



Realtime Log

Natural Formation Evaluation  
Gamma Ray

Scale:

Company: Anadarko E&P Company LP

1:240

Well: Aggregate State 13N-16HZ

Measured Depth

Field:

Wattenberg

County

Weld County

State

Colorado

Status:

Final Print

Surface Location:

Latitude: 40° 9' 6.919" N

Longitude: 104° 47' 8.984" W

Other Services:

API Number:

05-123-38785

Section 9

TWN: 2N

Range 66W

Permanent Datum (P.D.):

Ground Level

Elevation:

4904.00 ft.

Elevations:

Log Measured From:

Rig Floor

16.00 ft.

Above P.D.

KB:

DF:

GL:

N/A

4920.00 ft.

4904.00 ft.

Depth Reference:

Driller's Depth

GL:

4904.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6700 ft. Date From: 07 Apr 14

Dip Angle:

66.93 °

Azi Reference North:

True

Bottom: 14092 ft. Date To: 10 Apr 14

Total

Mag to Reference

Spud Date: 03 Apr 14

Field Strength: 52812.0 nT

North Correction:

8.48 °

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
8.750 in.	1082 ft.	7697 ft.	9.625 in.	36.00 lb/ft	Surface	1018 ft.
6.125 in.	7697 ft.	14141 ft.	7.000 in.	26.00 lb/ft	Surface	7678 ft.

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	14141 ft.	13.500 in.	1028 ft.	0.1 ° / 107.6 °	0.7 ° / 258.8 °
			8.750 in.	6669 ft.	0.7 ° / 258.8 °	86.9 ° / 184.2 °
			6.125 in.	6444 ft.	86.9 ° / 184.2 °	89.4 ° / 181.2 °
					/	/
					/	/
					/	/
					/	/
					/	/
					/	/

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size  (in.)	Bit Type	Bit Gauge Lenath  (in.)	Assembly  Type	Logged Interval		Bit Depth Interval		Date / Time				Circ.  Time  (hrs.)
							Top	Bottom	From	To	Start		End		
							(ft.)	(ft.)	(ft.)	(ft.)					
1	1	1	8.750	PDC	3.000	Steerable	1028	7653	6700	7697	04 Apr 14	21:59	05 Apr 14	10:14	12
2	2	2	6.125	PDC	4.000	Steerable	7653	14092	7697	14141	07 Apr 14	02:28	10 Apr 14	01:35	70.7

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Adam Schlenz	2 Apr 14	10 Apr 14	Greg Dore	2 Apr 14	10 Apr 14	Jason Williams	8 Apr 14	9 Apr 14

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
07/Apr/2014	11:00	2	8660		9.1	13	9.4		2/92.5		600	
07/Apr/2014	22:00	2	9970		9.2	14	9.4		2.5/91.7		600	
08/Apr/2014	01:10	2	11137		9.5	19	9.3		2/90.5		1200	
08/Apr/2014	22:30	2	11962		9.4	16	9.3		2.5/90.7		1000	
09/Apr/2014	10:00	2	13008		9.3	14	9.2		2/91.6		1000	
09/Apr/2014	22:30	2	13917		9.8	15	9.3		2.5/89.5		800	

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	point
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 (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12546334	Directional	45.90	6.750	2.870
1	SRIG	11892058	Gamma	42.52	6.750	2.870
2	DIR	10508935	Directional	52.80	4.750	2.750
2	SRIG	11714036	Gamma	49.42	4.750	2.750

Service and Tool Mnemonics

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

Comments

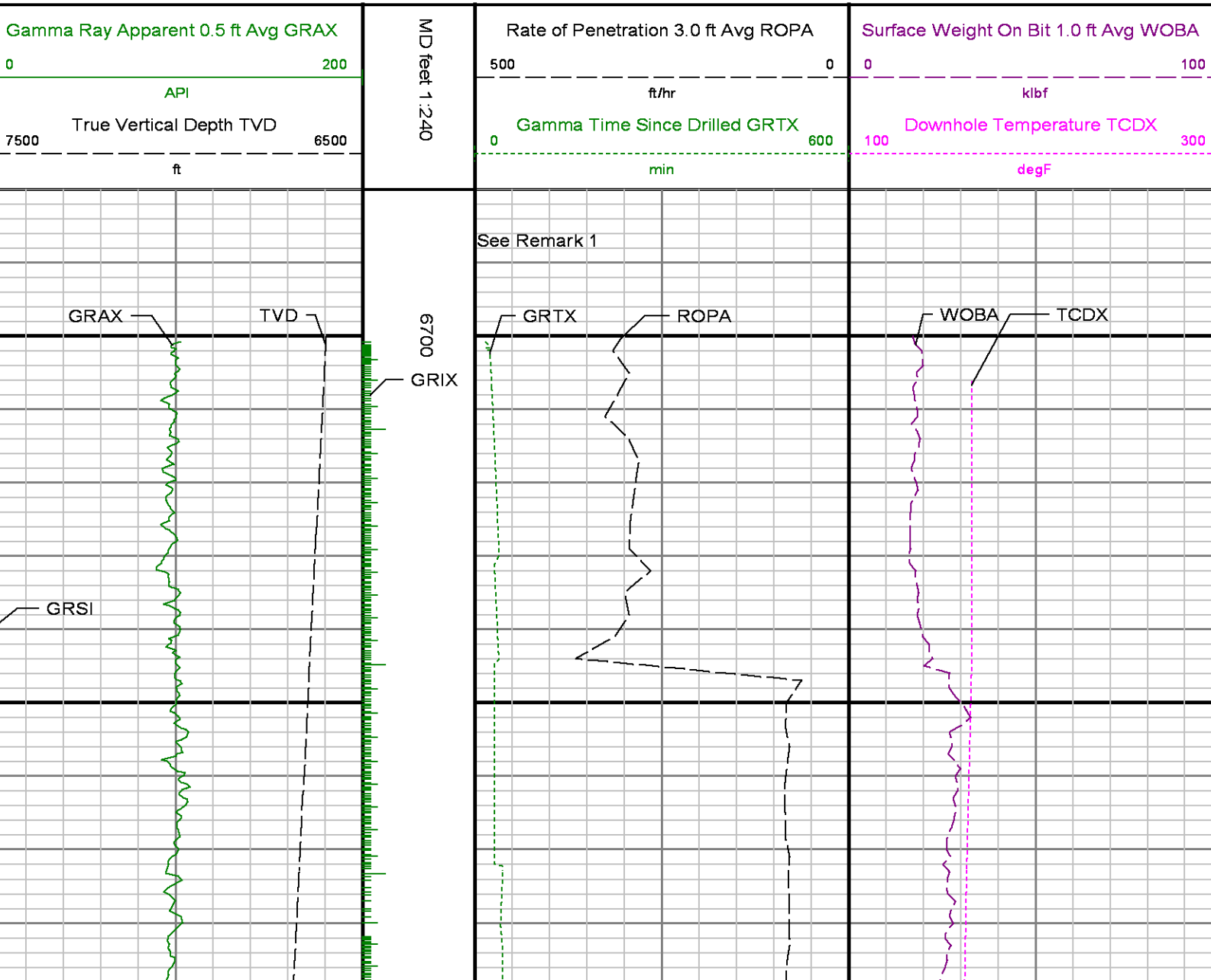
<p>1.) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.</p> <p>2.) Baker Hughes LWD run 1 utilized a 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1028 to 7697 feet MD (1028 to 7245 feet TVD).</p> <p>3.) Baker Hughes run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7697 to 14141 feet MD (7245 to 7261 feet TVD).</p> <p>4.) A sliding indicator is shown on the left side 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 acquired while sliding.</p>
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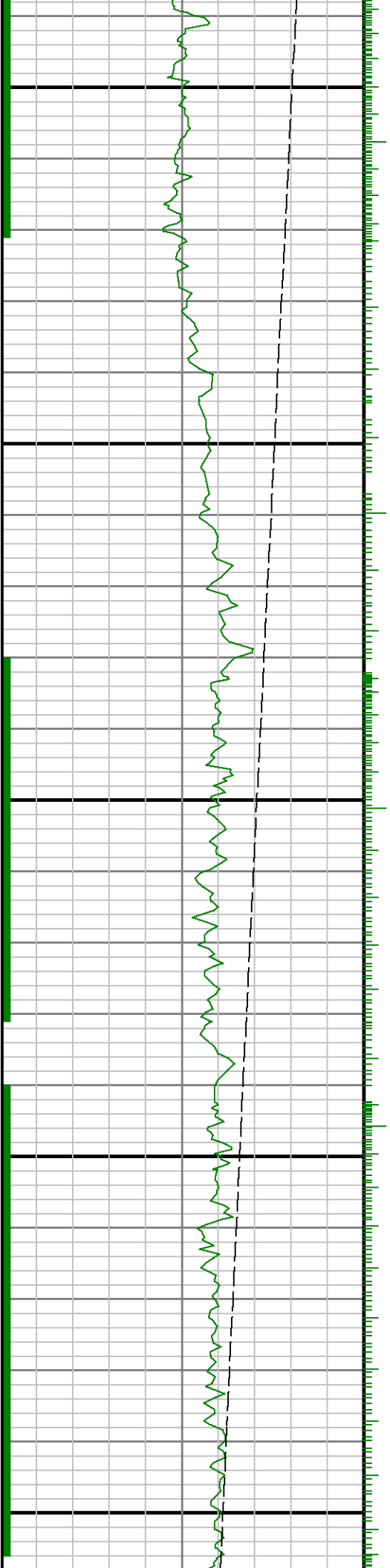
Remarks

Number	Measured Depth (m.)	Hole Section (in.)	LWD Run No.	Remark
1	6700	8.750	1	Gamma ray logging operations began at 6700 feet MD (6597 feet TVD).
2	7653	8.750	1	The interval from 7653 to 7696 feet MD( 7245 feet TVD) up to 24 hours after being drilled due to tripping out of hole after TD of curve section to run casing and pick up lateral assembly
3	14092	6.125	2	The interval from 14092 to 14141 feet MD ( 7261 feet TVD) was not logged due to sensor offset to bit at TD.



Company : Anadarko E&P Company LP  
Well : Aggregate State 13N-16HZ  
Interval : 6680.00 - 14160.00 feet  
Created : 10/Apr/2014 9:28:06 AM

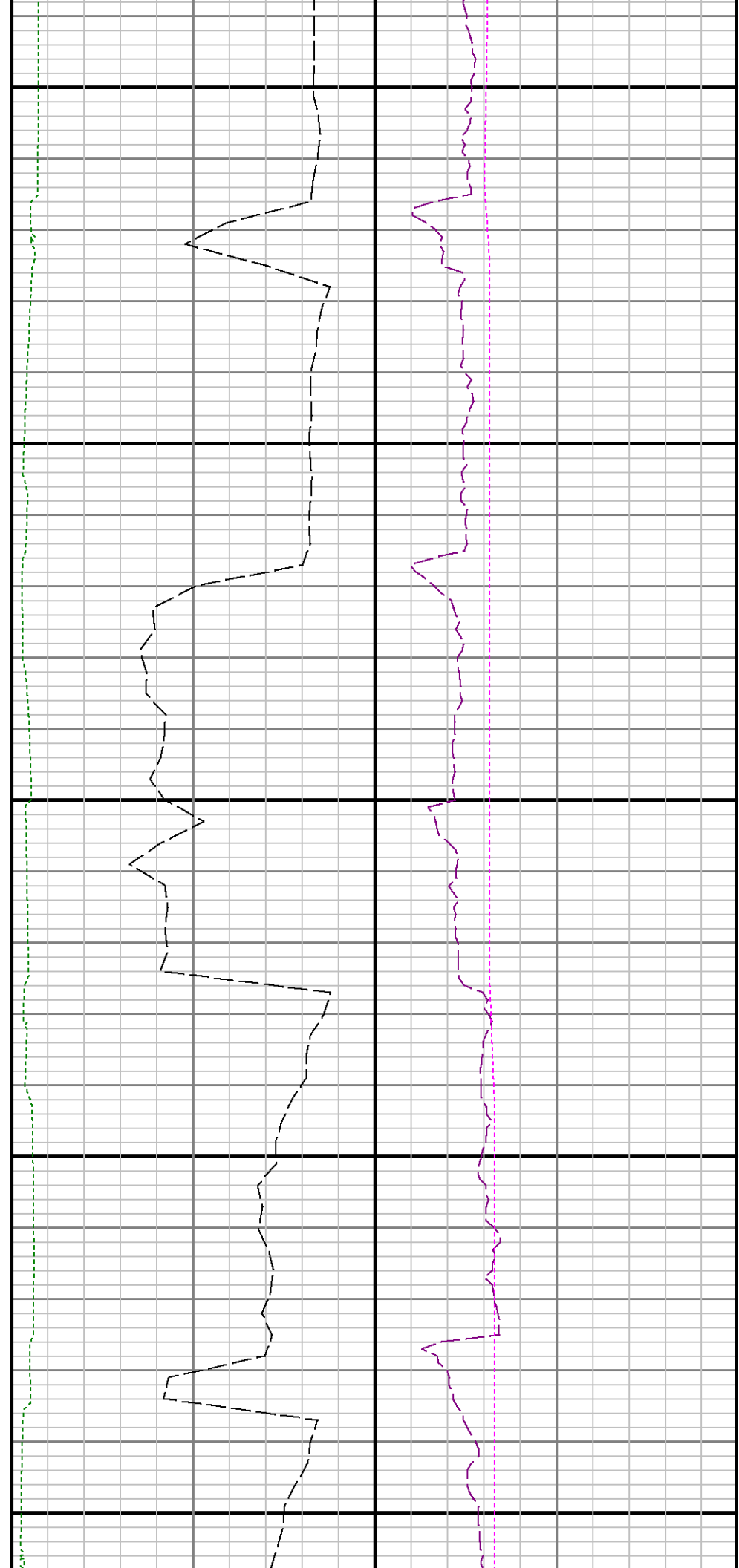


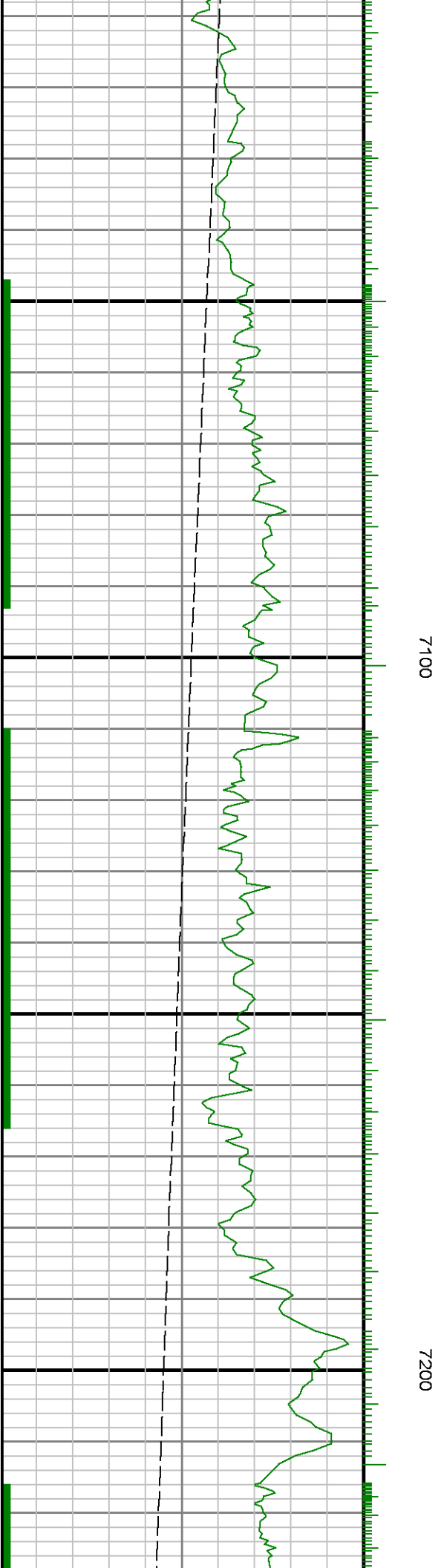
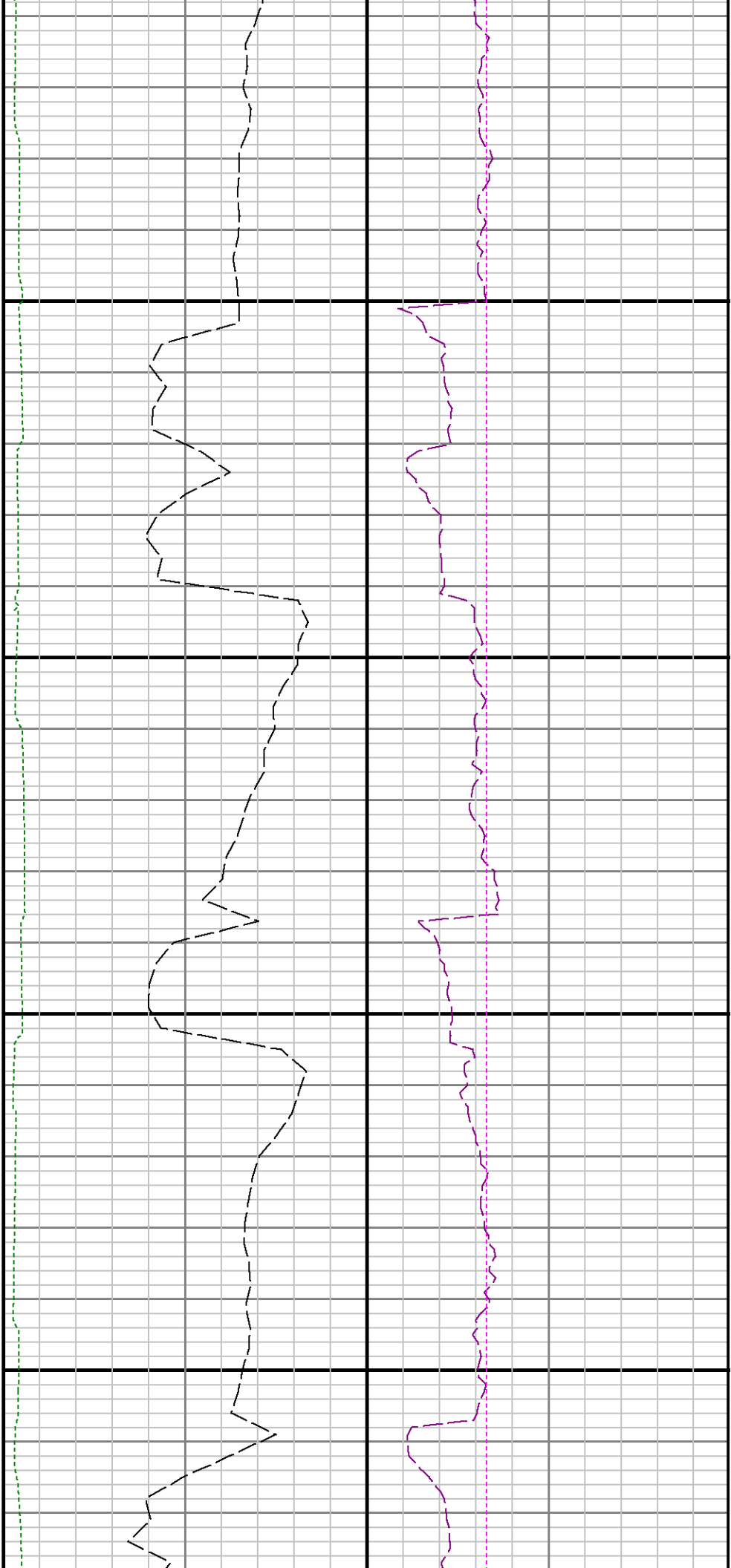


