



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale:	Company: Anadarko
1:240	Well: Viper Pyro 26N-14HZ
MEASURED DEPTH	Field: Weld County
	Region: Continental US State: Colorado

Status:	Final Print	Surface Location:	Latitude: 40° 13' 51.272" N Longitude: 104° 53' 7.069" W	Other Services:
API Number:	051234142500	Section: 15	TWN: 3N	Range 67W
Permanent Datum (P.D.):	Mean Sea Level	Elevation:	4794.00 ft.	Elevations: N/A
Log Measured From:	Rig Floor	20.00 ft.	Above P.D.	KB: 4814.00 ft. DF: 4794.00 ft. GL:
Depth Reference:	Driller's Depth			

Interval Logged	Dates	Magnetic Field Reference
Top: 6400.0 ft.	Date From: 06/Aug/15	Dip Angle: 66.87°
Bottom: 16966.0 ft.	Date To: 15/Aug/15	Total
	Spud Date: 05/Aug/15	Field Strength: 52452.0 nT
		North Correction: 8.42°

Borehole Record				Casing Record			
Hole Size	From	To	Size	Weight	From	To	
12.750 in.	Surface	784.0 ft.	9.625 in.	36.00 lb/ft	Surface	774.0 ft.	
8.750 in.	784.0 ft.	7475.0 ft.	7.000 in.	26.00 lb/ft	Surface	7645.0 ft.	
6.125 in.	7475.0 ft.	17027.0 ft.					

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Oil-Based	Surface	17027.0 ft.	12.750 in.	790.0 ft.	0.0 ° / 0.0 °	5.2 ° / 355.7 °
			8.750 in.	7411.0 ft.	5.7 ° / 1.7 °	82.3 ° / 90.7 °
			6.125 in.	9616.0 ft.	88.2 ° / 90.5 °	85.9 ° / 93.3 °
					/	/
					/	/
					/	/
Acquisition System		Software Version		Other		
Advantage	2.20U4	Rig / Contractor:	Precision 462	/ Advance Drilling		
PATS	6.4.1.34	Job No:	7343681	/ D & E		
		District / Unit:	RMD			

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Log Run Summary															
LWD	BHA	Bit	Bit	Bit	Bit	Assembly	Logged Interval		Bit Depth Interval		Date / Time				Circ.
Run	Run	Run	Size	Type	Gauge	Type	Top	Bottom	From	To	Start		End		Time
No.	No.	No.	(in.)		Length (in.)		(ft.)	(ft.)	(ft.)	(ft.)					(hrs.)
1	1	1	8.750	PDC	3.500	Mud Motor	N/A	N/A	784.0	5348.0	06/Aug/15	02:14	07/Aug/15	03:04	20.8
2	2	2	8.750	PDC	3.500	Mud Motor	6400.0	7418.0	5348.0	7475.0	07/Aug/15	20:44	08/Aug/15	07:28	18.1
3	3	3	6.125	PDC	3.000	Mud Motor	7419.0	13579.0	7475.0	13885.0	09/Aug/15	23:46	12/Aug/15	20:06	62
4	4	4	6.125	PDC	3.000	Mud Motor	13580.0	16966.0	13885.0	17027.0	13/Aug/15	20:57	15/Aug/15	23:00	46.2

Crew								
Name			Arrive	Depart	Name			Arrive
			Wellsite	Wellsite				Wellsite
Nicholas Gerard			05/Aug/15	16/Aug/15	Donald Delay			05/Aug/15
								10/Aug/15
								Andy King
								11/Aug/15
								16/Aug/15

Bill Herbers	05/Aug/15	11/Aug/15	Ken Perry	11/Aug/15	16/Aug/15	Mike Gurnsey	05/Aug/15	16/Aug/15
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Mud Properties Record												
Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
06/Aug/15	17:00	1	4456.0	MEGADRIL	9.5	63	N/A	4.2	70/30	Suction	N/A	N/A
08/Aug/15	05:00	2	7313.0	MEGADRIL	9.7	74	N/A	3.8	72/28	Suction	N/A	N/A
11/Aug/15	17:00	3	11809.0	MEGADRIL	9.8	78	N/A	3.6	71/29	Suction	N/A	N/A
14/Aug/15	17:00	4	15388.0	MEGADRIL	10.2	65	N/A	3.8	73/27	Suction	N/A	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	points
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.	klbs.

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12617345	Directional	60.85	6.750	3.250
1	SRIG	11732967	Gamma	57.51	6.750	3.250
2	DIR	12617345	Directional	60.83	6.750	3.250
2	SRIG	11732967	Gamma	57.49	6.750	3.250
3	DIR	12235770	Directional	62.77	4.750	2.750
3	SRIG	12131378	Gamma	59.43	6.750	2.750
4	DIR	11677608	Directional	64.29	4.750	0.000
4	SRIG	12595022	Gamma	60.95	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.) Baker Hughes Runs 1 and 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 784 to 7475 ft MD (783 to 7018 ft TVD).</p> <p>2.) Baker Hughes Runs 3 and 4 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7475 to 17027 ft MD (7018 to 7186 ft TVD).</p>

3.) Depth measurements were 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.

4.) 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 acquired while sliding.

Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	7430	6.125	2	The interval from 7418 to 7476 ft MD (7011 to 7018 ft TVD) was logged up to 40.25 hours after being drilled due to a trip out of hole to run casing and cement, and to pick up lateral BHA.
2	13590	8.750	3	The interval from 13579 to 13888 ft MD (7060 to 7061 ft TVD) was logged up to 30 hours after being drilled due to a trip out of hole to pick up a new BHA. This interval was re-logged while reaming back to bottom.
3	17027	8.750	4	The interval from 16966 to 17027 ft MD (7181 to 7186 ft TVD) contains no logging data due to sensor offset from the bit at well TD.

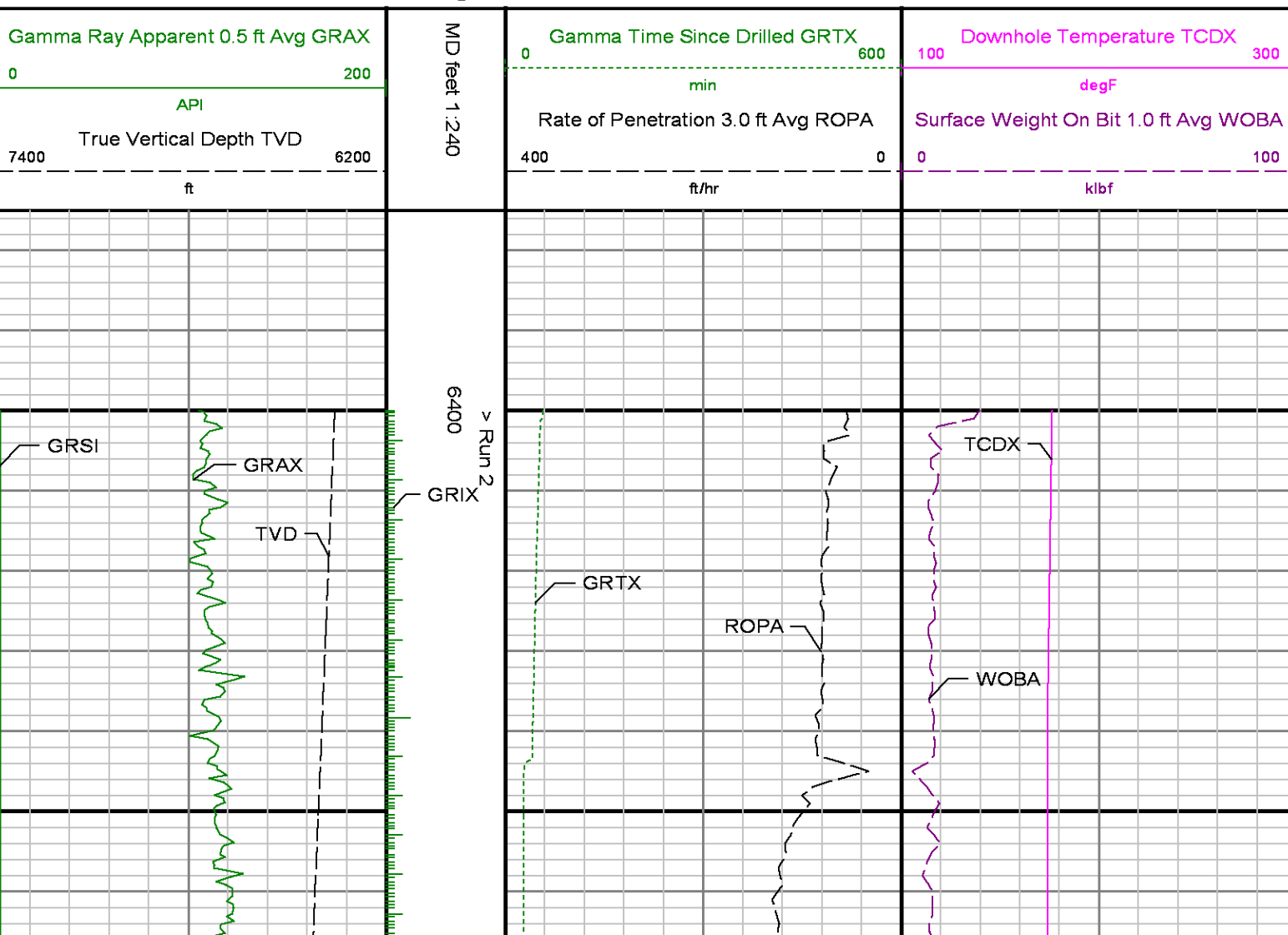


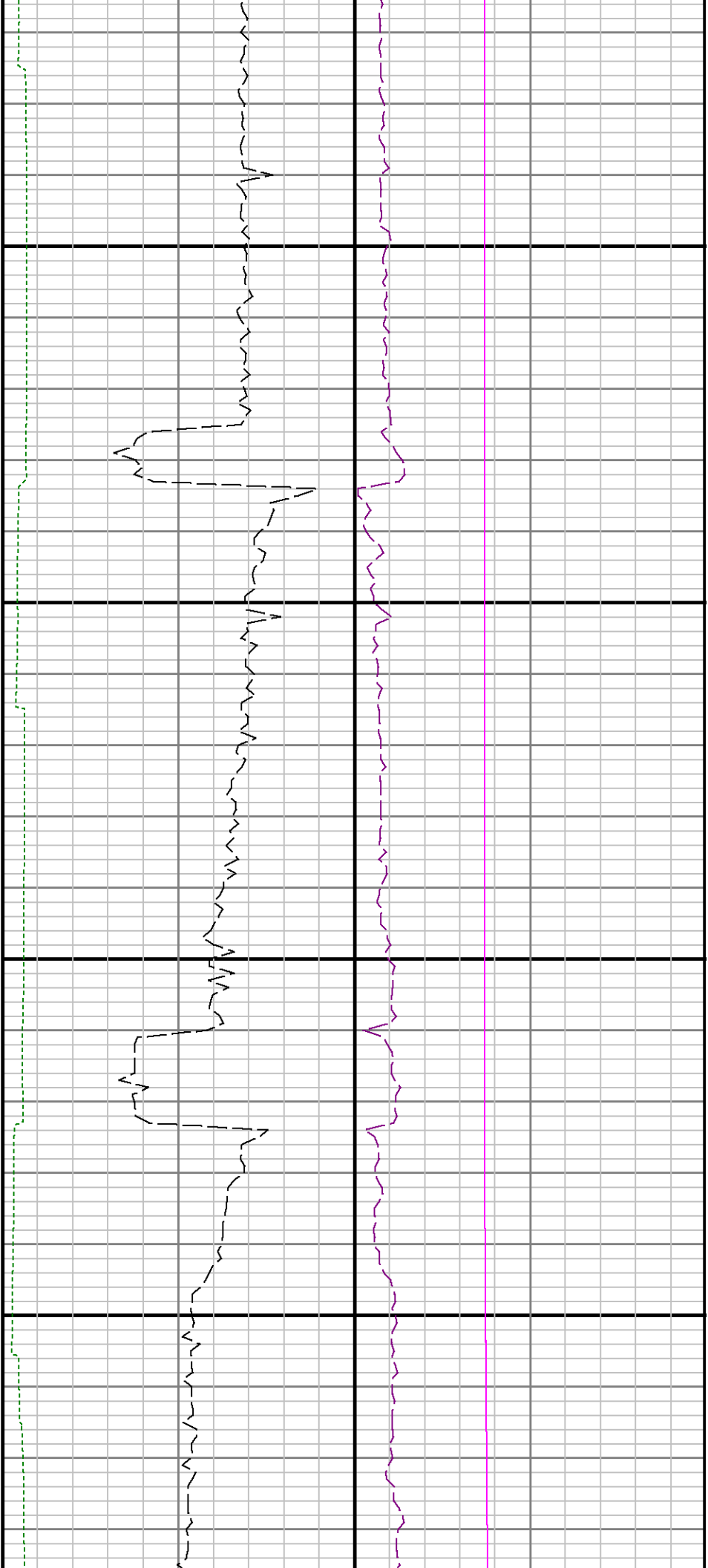
Company : Anadarko

Well : Viper Pyro 26N-14HZ

Interval : 6375.00 - 17047.00 feet

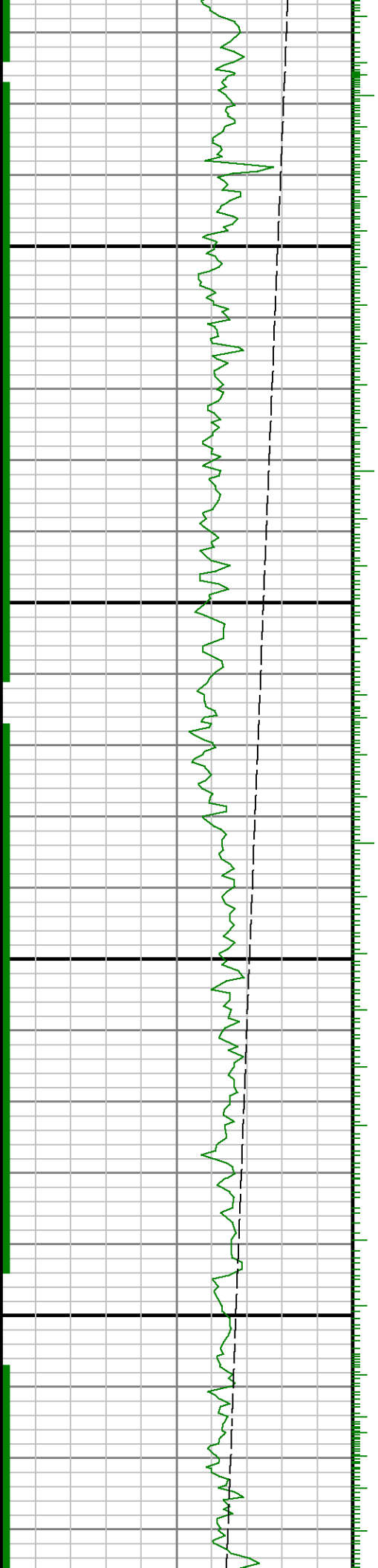
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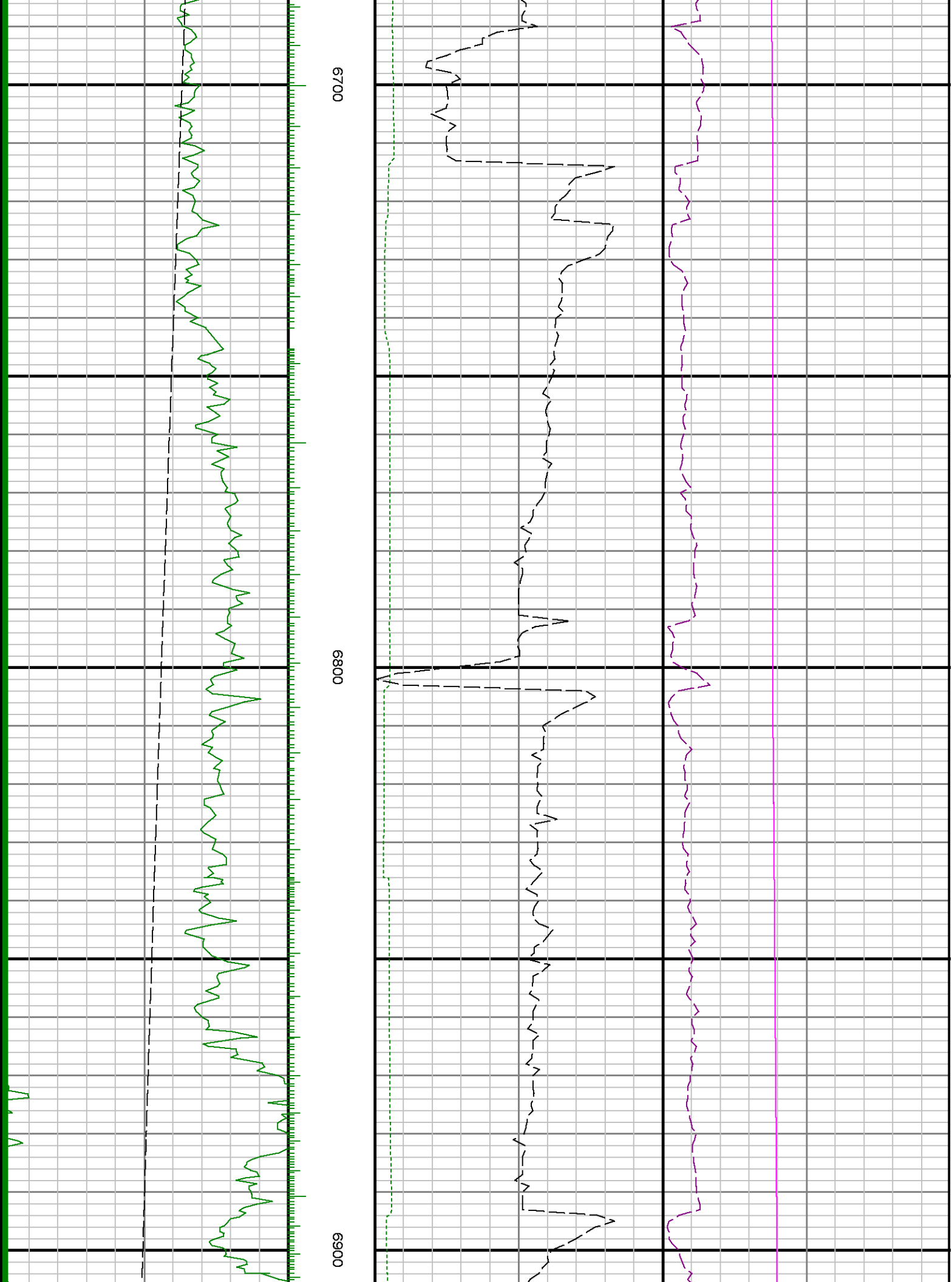


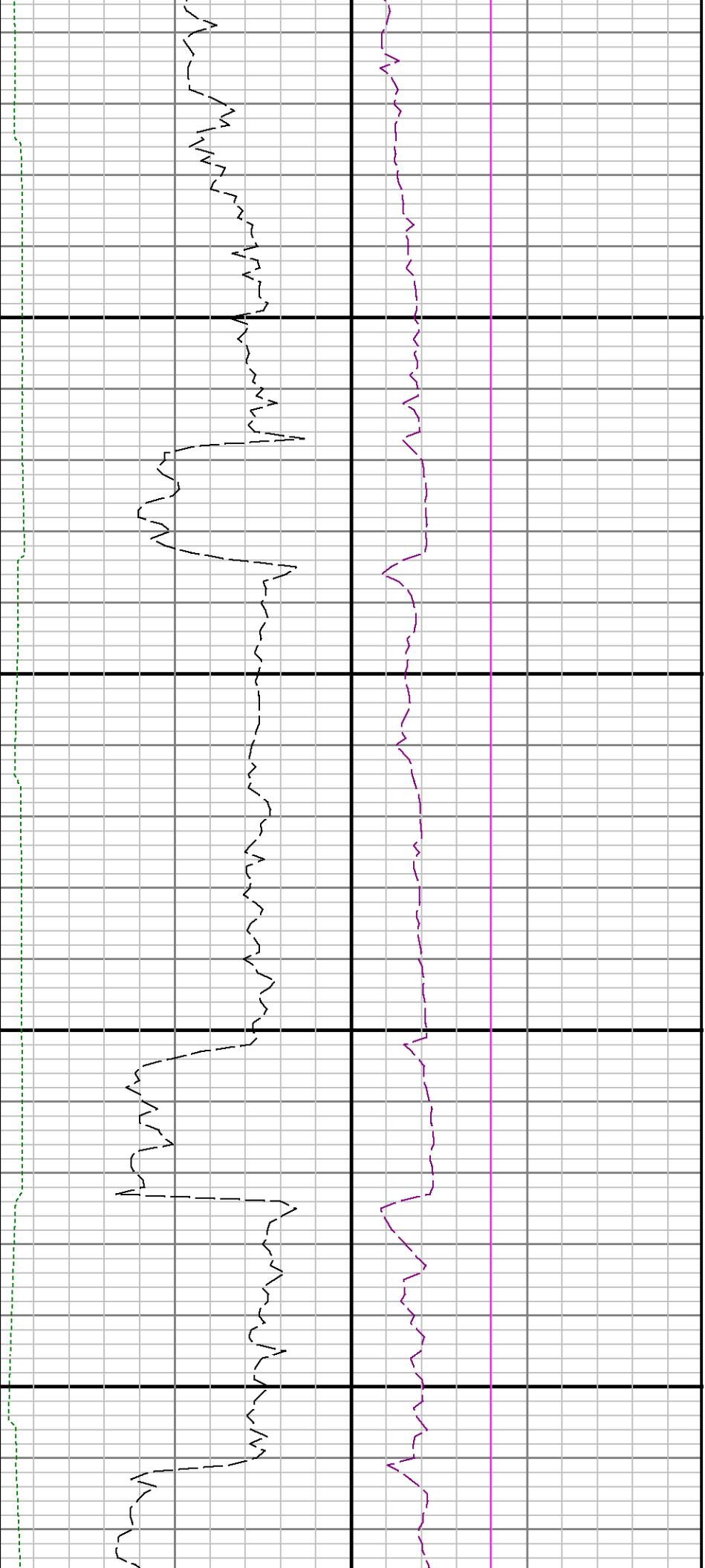


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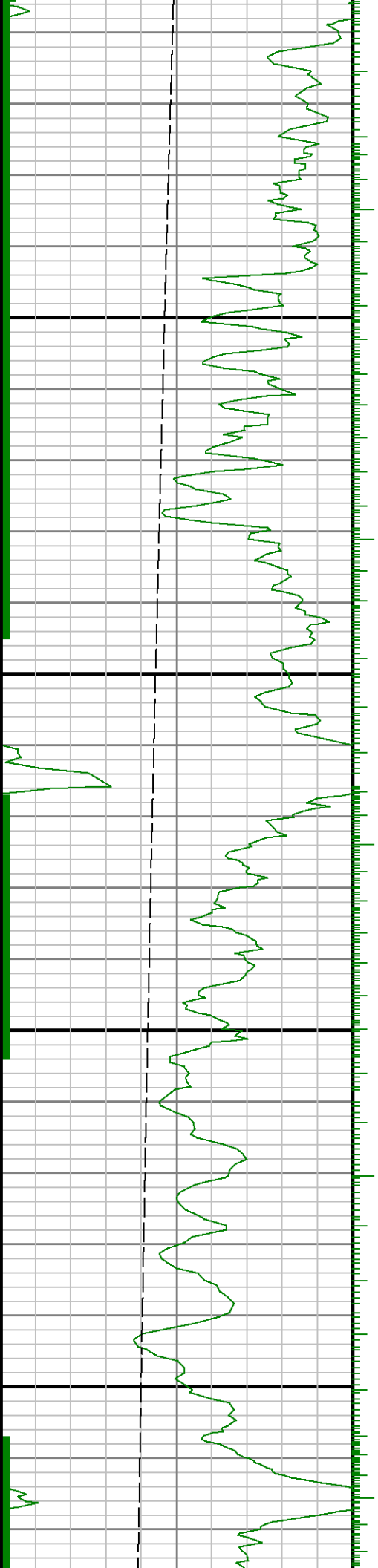


