



Natural Formation Evaluation
Gamma Ray

Realtime Log

Scale: 1:240
MEASURED DEPTH

Company: Kerr-McGee Oil and Gas
Well: Kerr 28N-12HZX
Field: Weld County
Region: Continental US Country: United States

Status: Final Print
API Number: 05123389820100

Surface Location: Latitude: 40° 7' 56.384" N Longitude: 104° 50' 28.860" W
Section: 13 TWN: 2N Range 67W

Other Services: Directional VSS

Permanent Datum (P.D.): Mean Sea Level Elevation: 0.00 ft.
Log Measured From: Kelly Bushing 4899.00 ft. Above P.D.
Depth Reference: Driller's Depth

Elevations: KB: 4899.00 ft. DF: N/A GL: 4883.00 ft.

Interval Logged Dates Magnetic Field Reference

Top: 6630 ft. Date From: 30/Dec/14 Dip Angle: 66.89° Azi Reference North: True
Bottom: 16336 ft. Date To: 10/Jan/15 Total Mag to Reference
Spud Date: 30/Dec/14 Field Strength: 52753.3 nT North Correction: 8.54°

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
8.750 in.	1079 ft.	7650 ft.	9.625 in.	36.00 lb/ft	Surface	1050 ft.
6.125 in.	7650 ft.	16385ft.	7.000 in.	26.00 lb/ft	Surface	7622 ft.

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	1079 ft.	16385 ft.	8.750 in.	6571 ft.	0.5° / 223.6°	87.1° / 0.8°
			6.125 in.	8735 ft.	91.5° / 0.7°	89.4° / 1.0°
					/	/
					/	/
					/	/
					/	/
					/	/

Acquisition System Software Version			Other		
Advantage	2.20U4	Rig / Contractor:	Xtreme 24	/ Xtreme Drilling	
PAIS	6.4.1.34	Job No:	6848915		
		District / Unit:	RMD	/ D&E	

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Log Run Summary															
LWD	BHA	Bit	Bit	Bit	Bit	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time				Circ. Time (hrs.)
Run	Run	Run	Size	Type	Gauge		Top	Bottom	From	To	Start		End		
No.	No.	No.	(in.)		Length (in.)		(ft.)	(ft.)	(ft.)	(ft.)					
1	1	1	8.750	PDC	3.000	Steerable	6630	7597	1079	7650	31/Dec/2014 11:00	01/Jan/2015 15:45	28.7		
2	2	2	6.125	PDC	3.000	Steerable	7597	11039	7650	11039	03/Jan/2015 18:00	07/Jan/2015 07:00	43		
3	3	3	6.125	PDC	3.000	Steerable	11039	16336	11039	16385	07/Jan/2015 08:00	10/Jan/2015 23:45	66.7		

Crew										
Name	Arrive	Depart		Name	Arrive	Depart		Name	Arrive	Depart
	Wellsite	Wellsite			Wellsite	Wellsite			Wellsite	Wellsite
Andrew Overbey	12/29/14	01/10/14		Ben Klarin	12/29/14	01/10/14				

Mud Properties Record												
Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (sec/qt)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (mg/L)	K+ (%)
03/Jan/2015	18:00	1	7650	Water Based Mud	9.5	42	8.8	N/A	0.5 / 93.5	Active Mud Pits	1800	N/A
04/Jan/2015	18:00	2	9838	Water Based Mud	9.2	45	9.5	N/A	3.0 / 92.0	Active Mud Pits	1800	N/A
05/Jan/2015	18:00	2	12951	Water Based Mud	9.3	45	9.1	N/A	4.0 / 90.5	Active Mud Pits	1800	N/A
06/Jan/2015	18:00	2	14112	Water Based Mud	9.9	47	9.4	N/A	6.5 / 86.0	Active Mud Pits	1800	N/A
07/Jan/2015	18:00	3	11039	Water Based Mud	9.8	46	9.1	N/A	6.5 / 86.0	Active Mud Pits	1800	N/A
08/Jan/2015	18:00	3	12252	Water Based Mud	9.8	44	9.6	N/A	6.5 / 86.0	Active Mud Pits	1800	N/A
09/Jan/2015	18:00	3	14785	Water Based Mud	9.8	44	9.6	N/A	6.5 / 86.3	Active Mud Pits	1800	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 Density, Points	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	12042365	Directional	54.38	6.750	2.750
1	SRIG	12600749	Gamma	51.01	6.750	2.750
2	DIR	12235770	Directional	53.61	4.750	2.000
2	SRIG	12283328	Gamma	50.23	4.750	2.000
3	DIR	10152197	Directional	52.27	4.750	2.000
3	SRIG	11734840	Gamma	48.85	4.750	2.000

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 run 1 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1079 to 7650 ft MD (1079 to 7144 ft TVD).
(2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind a 6 3/4 inch bit and steerable assembly from 7650 to 11039 ft MD (7144 to 7227 ft TVD).

(2) Baker Hughes INTEQ run 3 utilized 4 3/4 inch NaviGamma services (Gamma Ray and Directional) behind a 6 3/4 inch bit and steerable assembly from 11039 to 16385 ft MD (7227 to 7266 ft TVD).

(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.