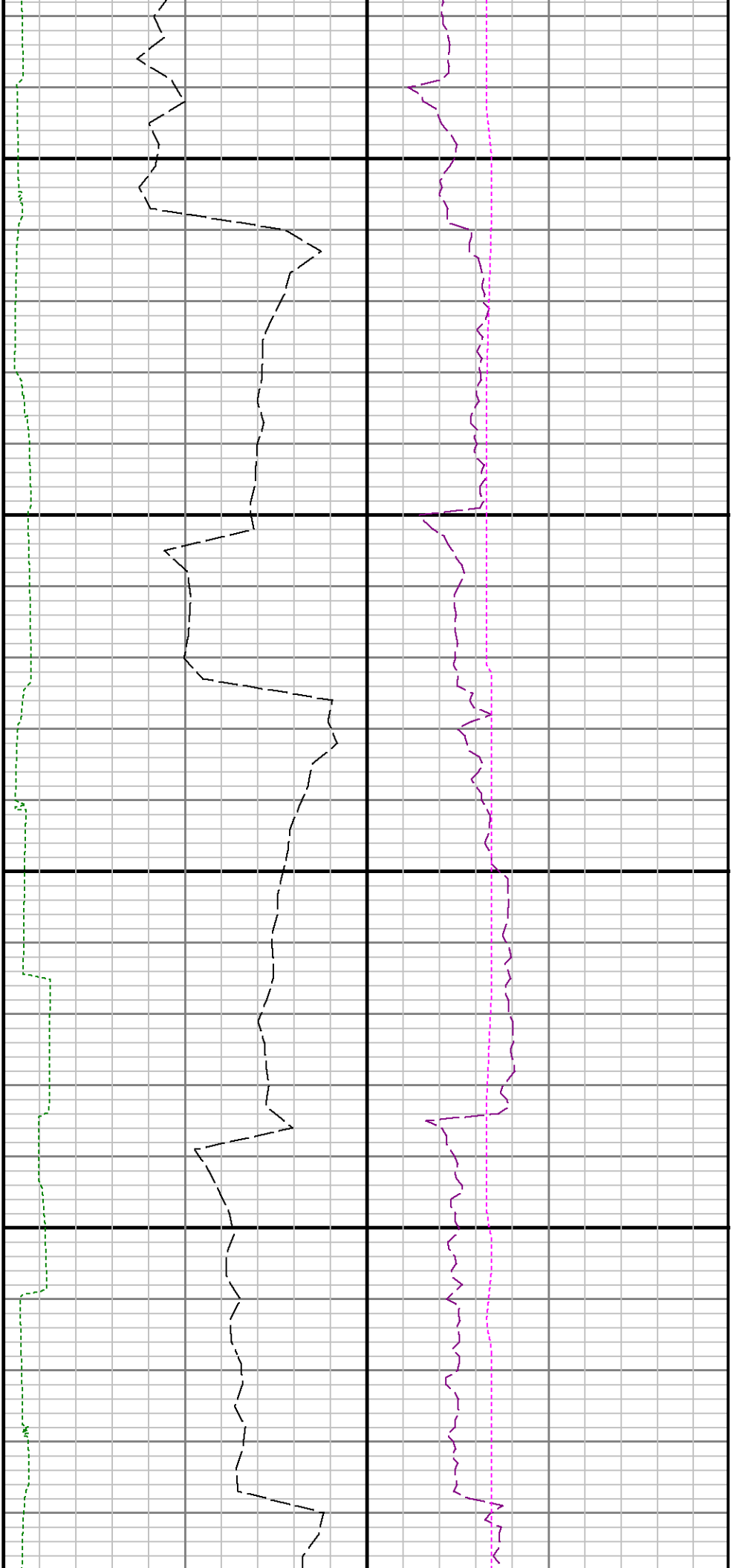
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7000

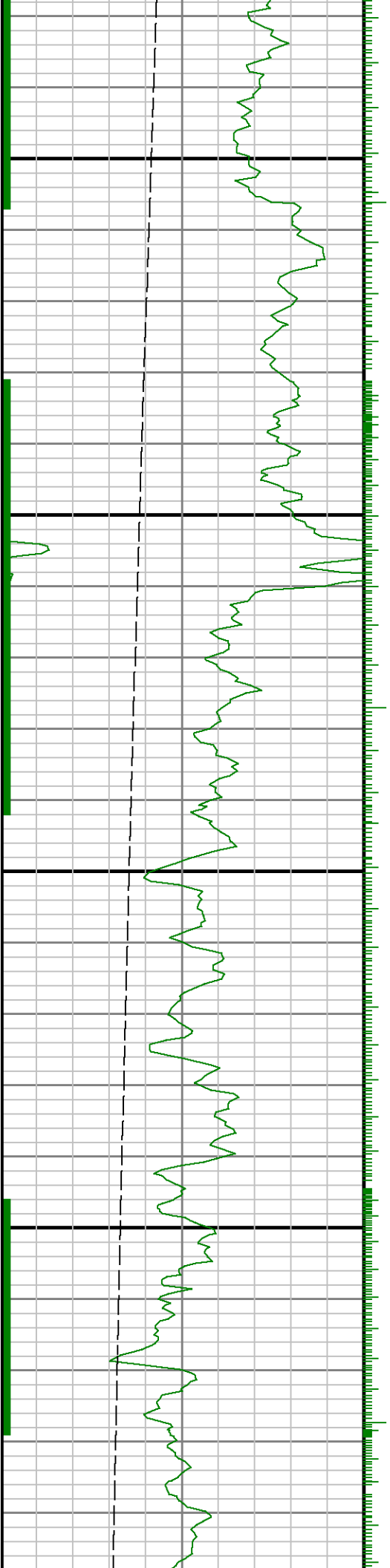


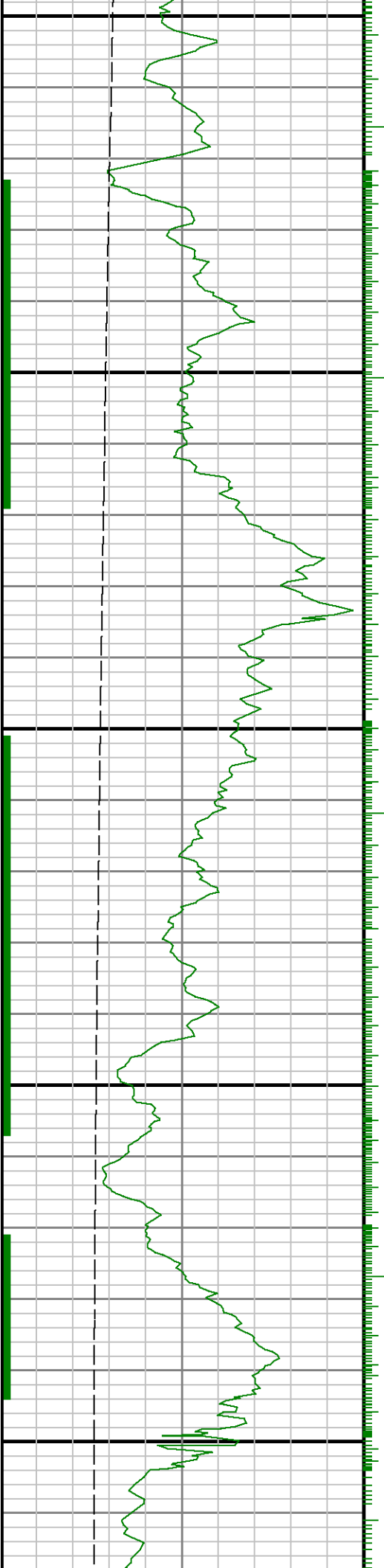




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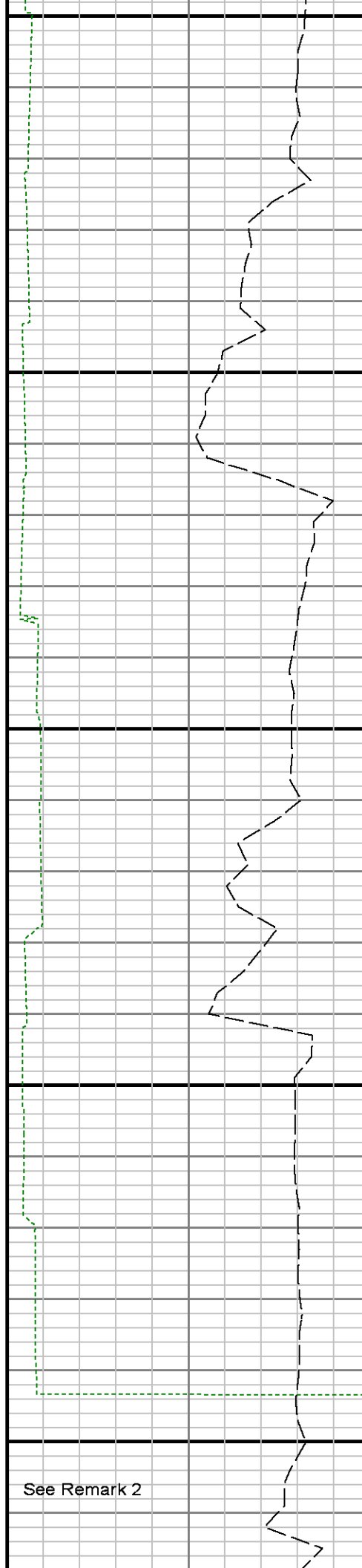
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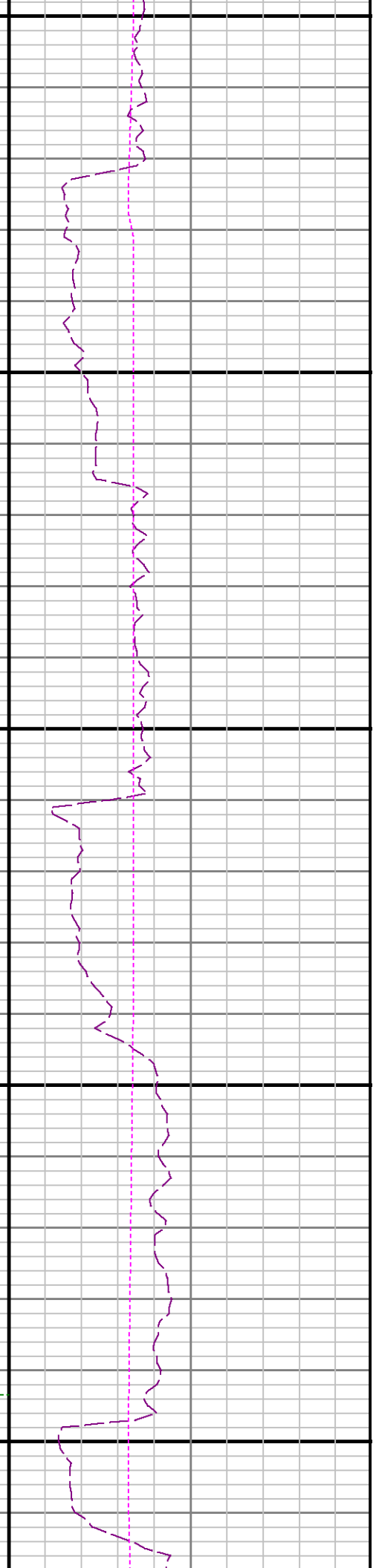


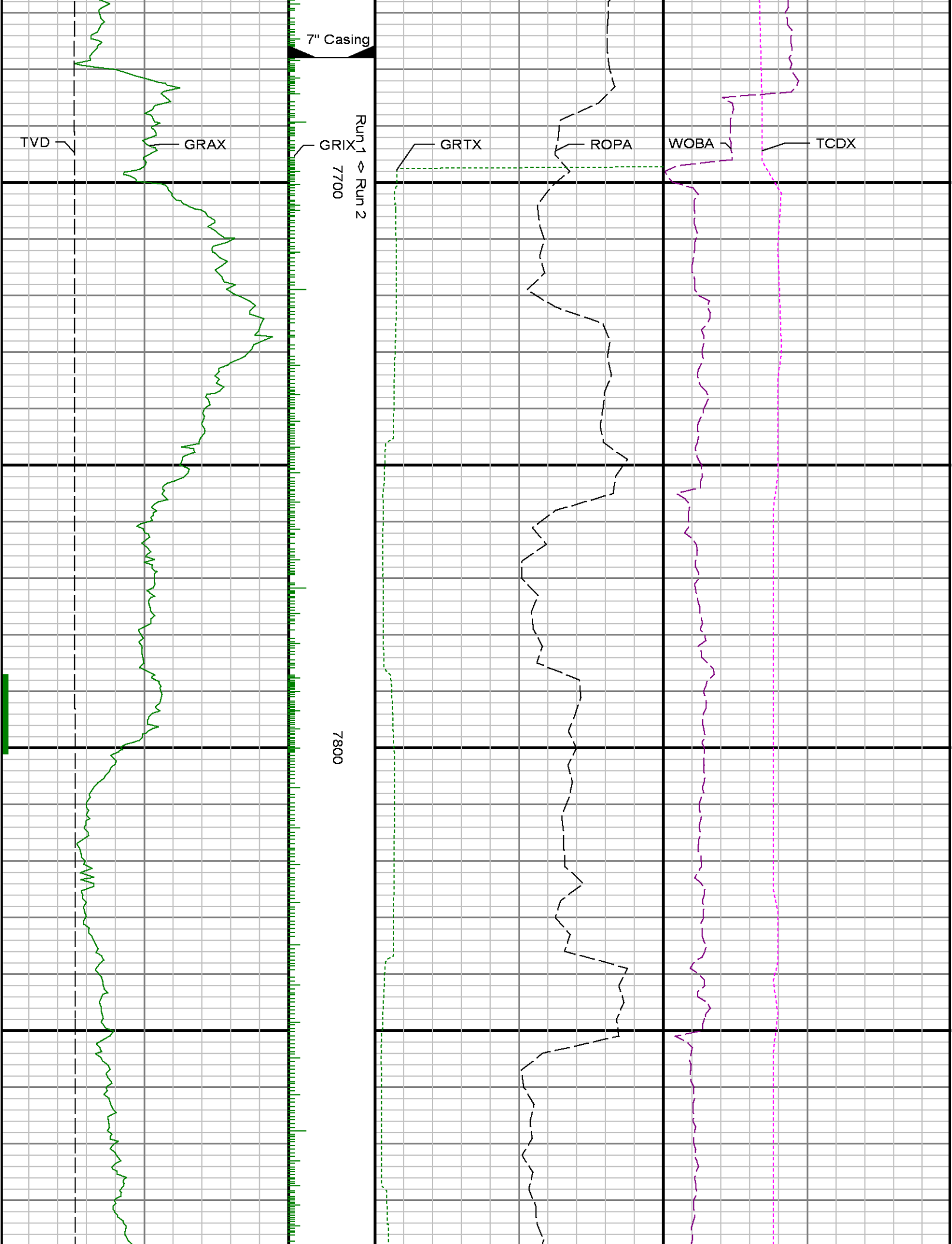
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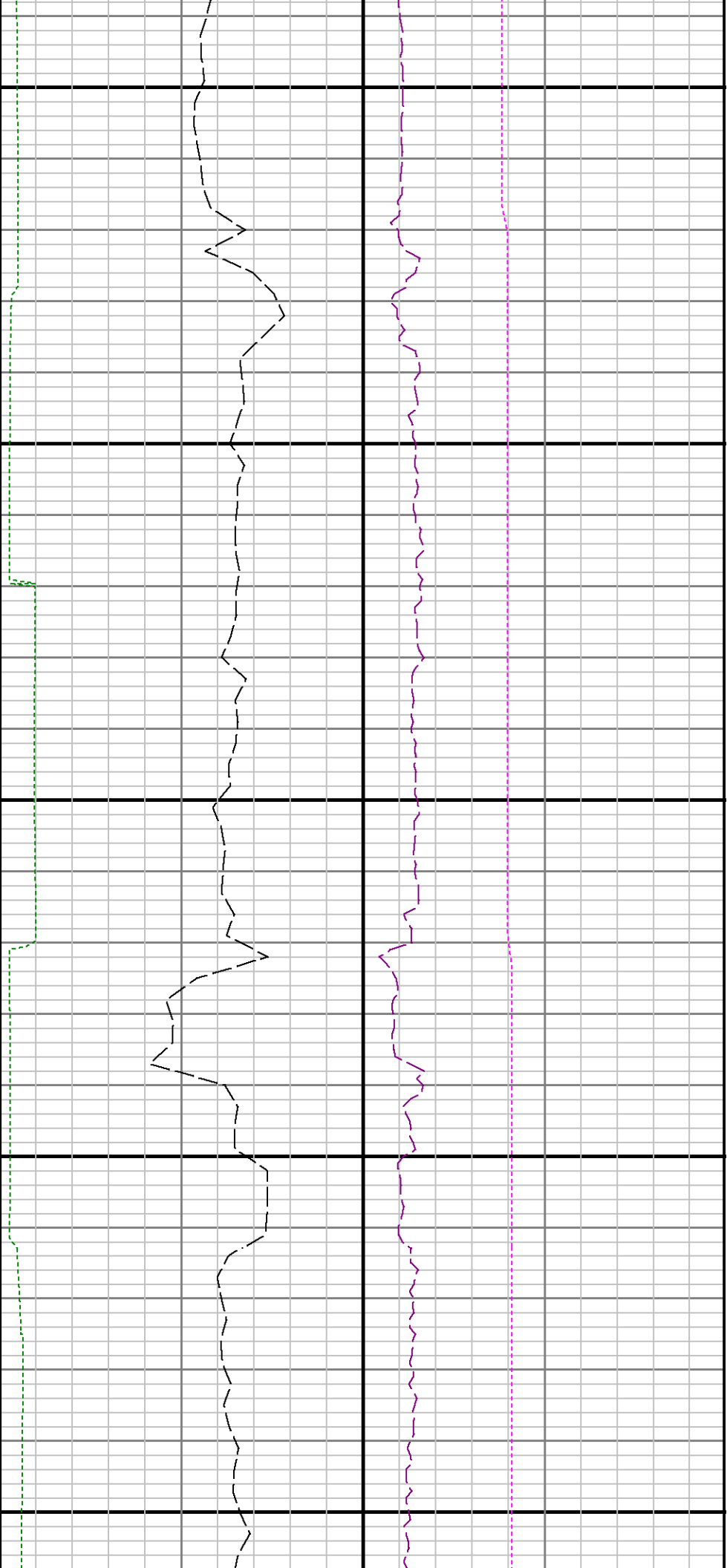
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See Remark 2