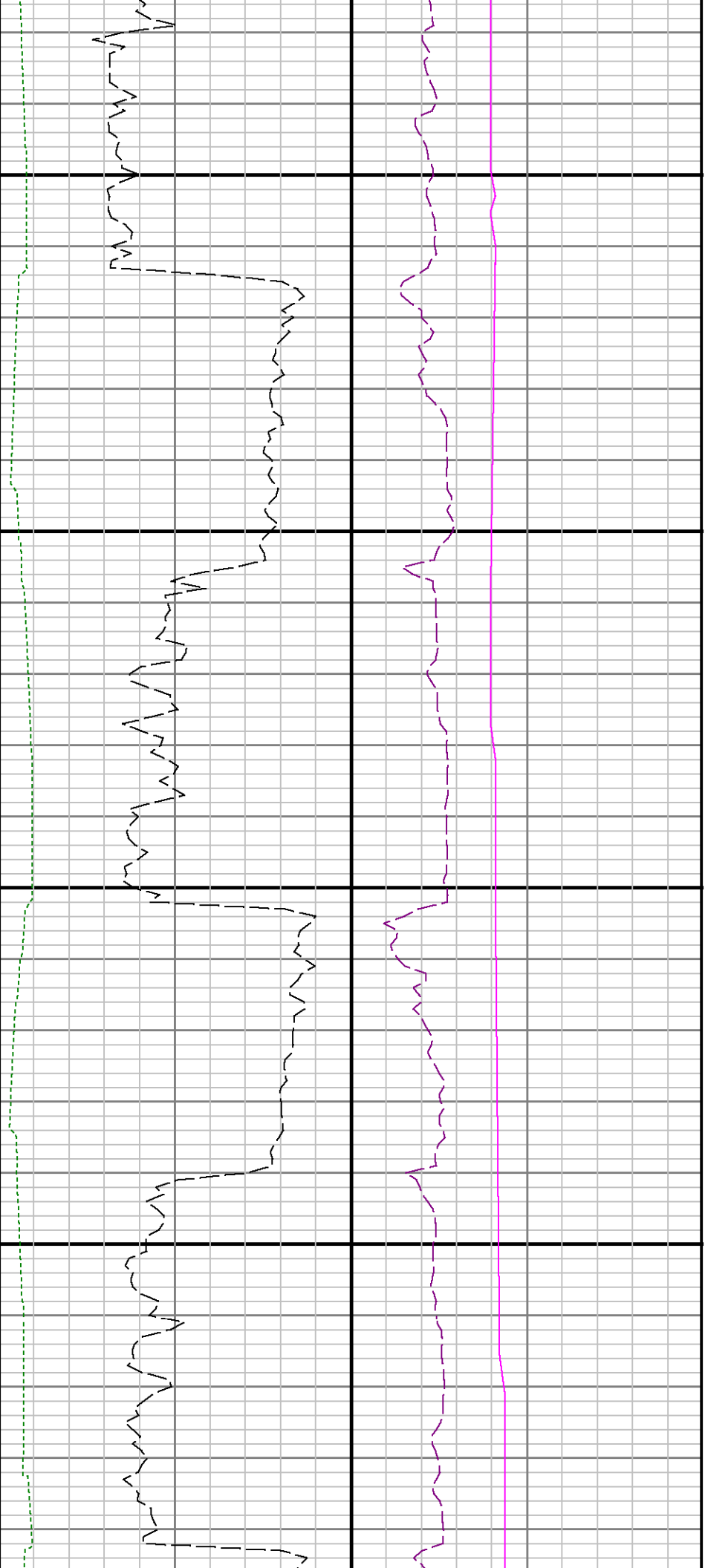




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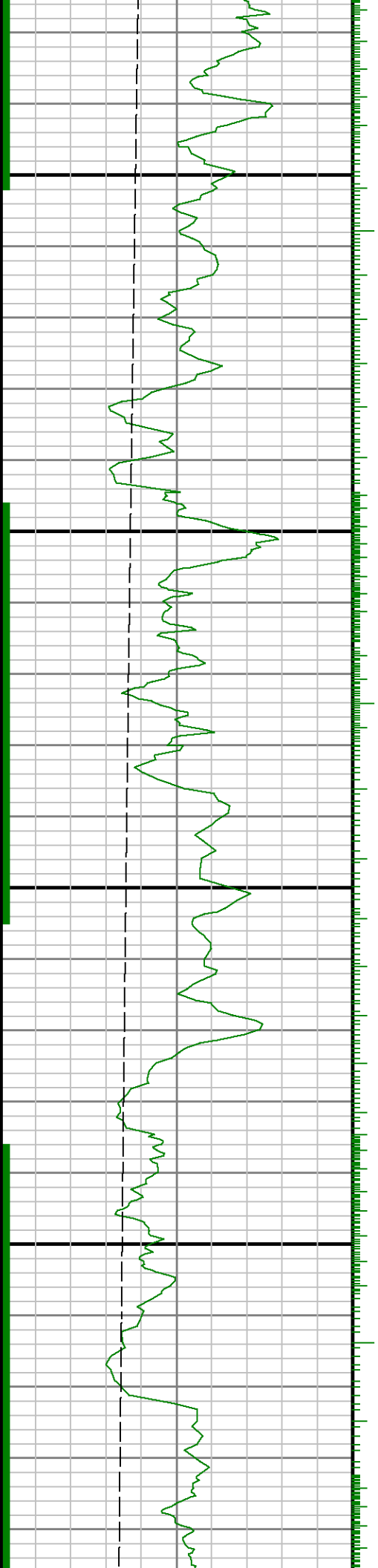
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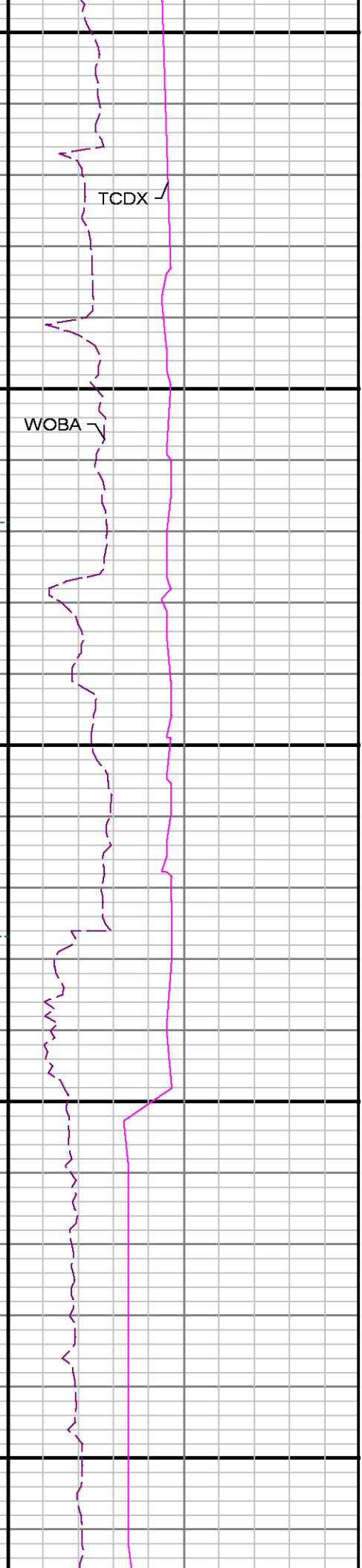
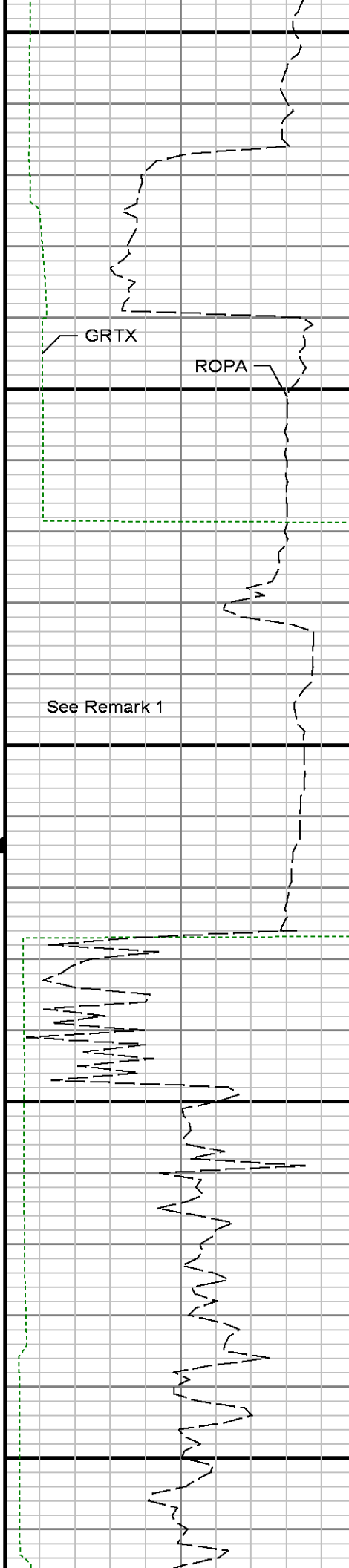
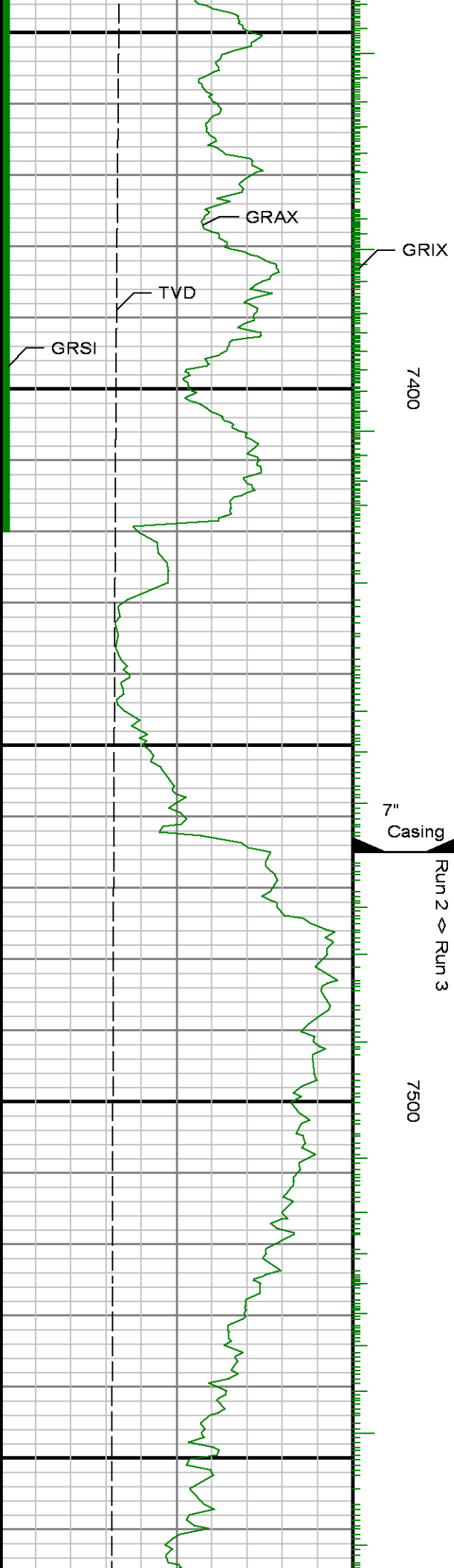


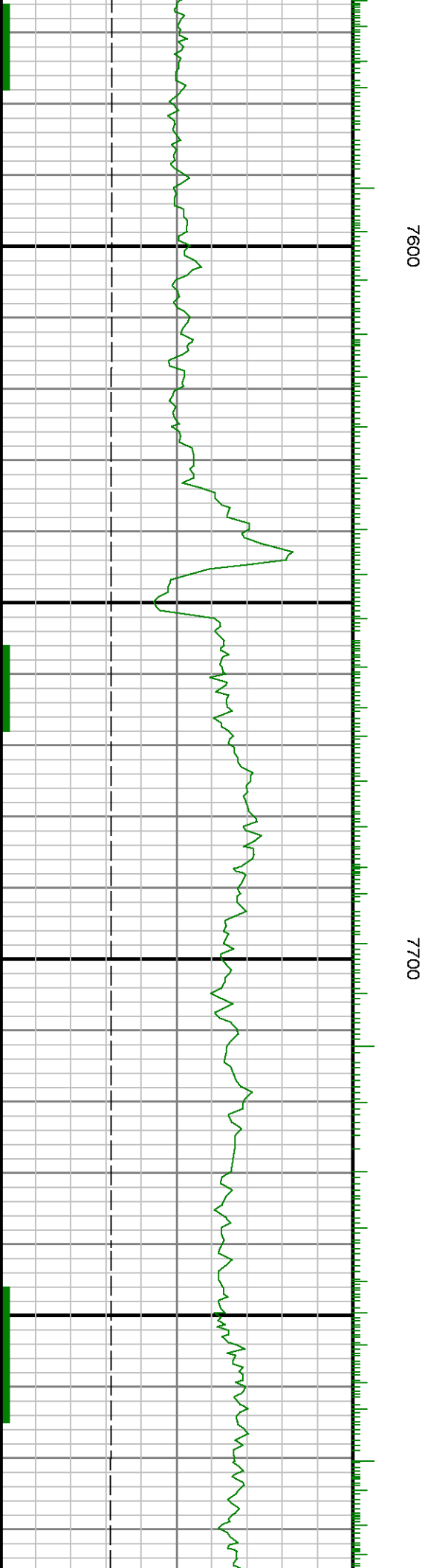
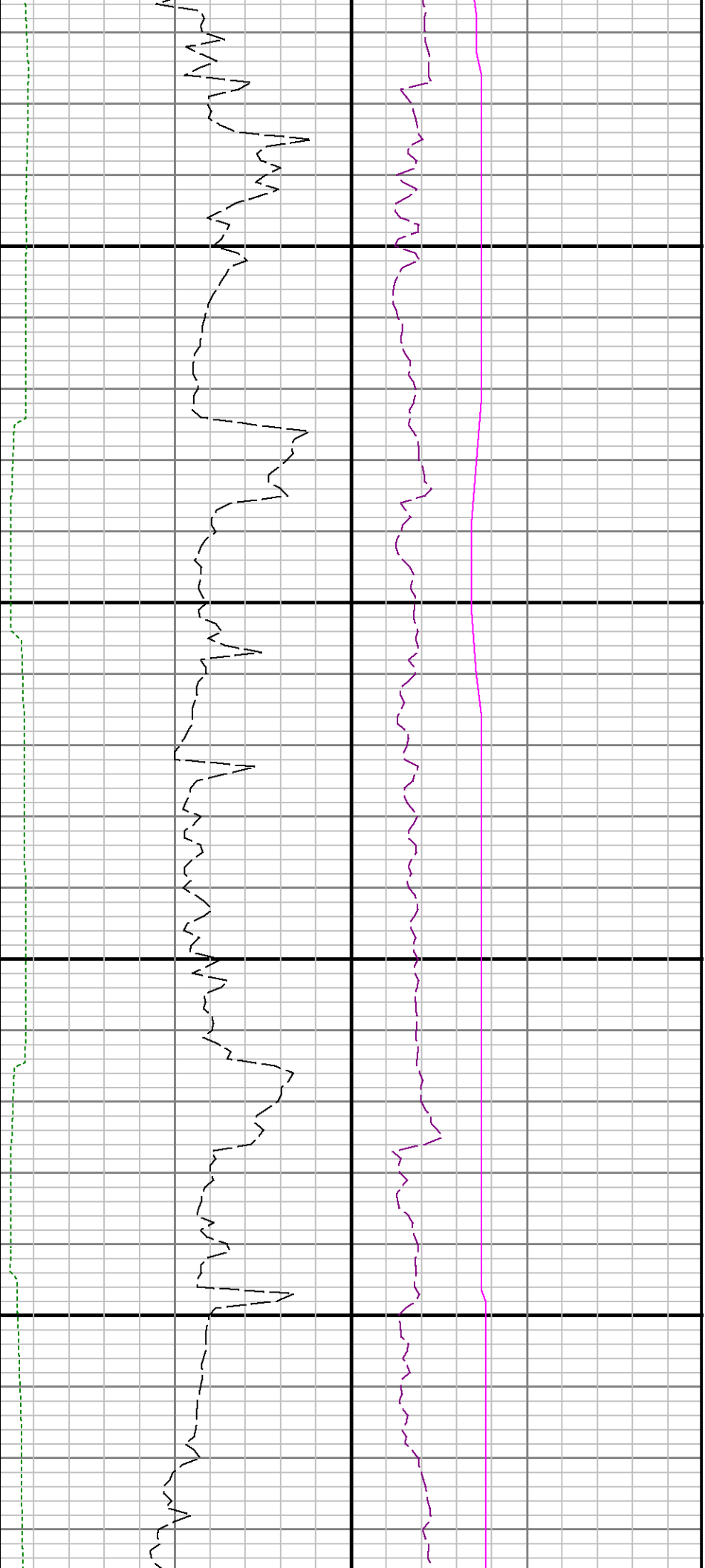


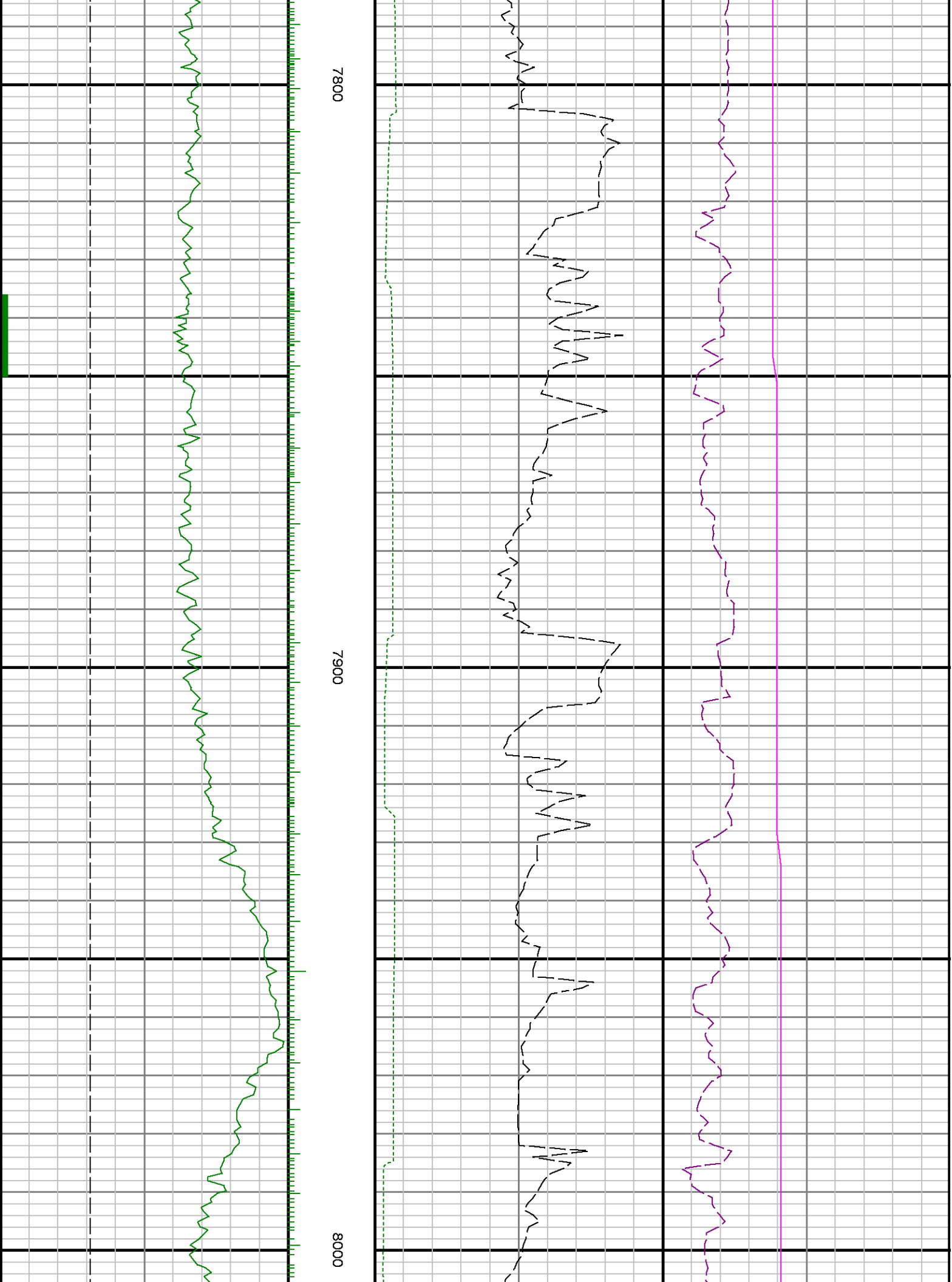
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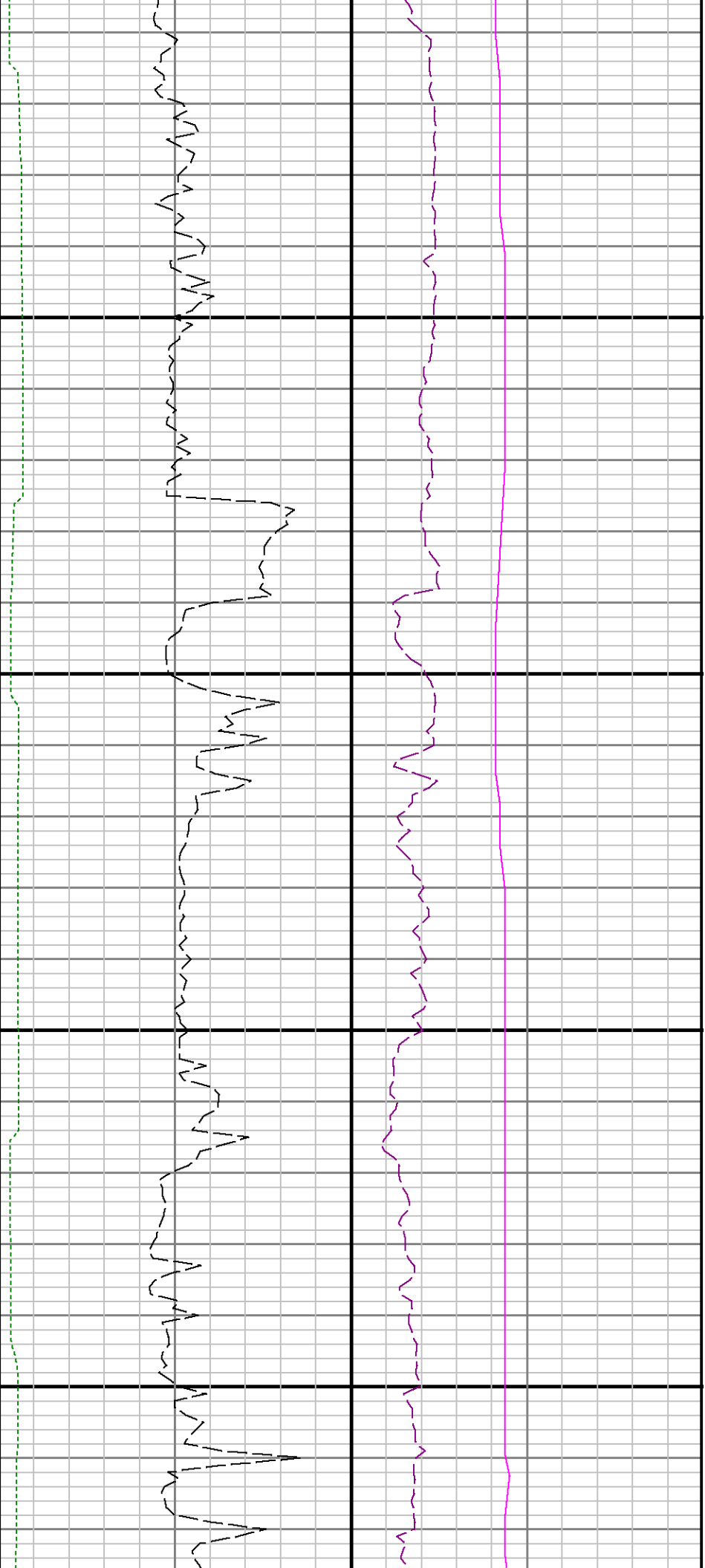
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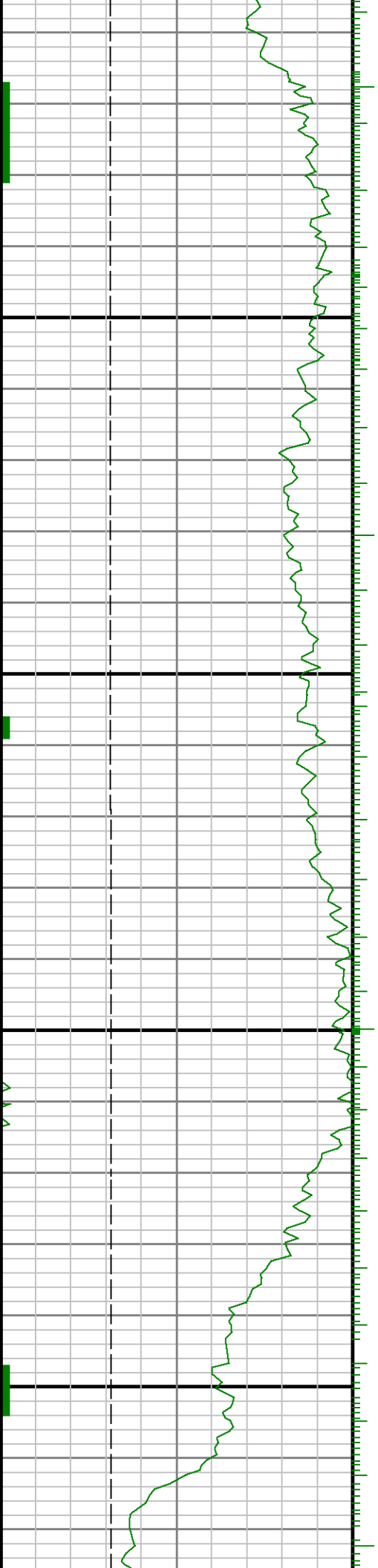


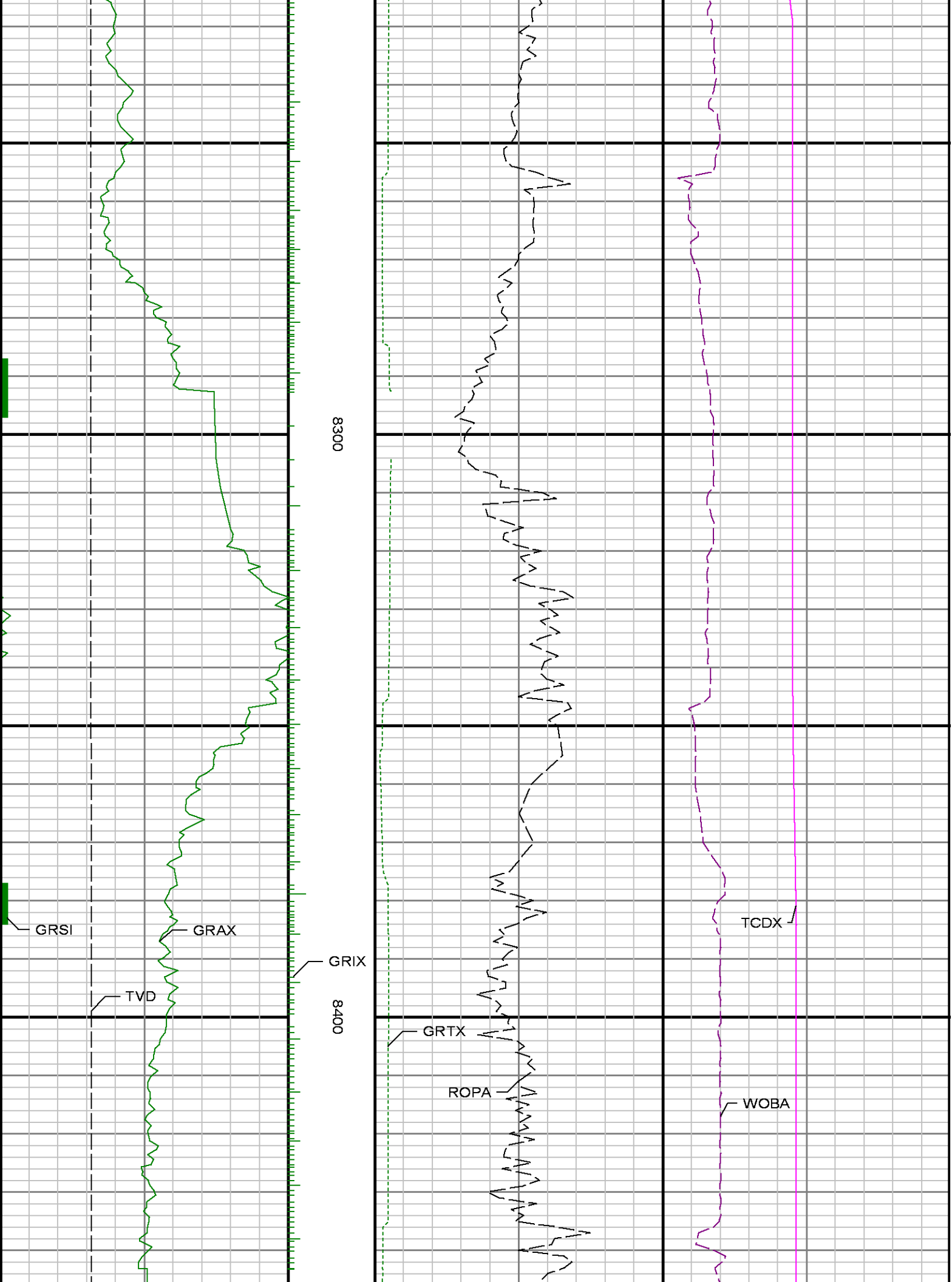


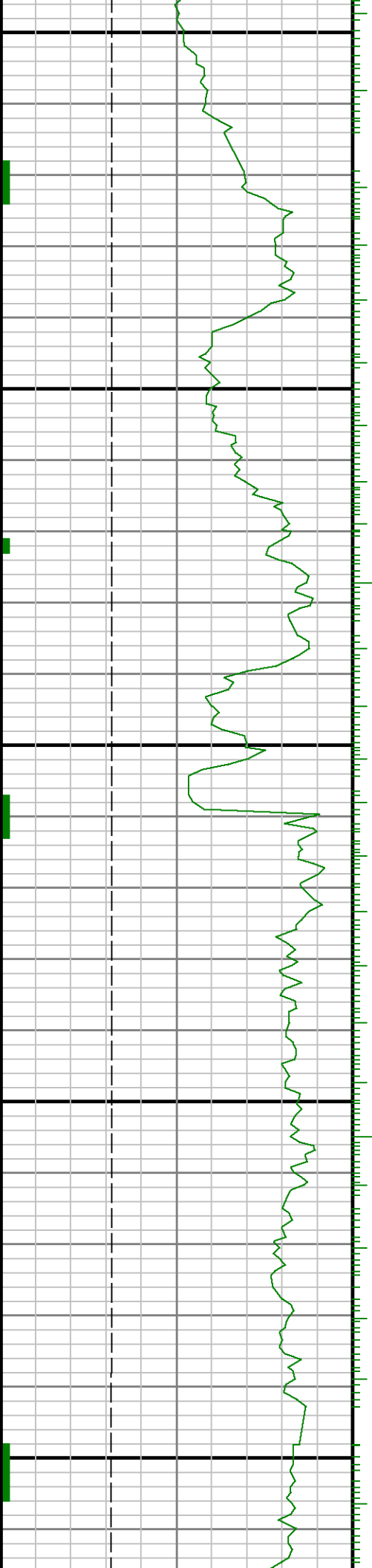


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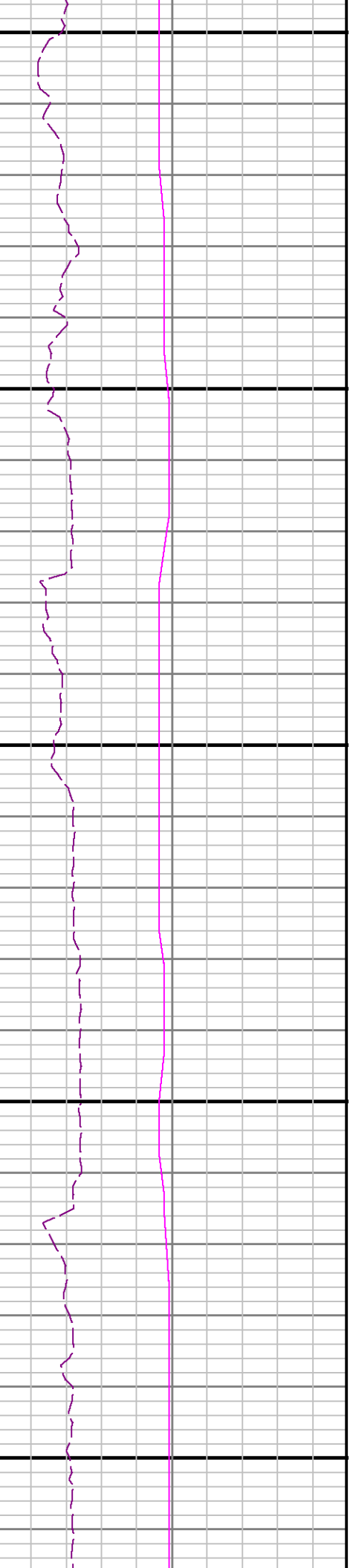
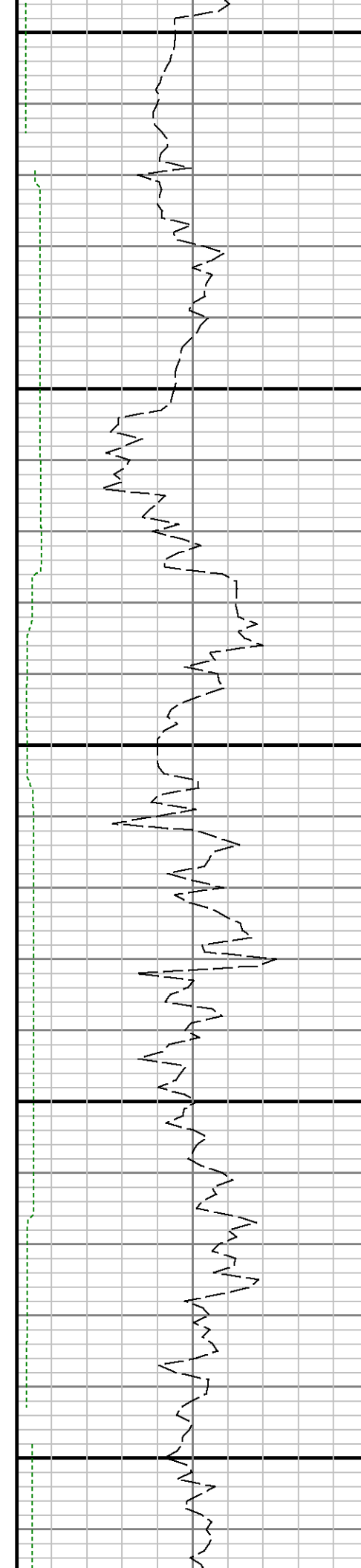


