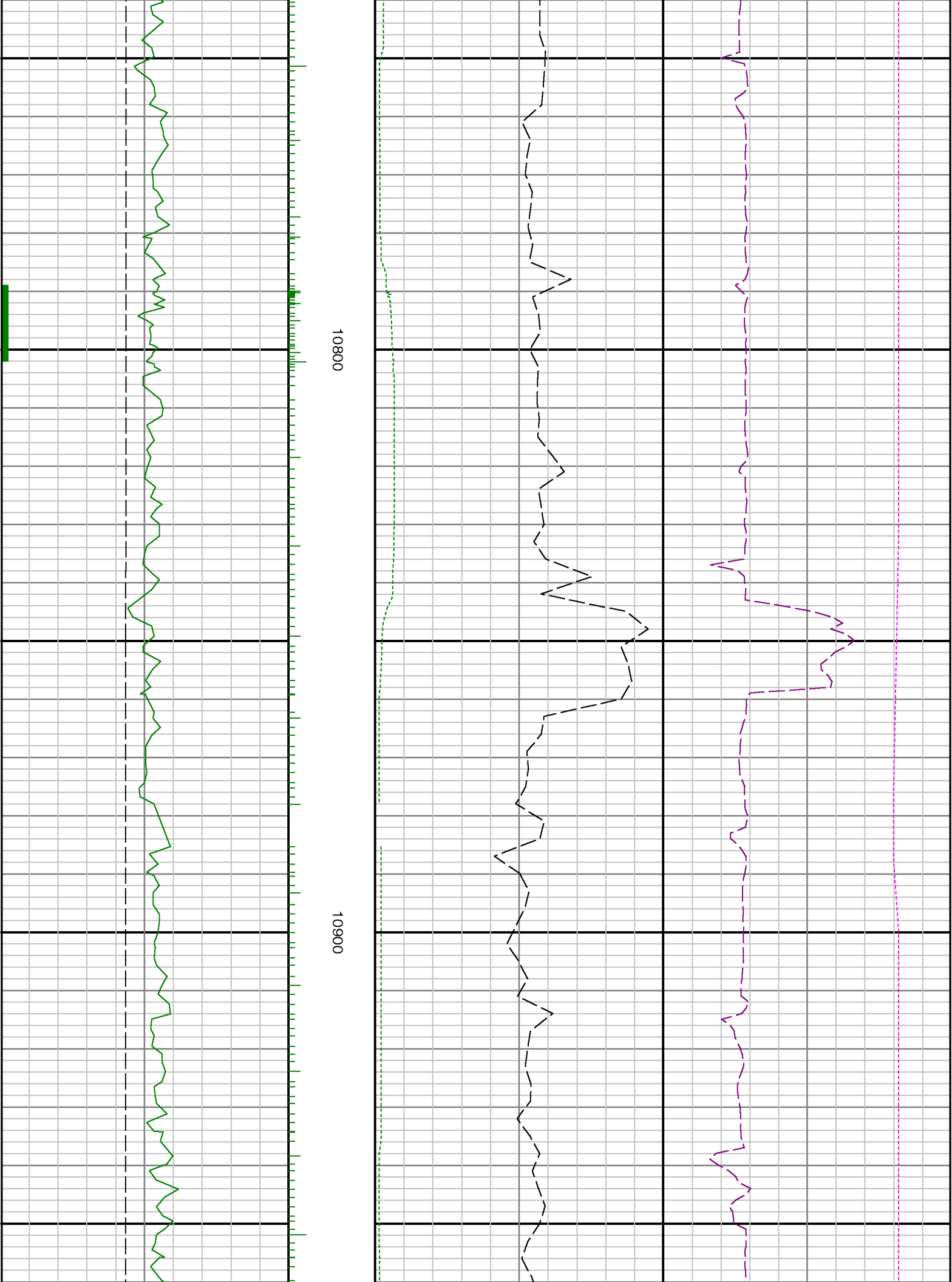


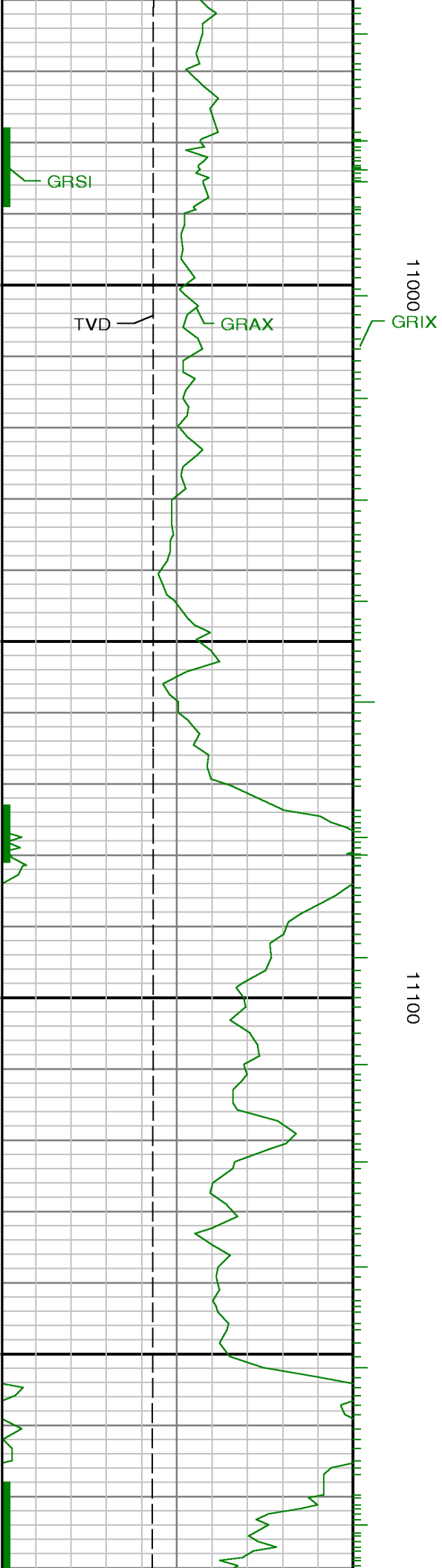