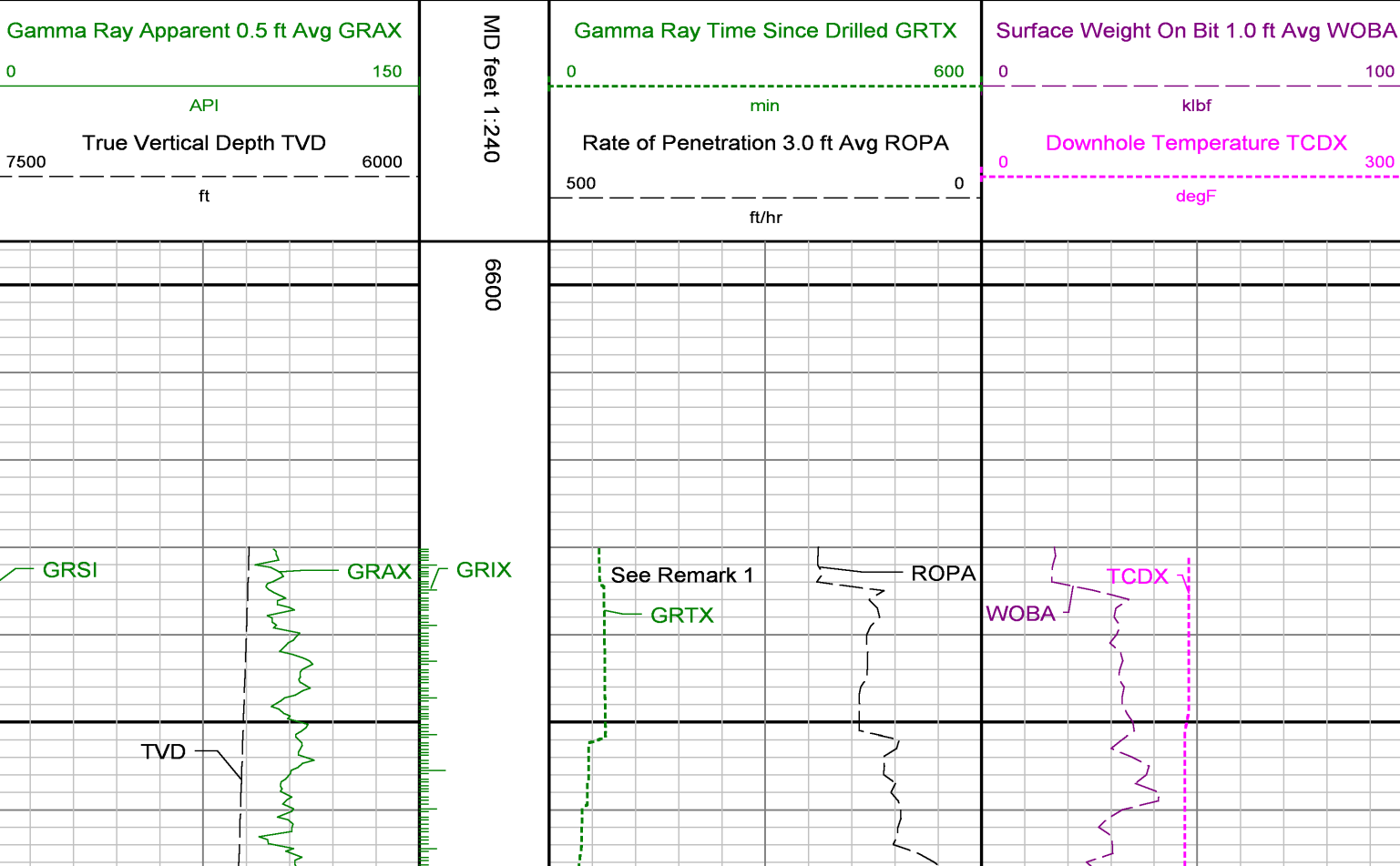
5) A sliding indicator is shown to the left side of track 1 as a heavy line and corresponds to the Gamma Ray sensor offset from the bit.