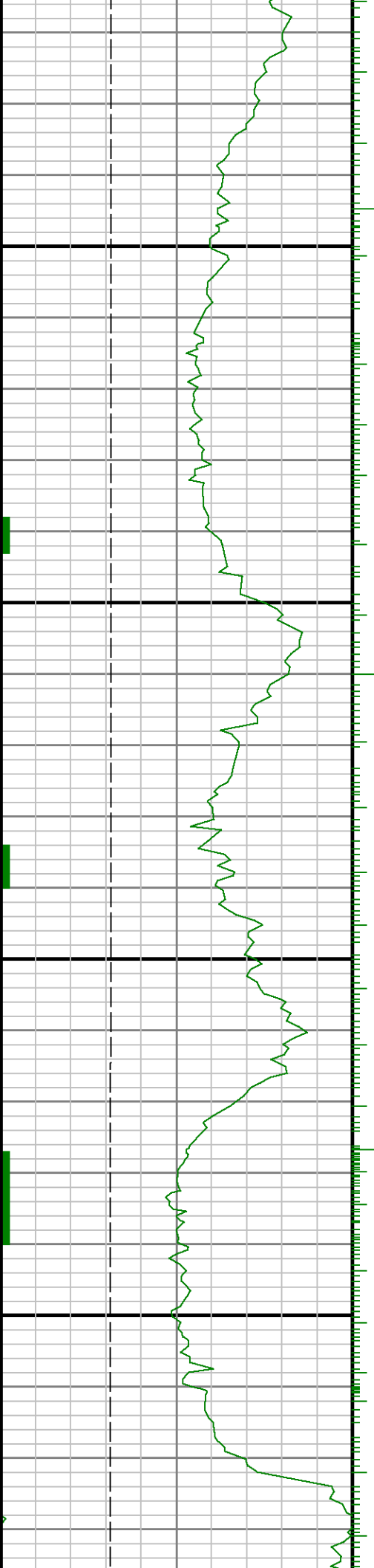




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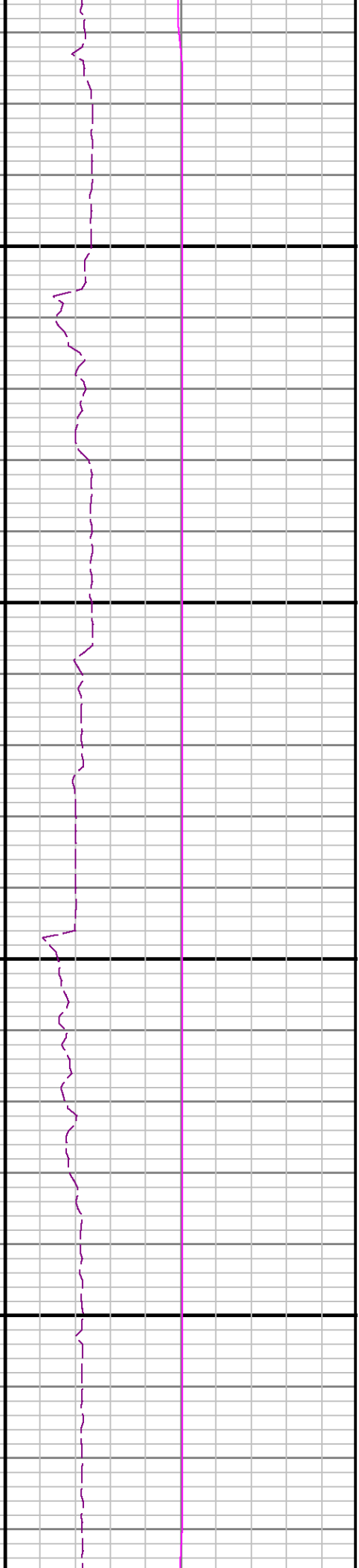
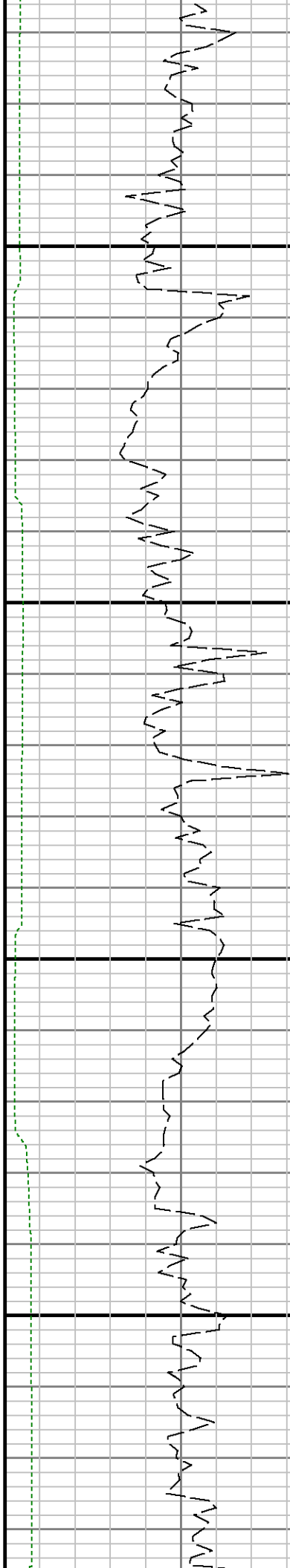
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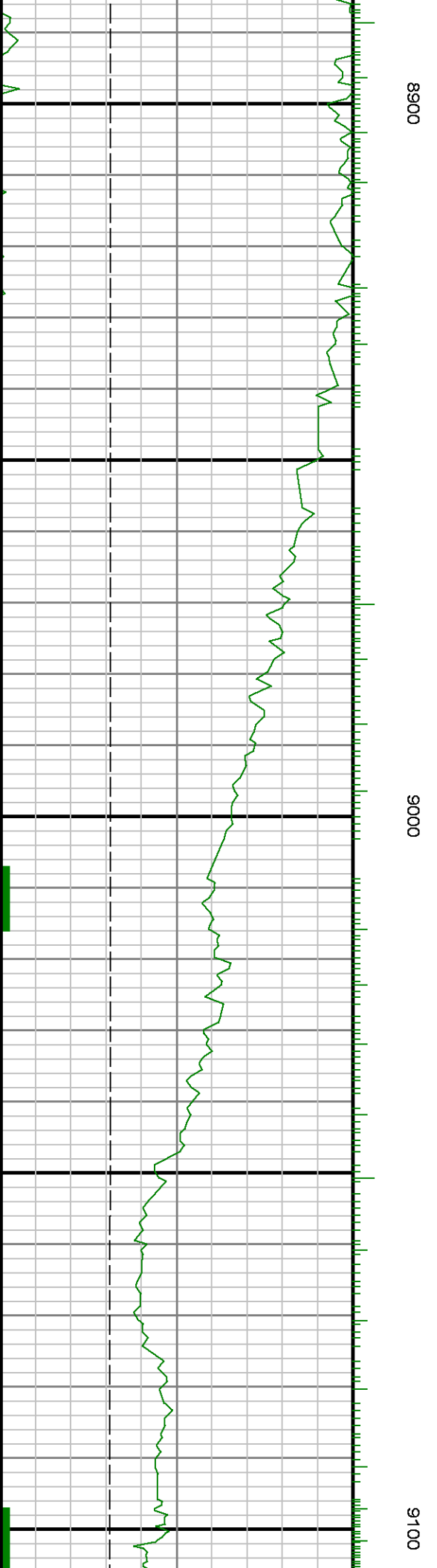
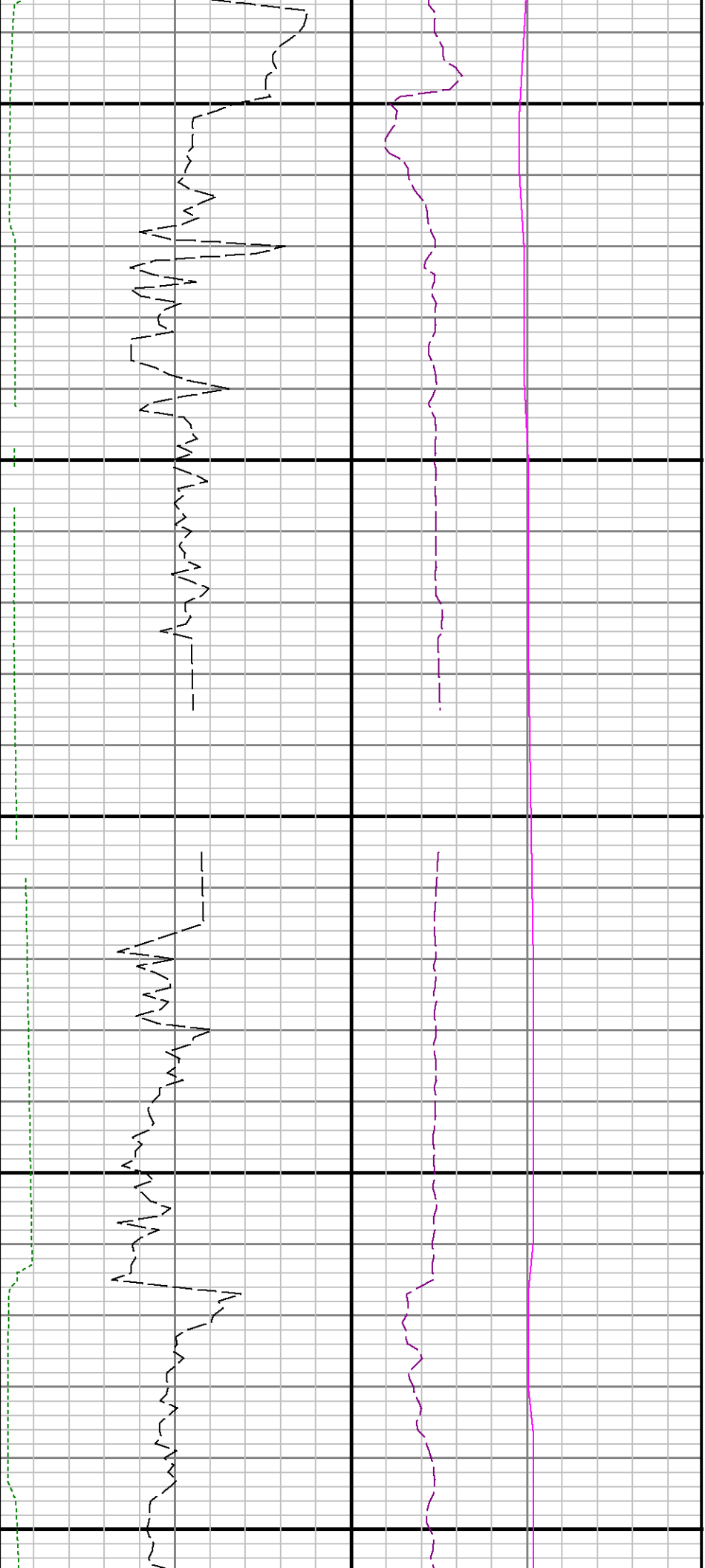


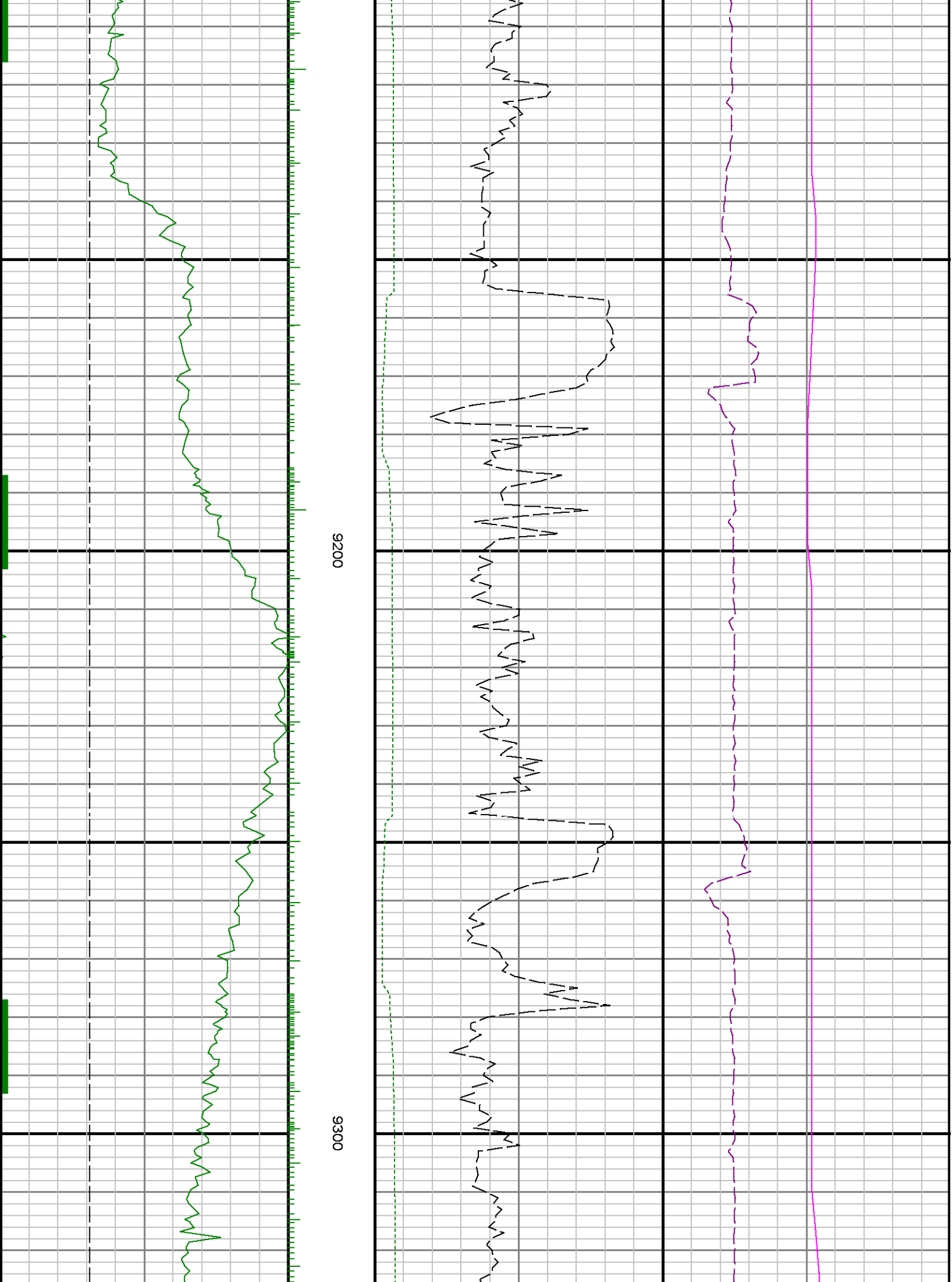


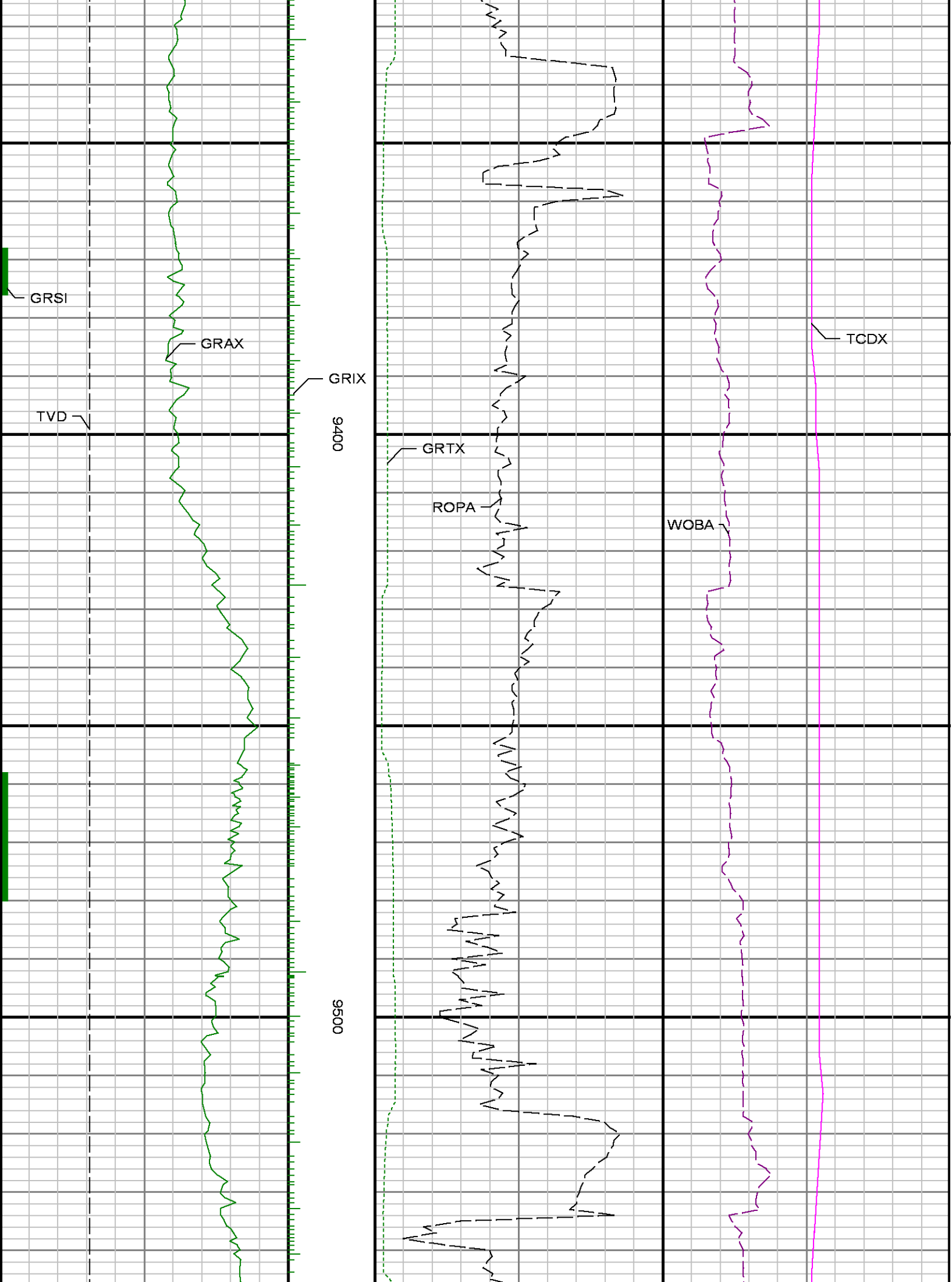
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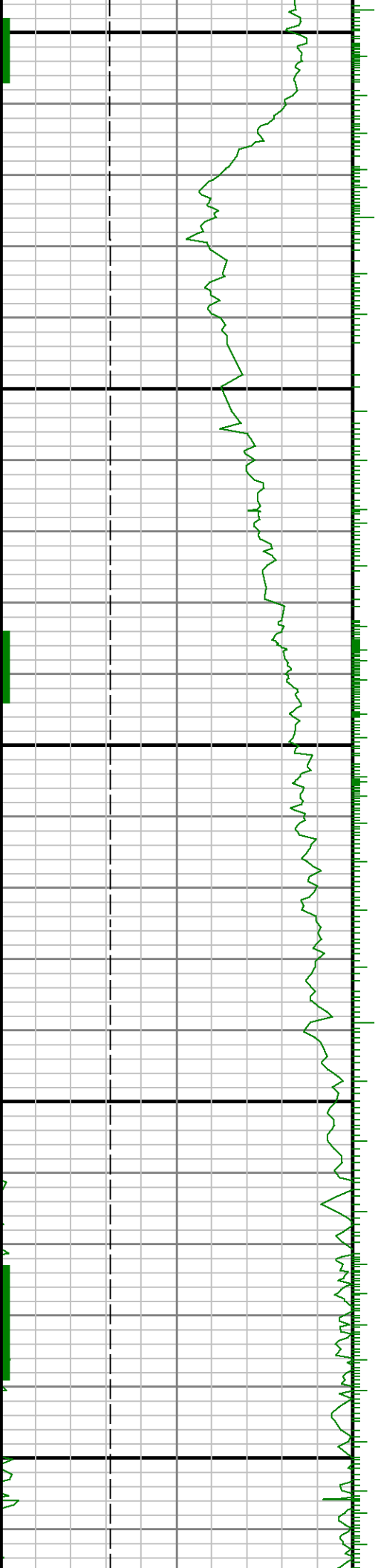
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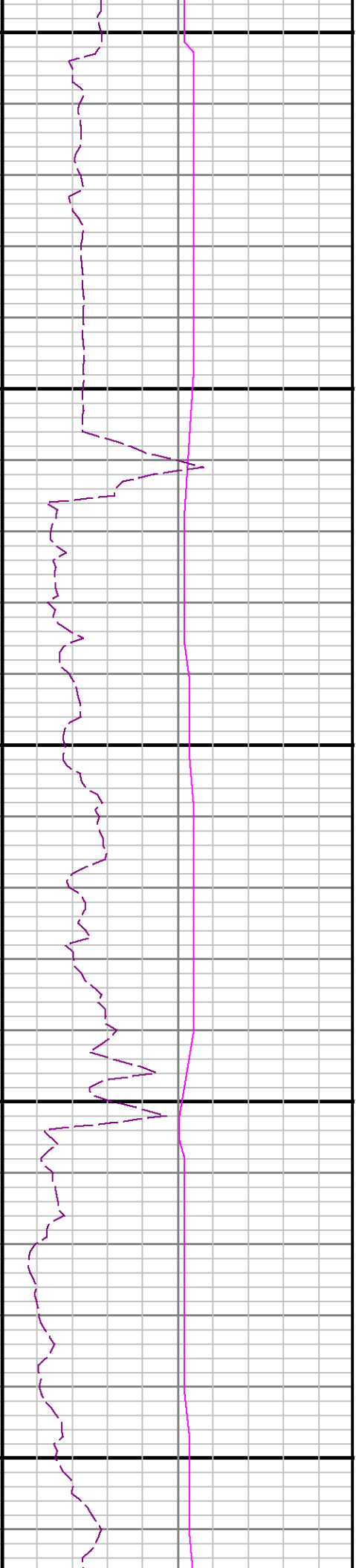
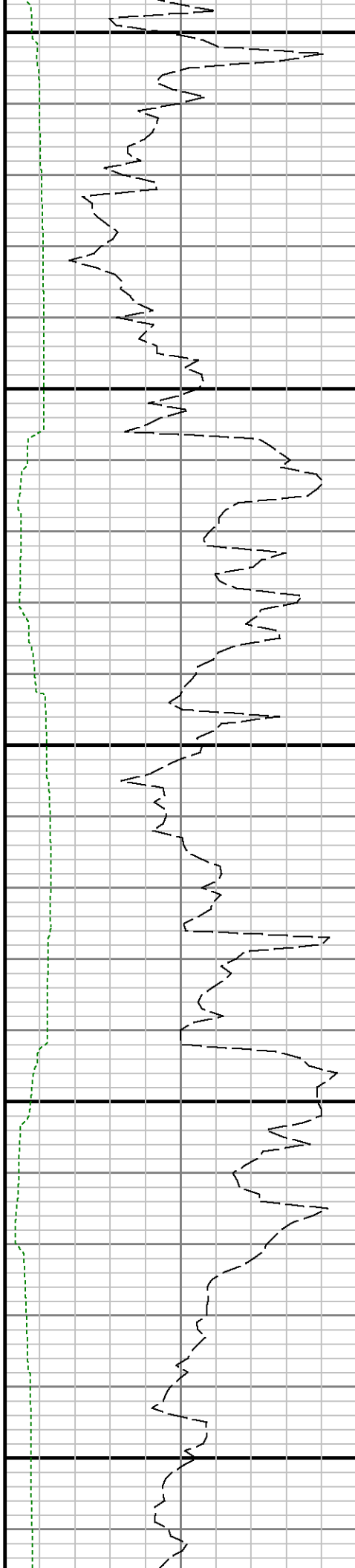