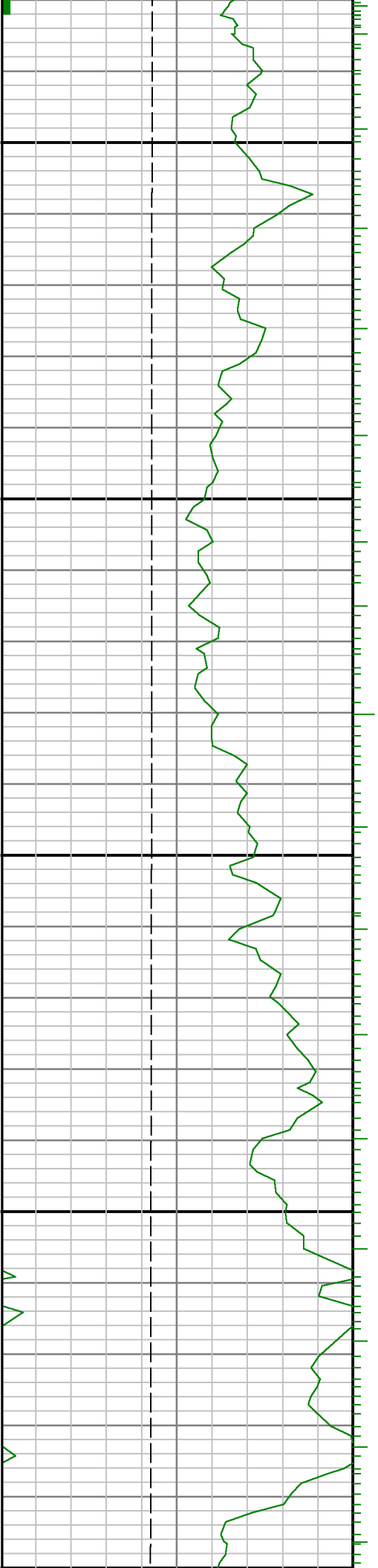
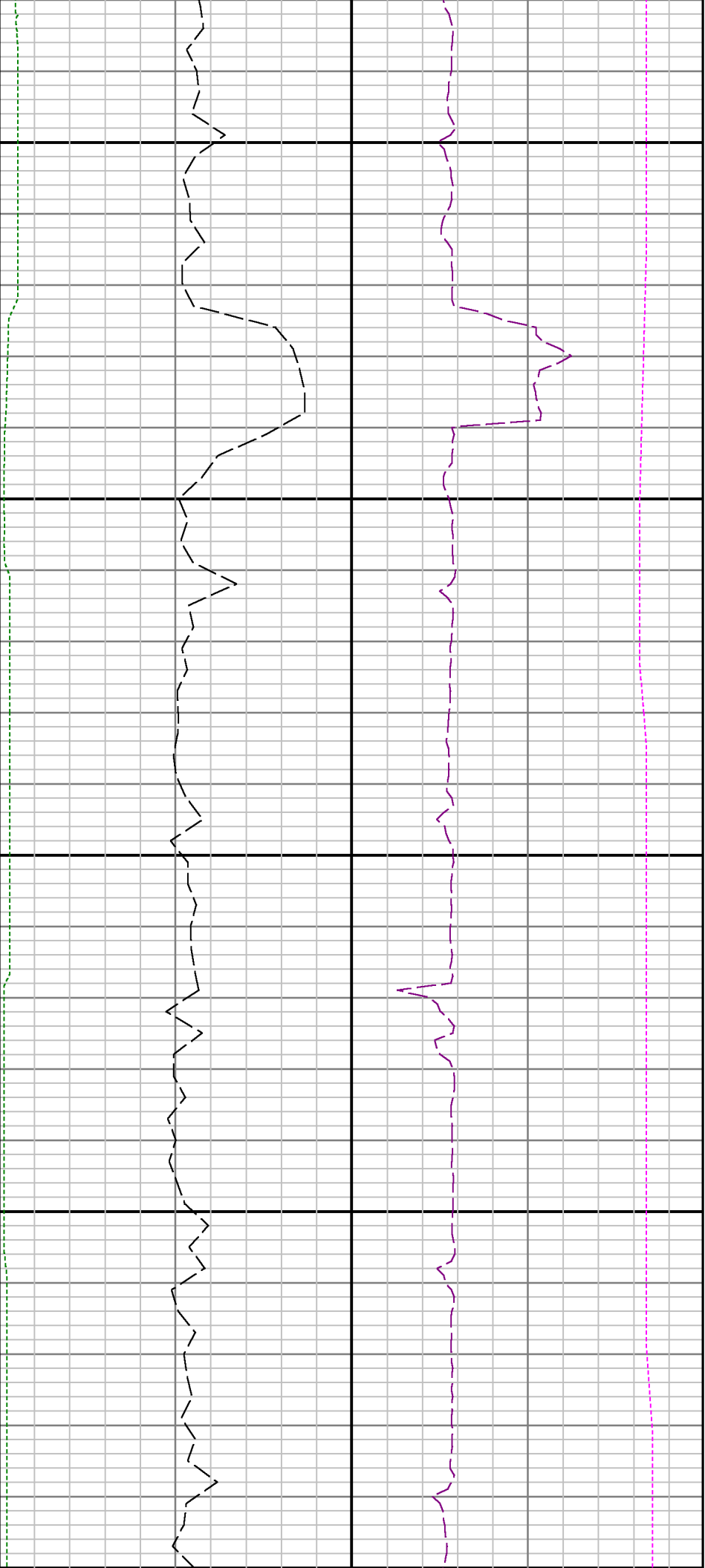