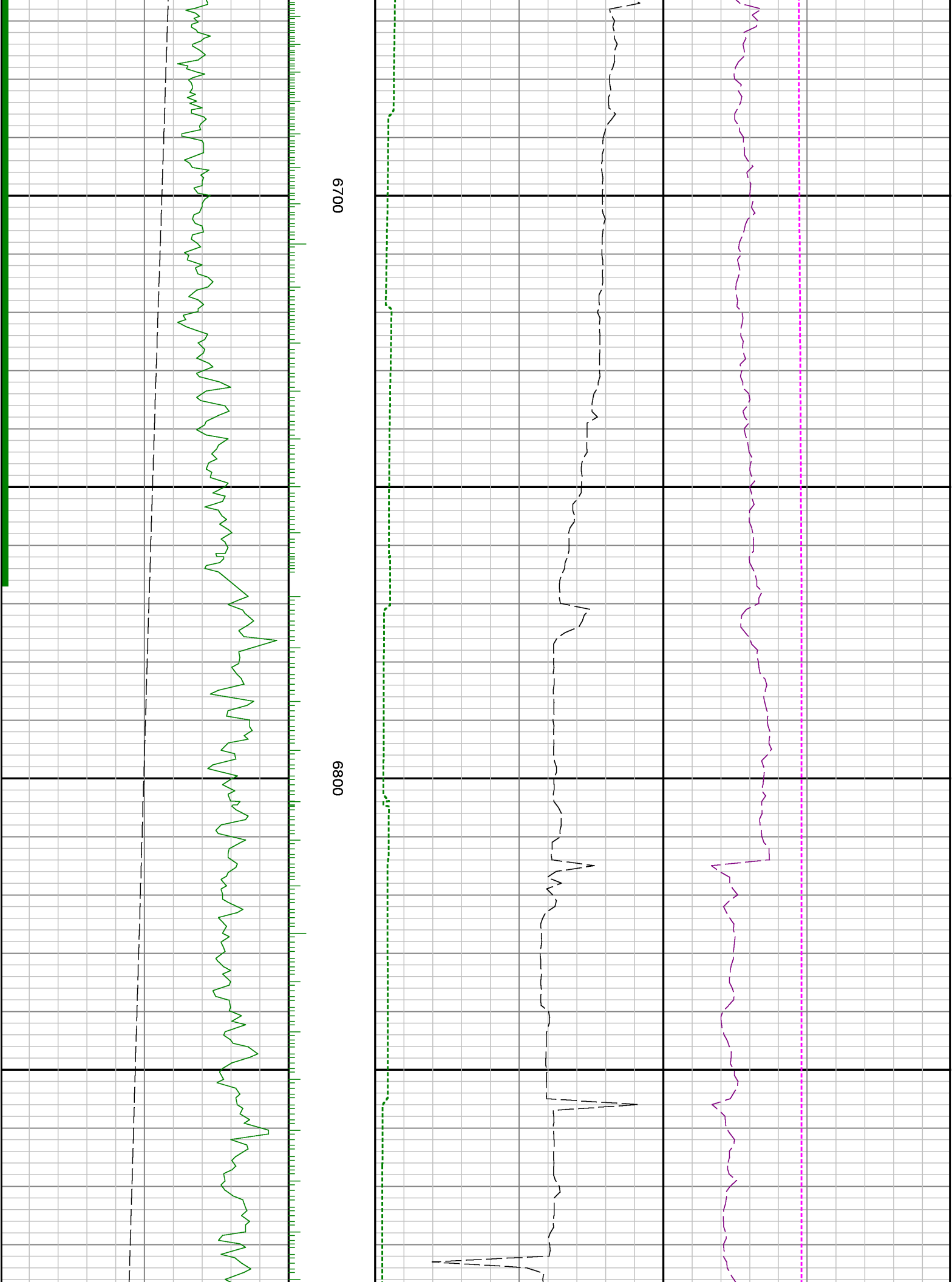
Remarks

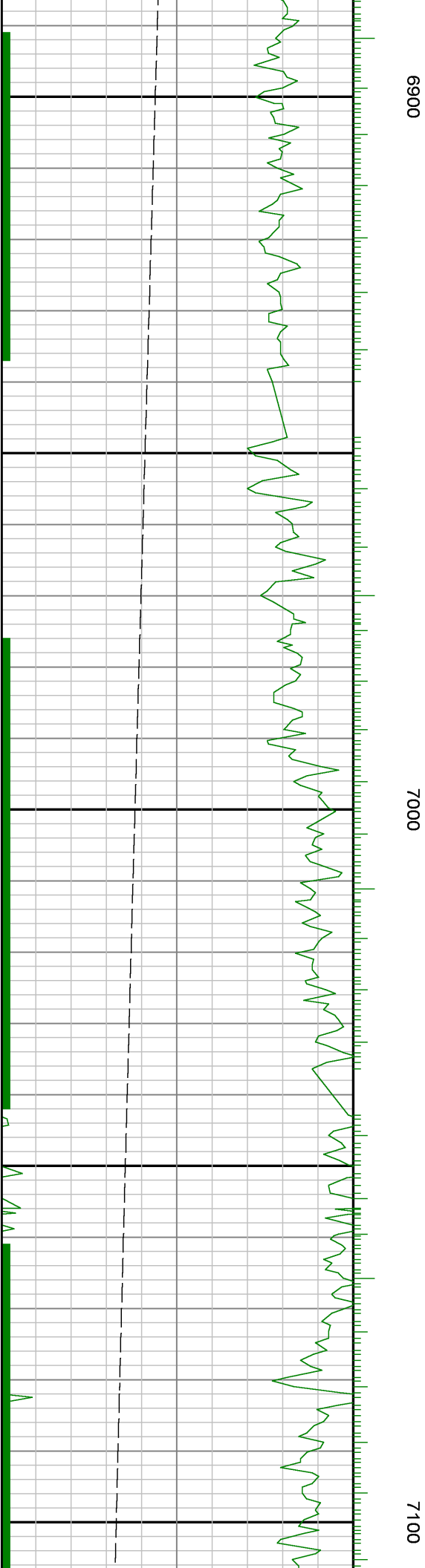
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6630	8.750	1	The interval from surface to 6630 feet MD (6592 feet TVD) was not logged since logging services began at kick off point.
2	7650	8.750	2	The interval from 7600 feet to 7650 feet MD (7213 feet to 7215 feet TVD) was logged up to 36 hours after drilling due to tripping for casing and picking up lateral BHA.
3	11039	6.125	3	The interval from 10989 feet to 11039 feet MD (7226 feet to 7227 feet TVD) was logged up to 6 hours after drilling due to time drilling for sidetrack
4	16385	6.125	3	The interval from 16336 feet to 16385 feet MD (7265 feet to 7266 feet TVD) was not logged due to bit sensor offset at TD.

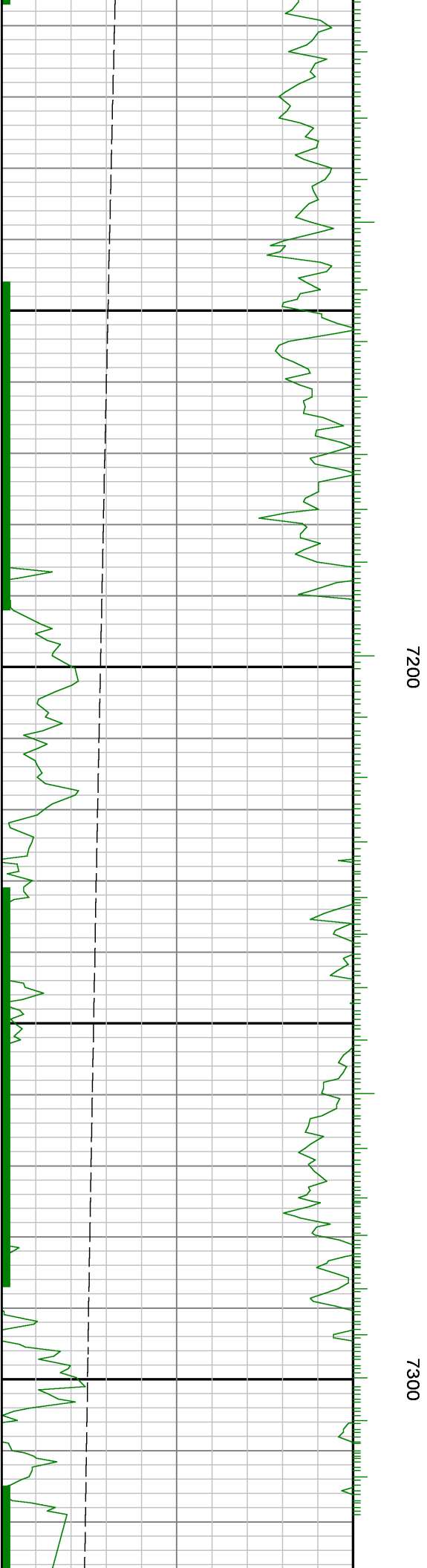
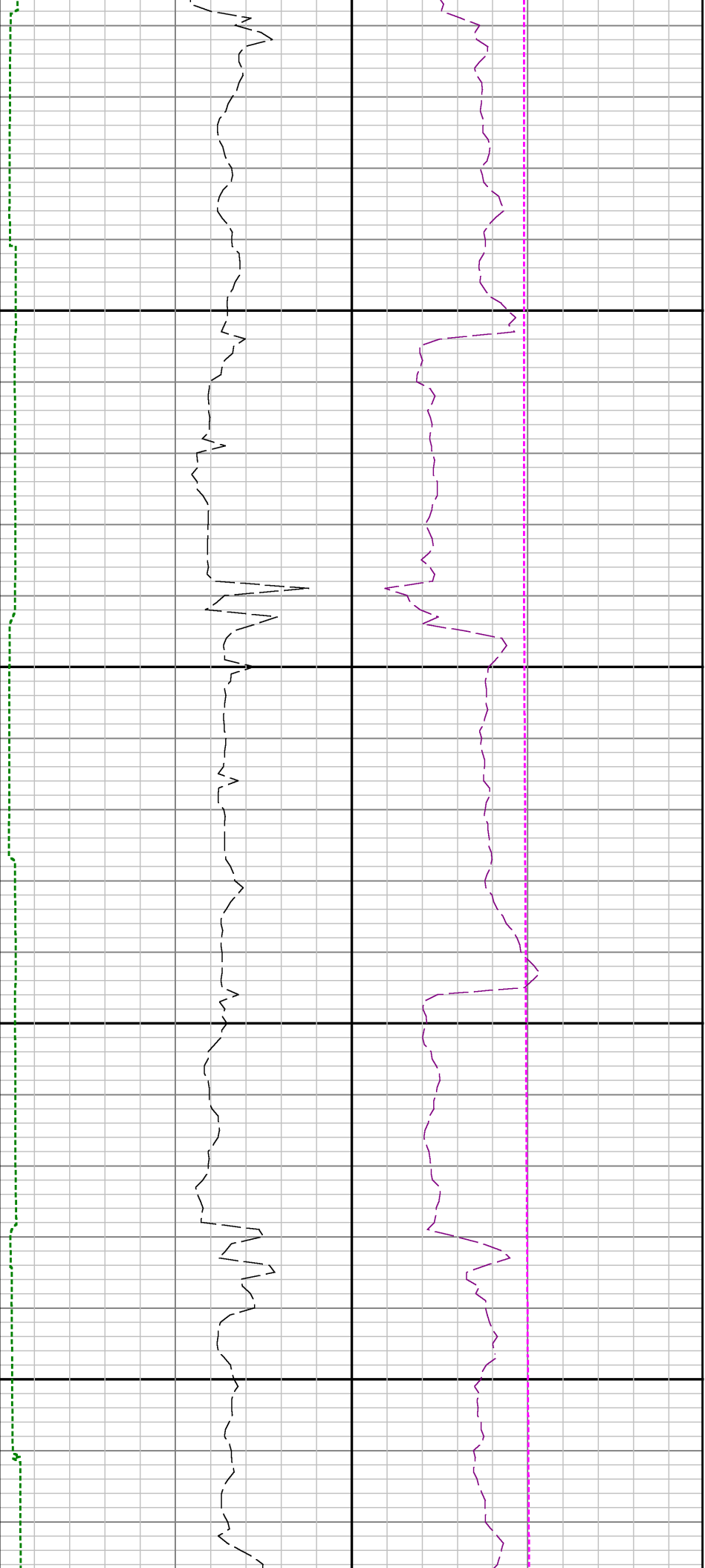