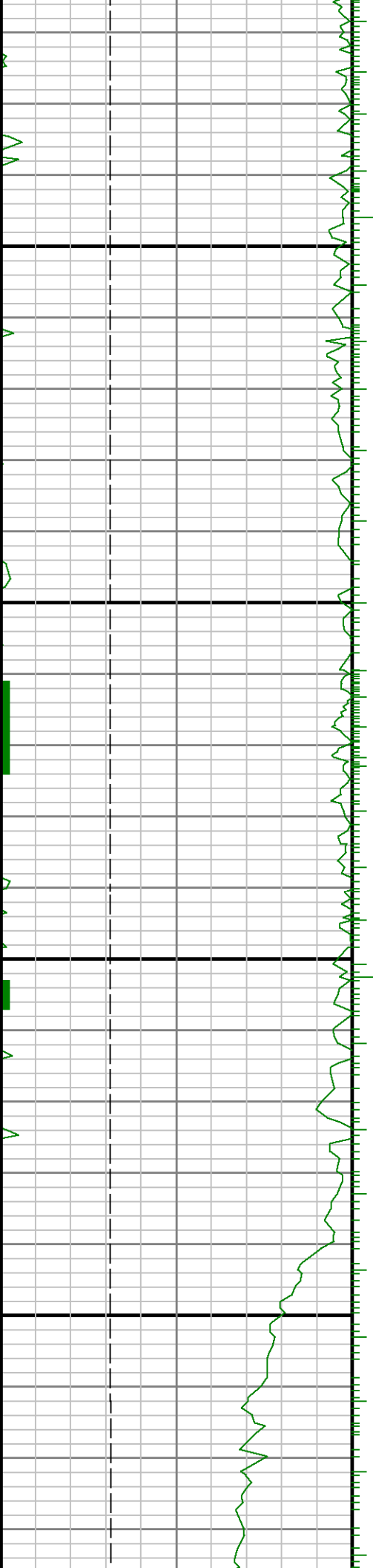




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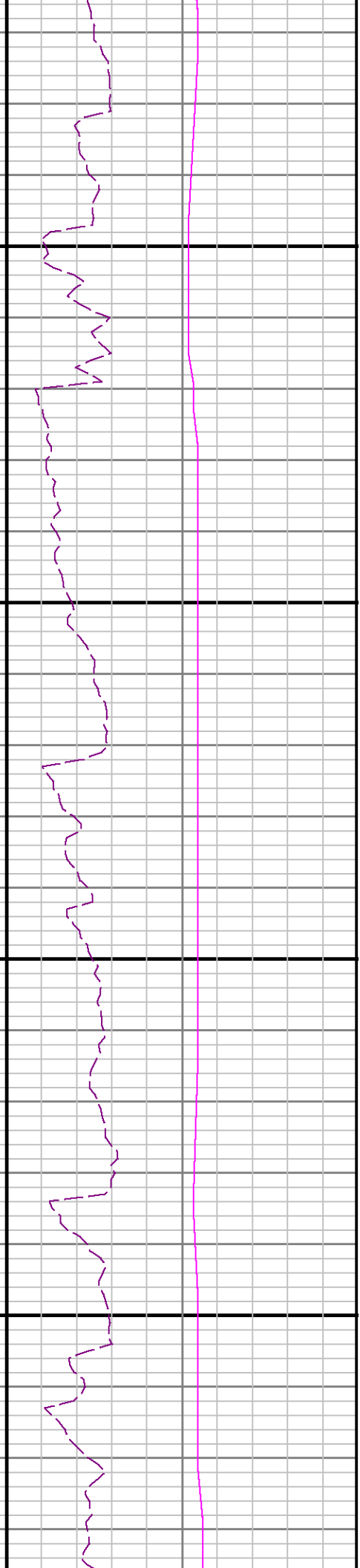
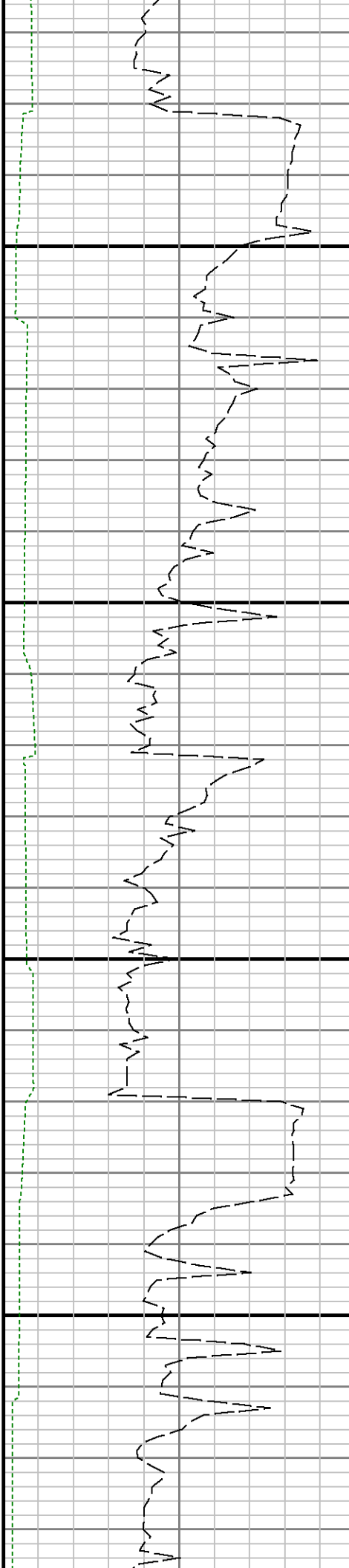
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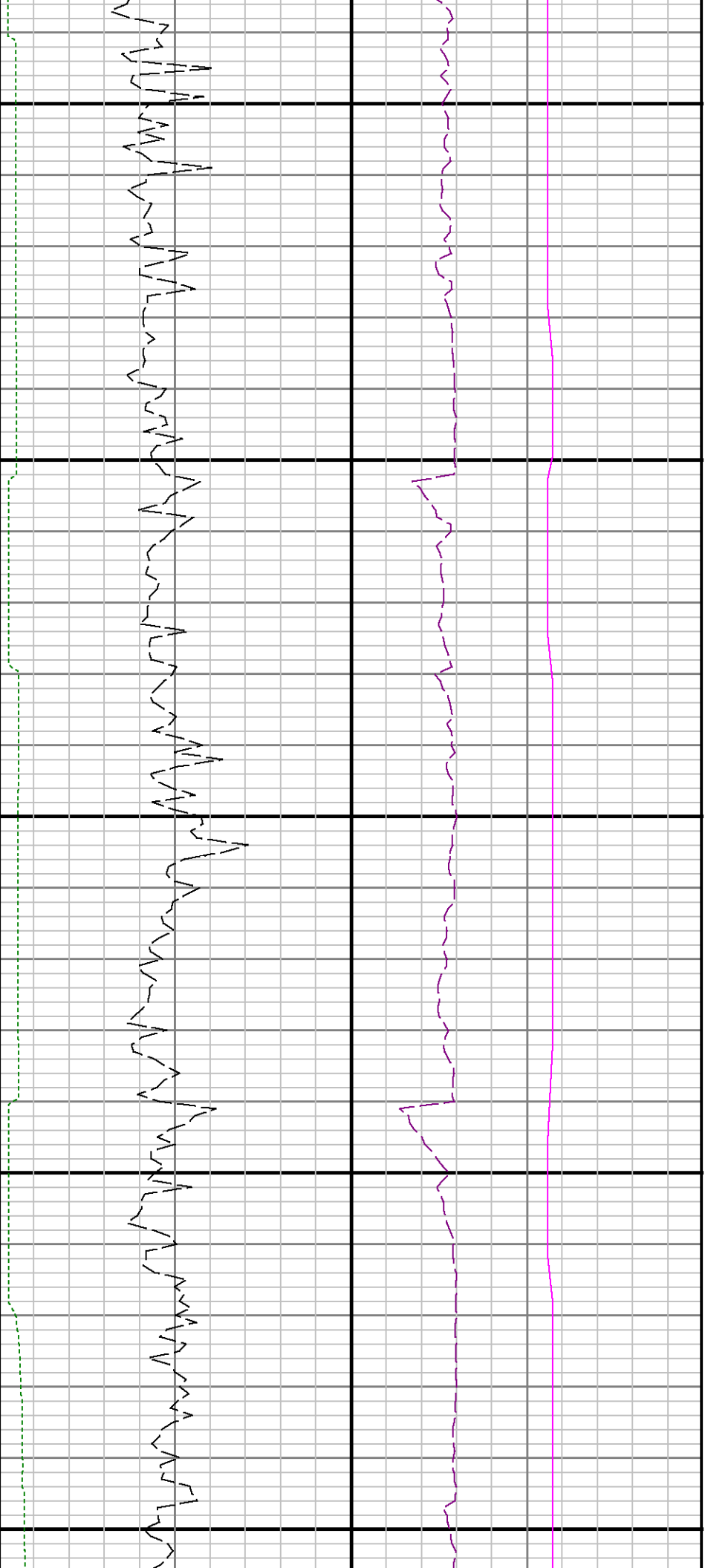




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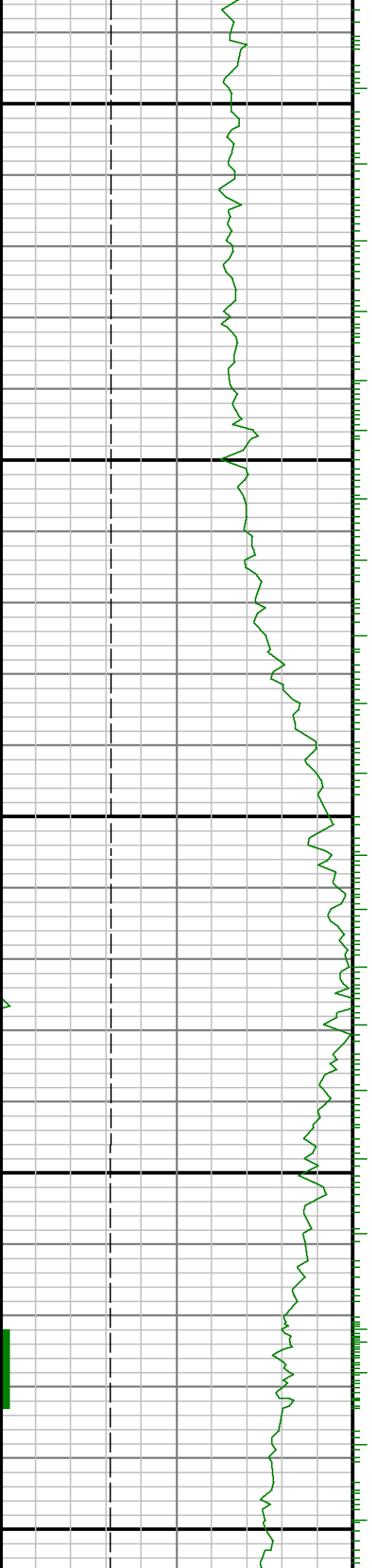


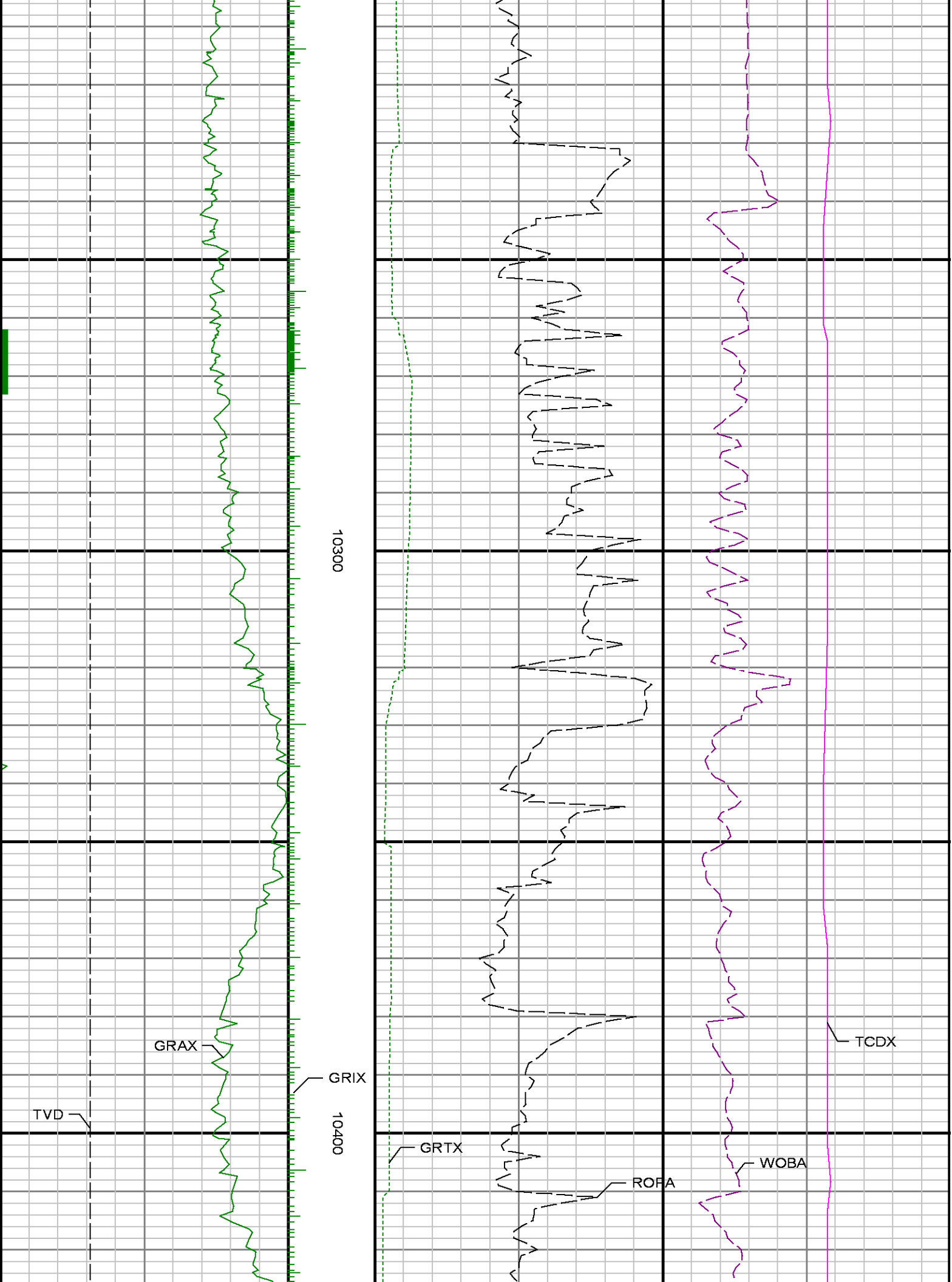


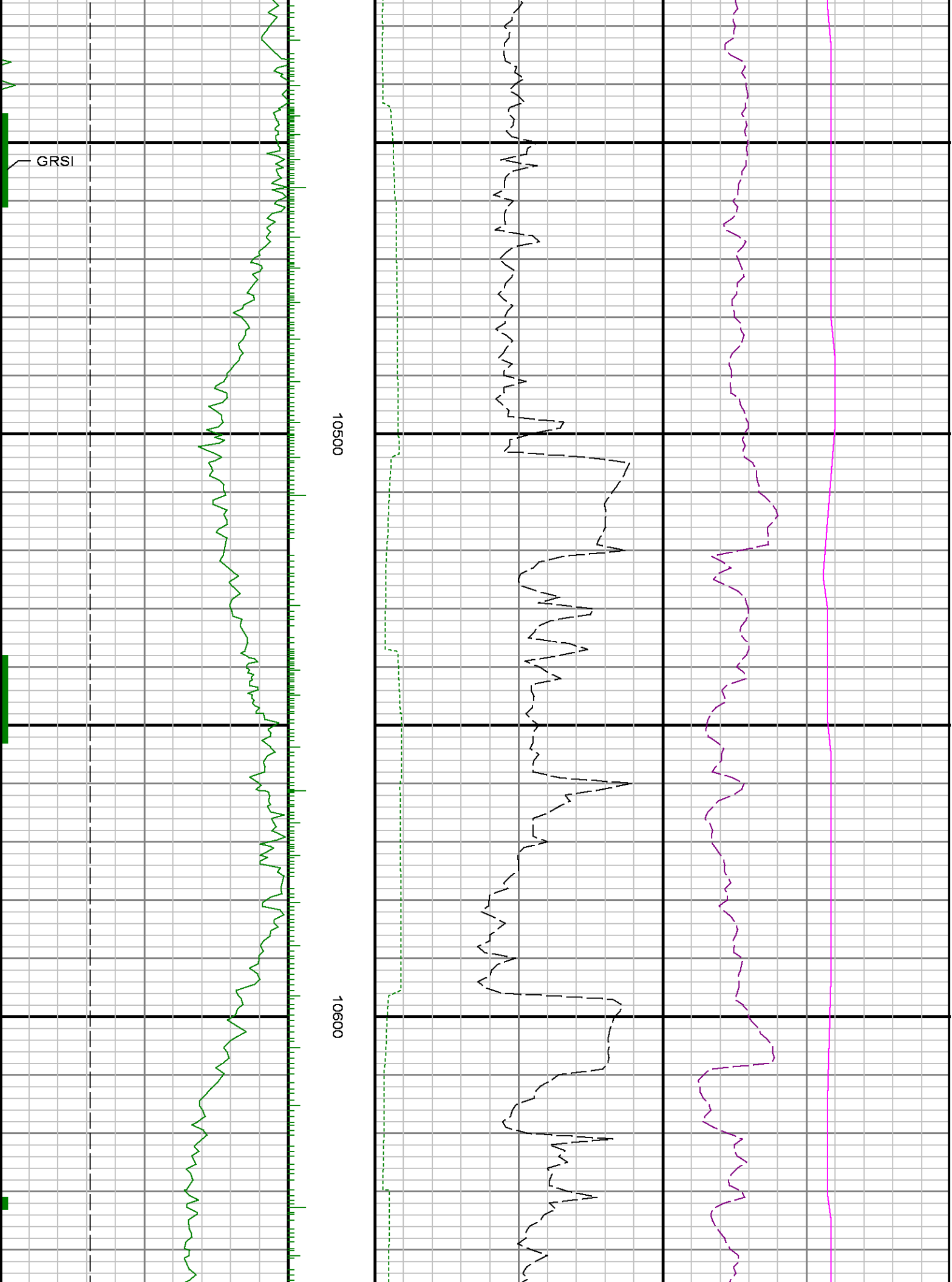
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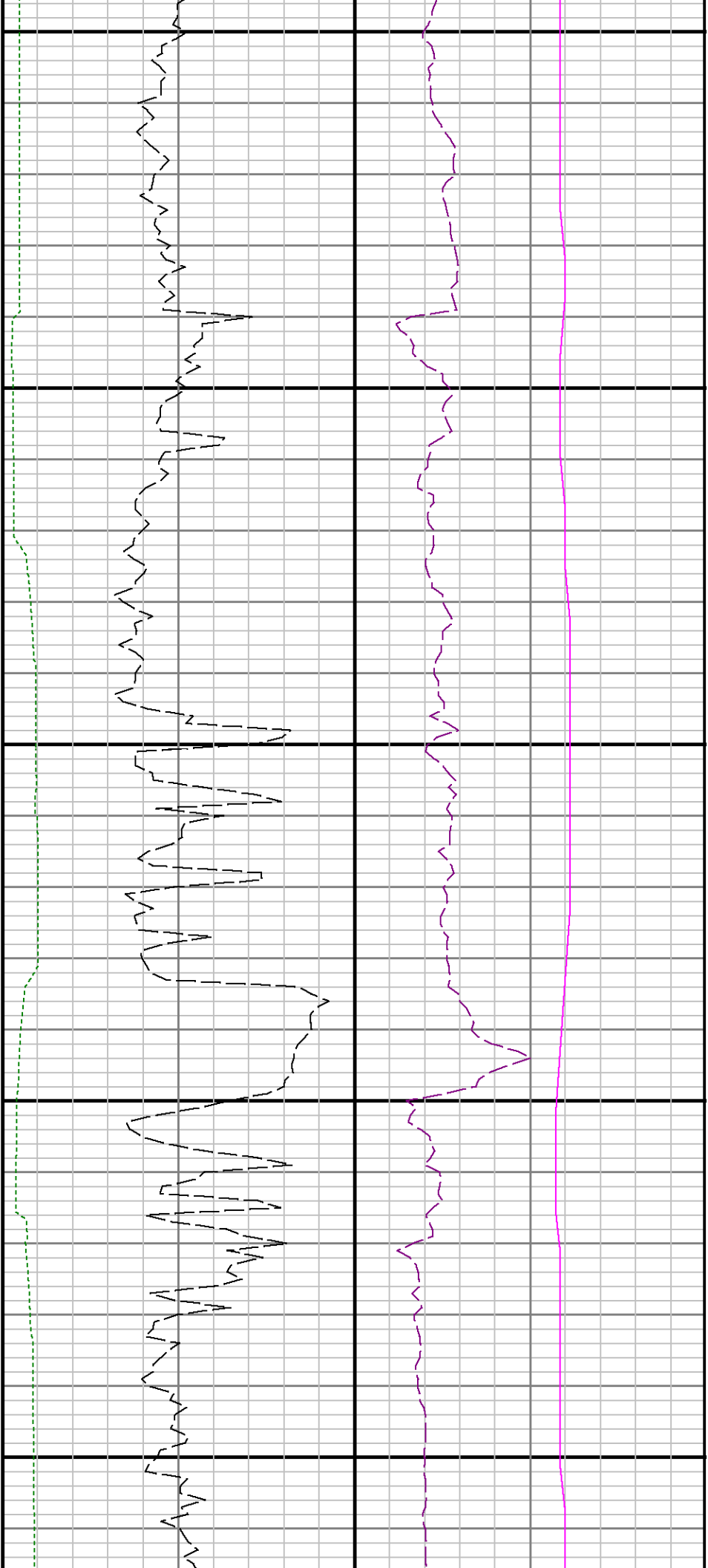
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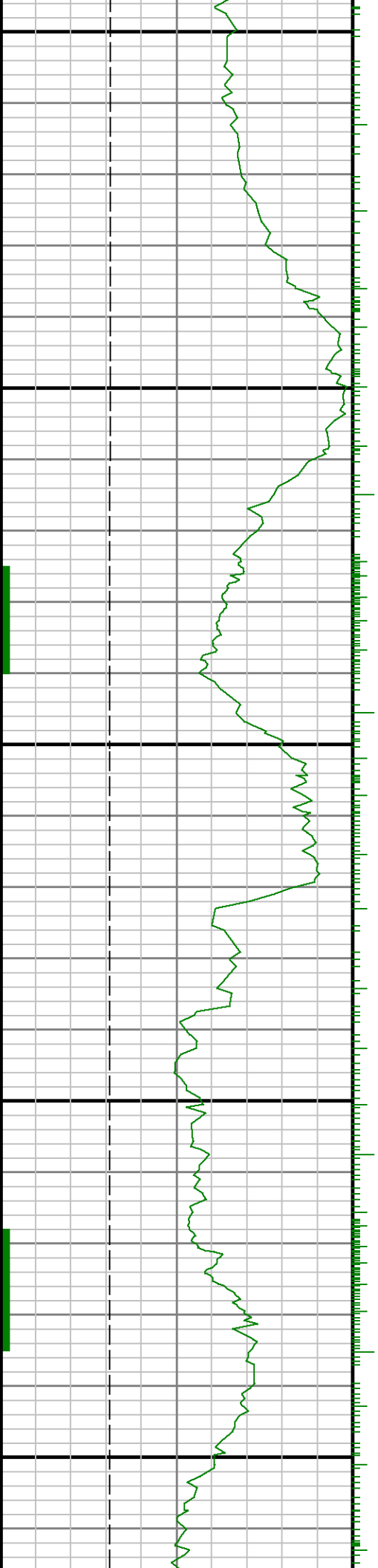


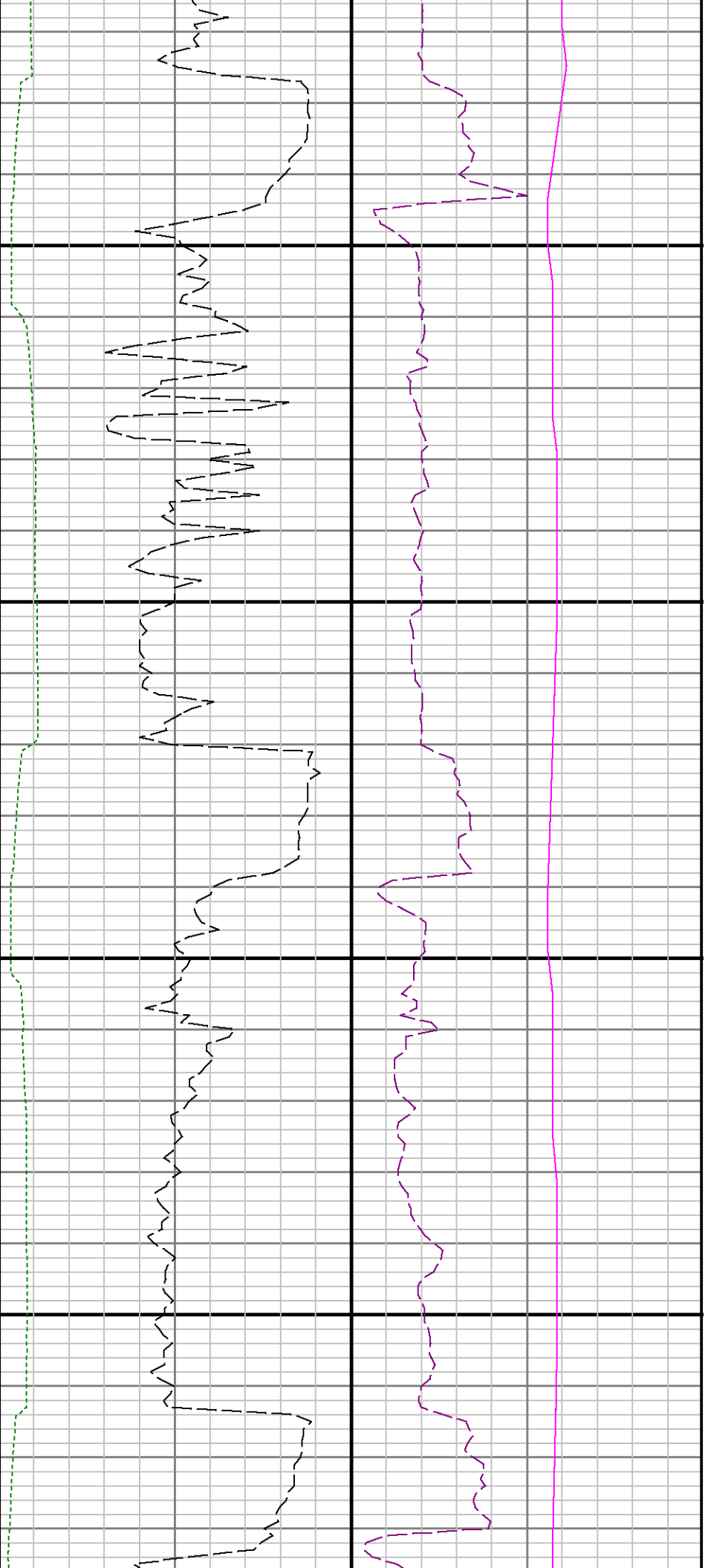




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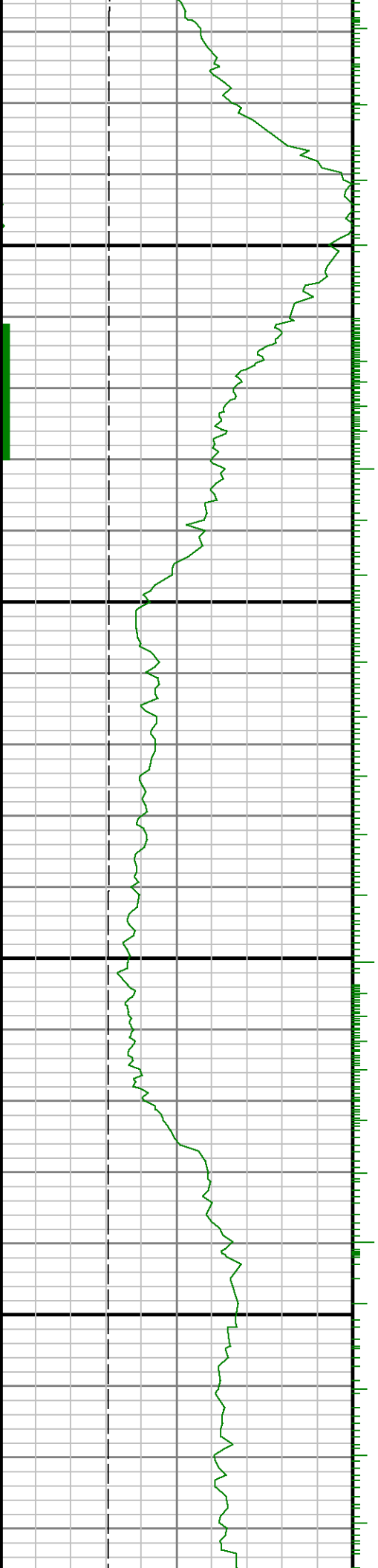
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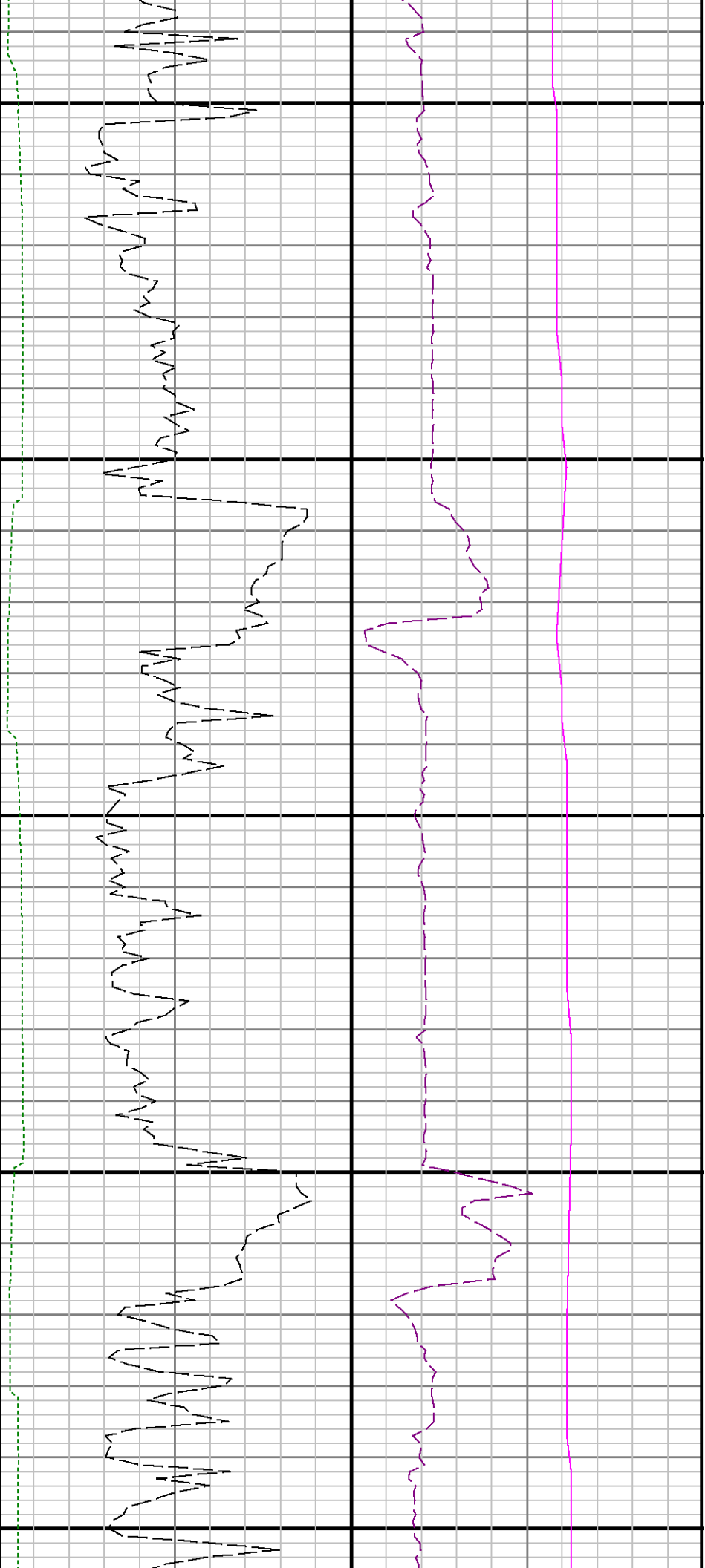