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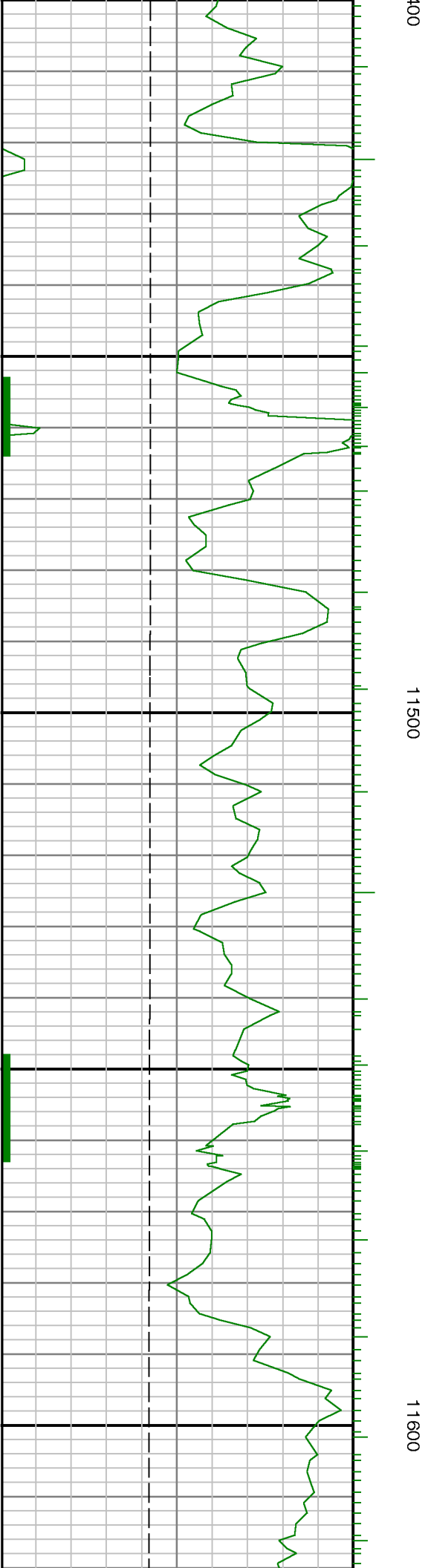