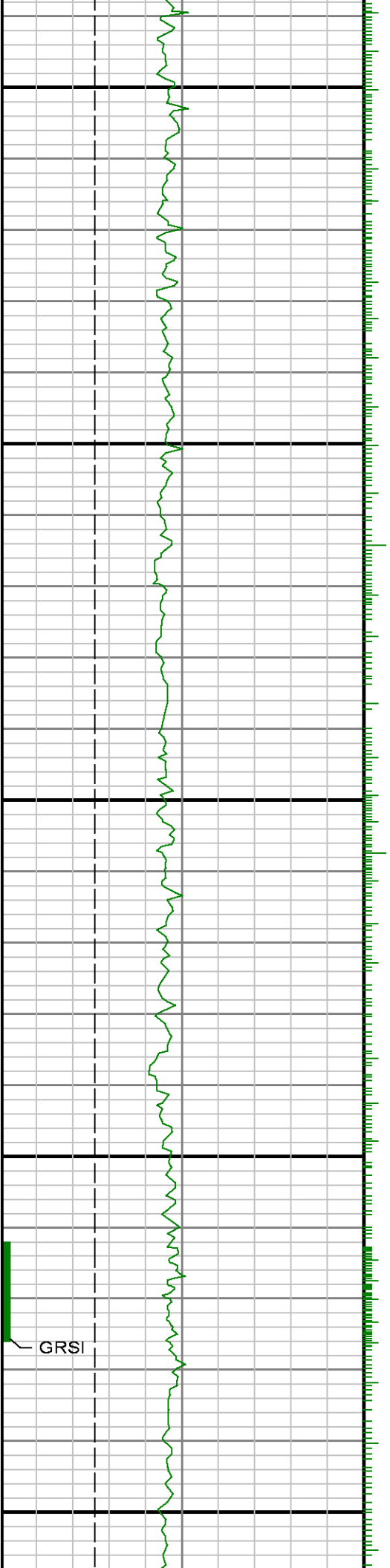




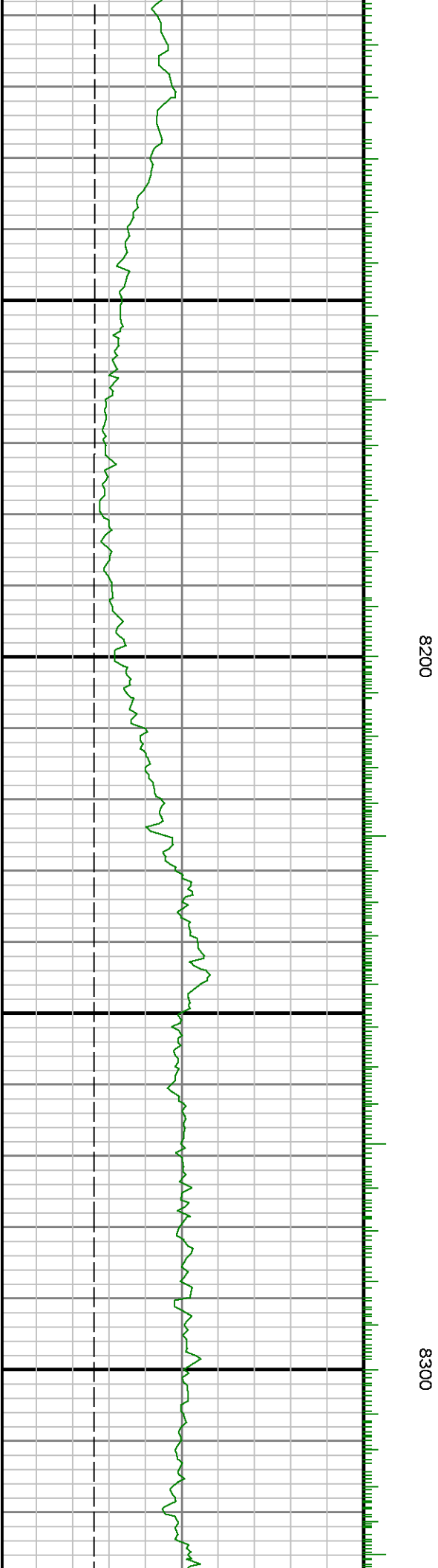
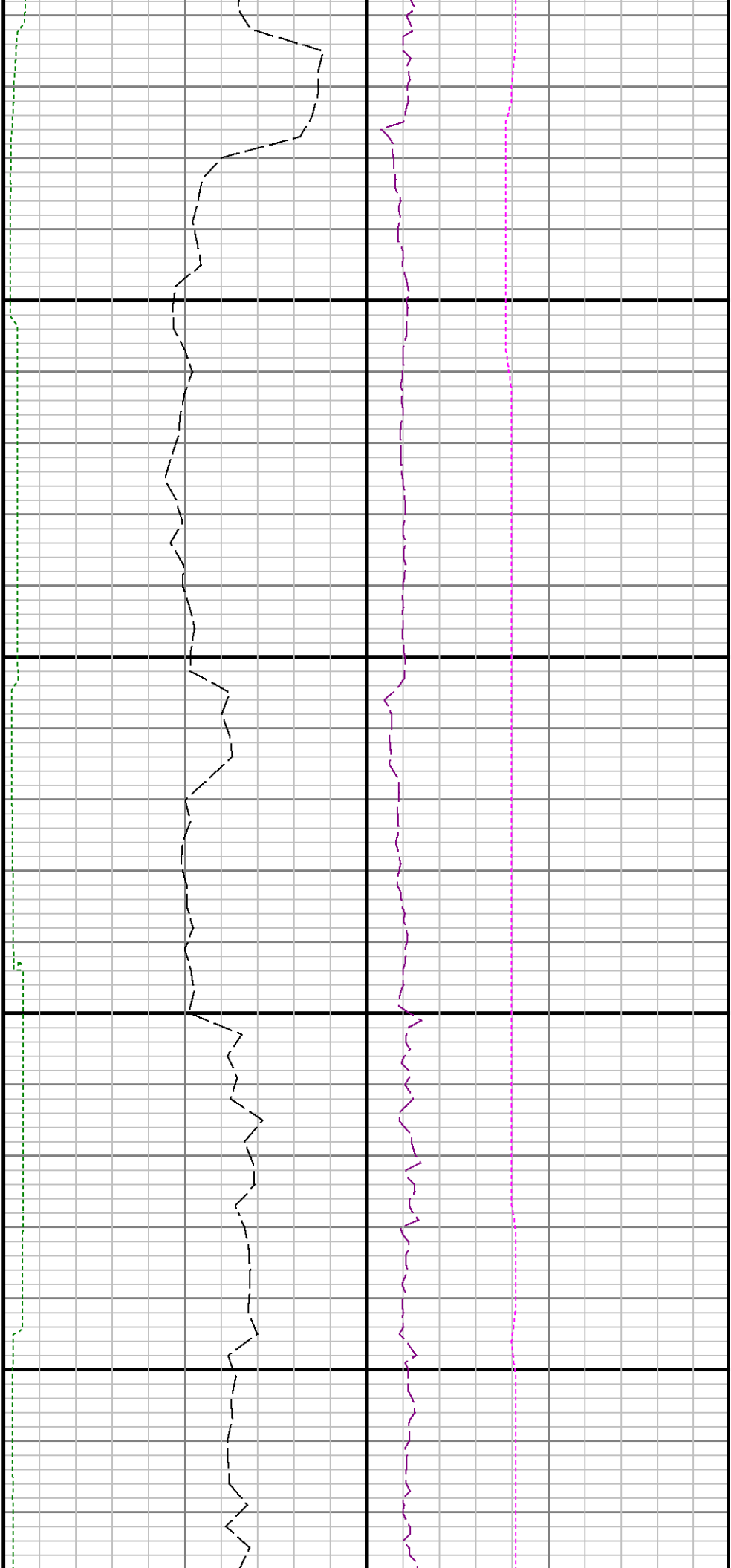
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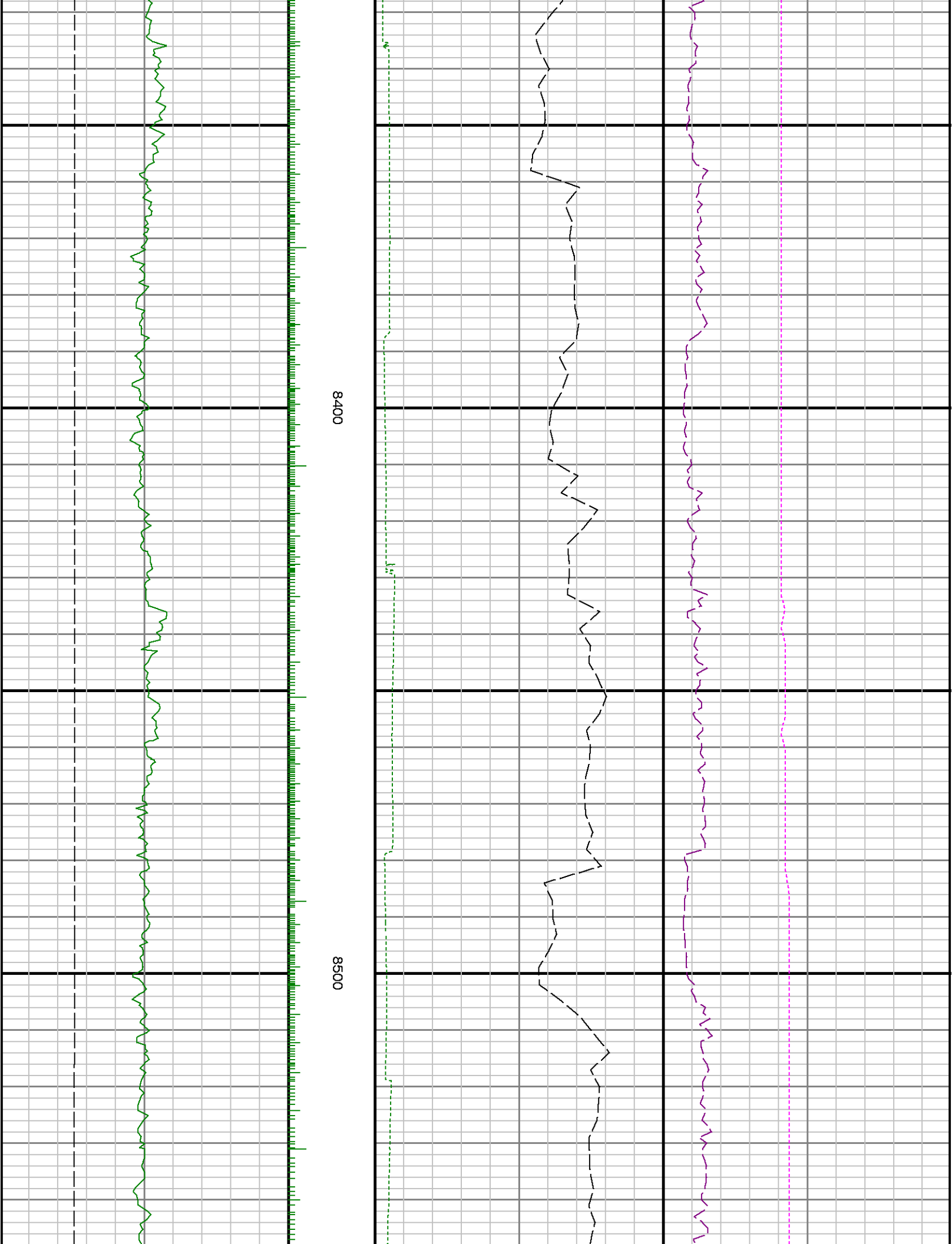
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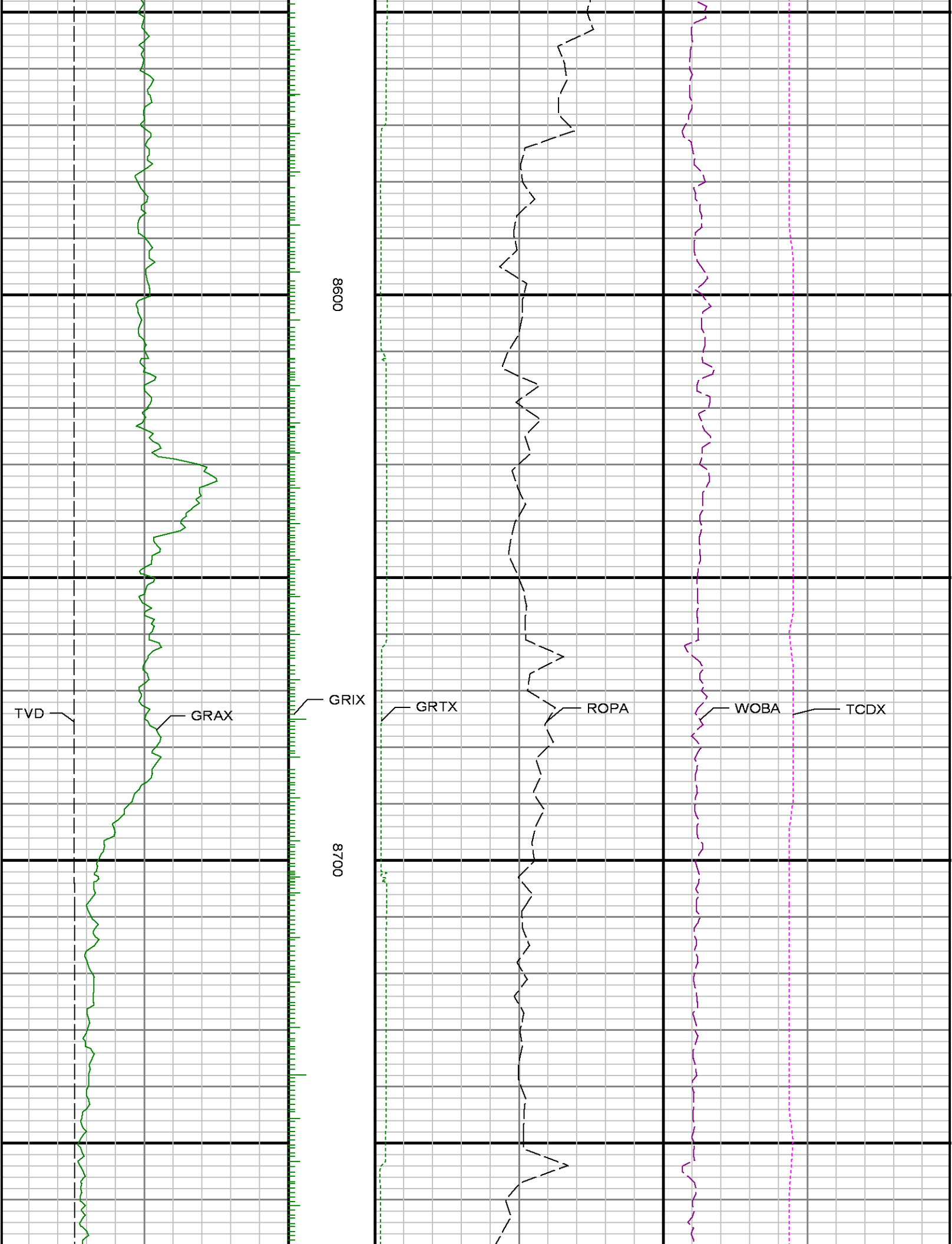
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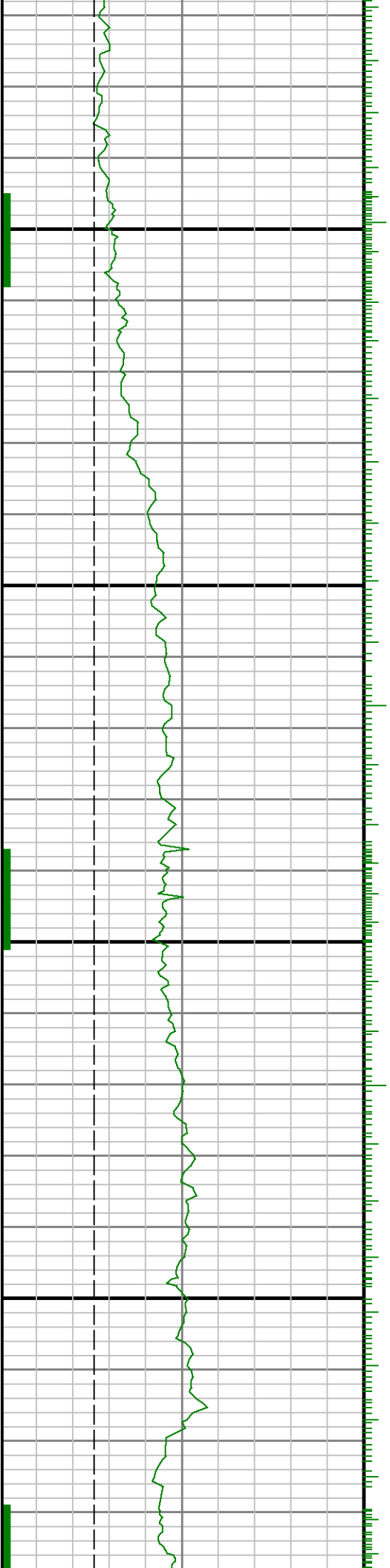