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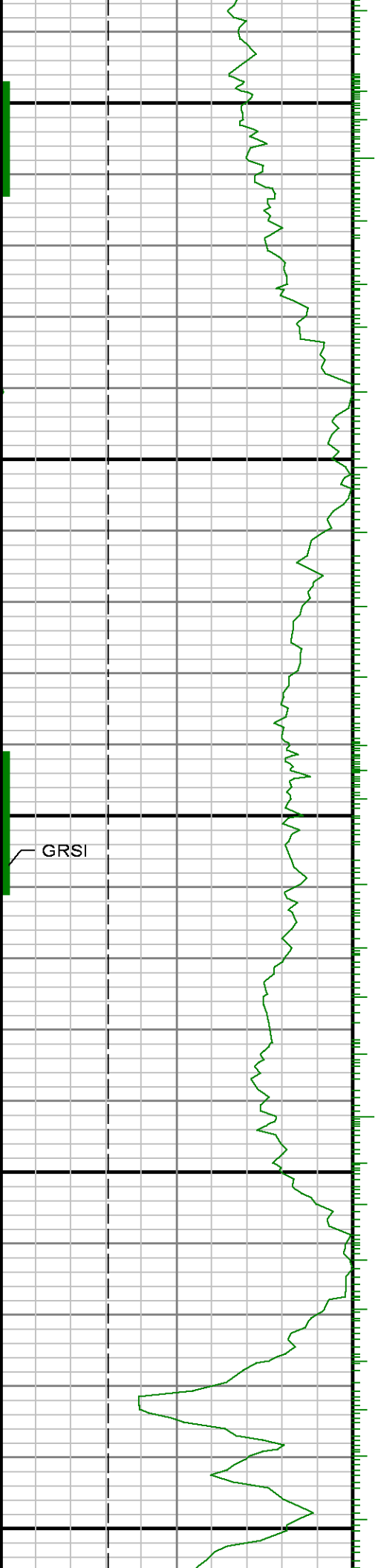




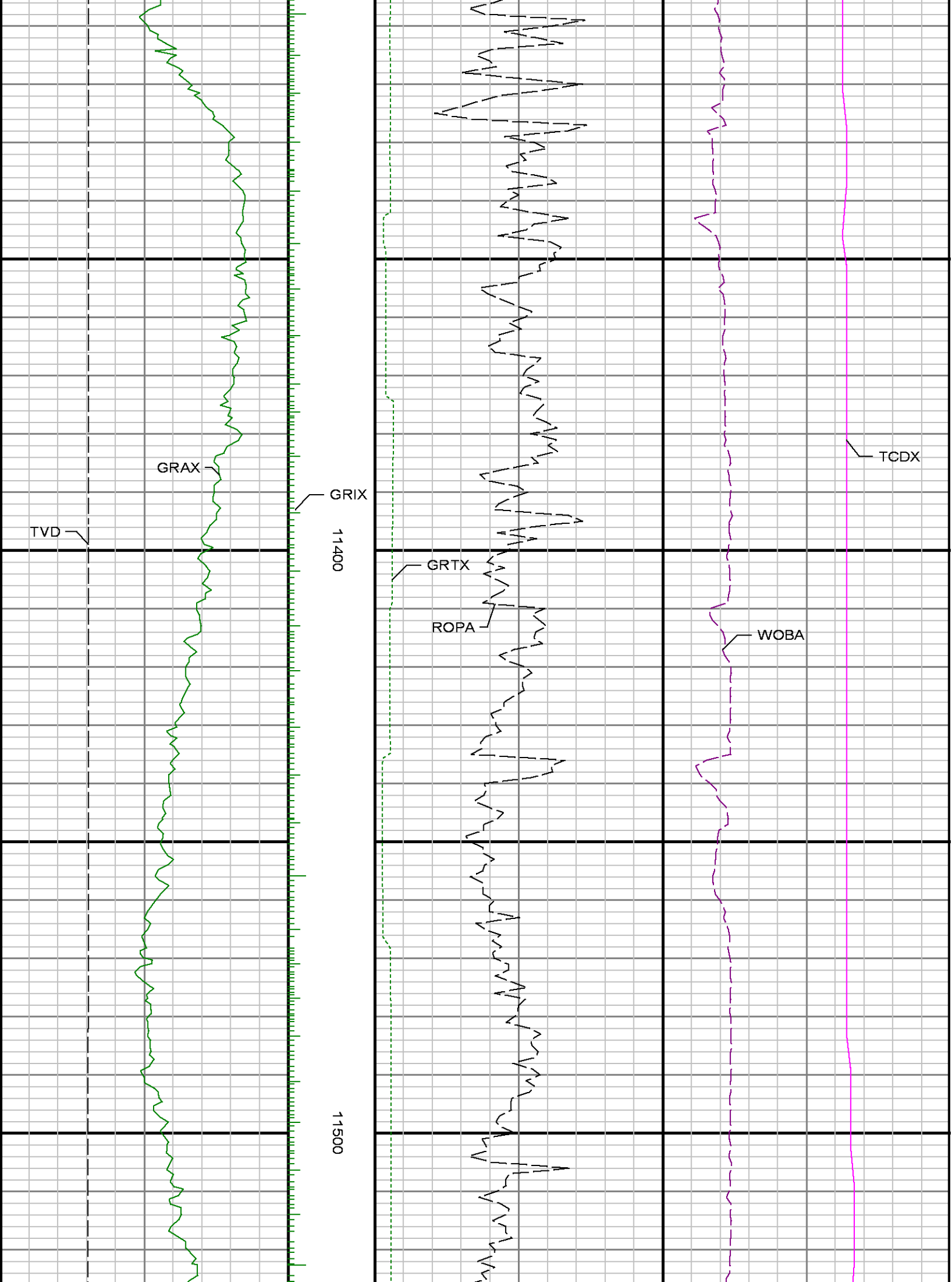
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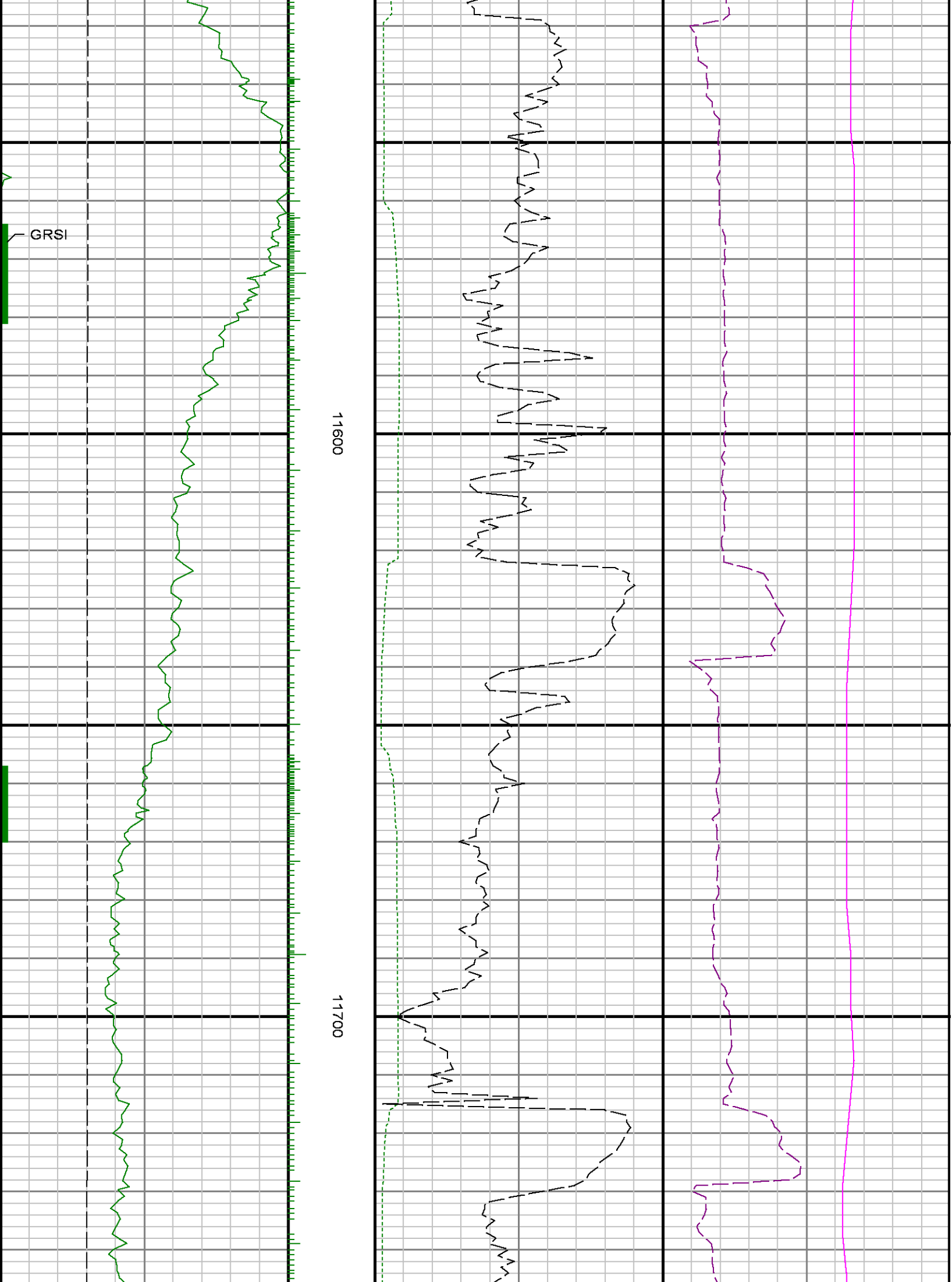
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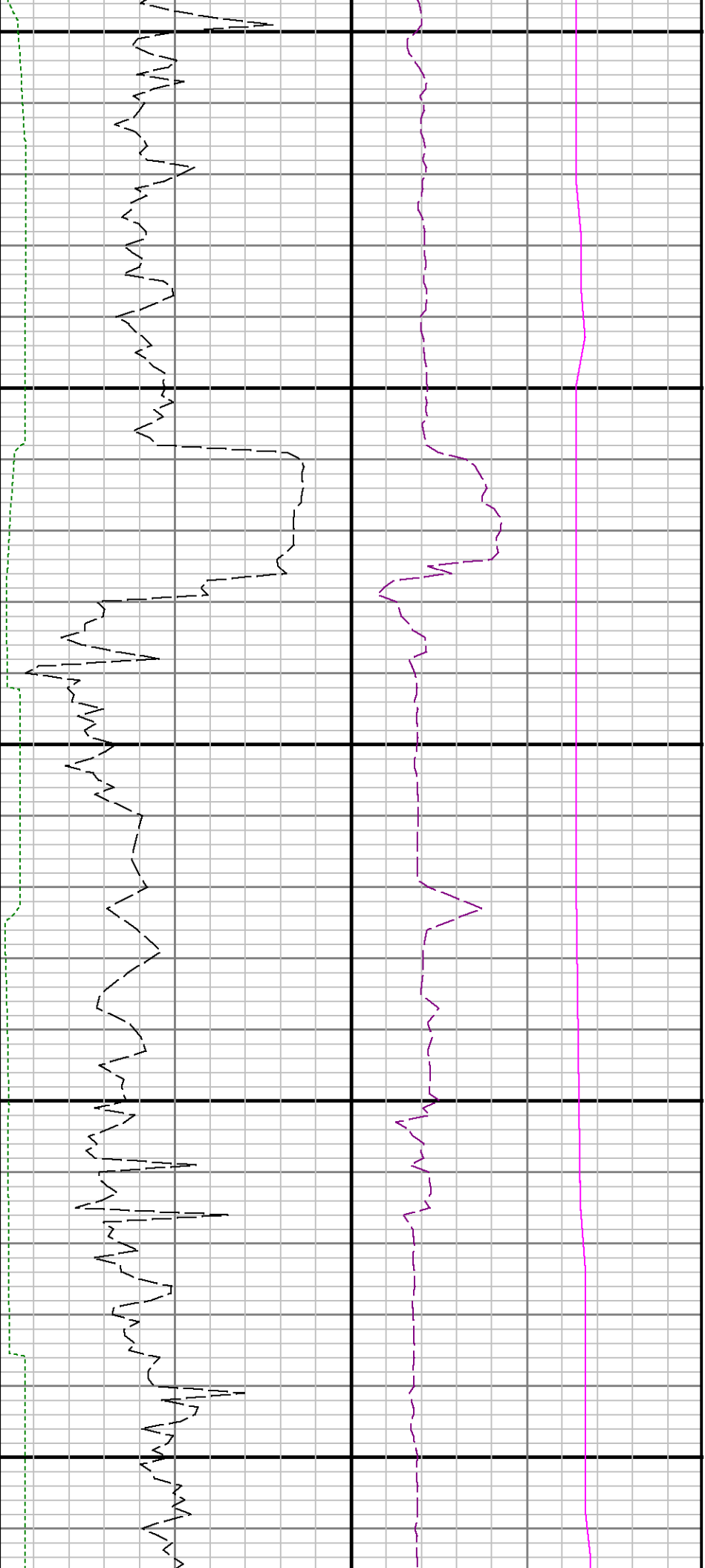
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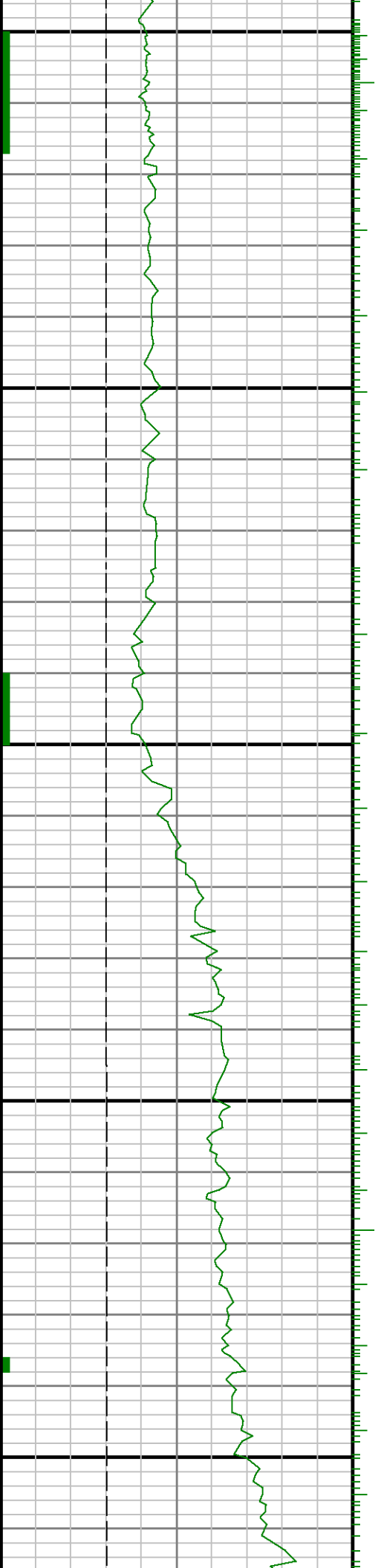


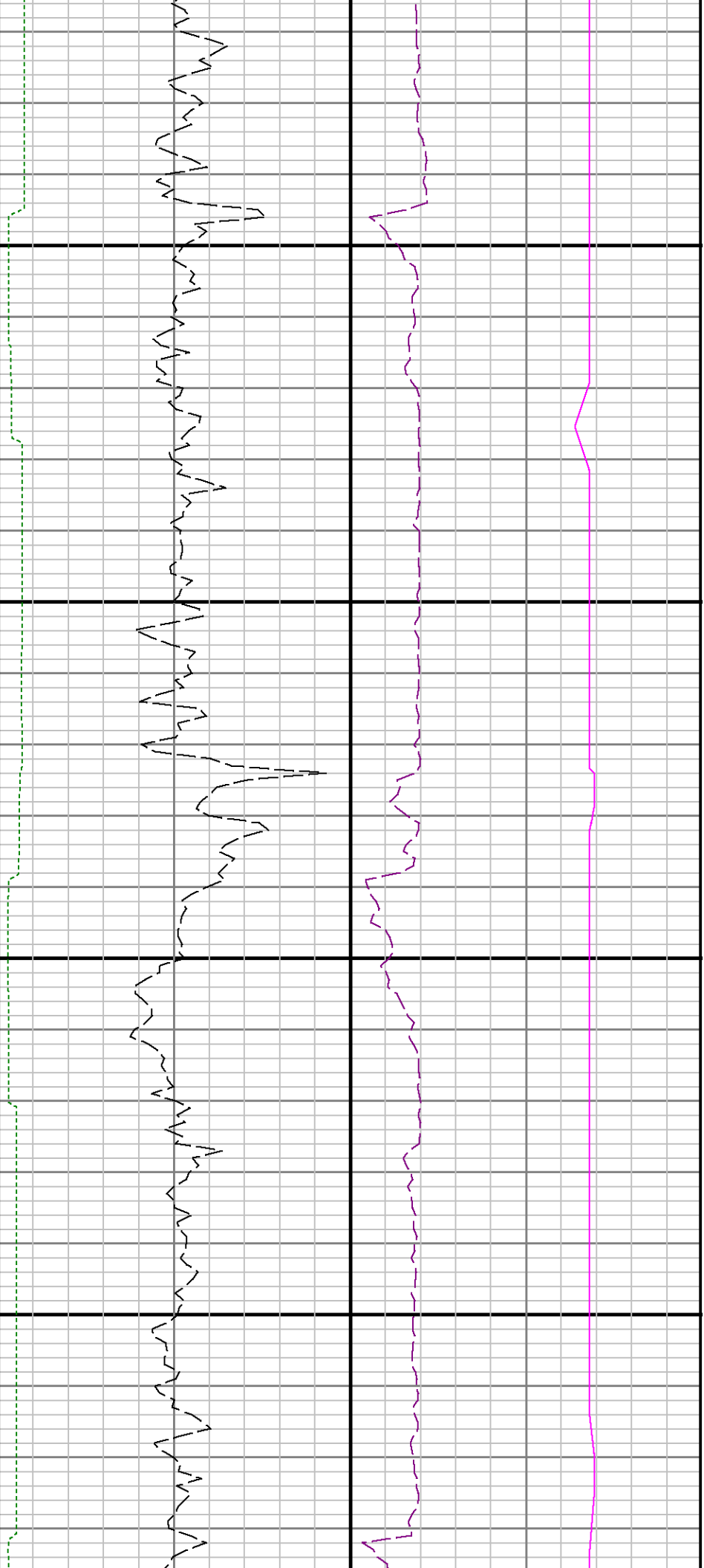




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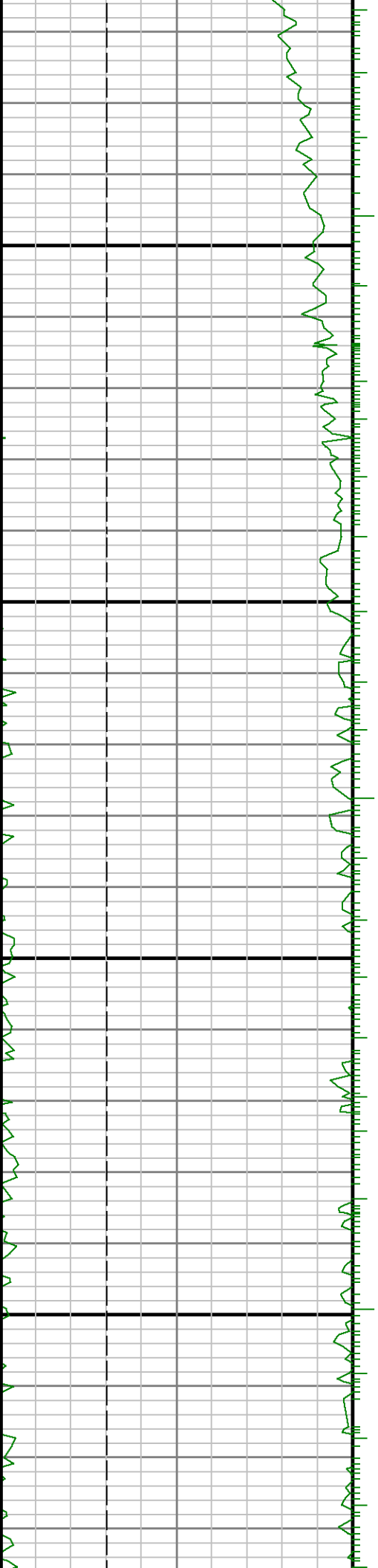
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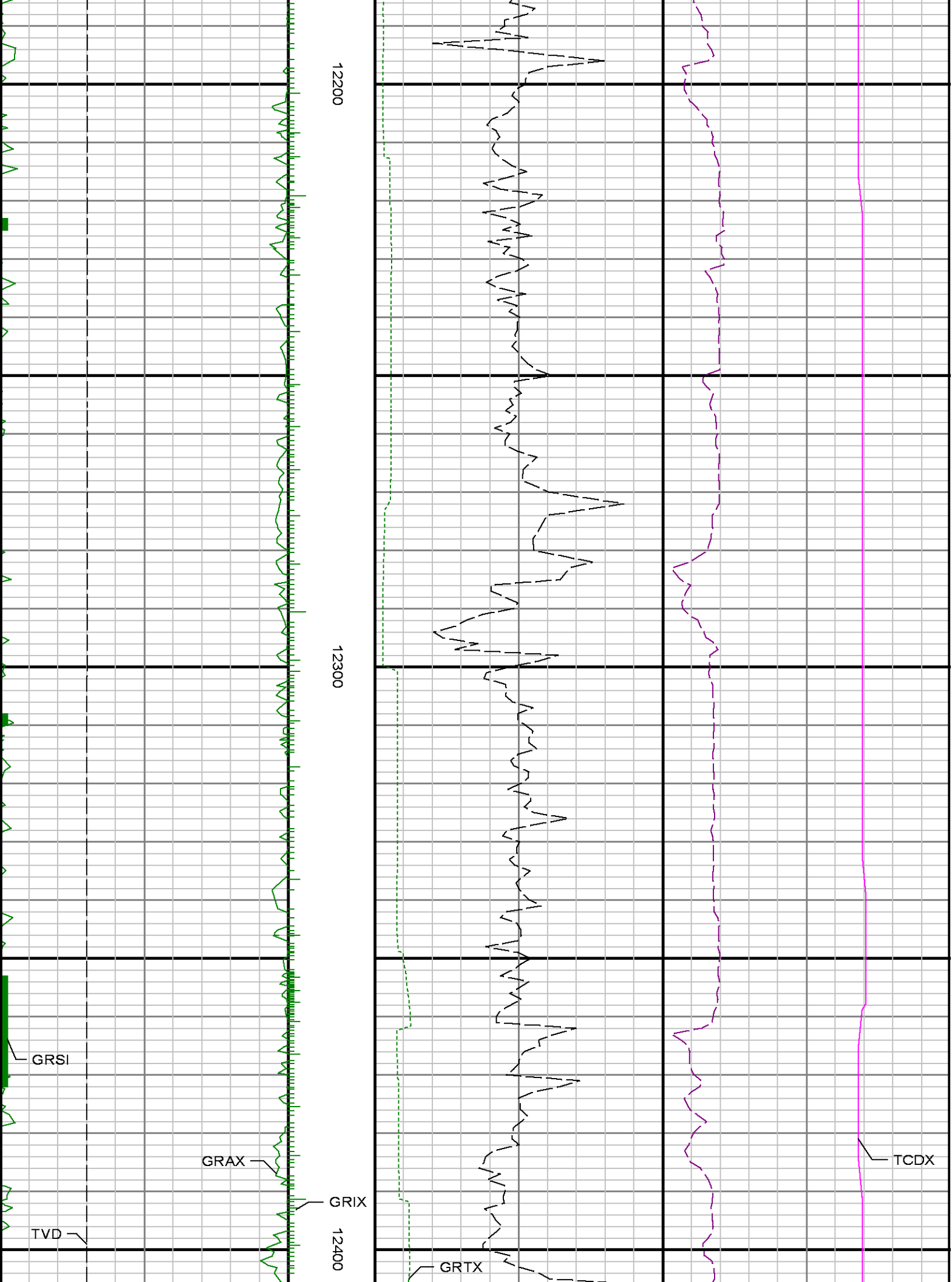