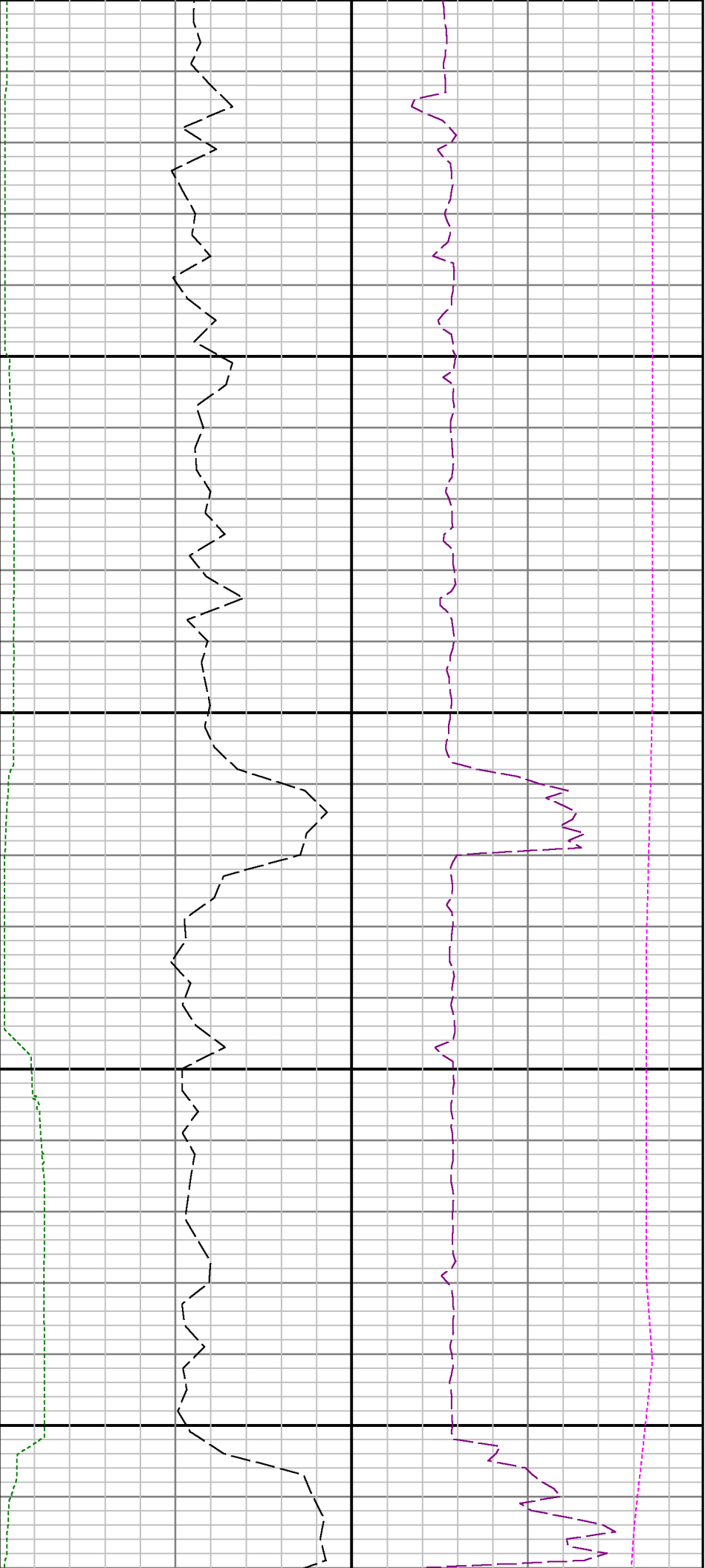
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