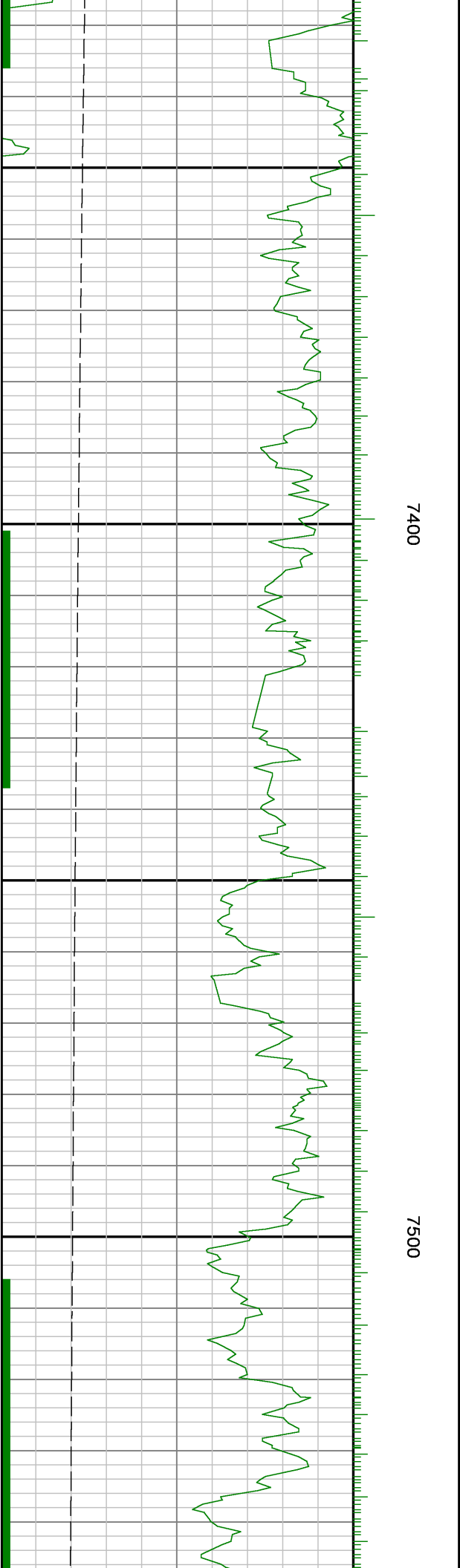
Company : Kerr-McGee Oil and Gas
Well : Kerr 28N-12HZ
Interval : 6595.00 - 16390.00 feet
Created : 10/Jan/2015 1:32:41 PM