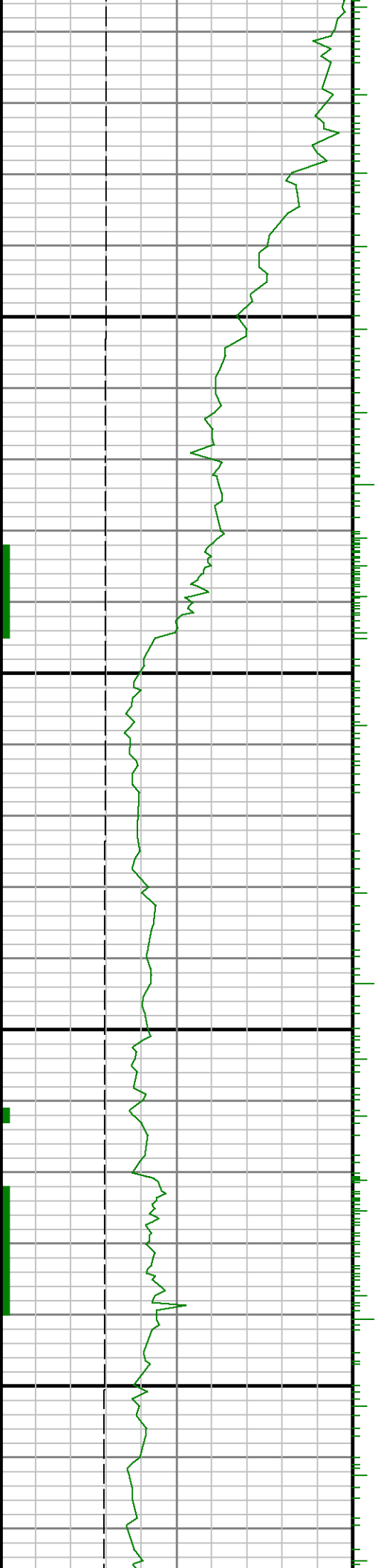


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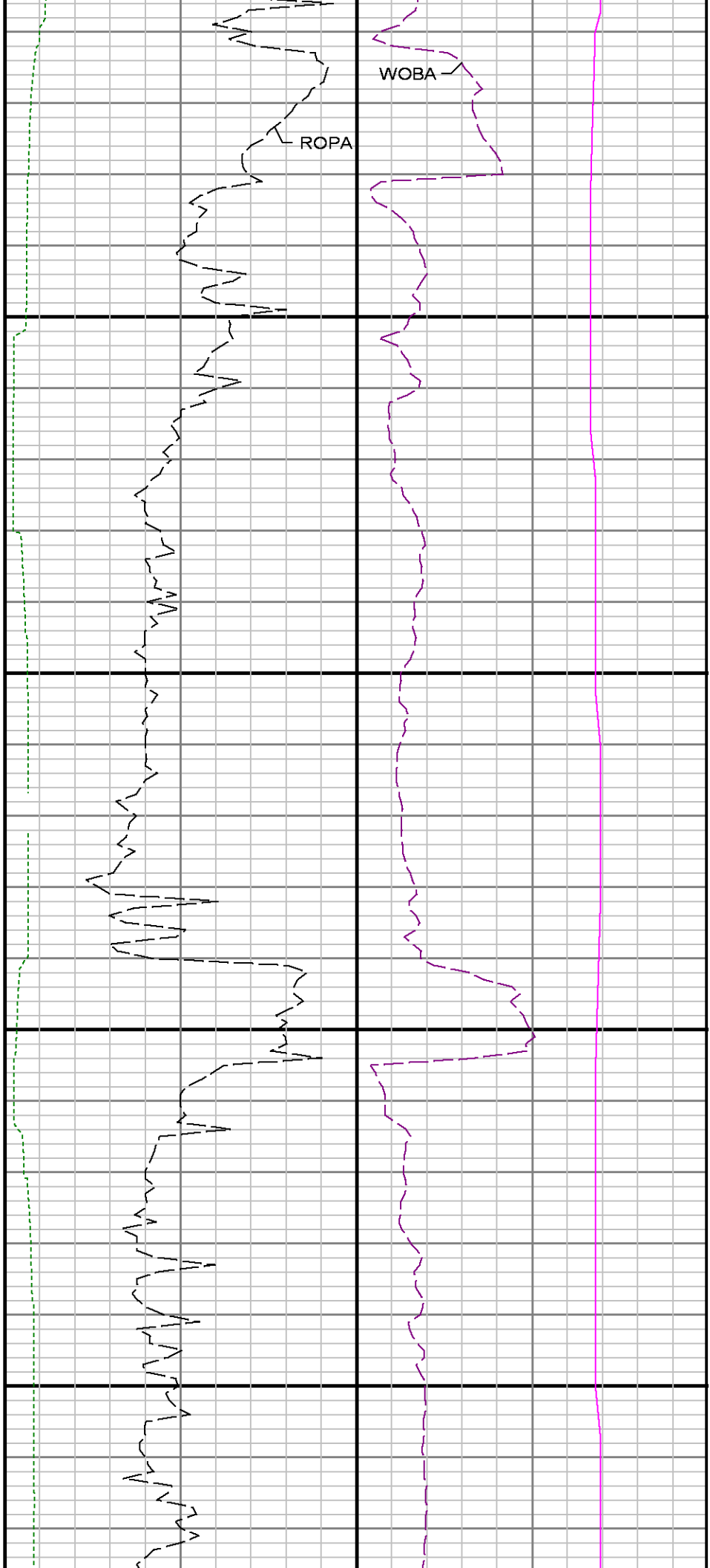


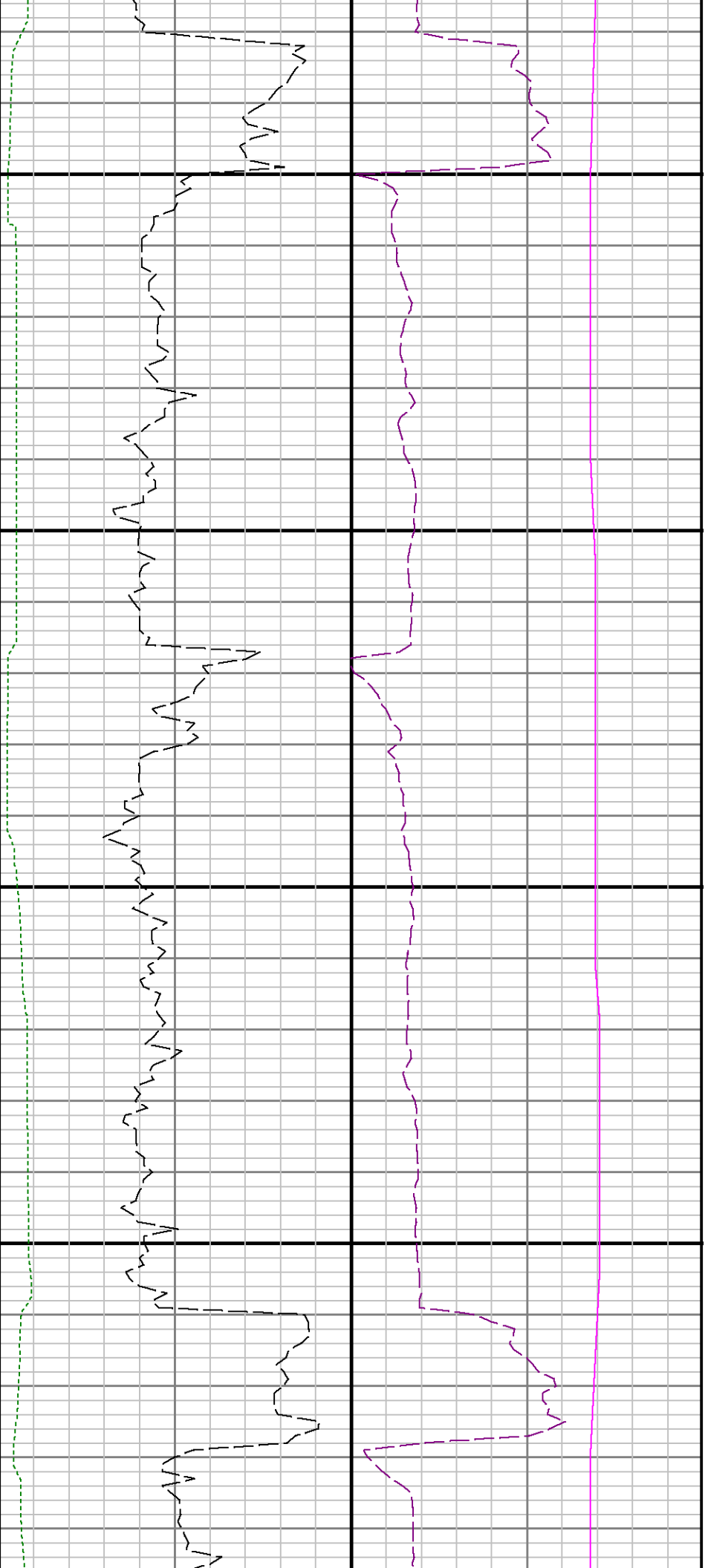




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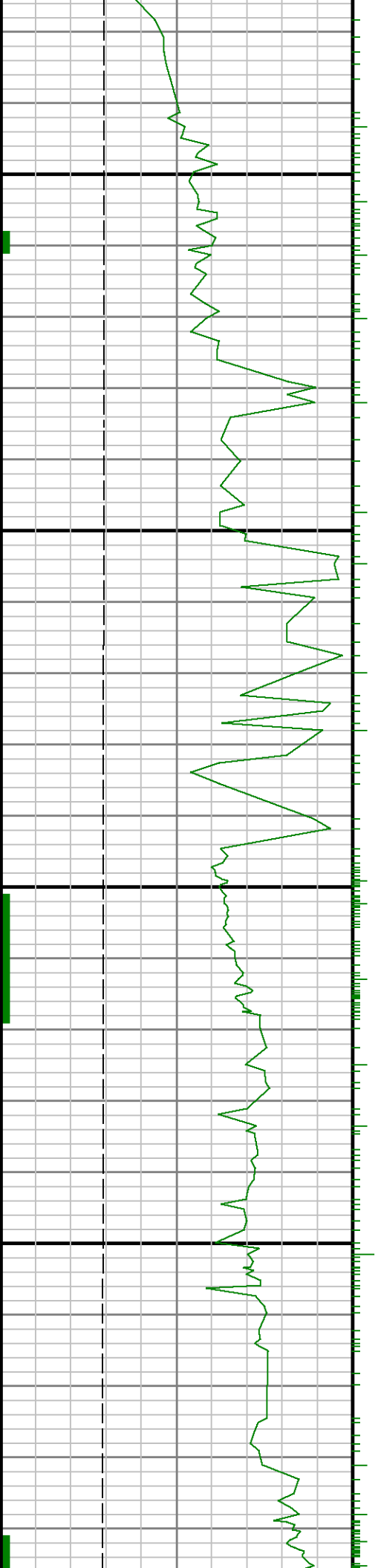
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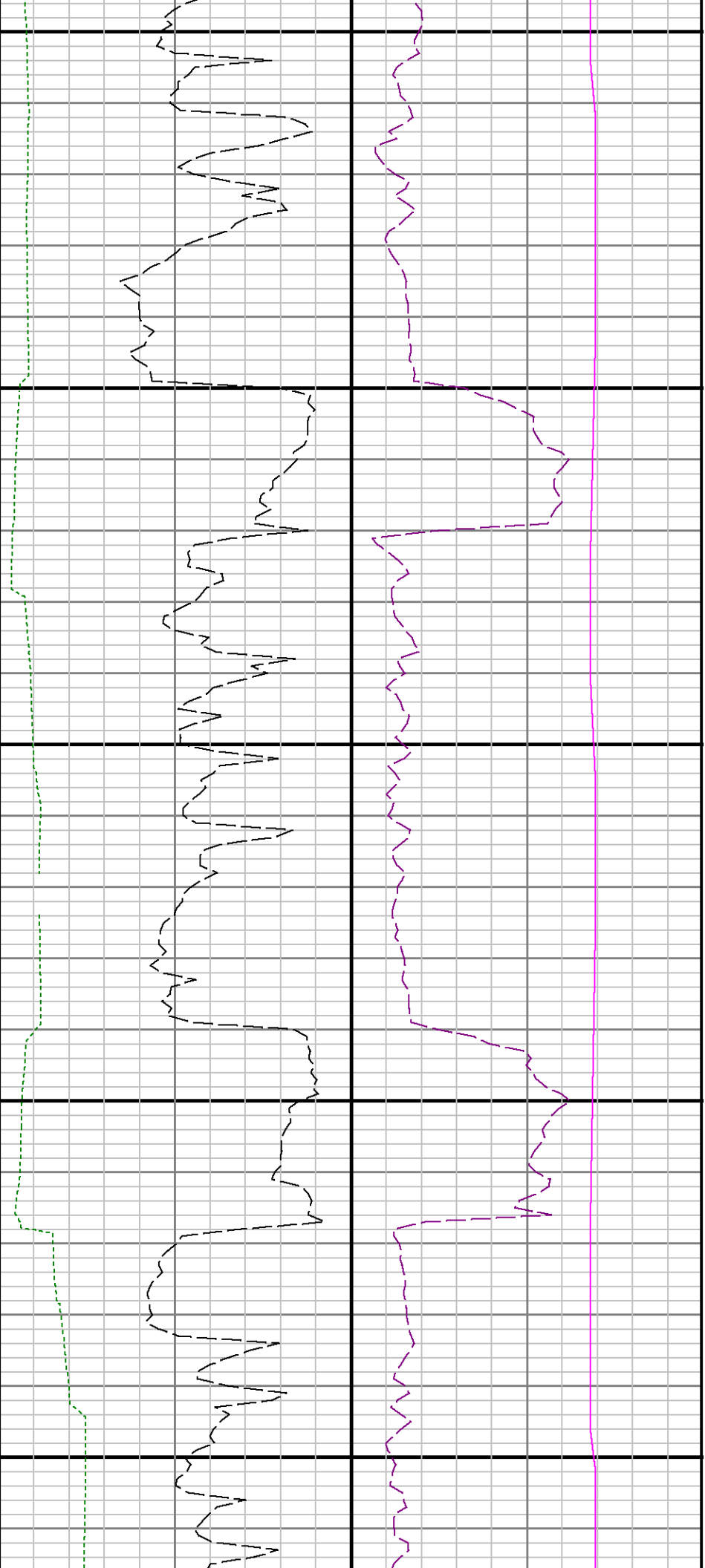




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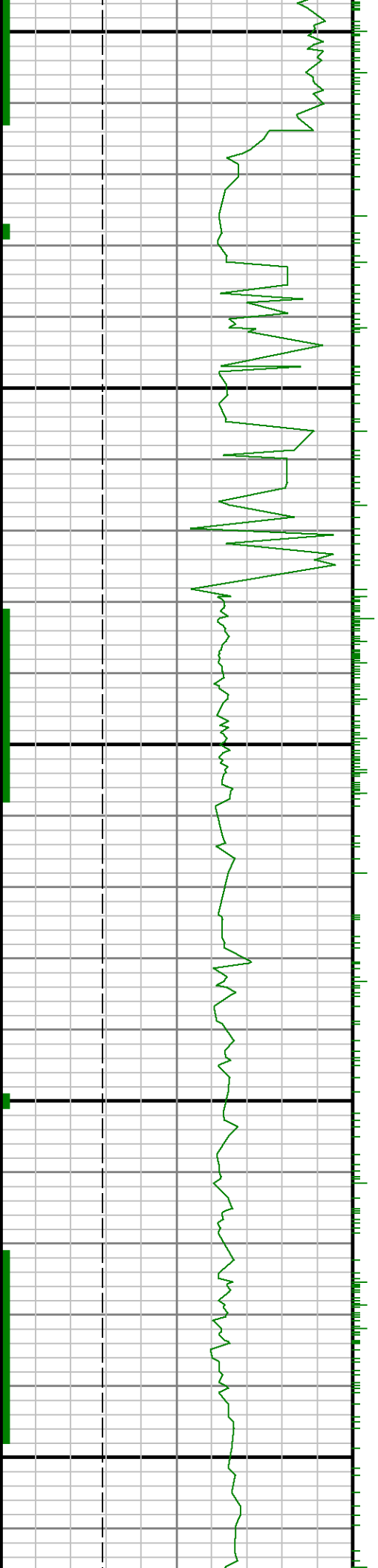
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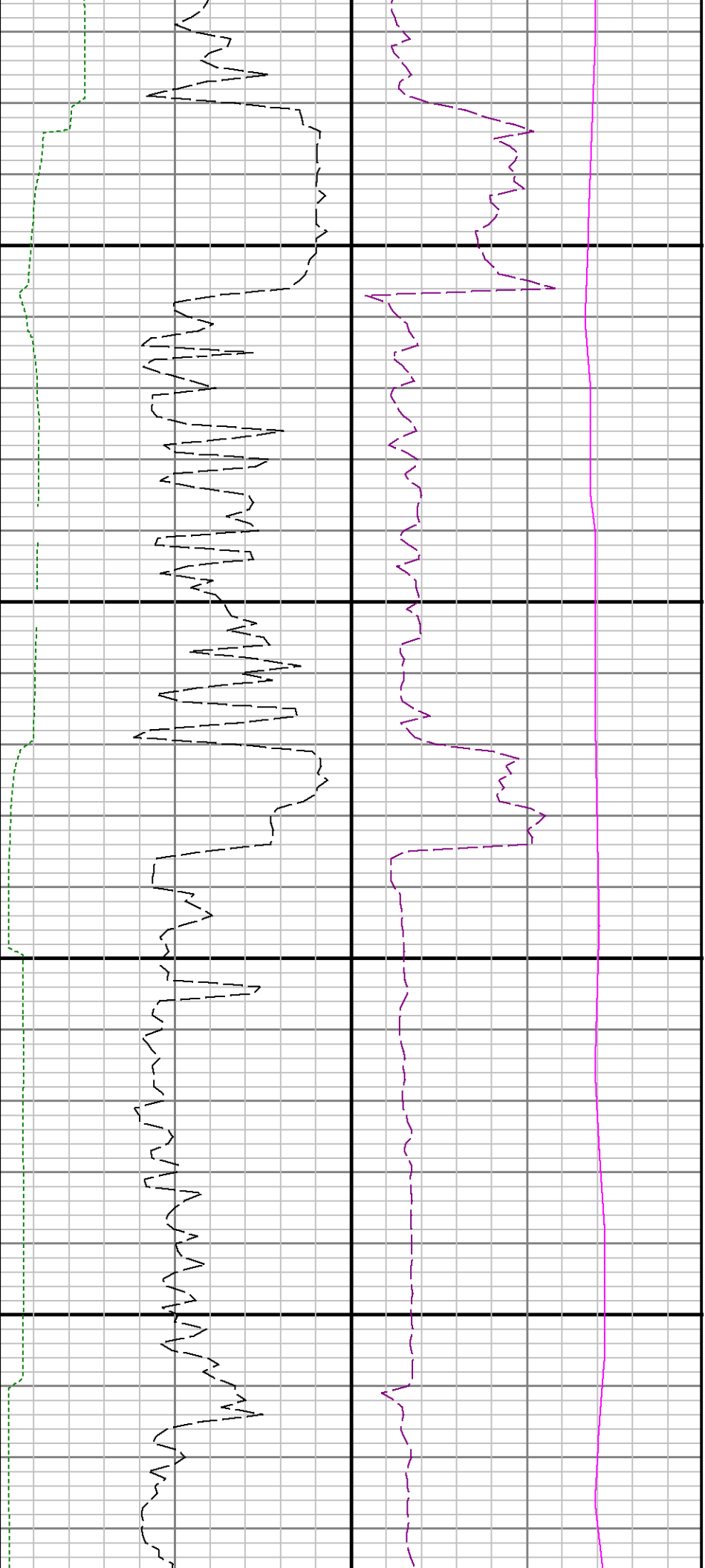




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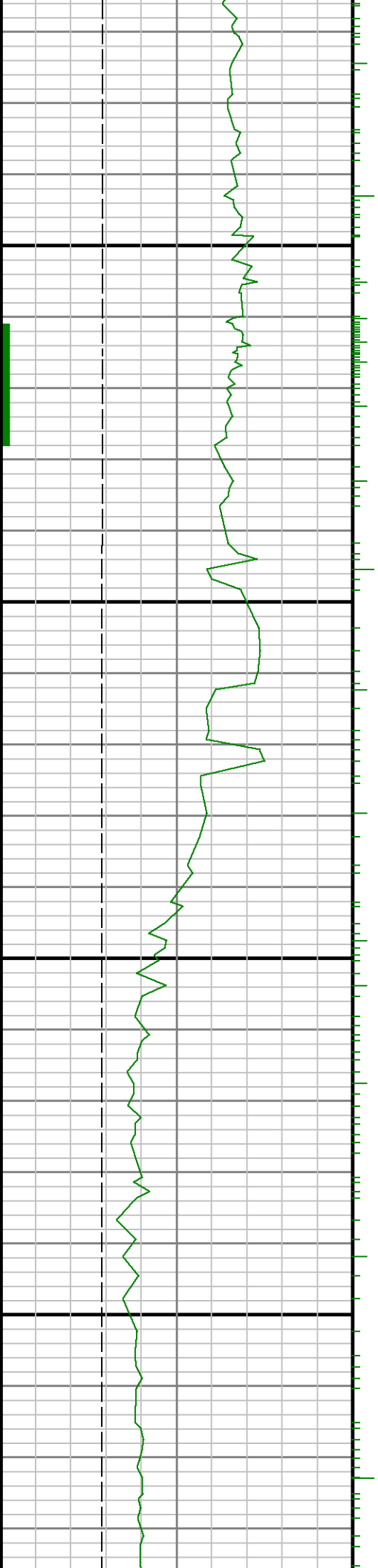
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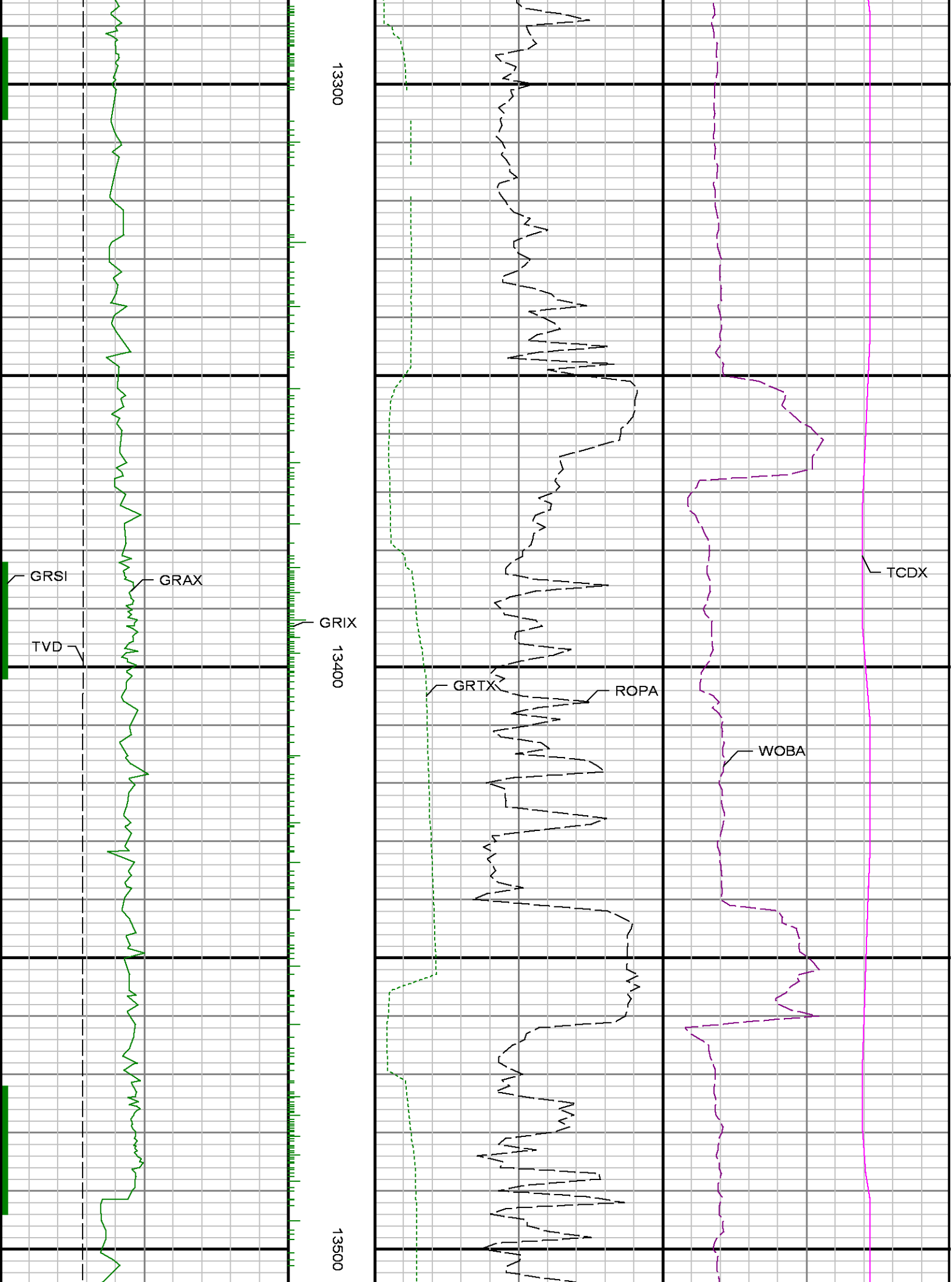