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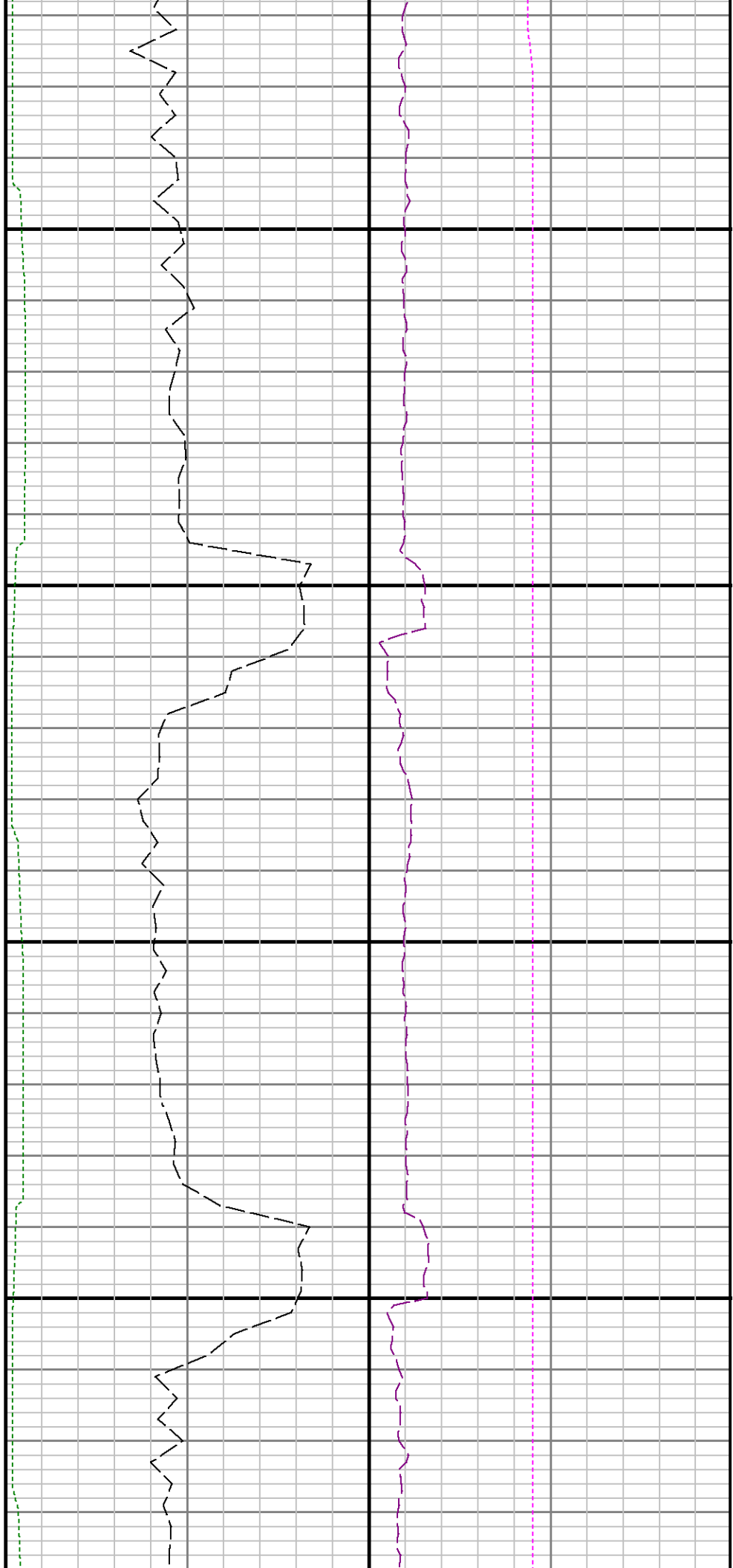


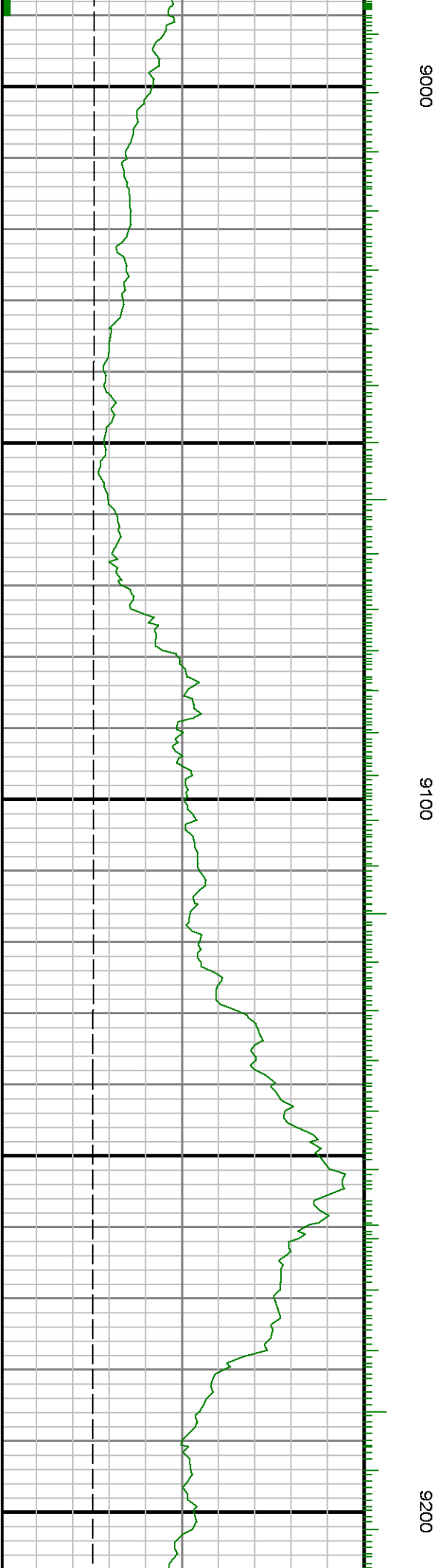


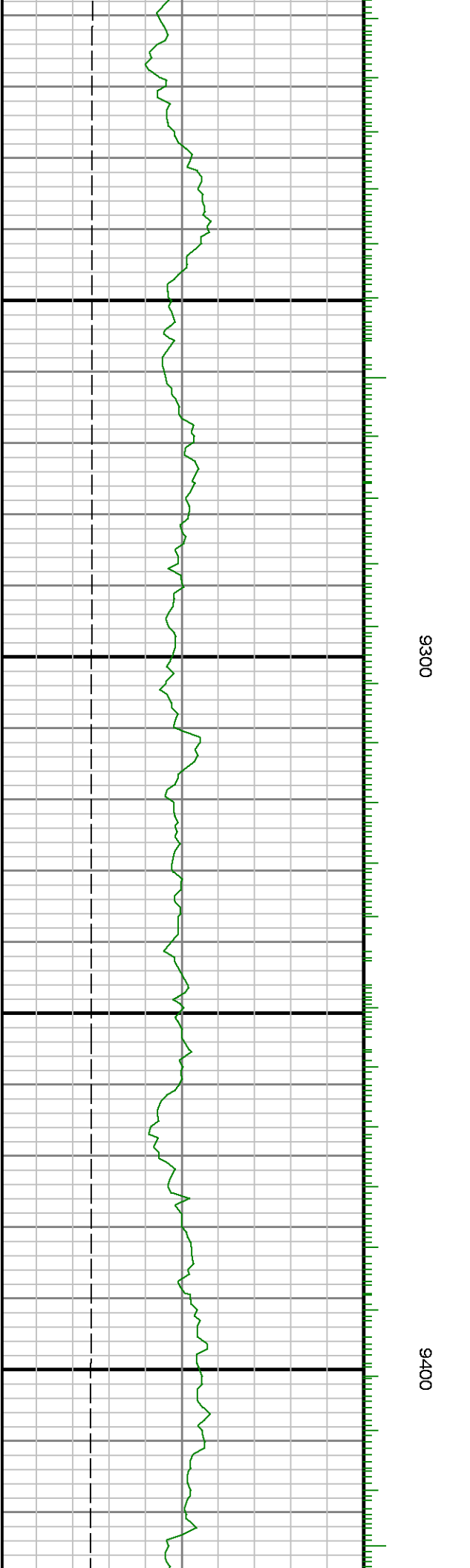


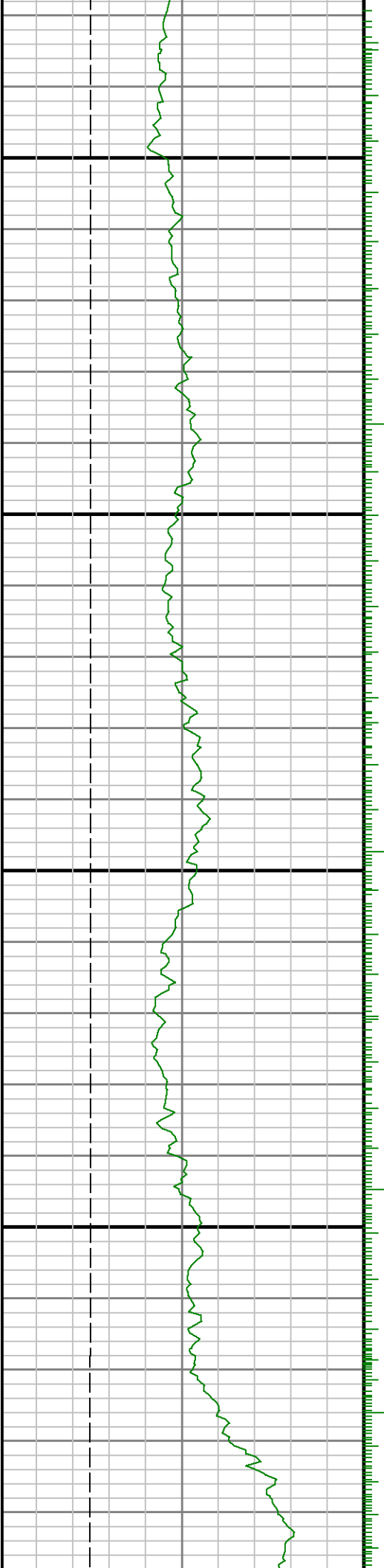
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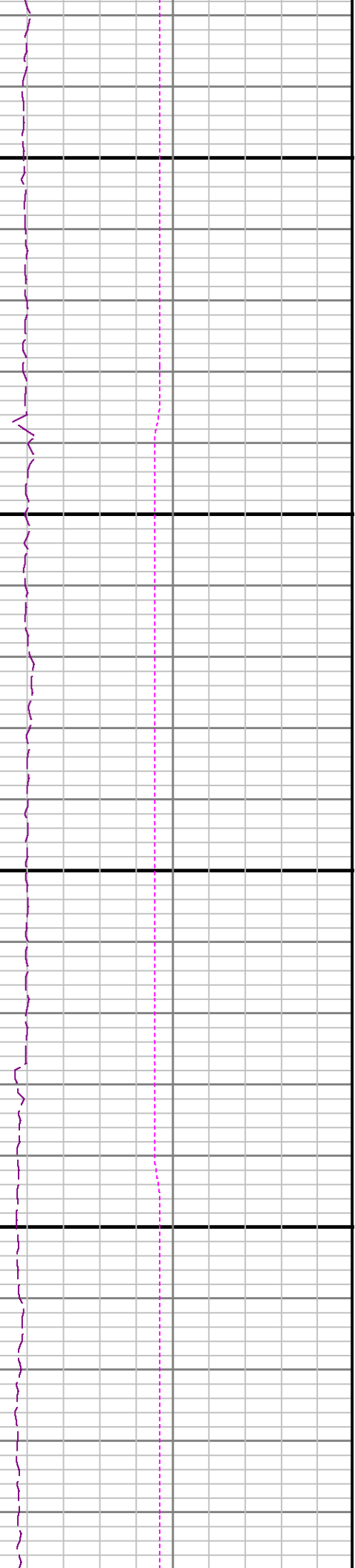
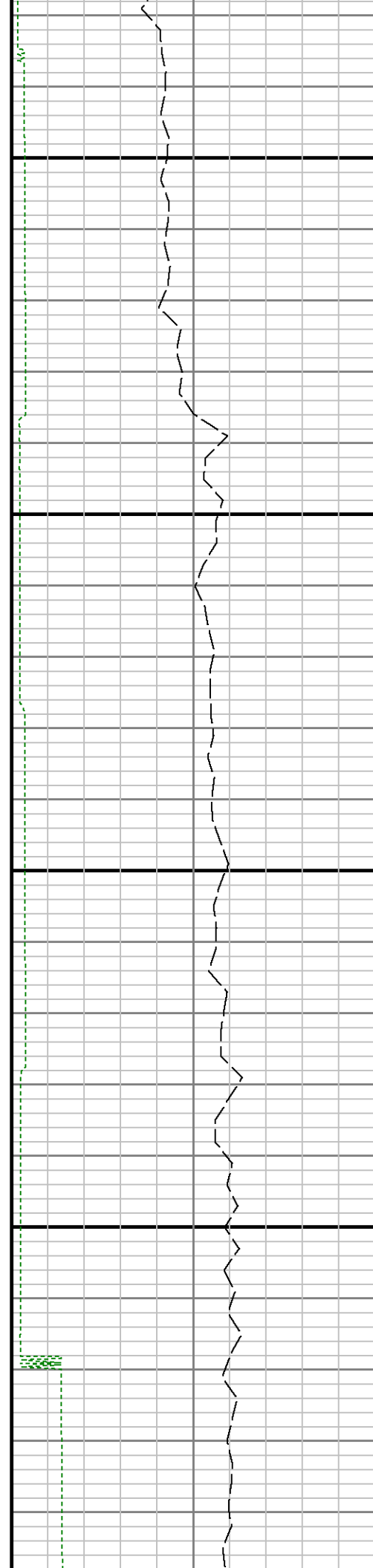