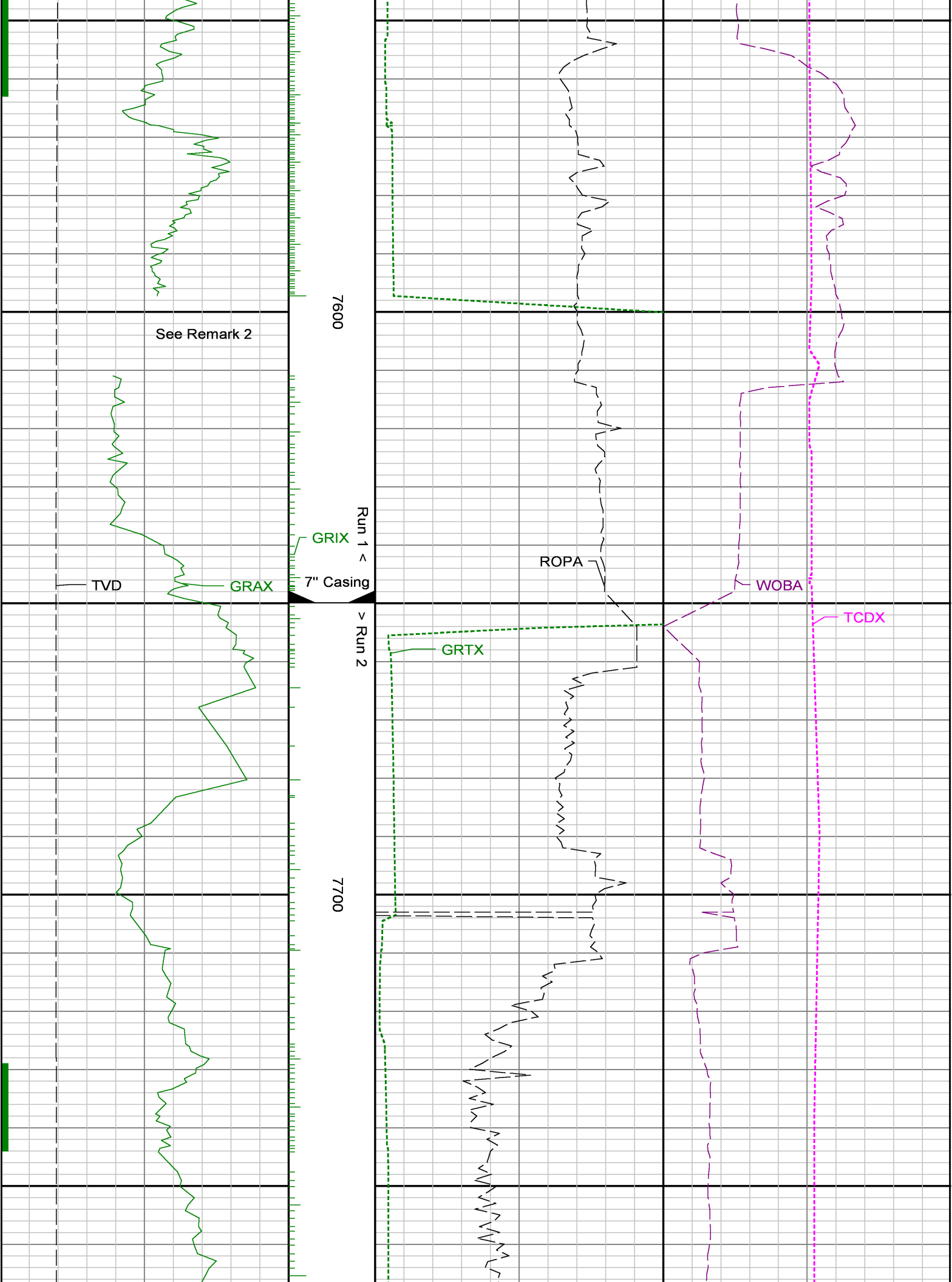


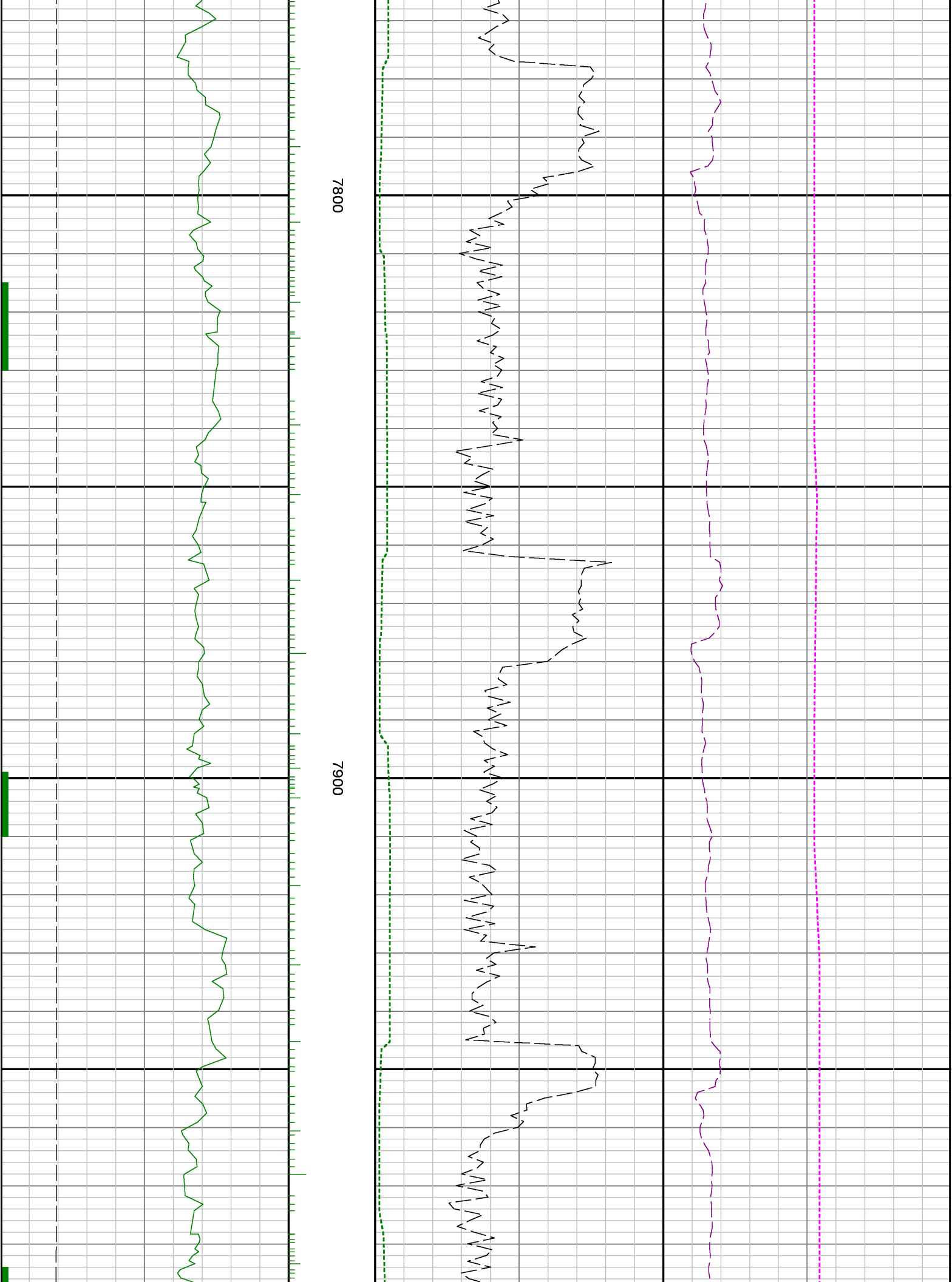