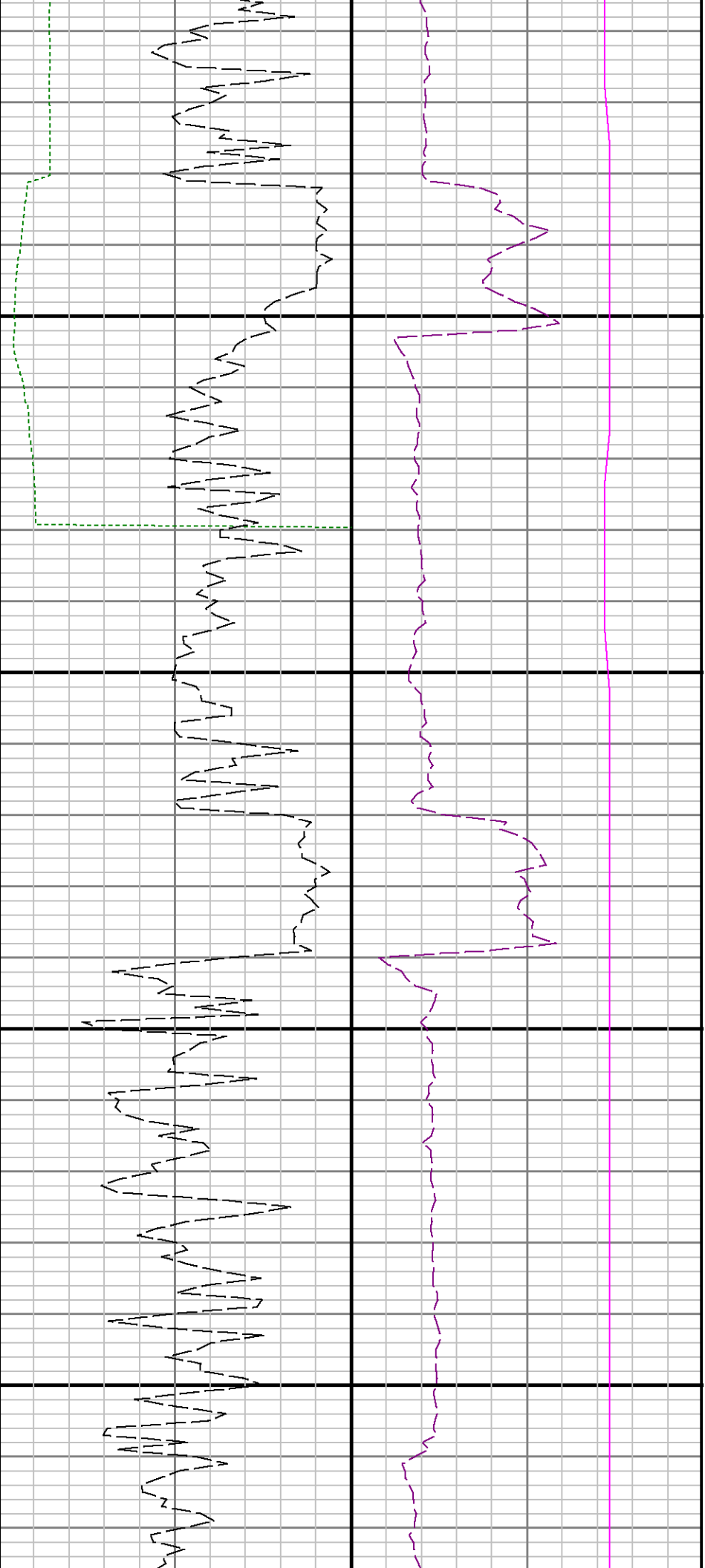


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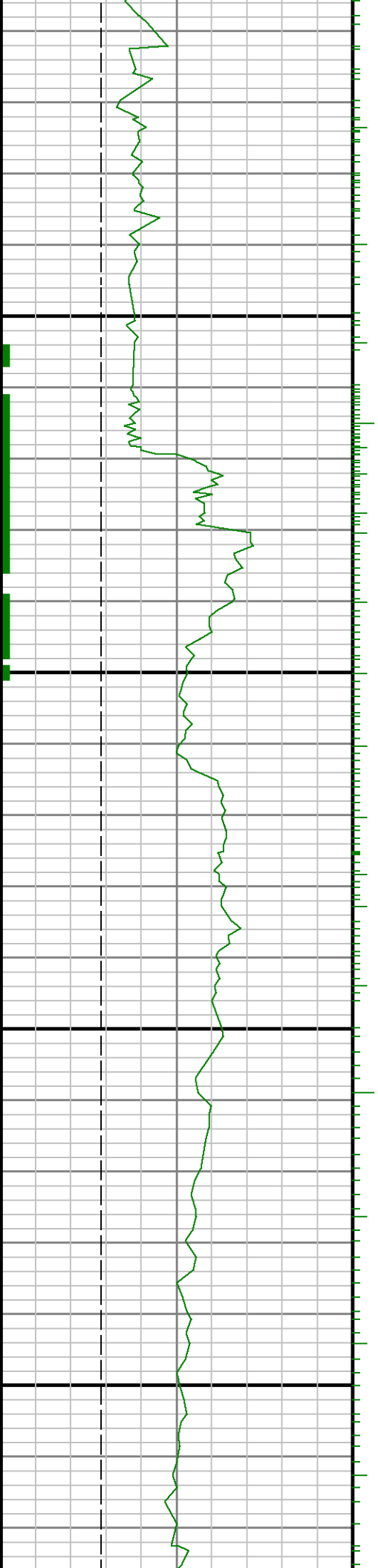


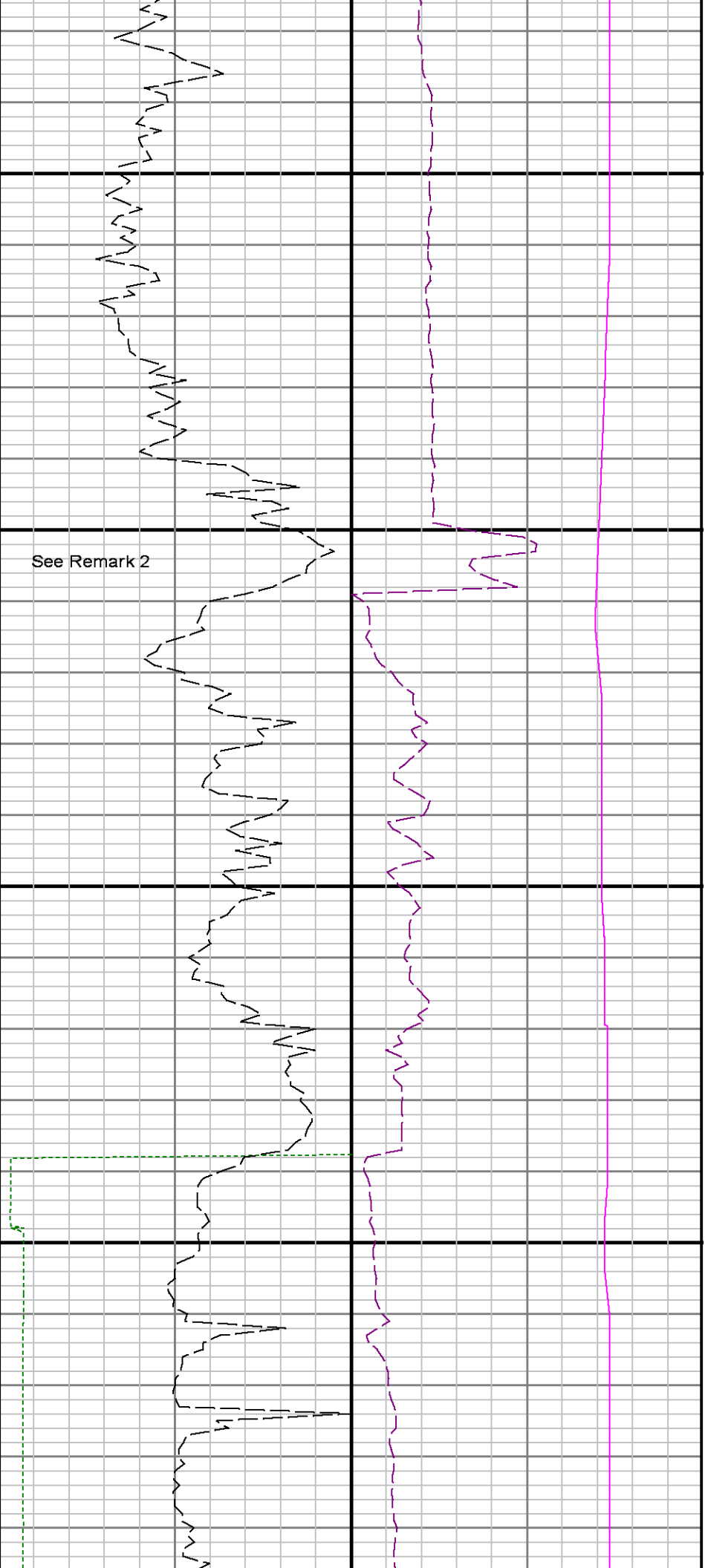




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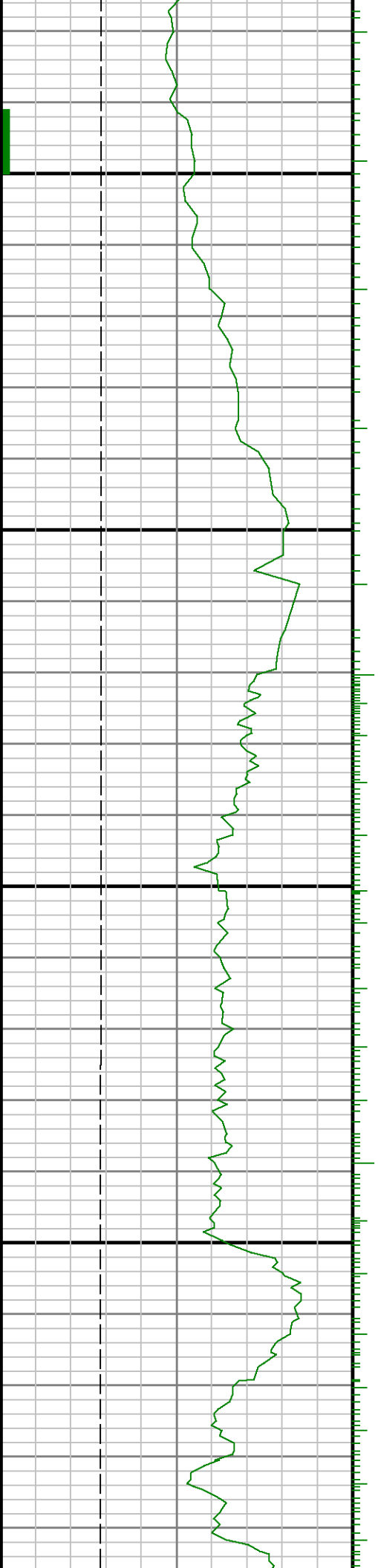


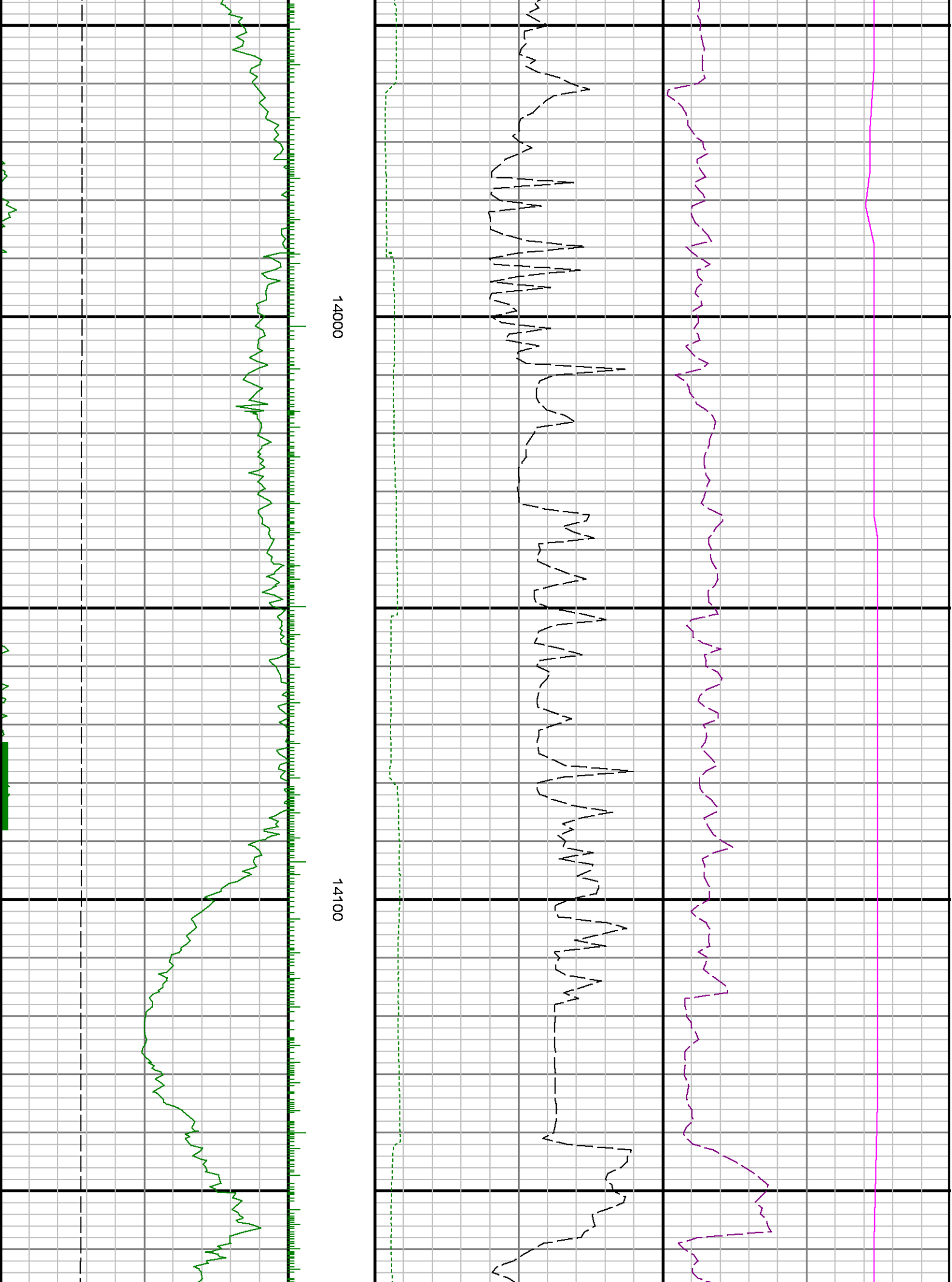


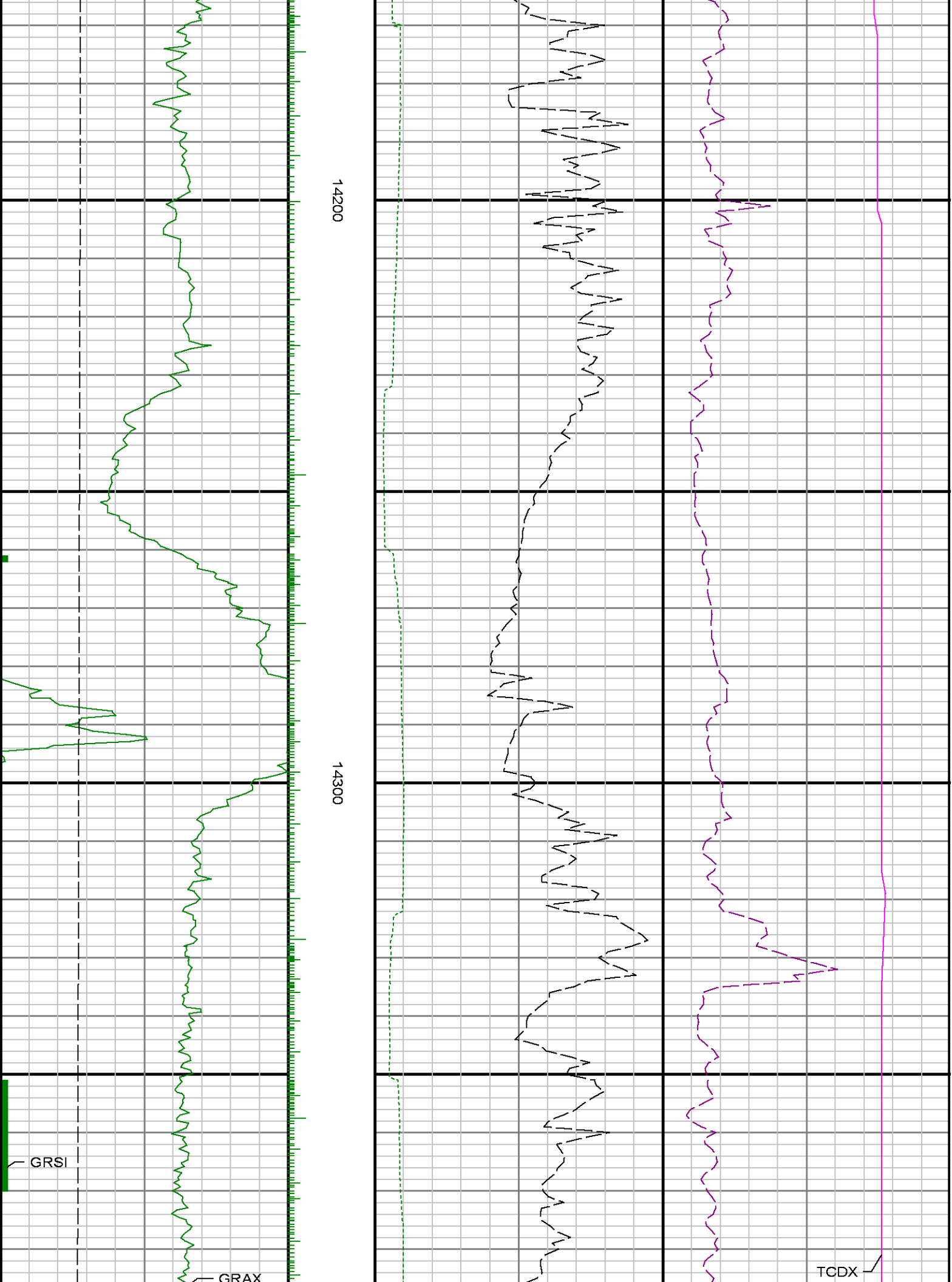
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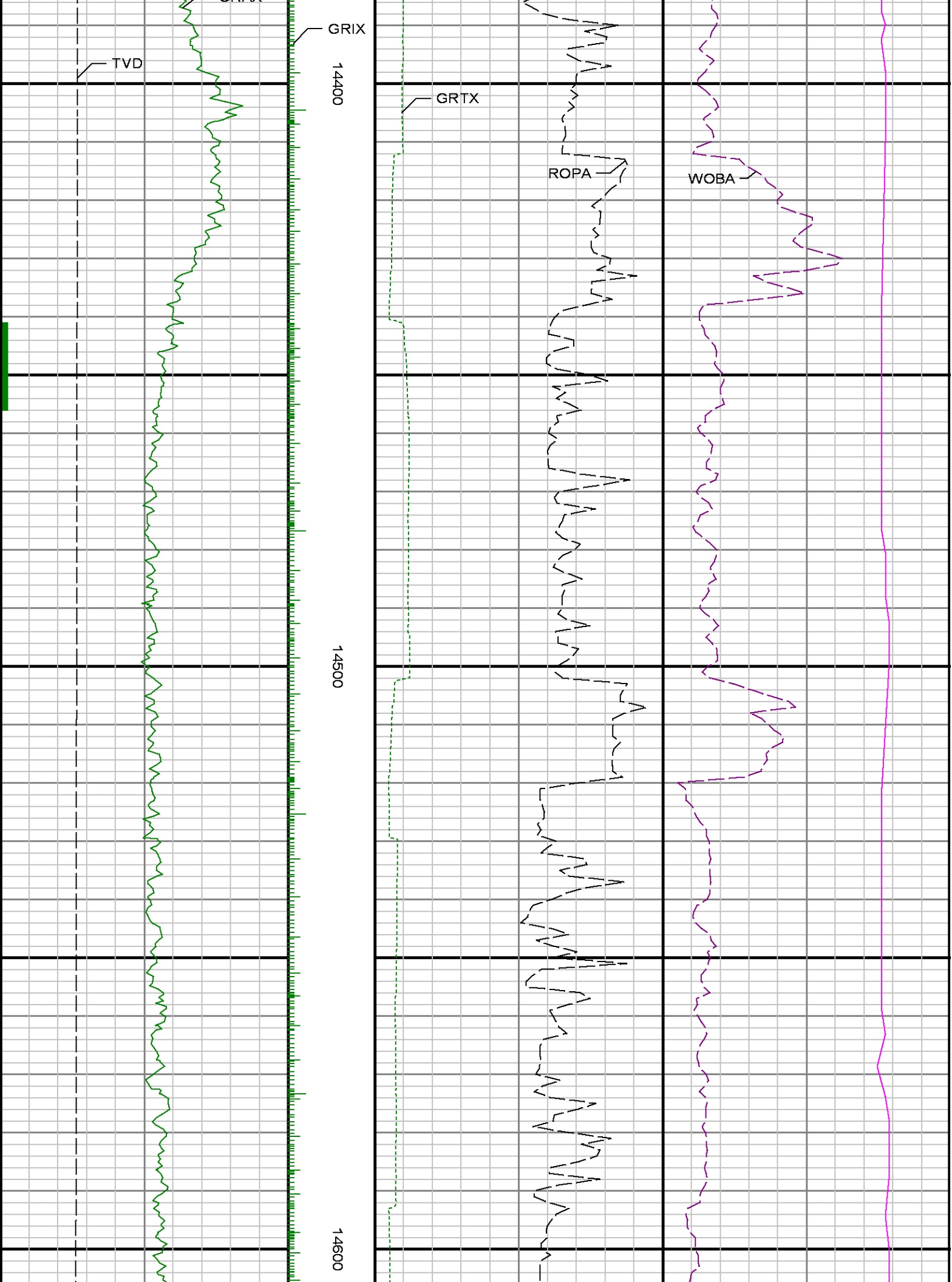
Run 3 ⇨ Run 4

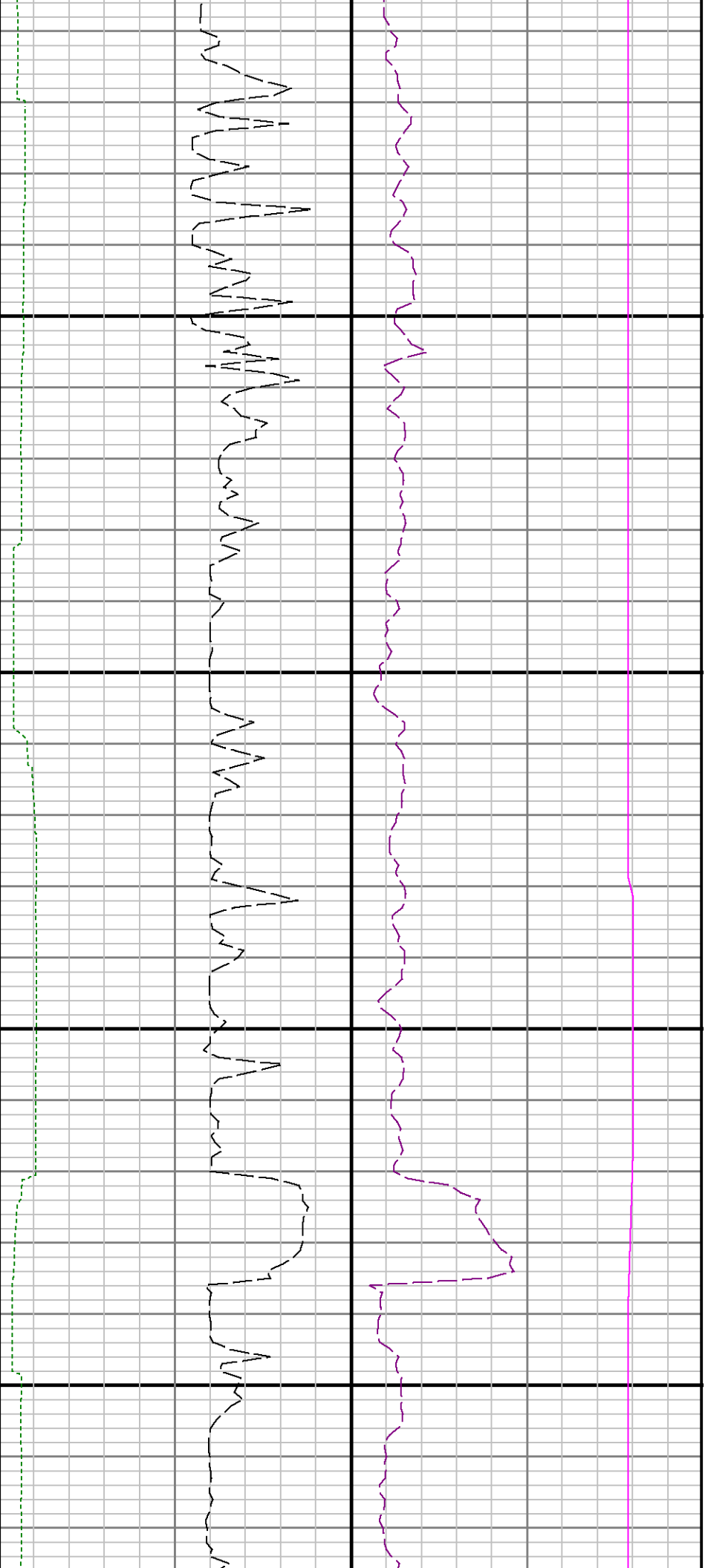
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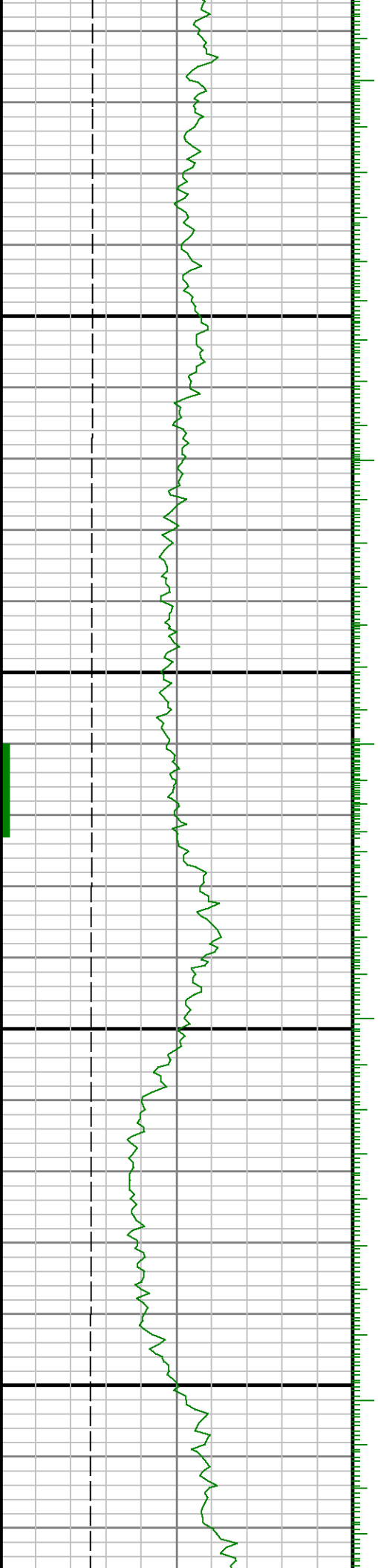