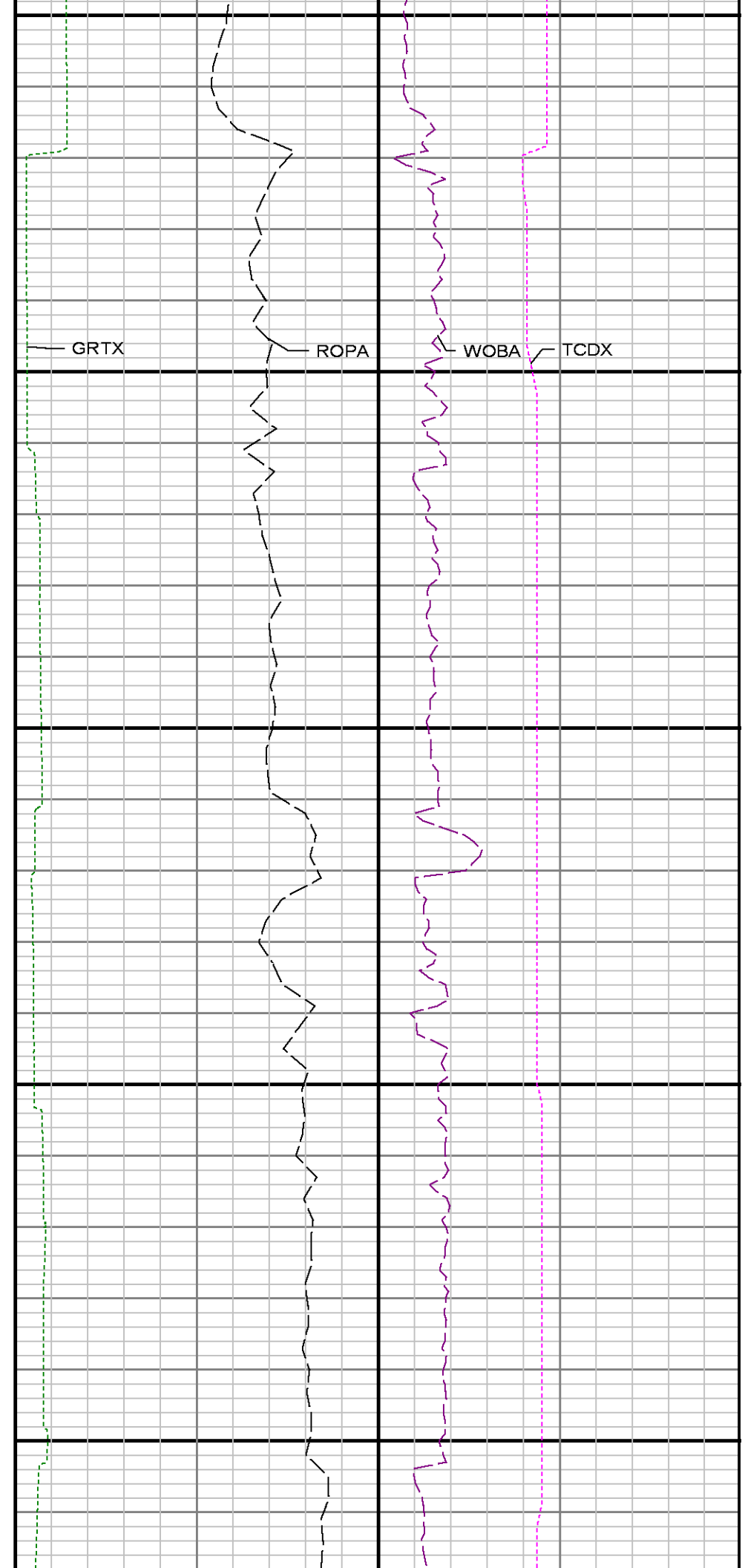
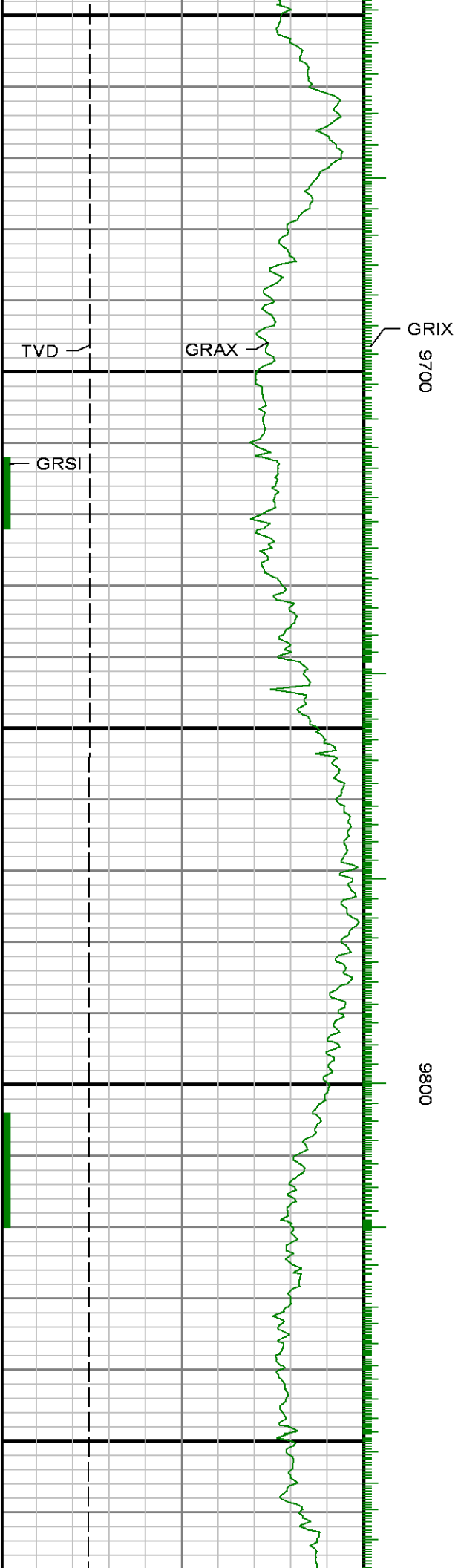


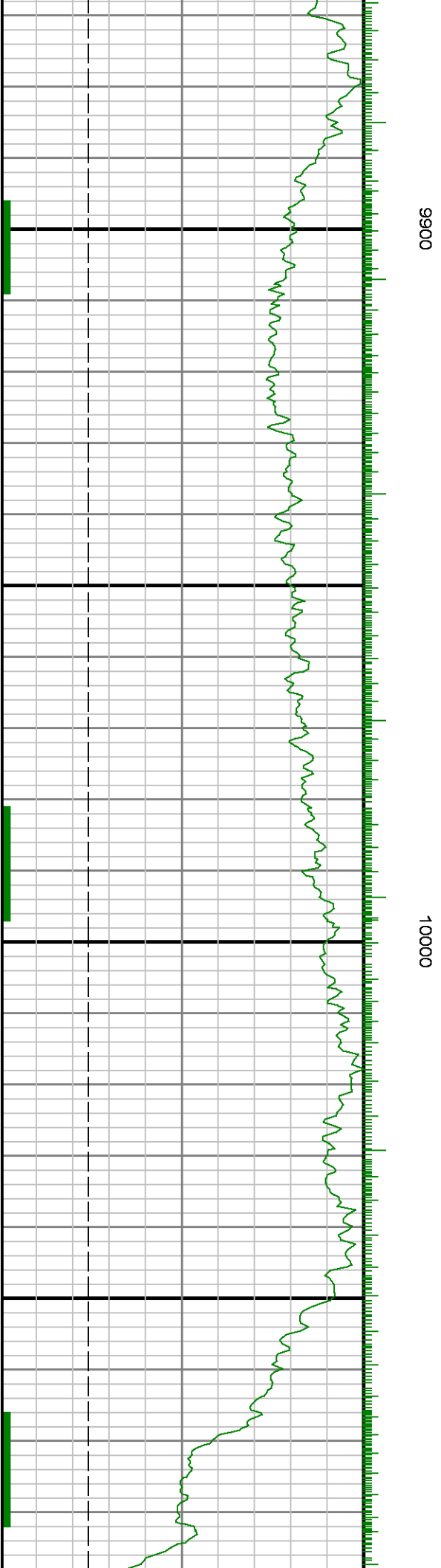


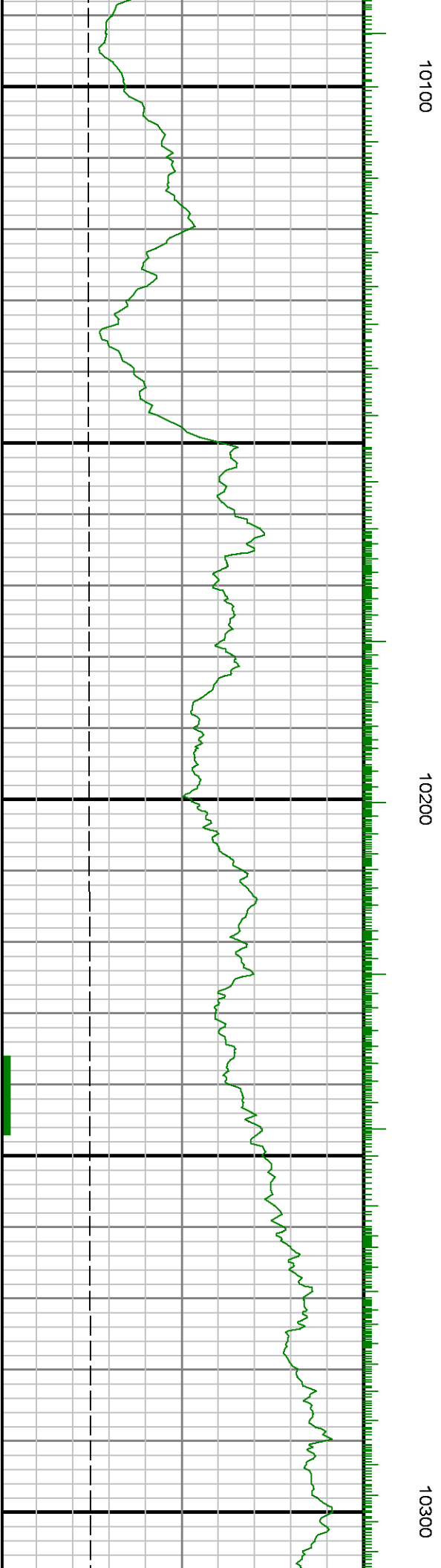
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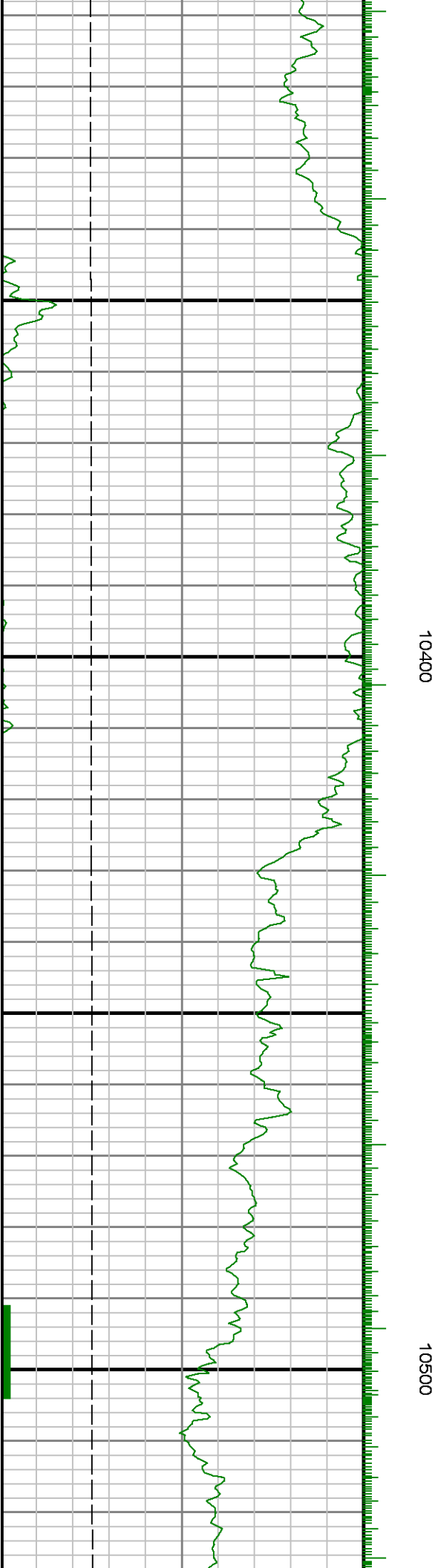
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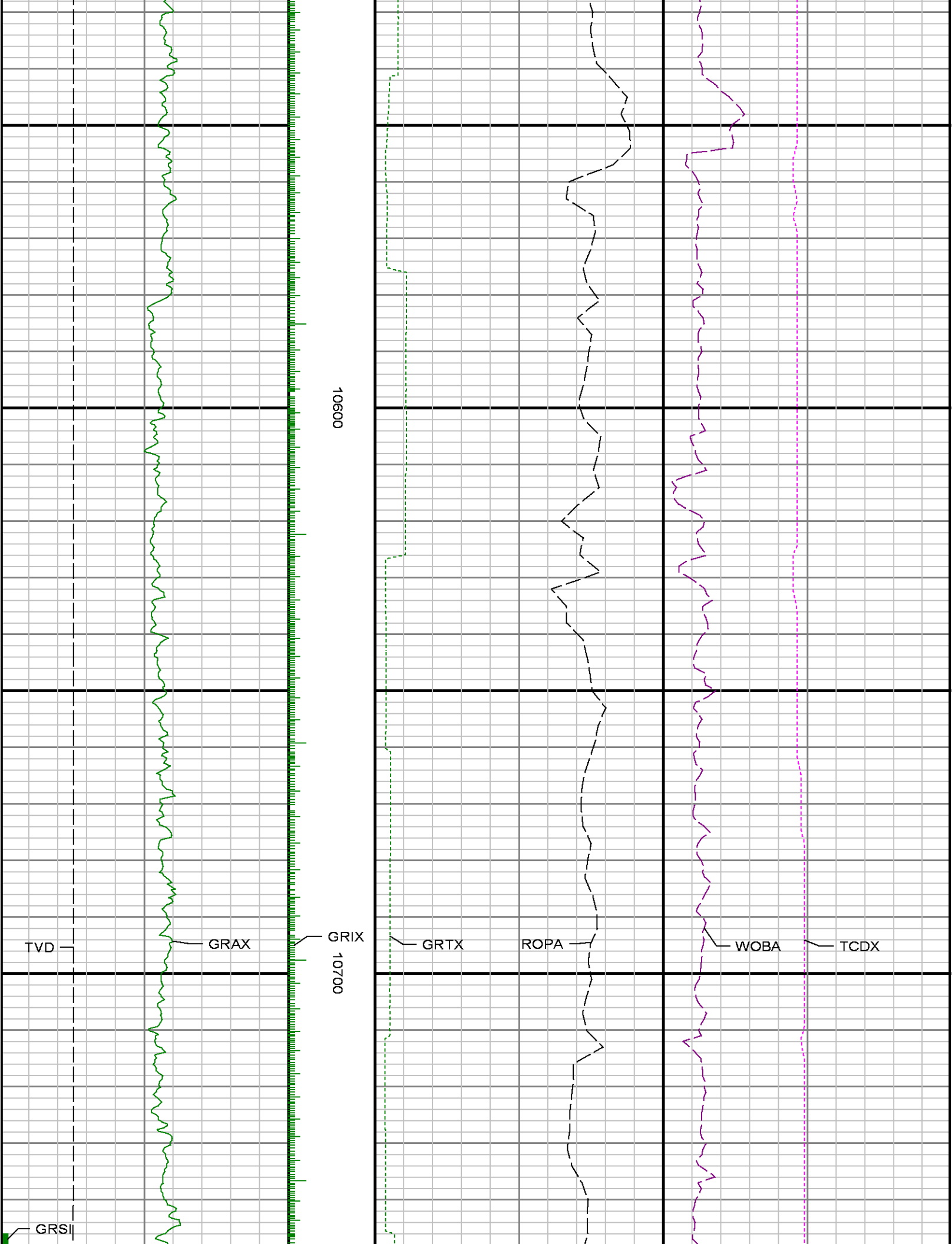