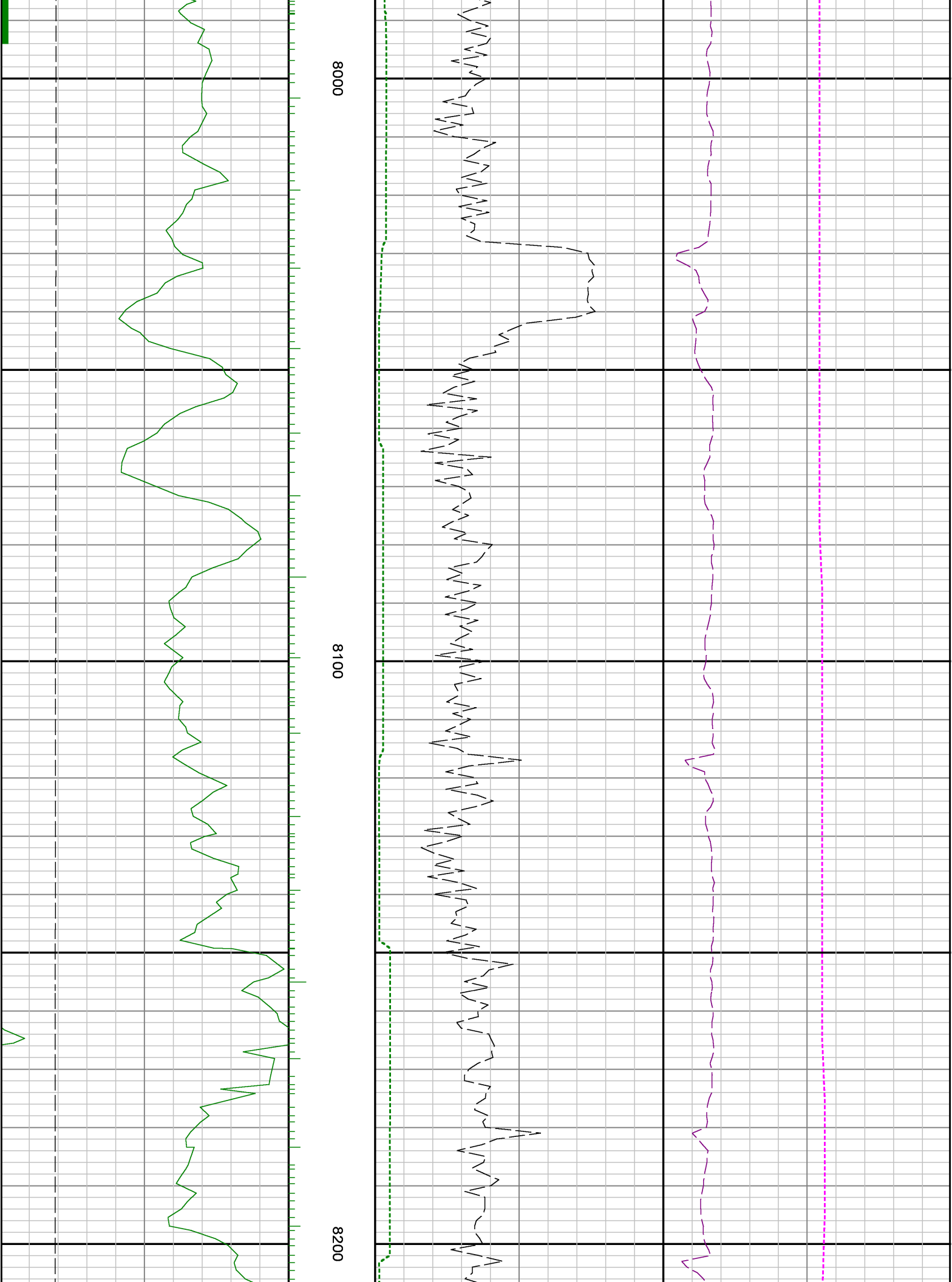


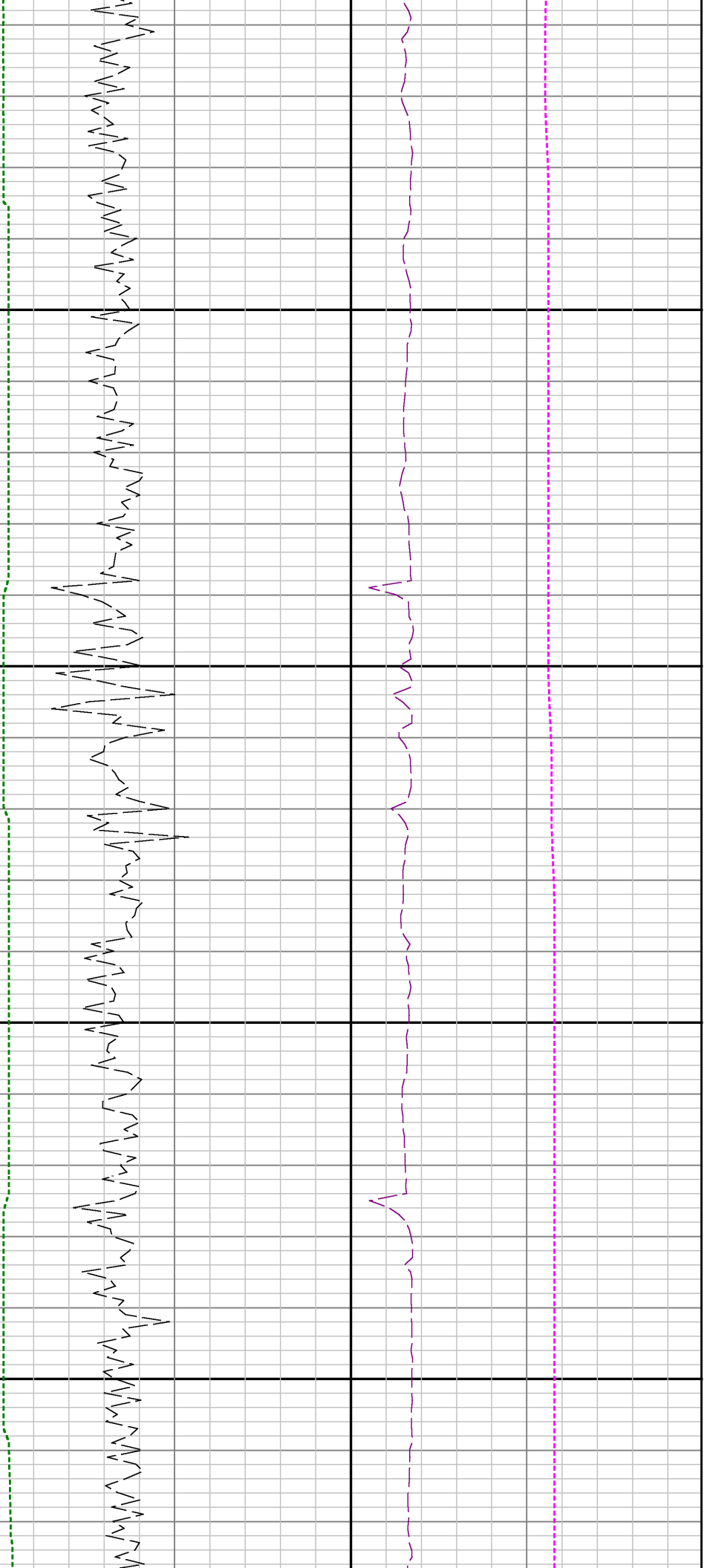






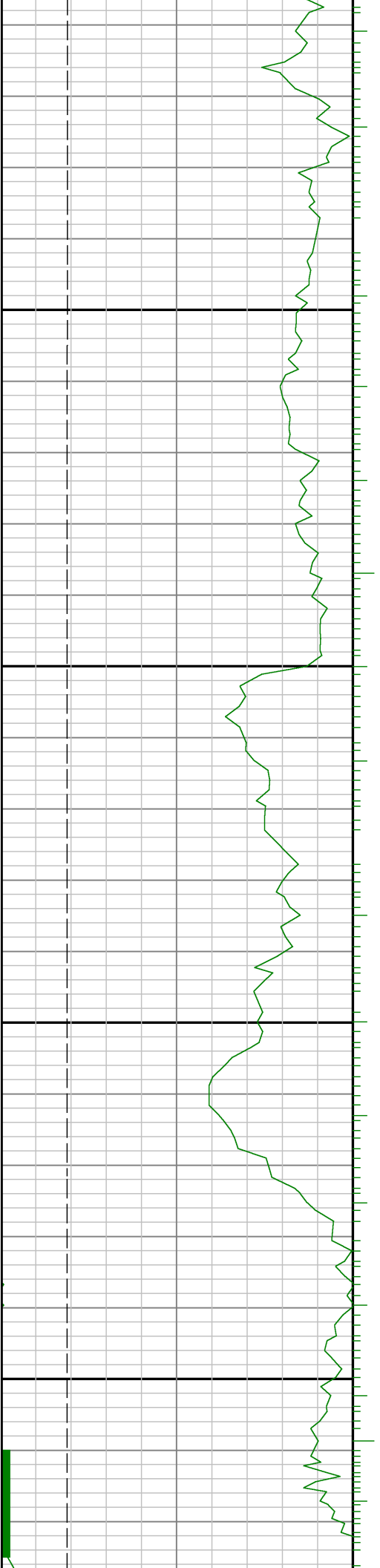