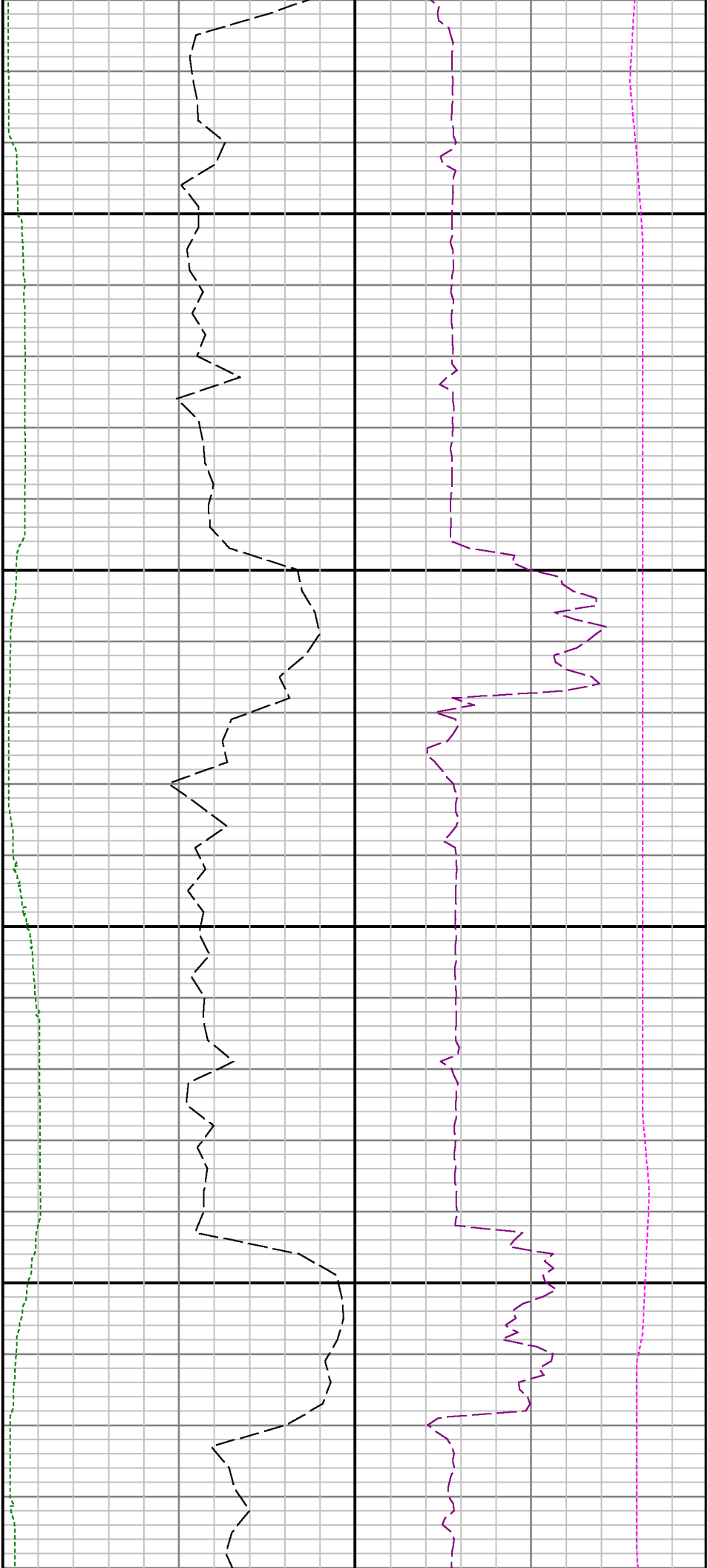












11700

11800