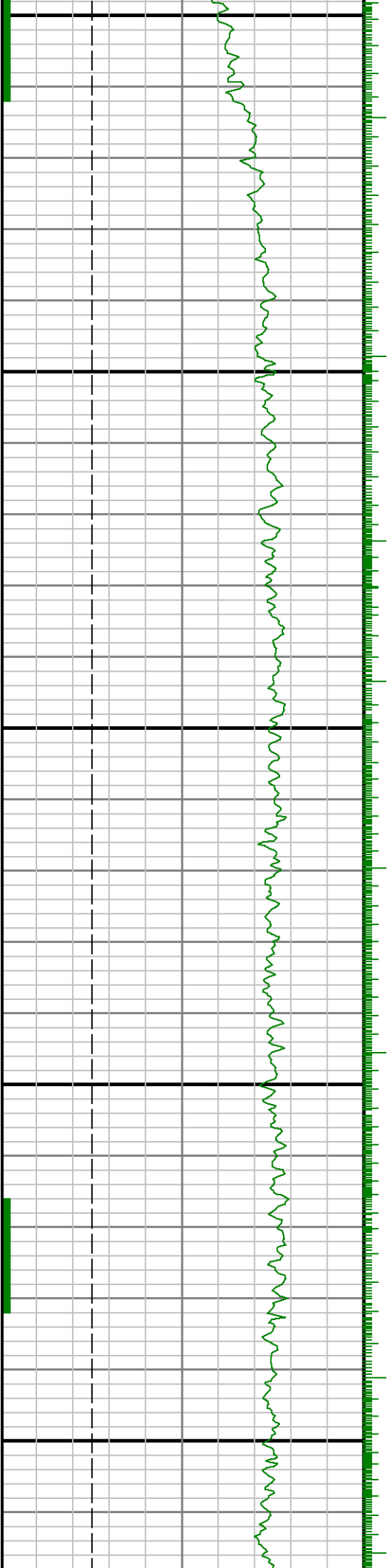


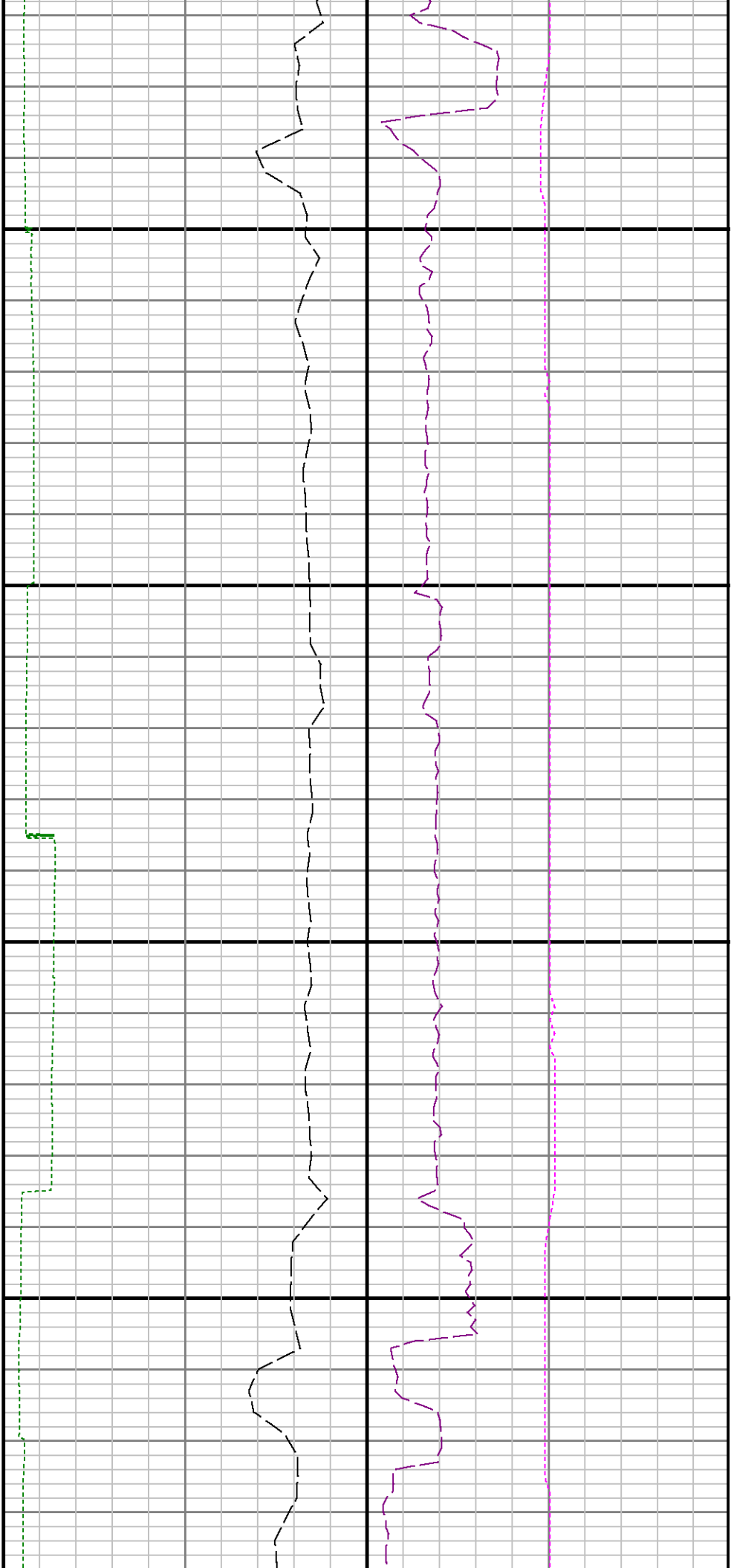




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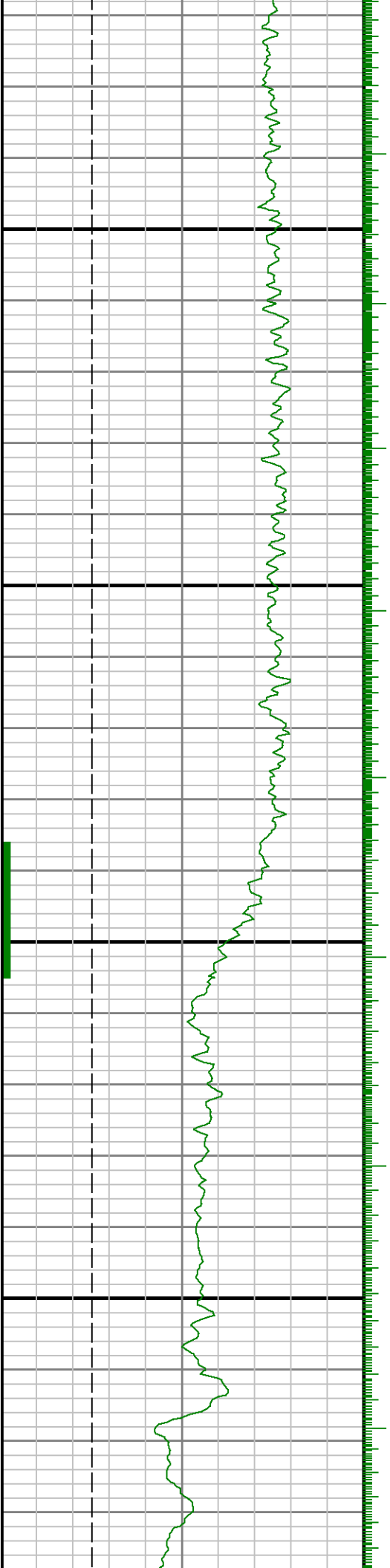
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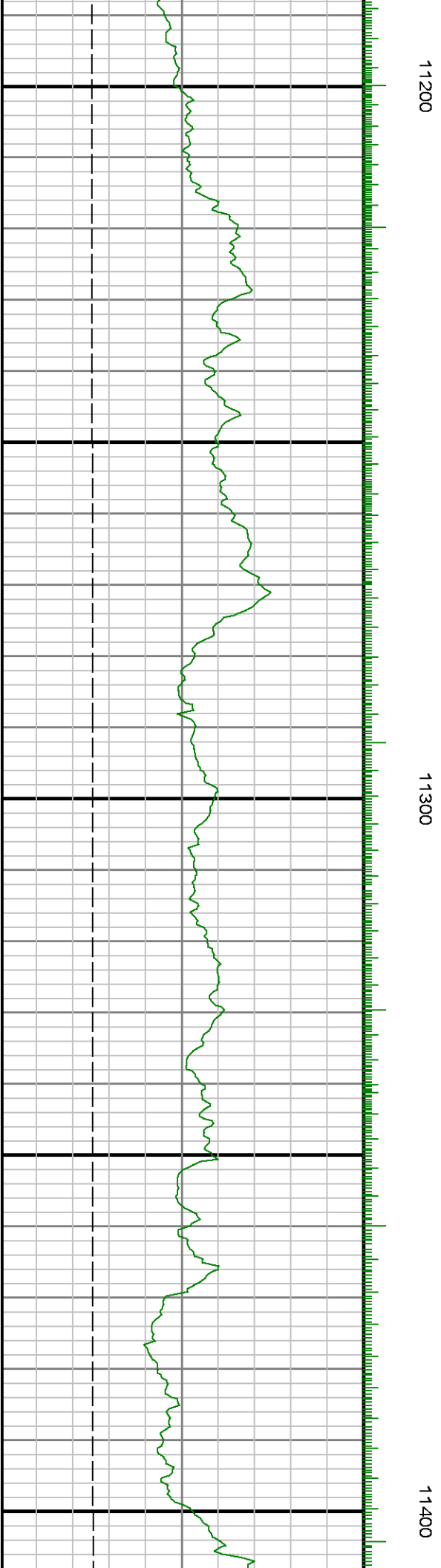


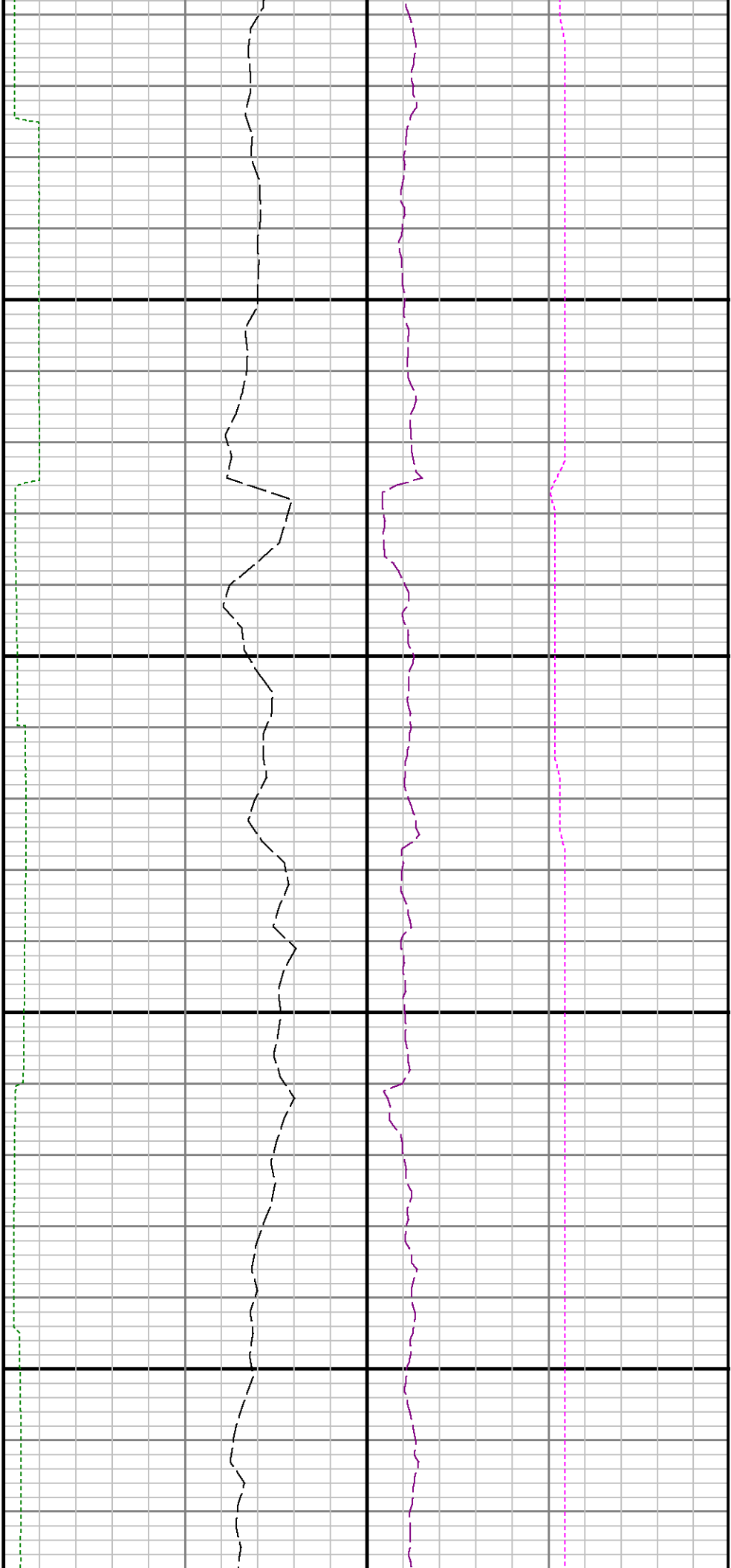


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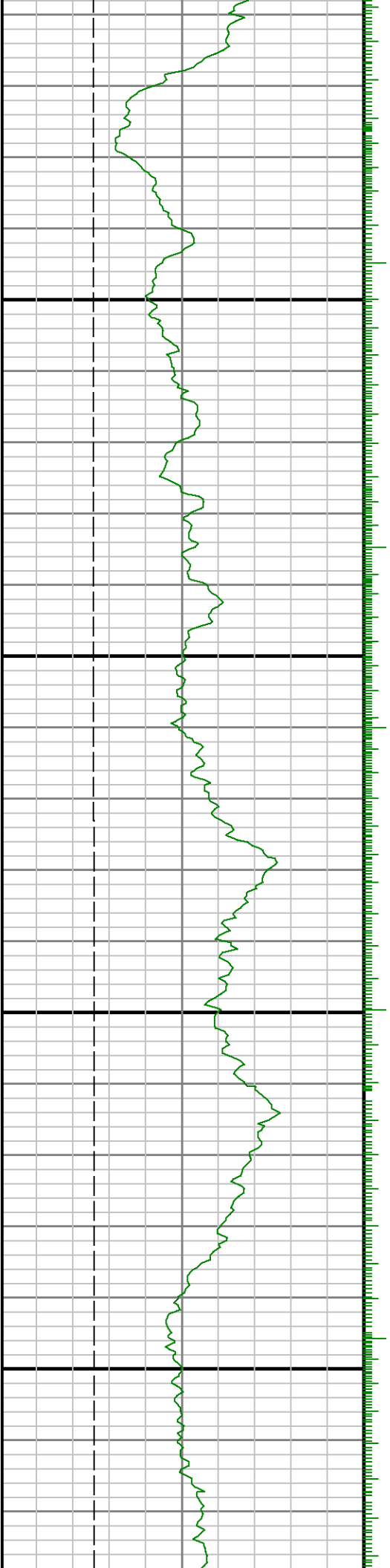