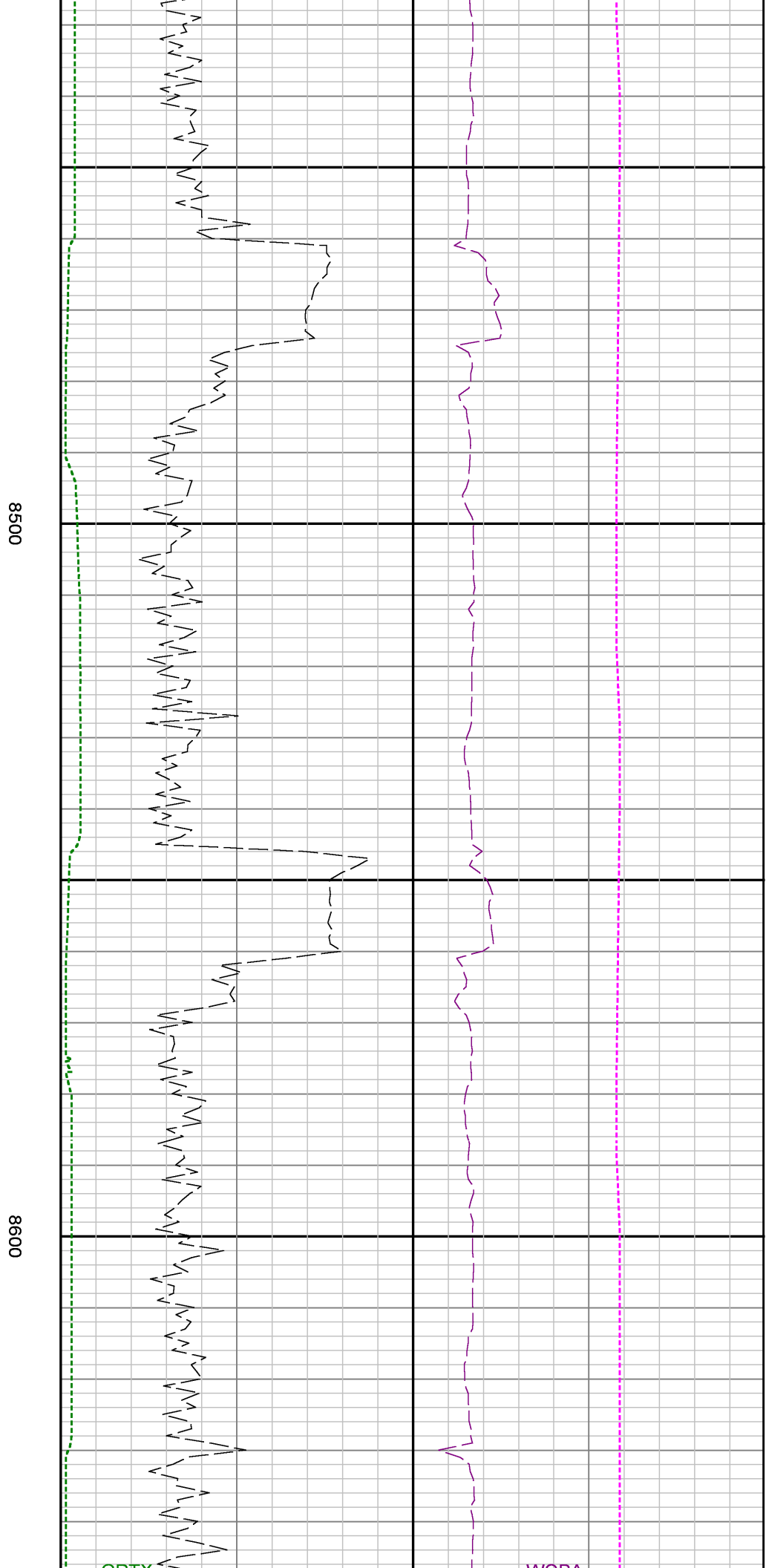
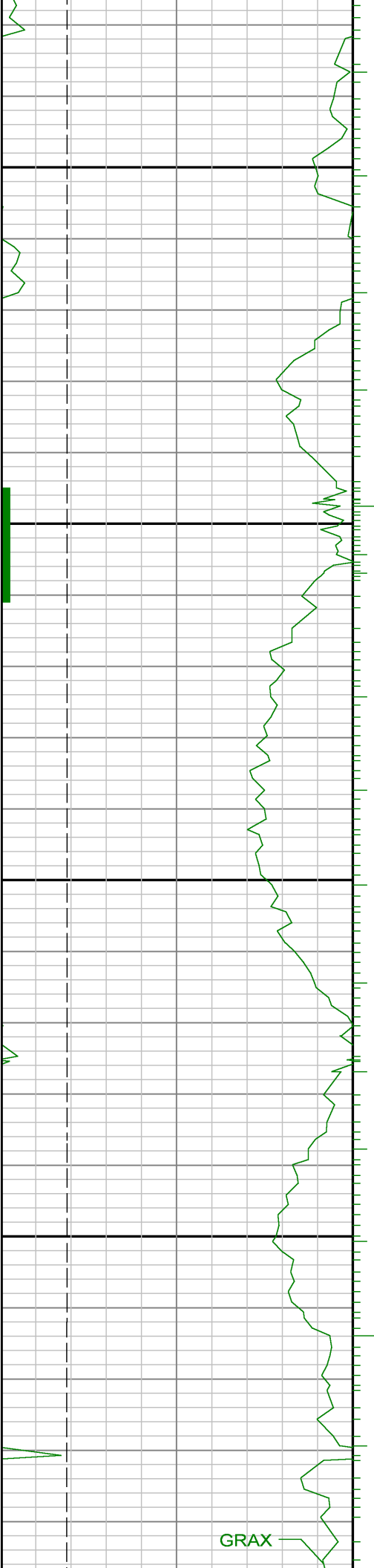