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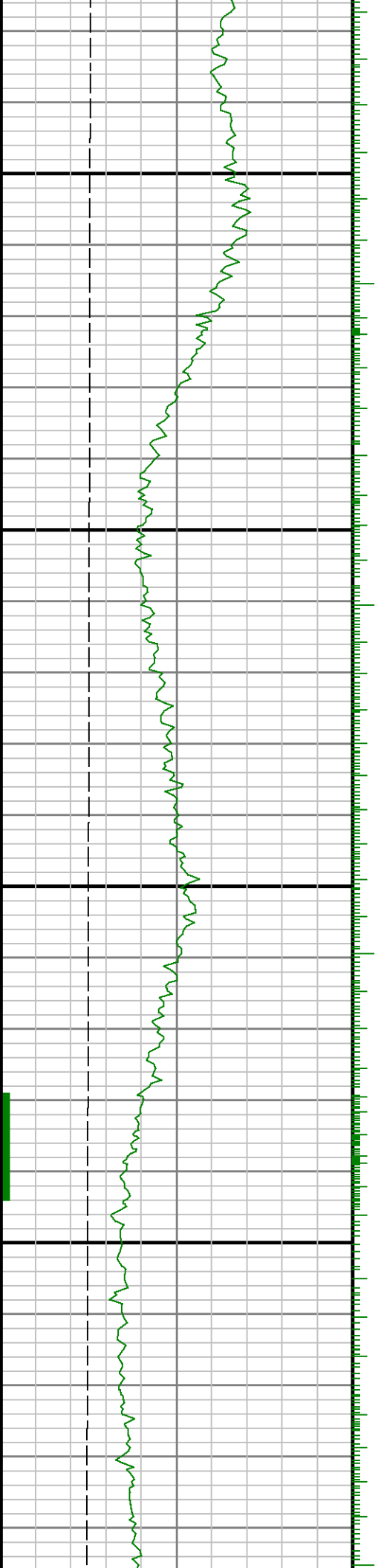
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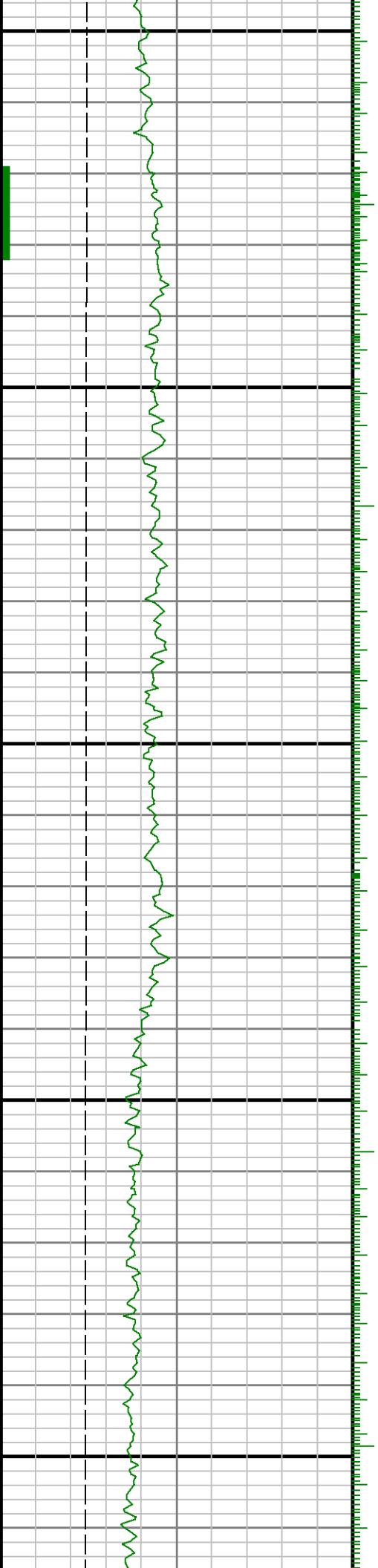
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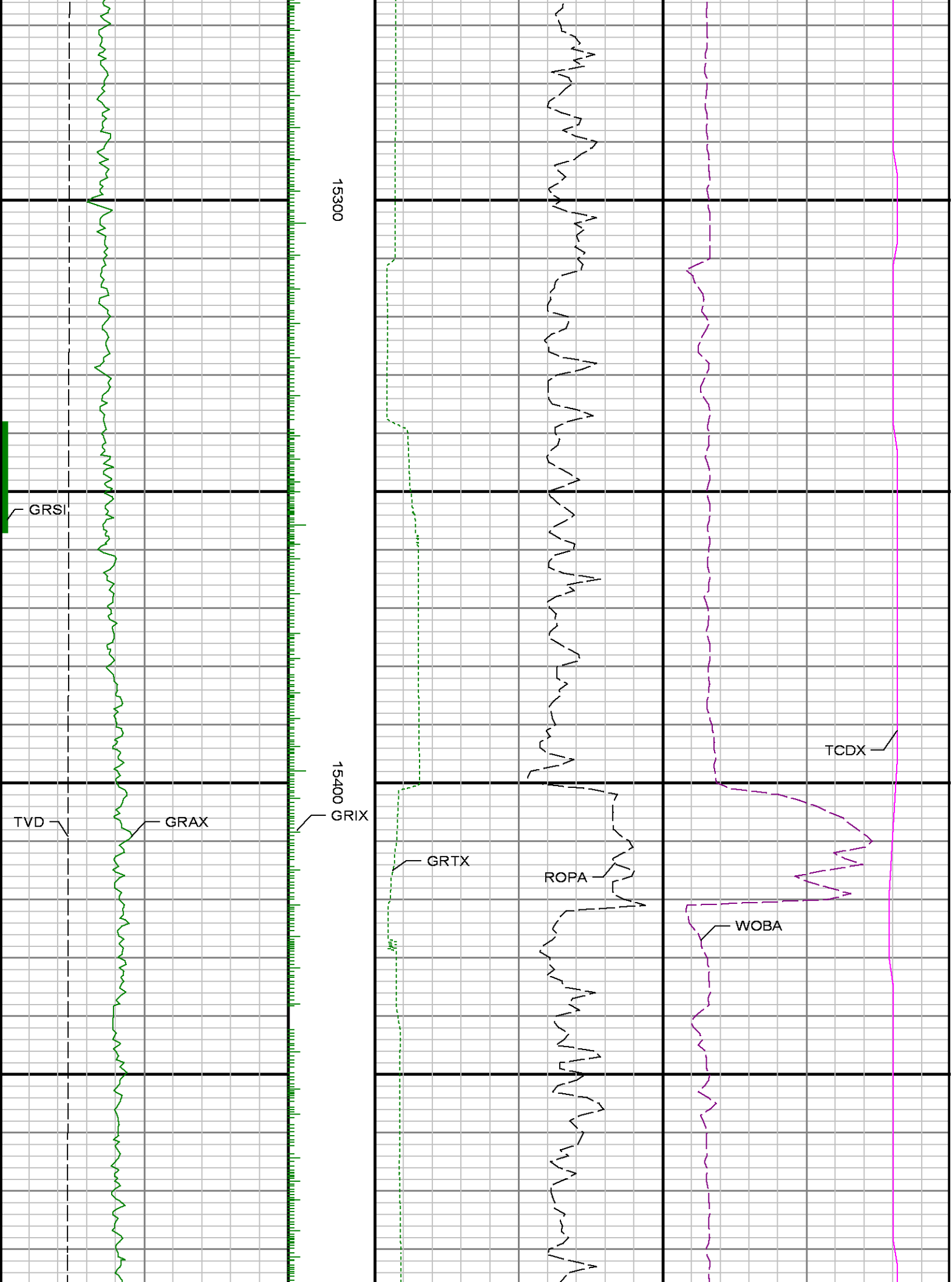




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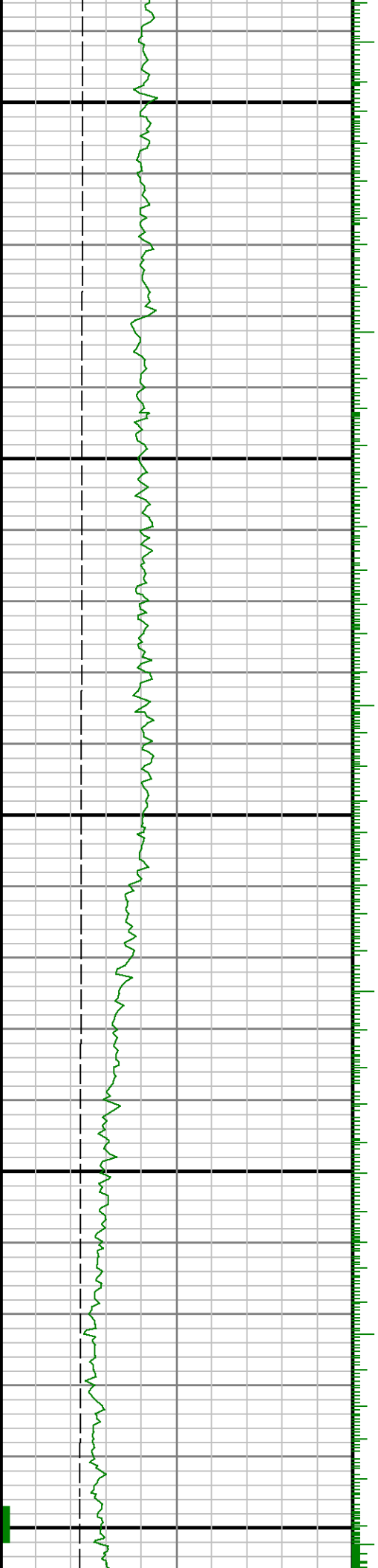




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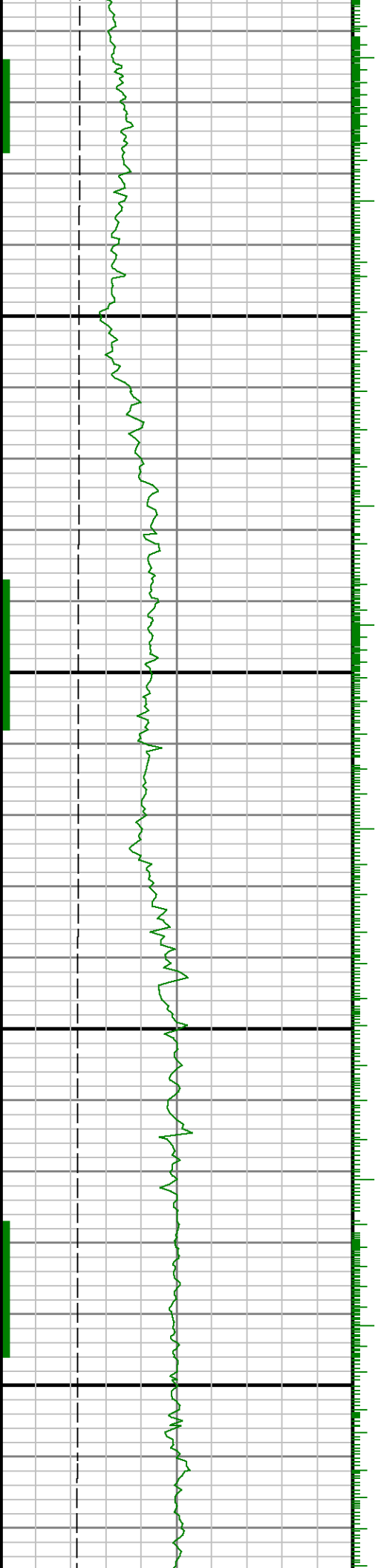
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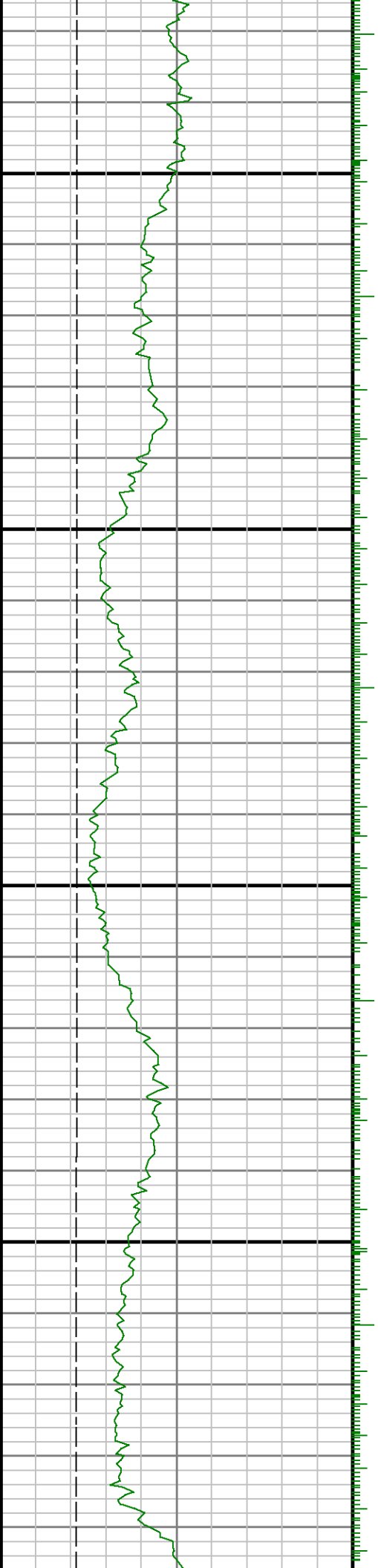
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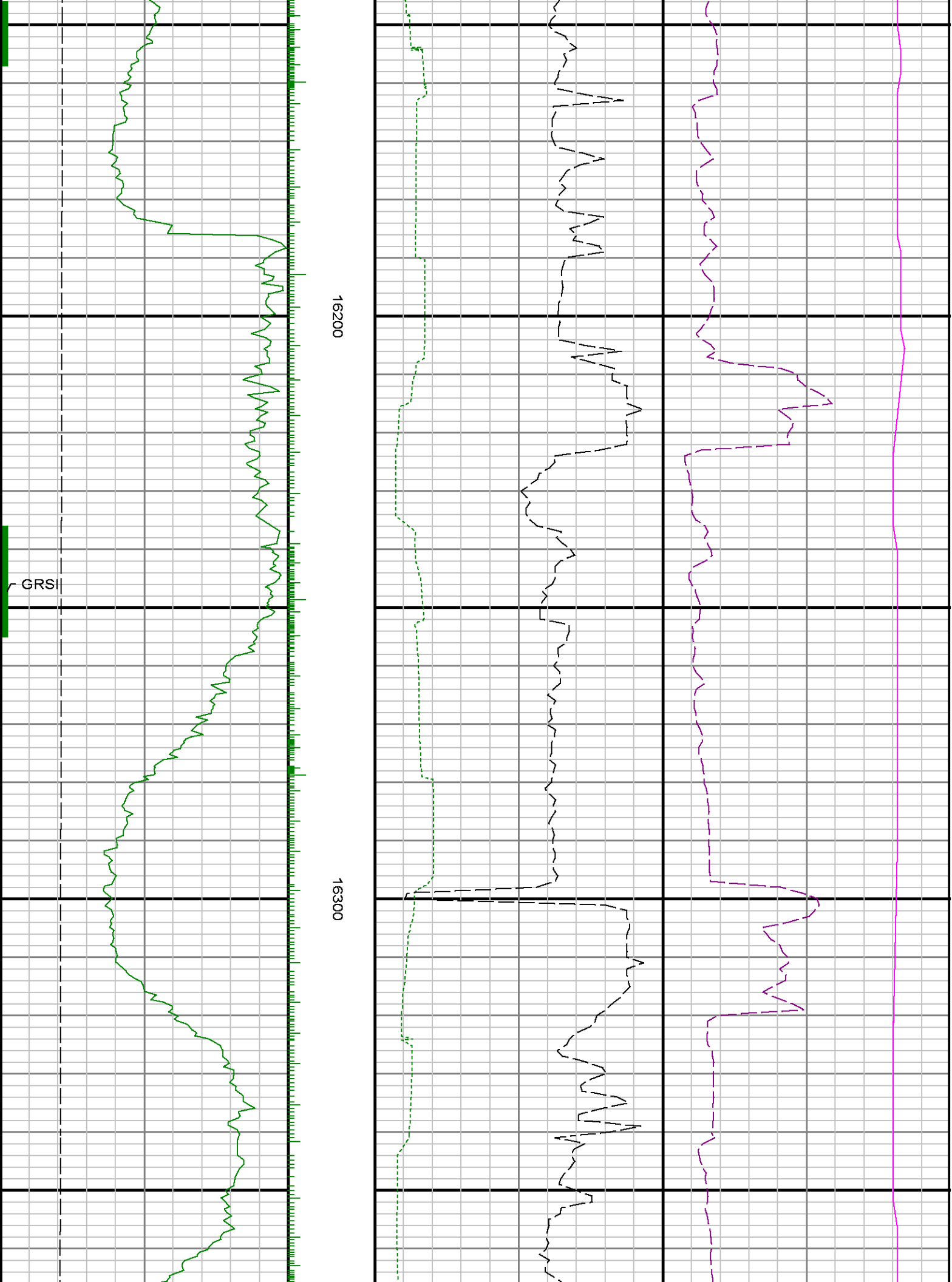


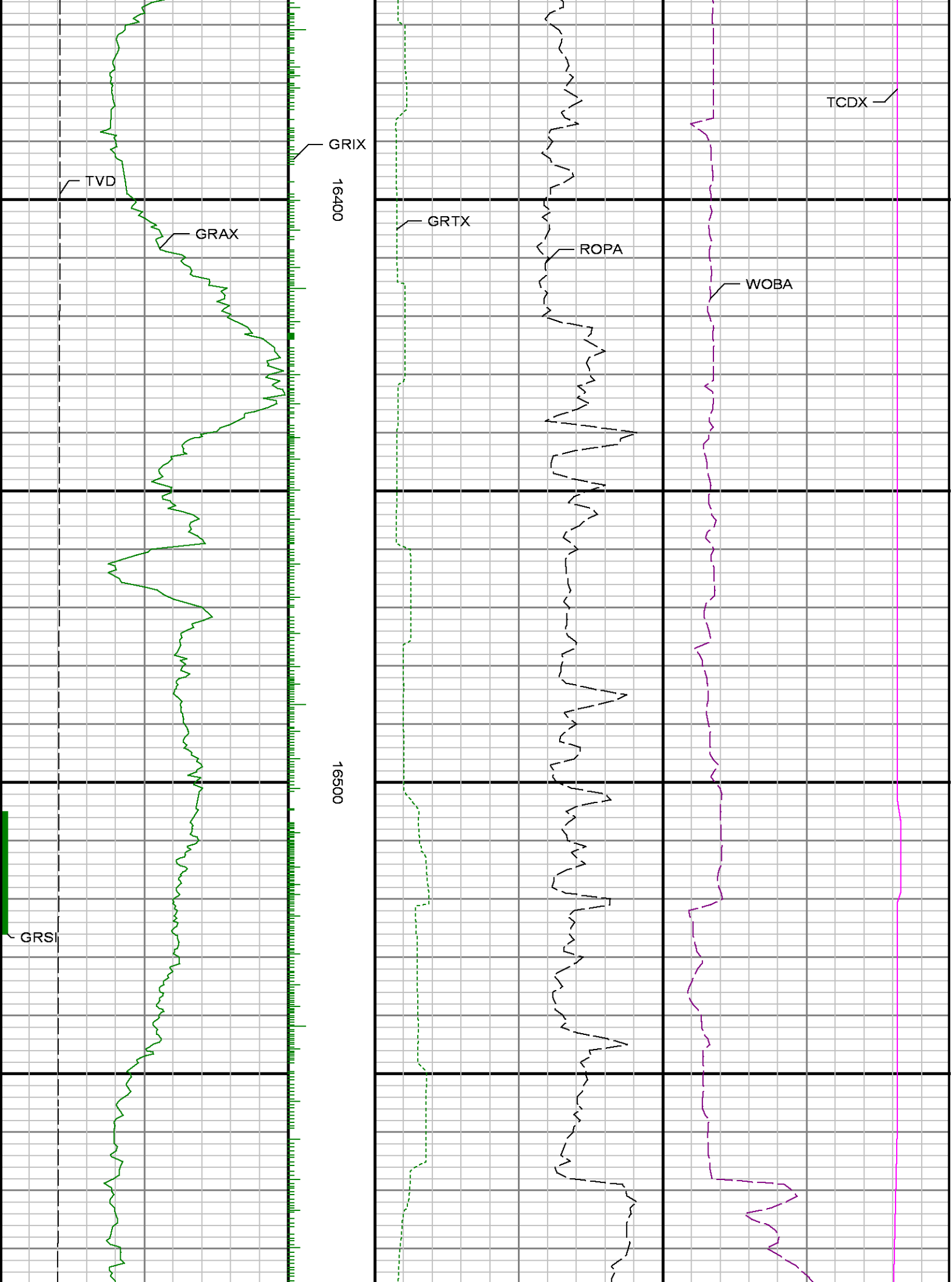


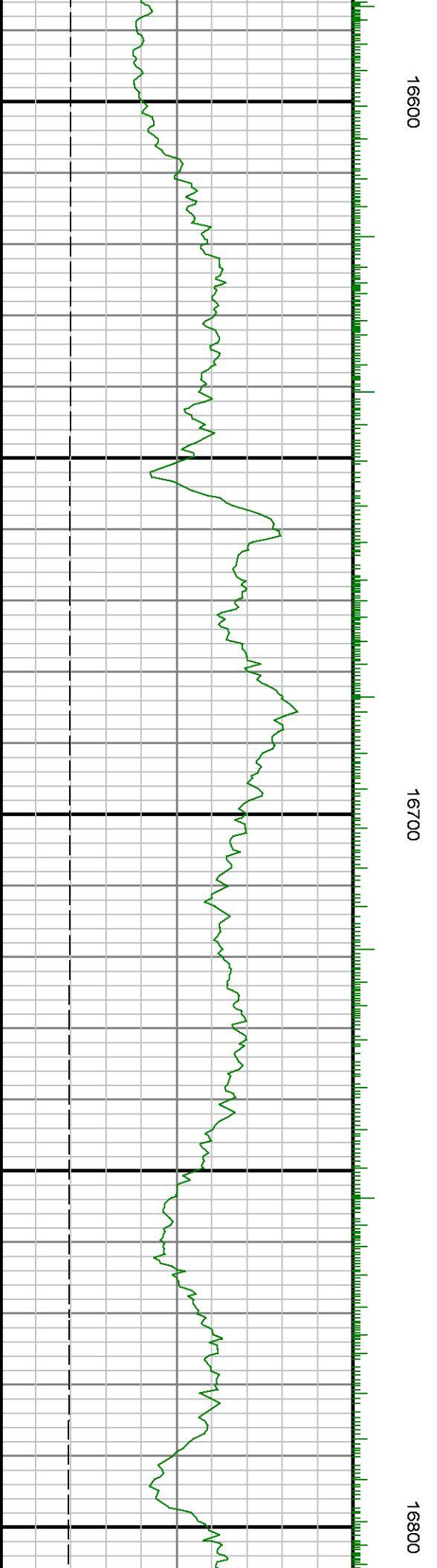
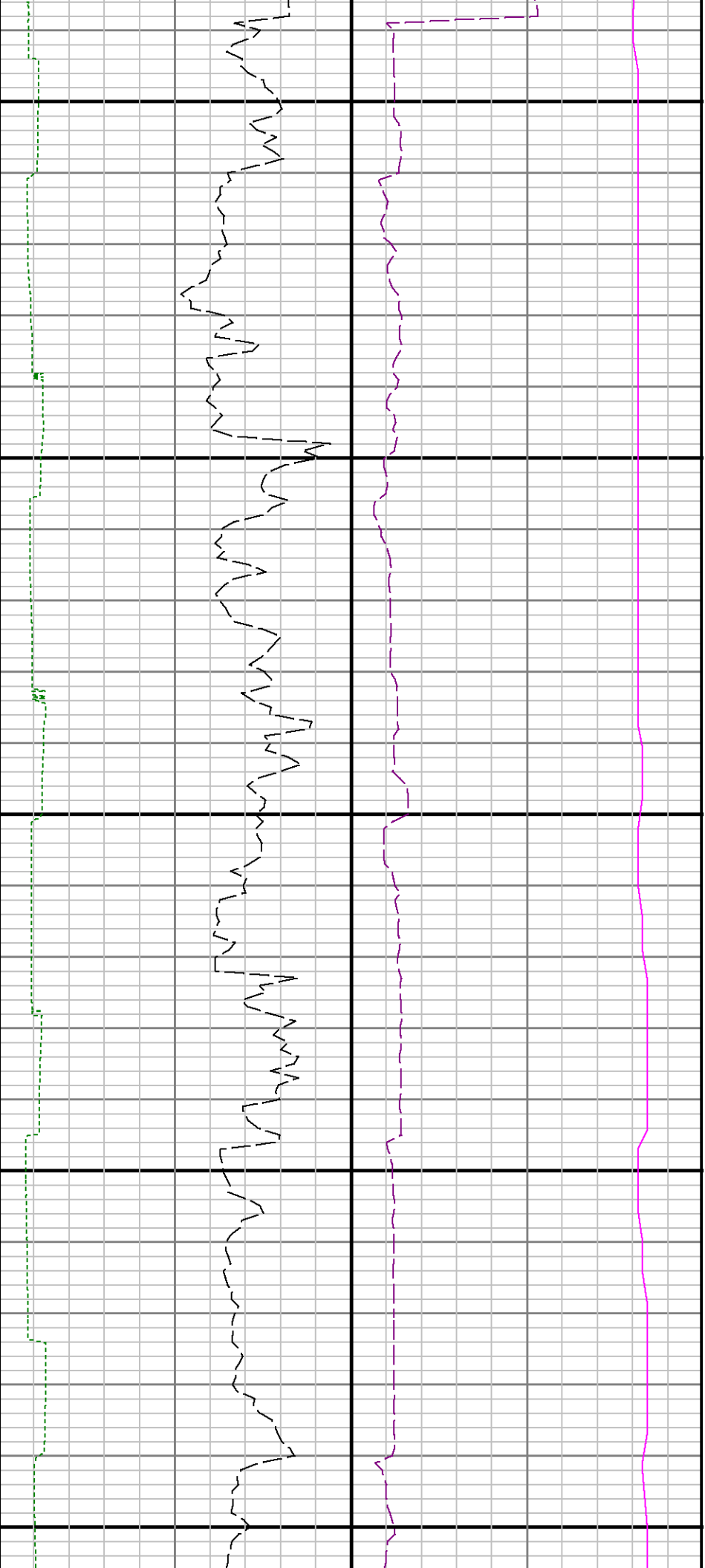
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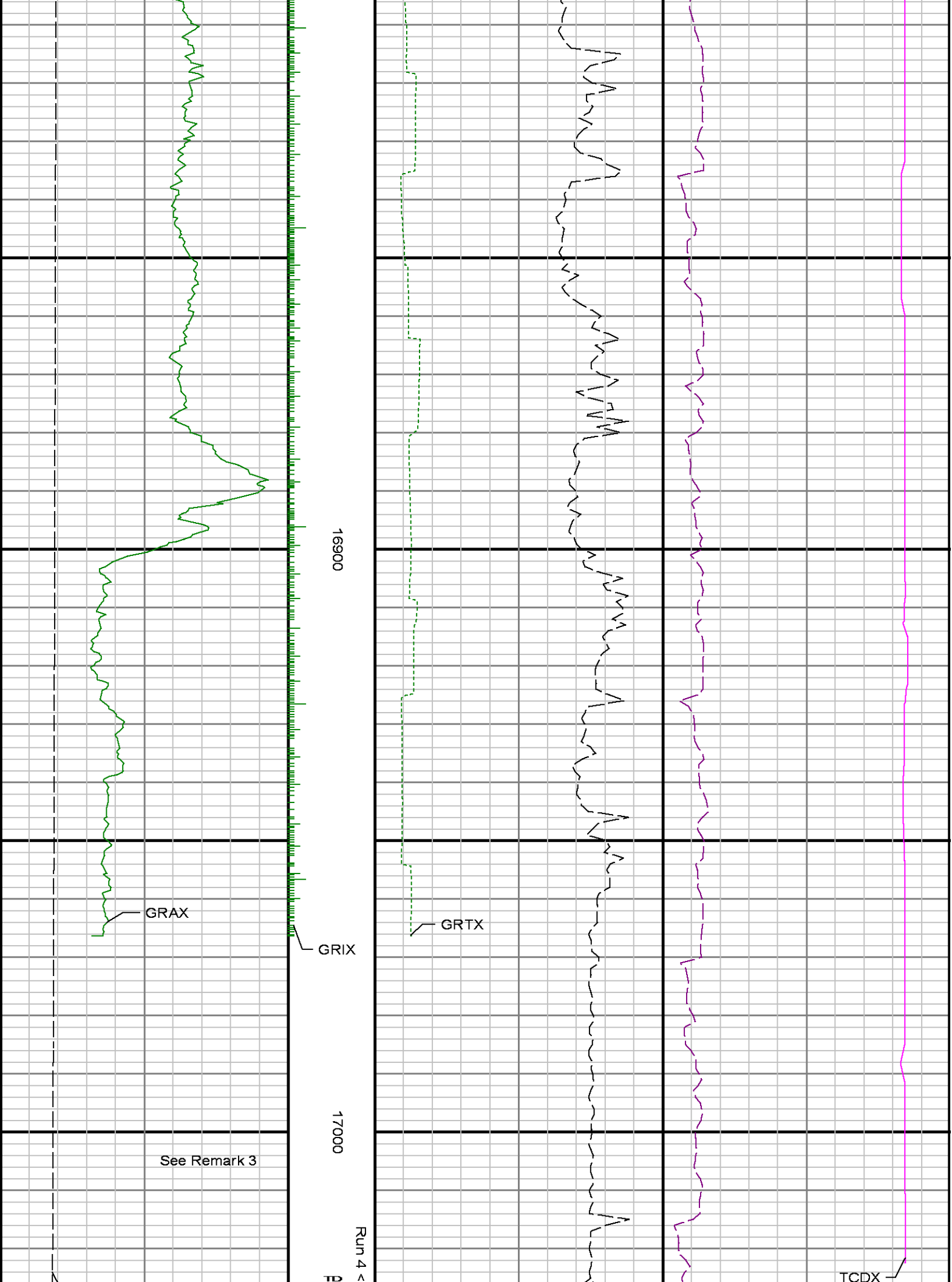
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<div>TVD</div>		<div>ROPA</div>	<div>WOBA</div>
<div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0200</div> <div>API</div> <div>True Vertical Depth TVD</div> <div>74006200</div> <div>ft</div>	<div>MD feet 1:240</div>	<div>Gamma Time Since Drilled GRTX</div> <div>0600</div> <div>min</div> <div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>4000</div> <div>ft/hr</div>	<div>Downhole Temperature TCDX</div> <div>100300</div> <div>degF</div> <div>Surface Weight On Bit 1.0 ft Avg WOBA</div> <div>0100</div> <div>kibf</div>