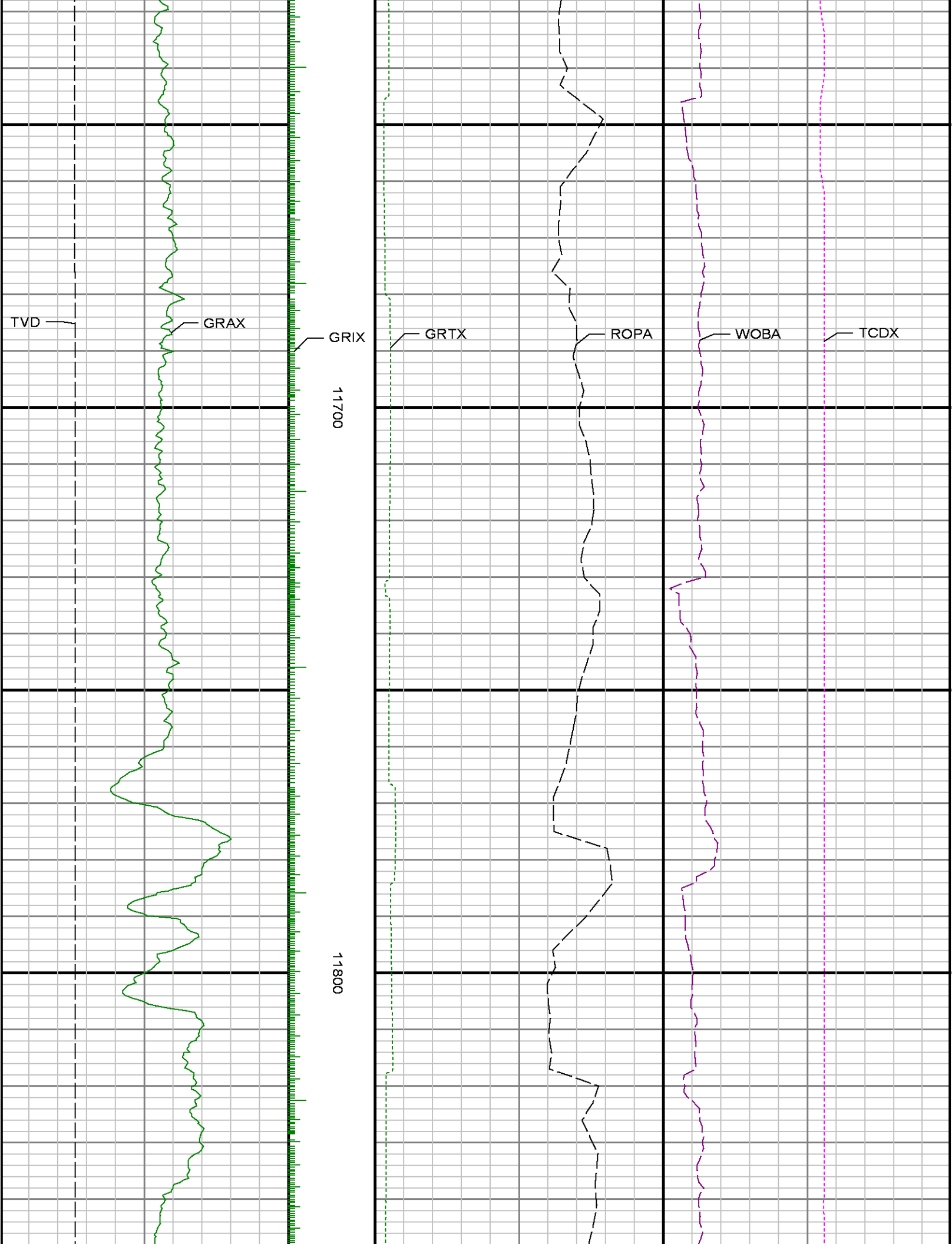


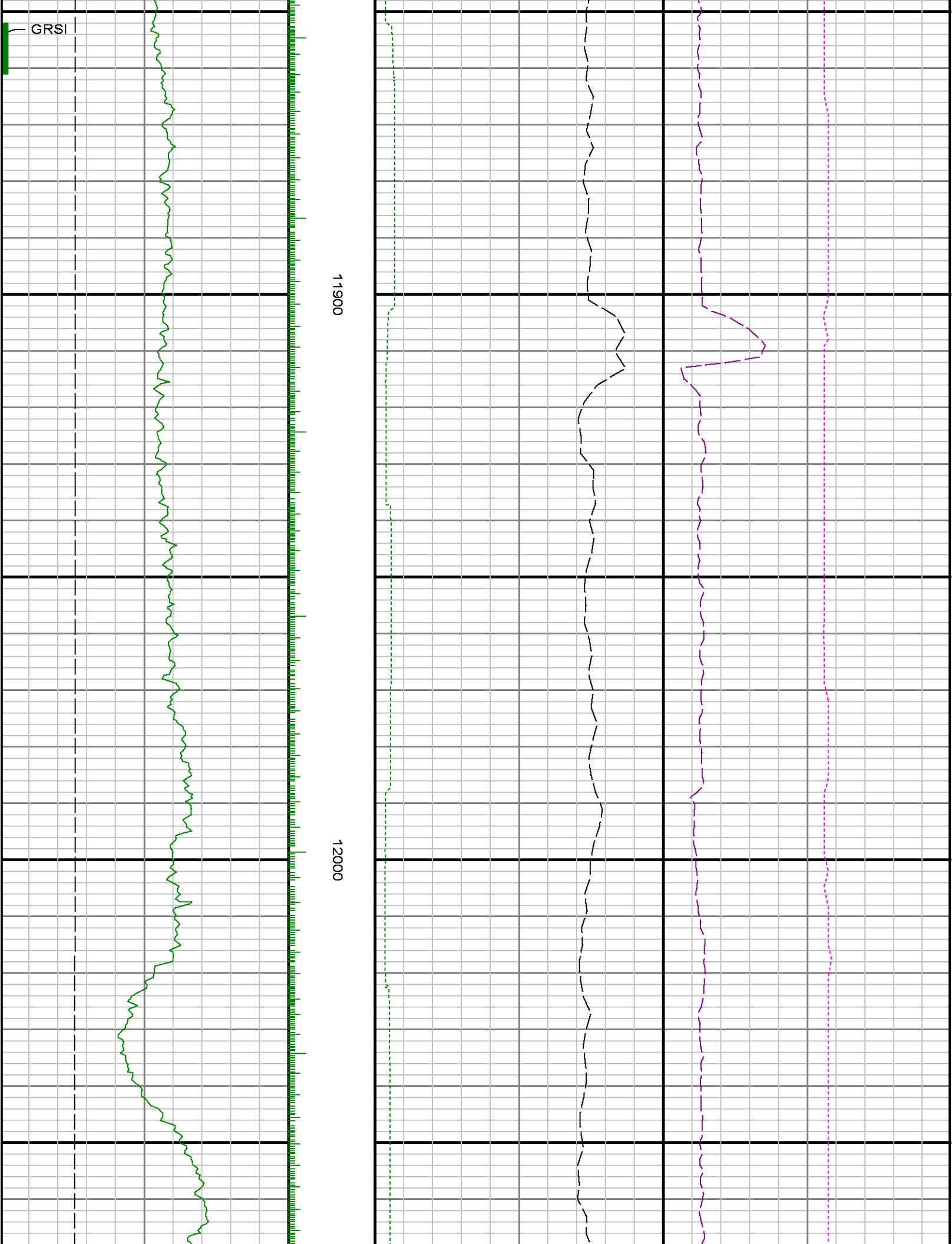


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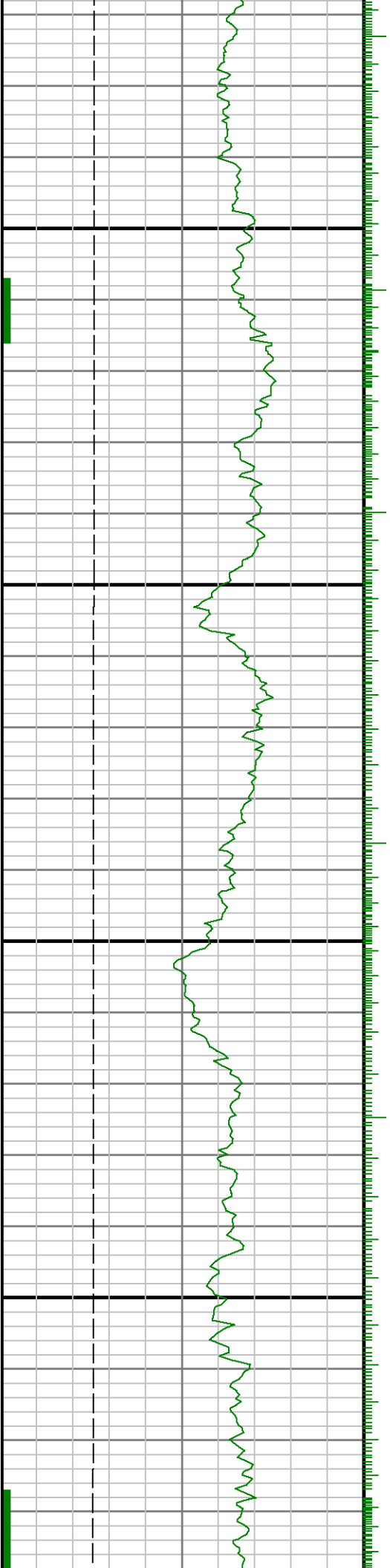


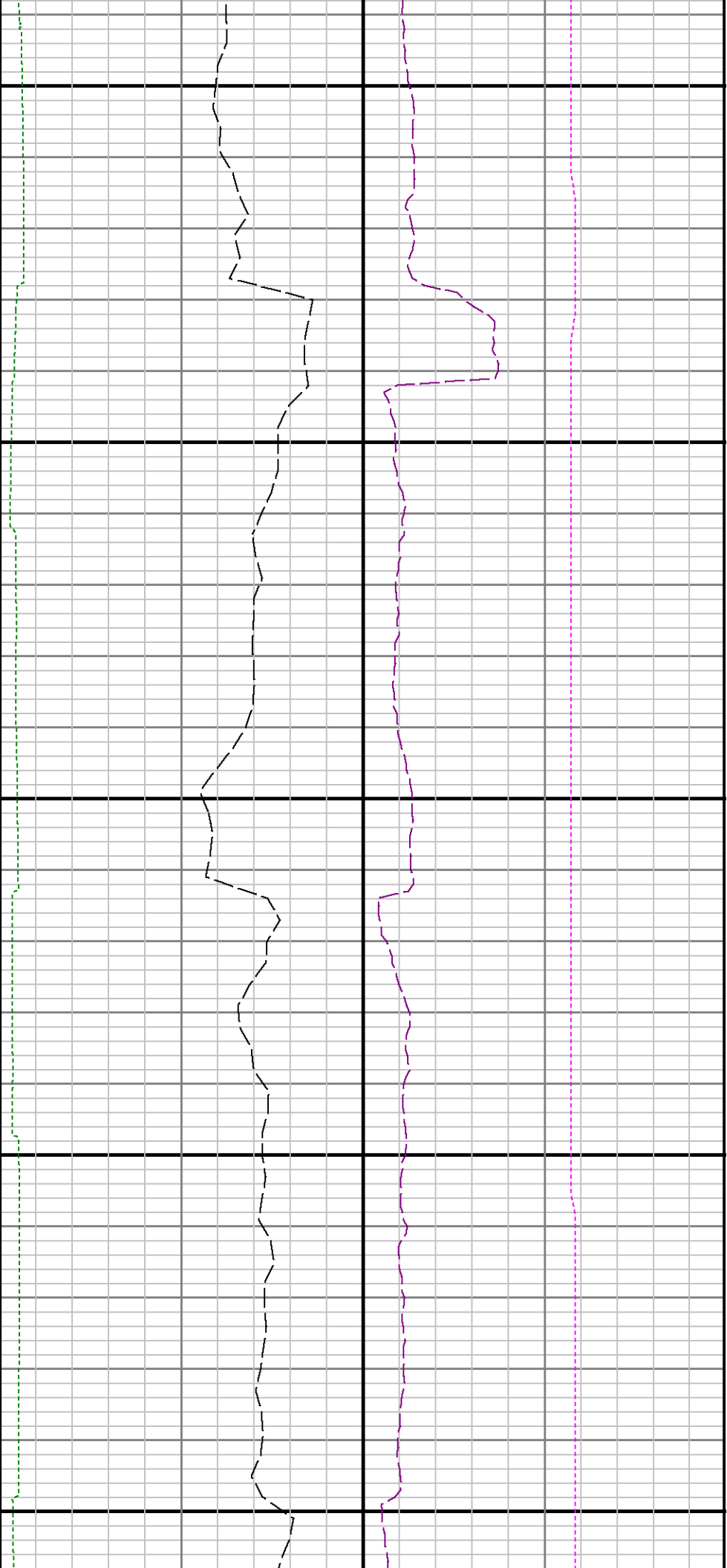




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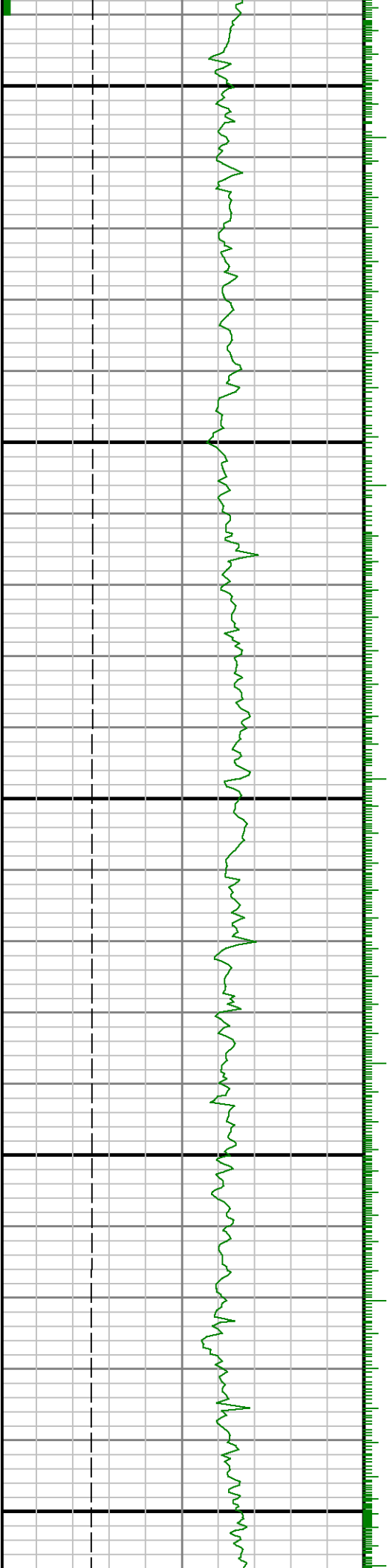


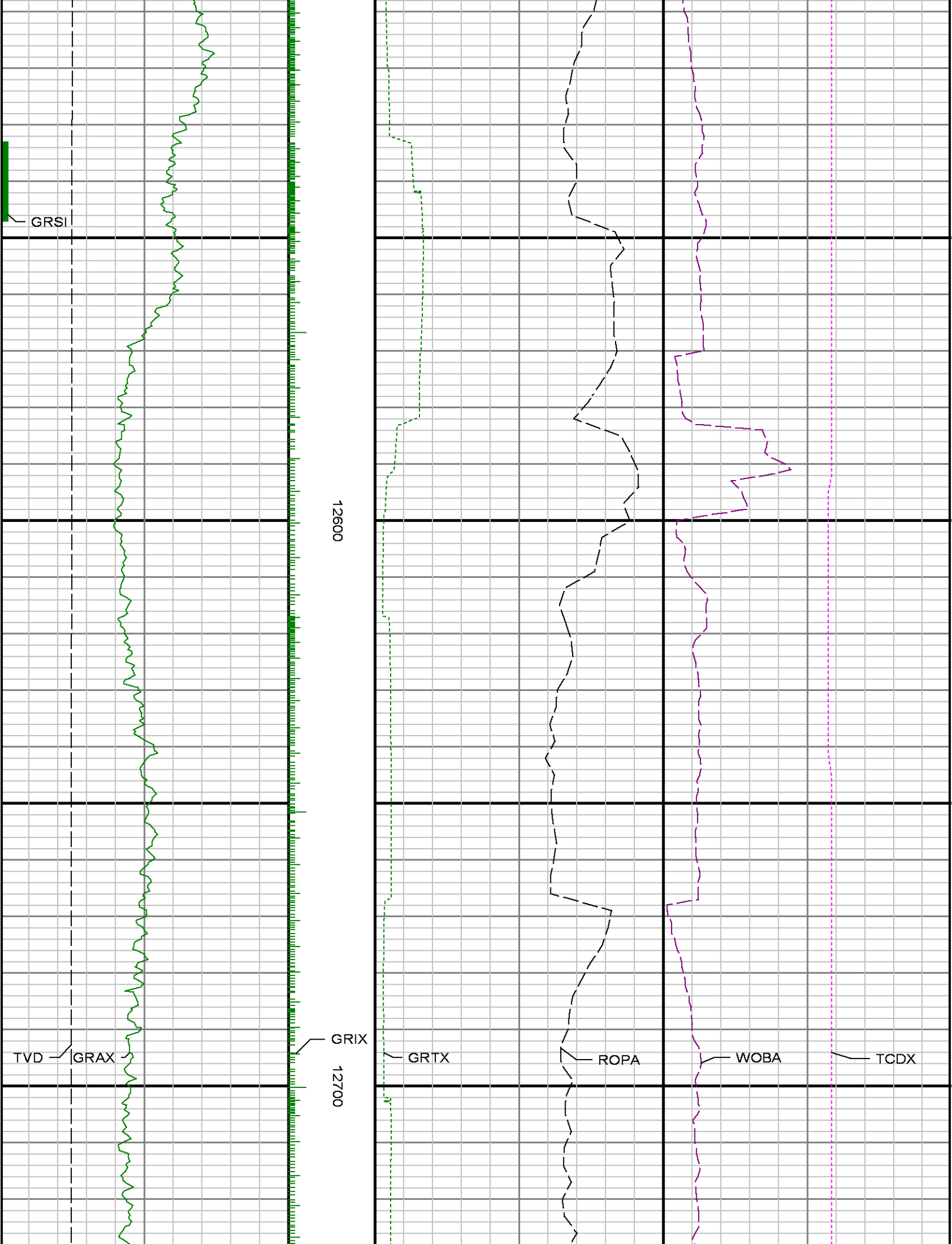


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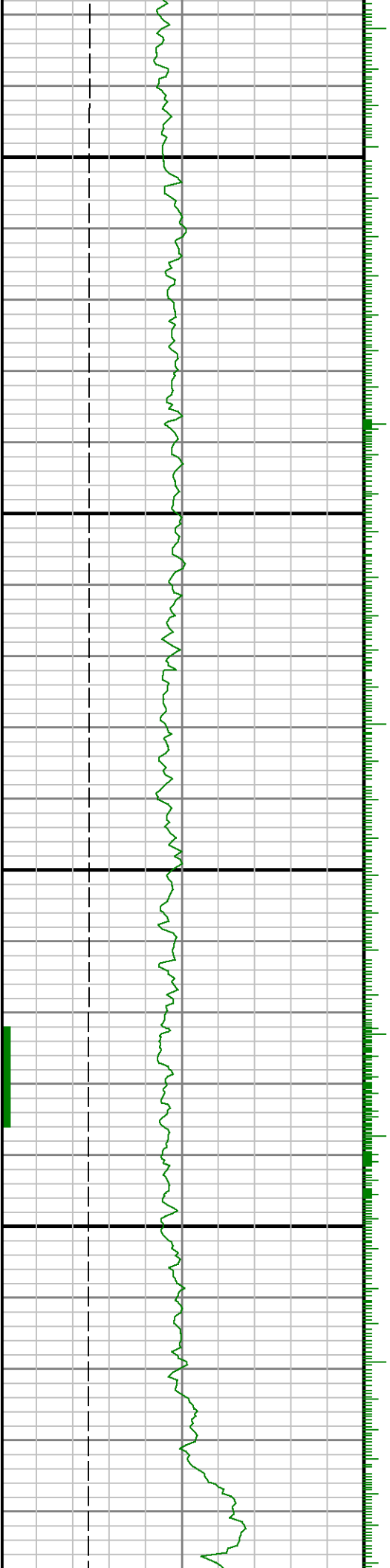






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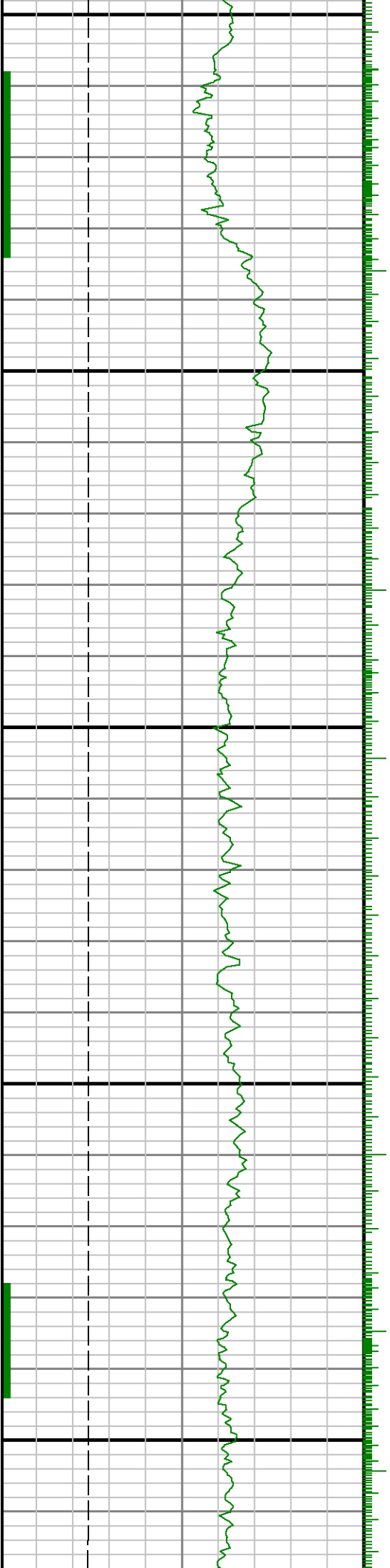
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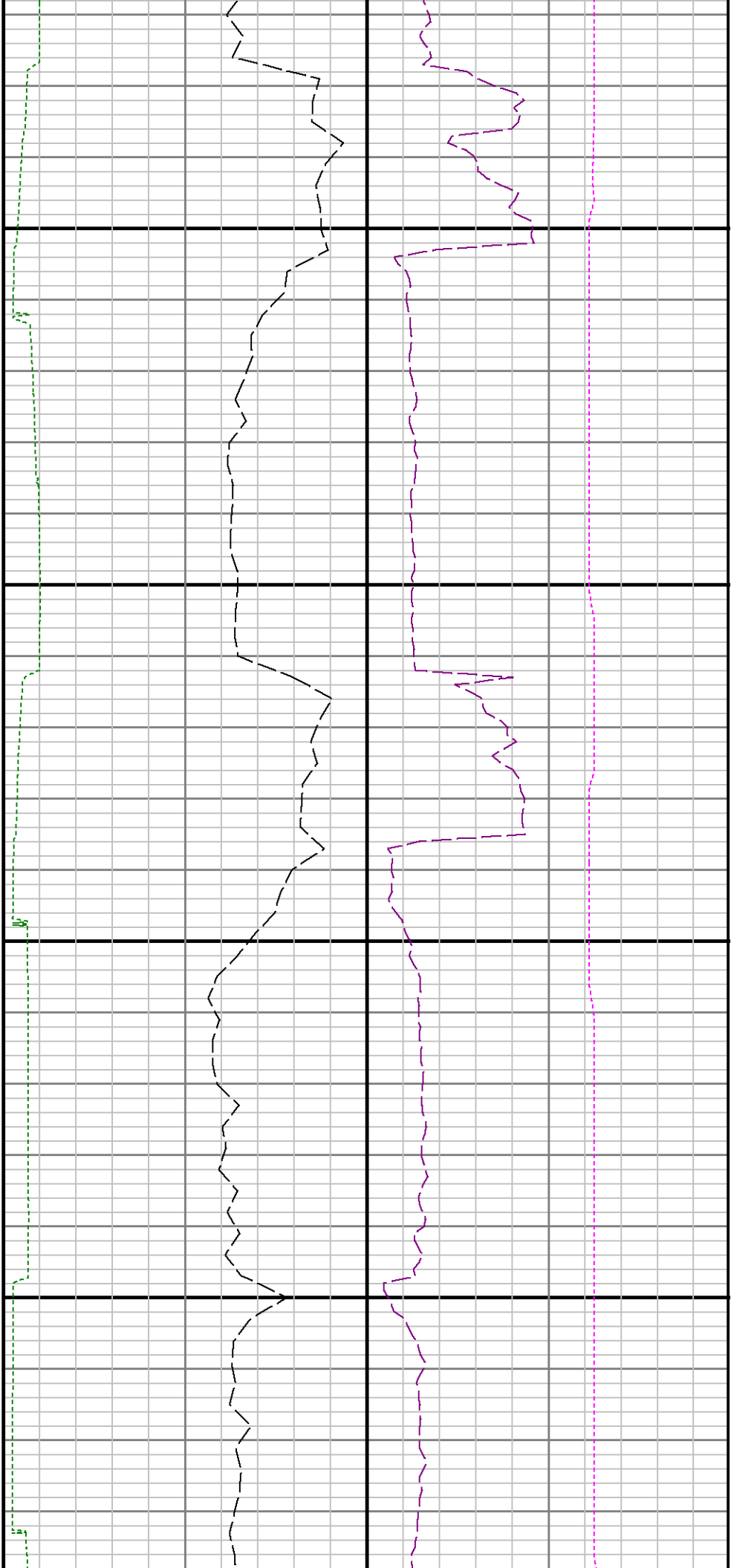




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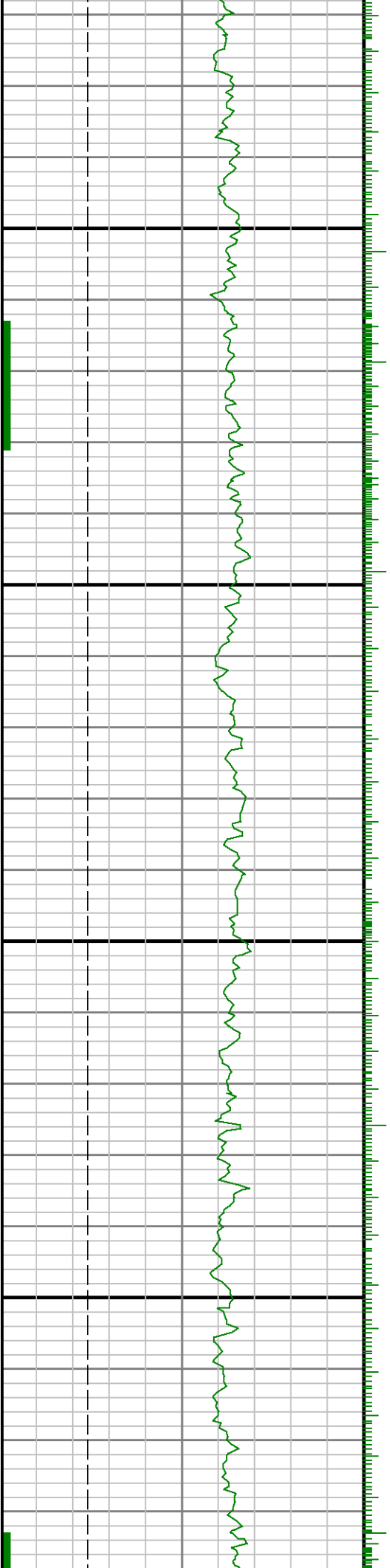
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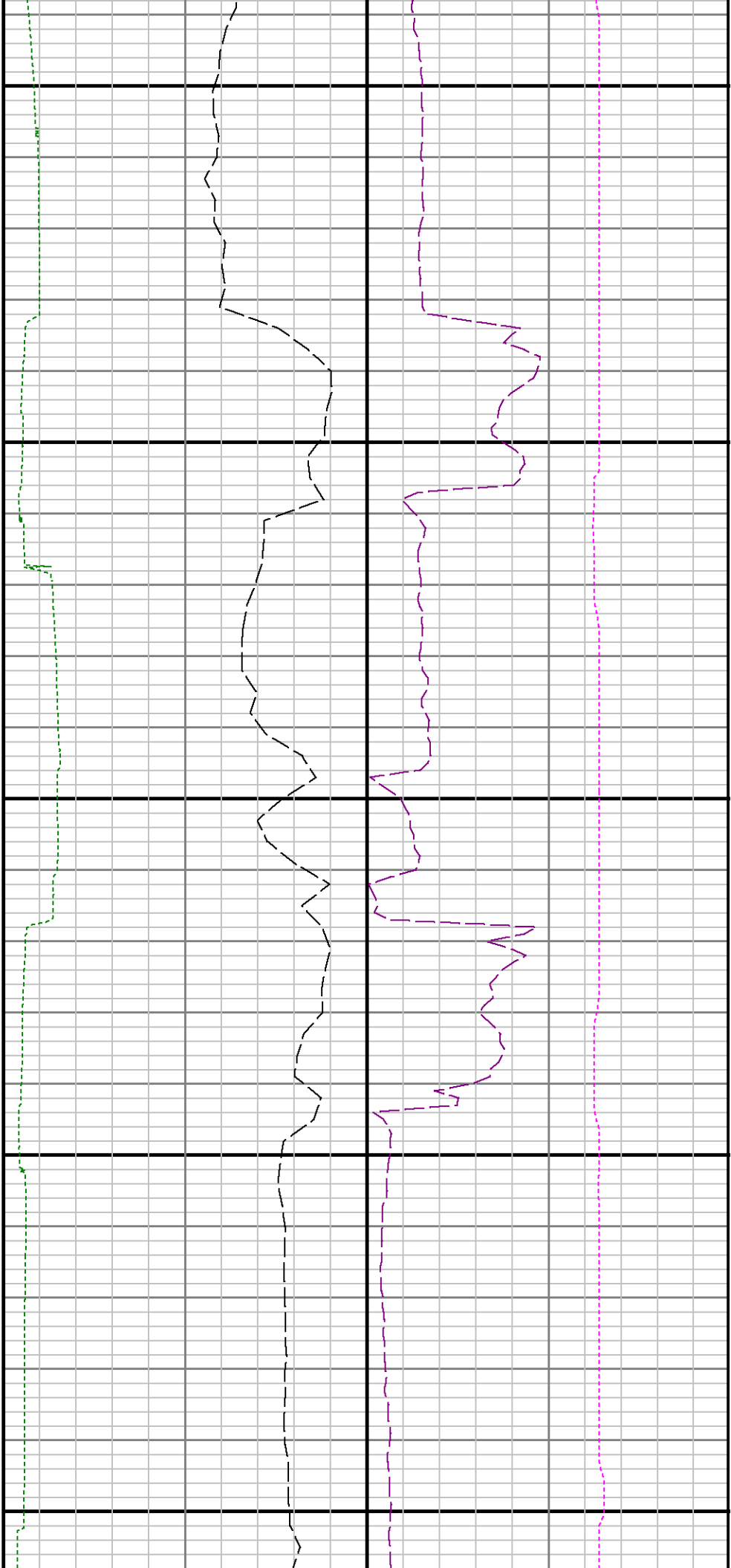




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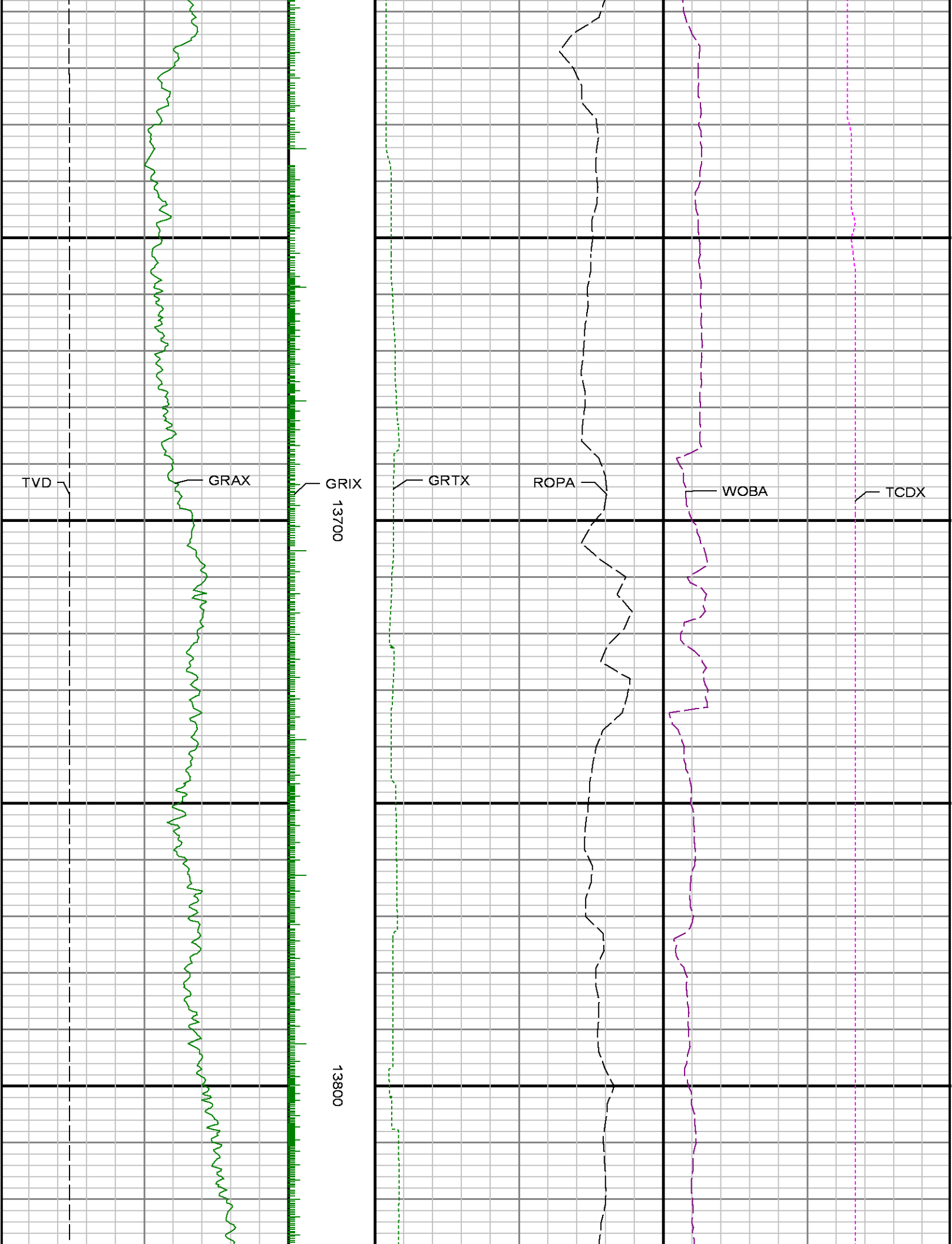


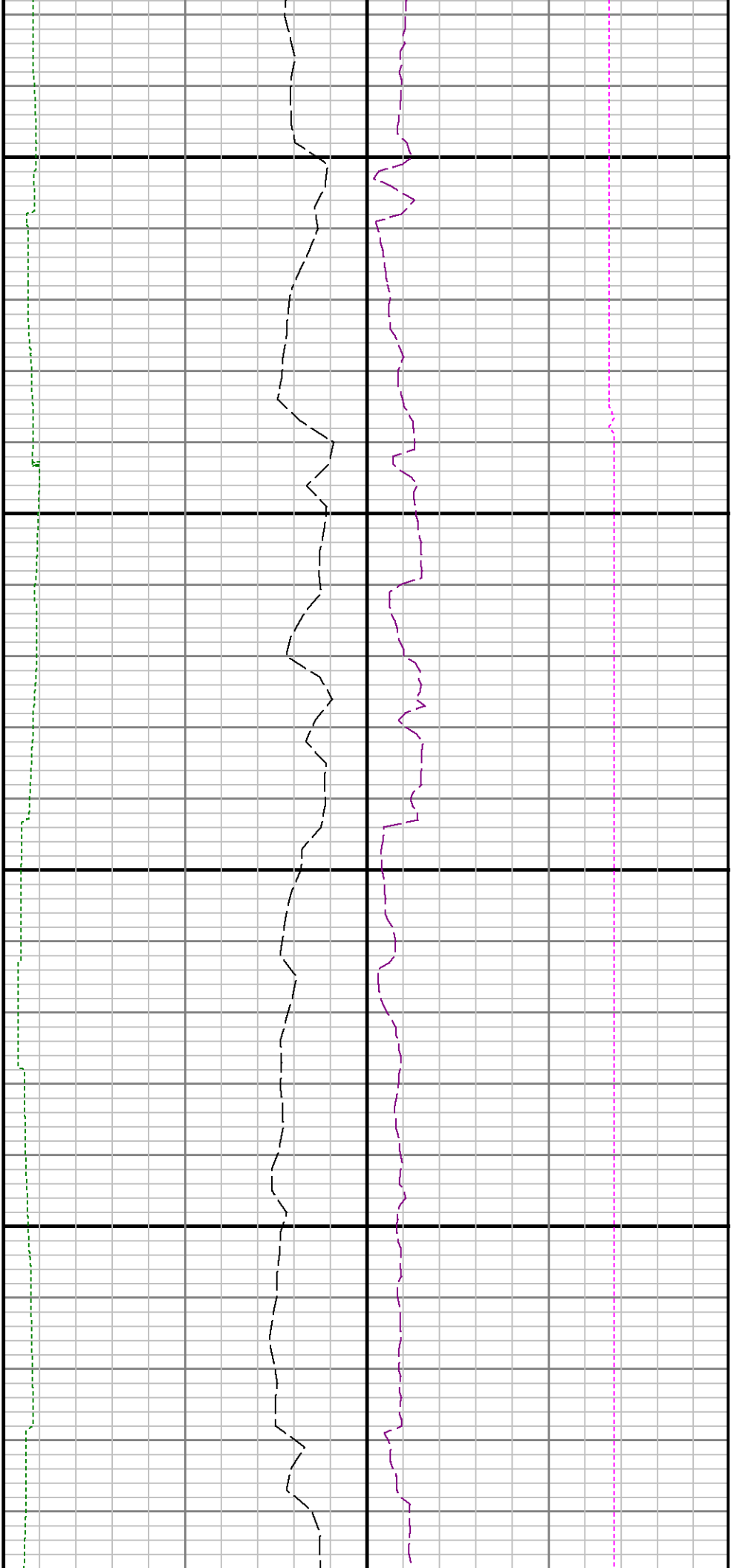
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