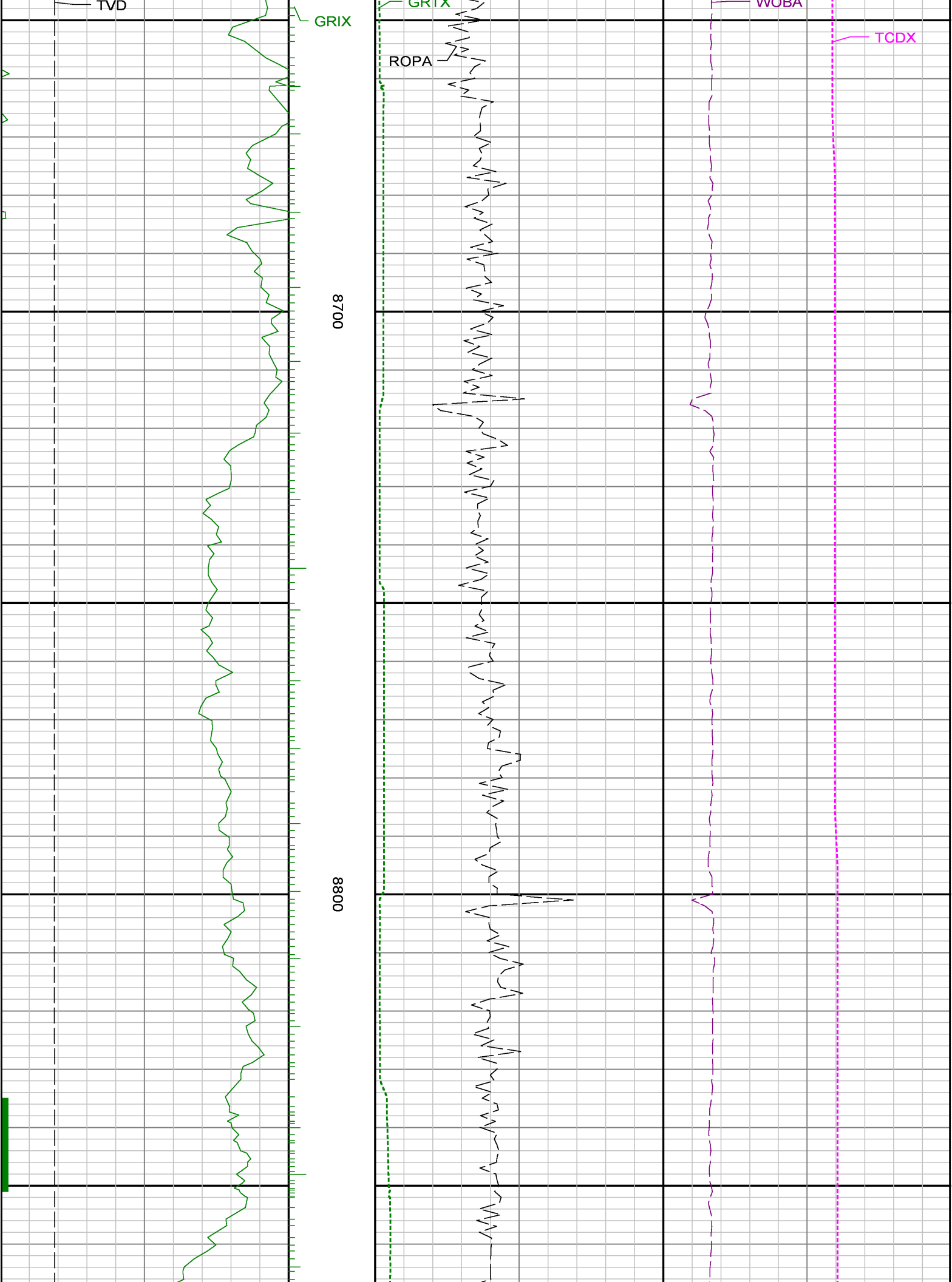


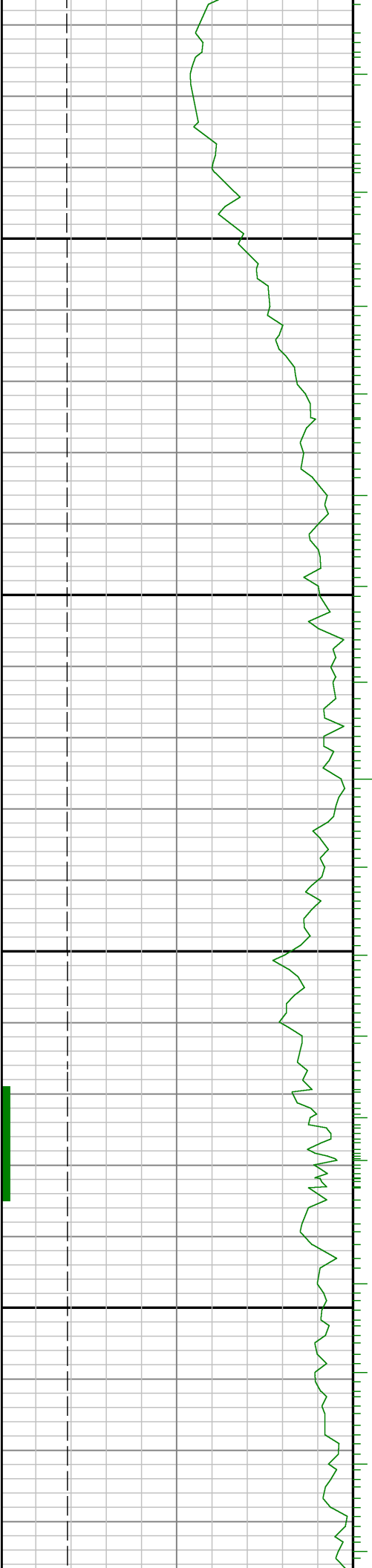
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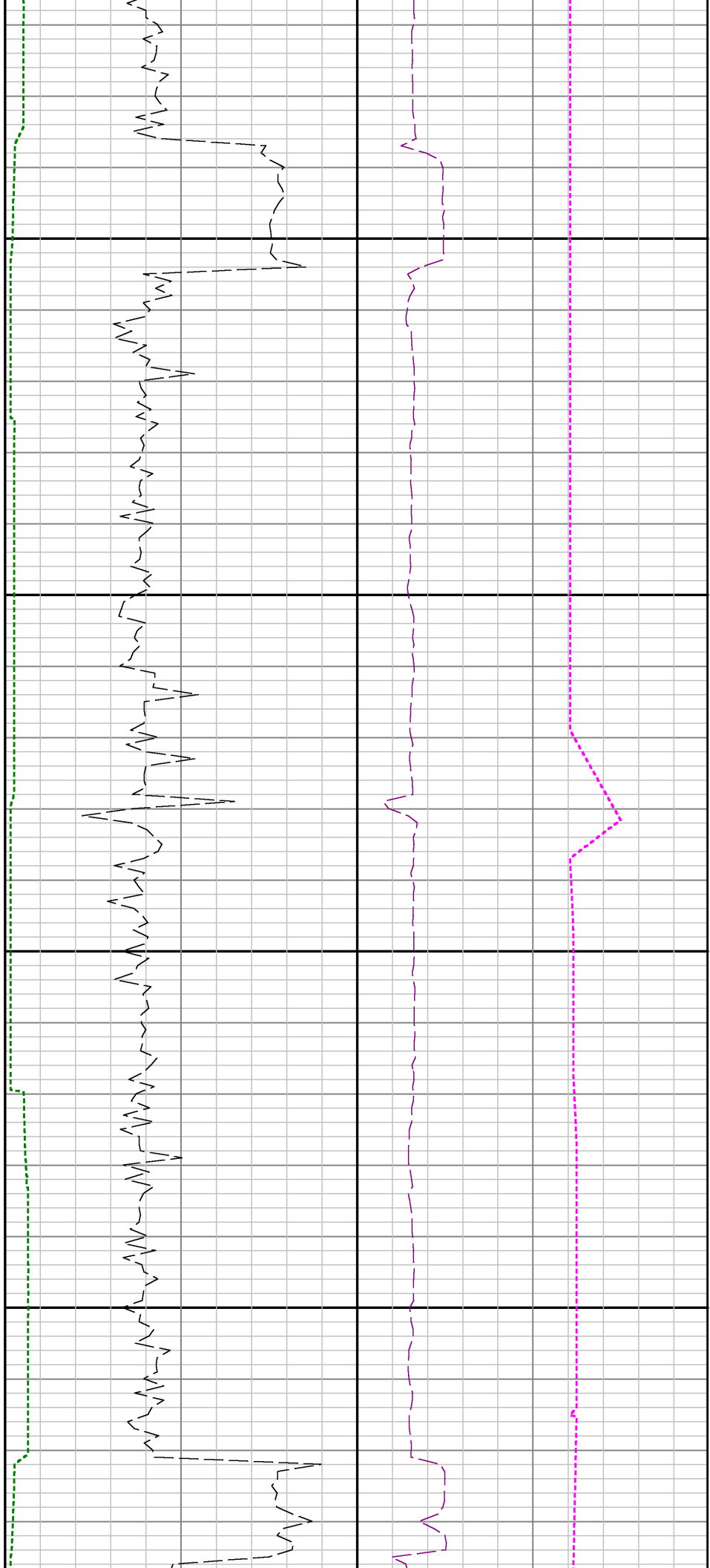


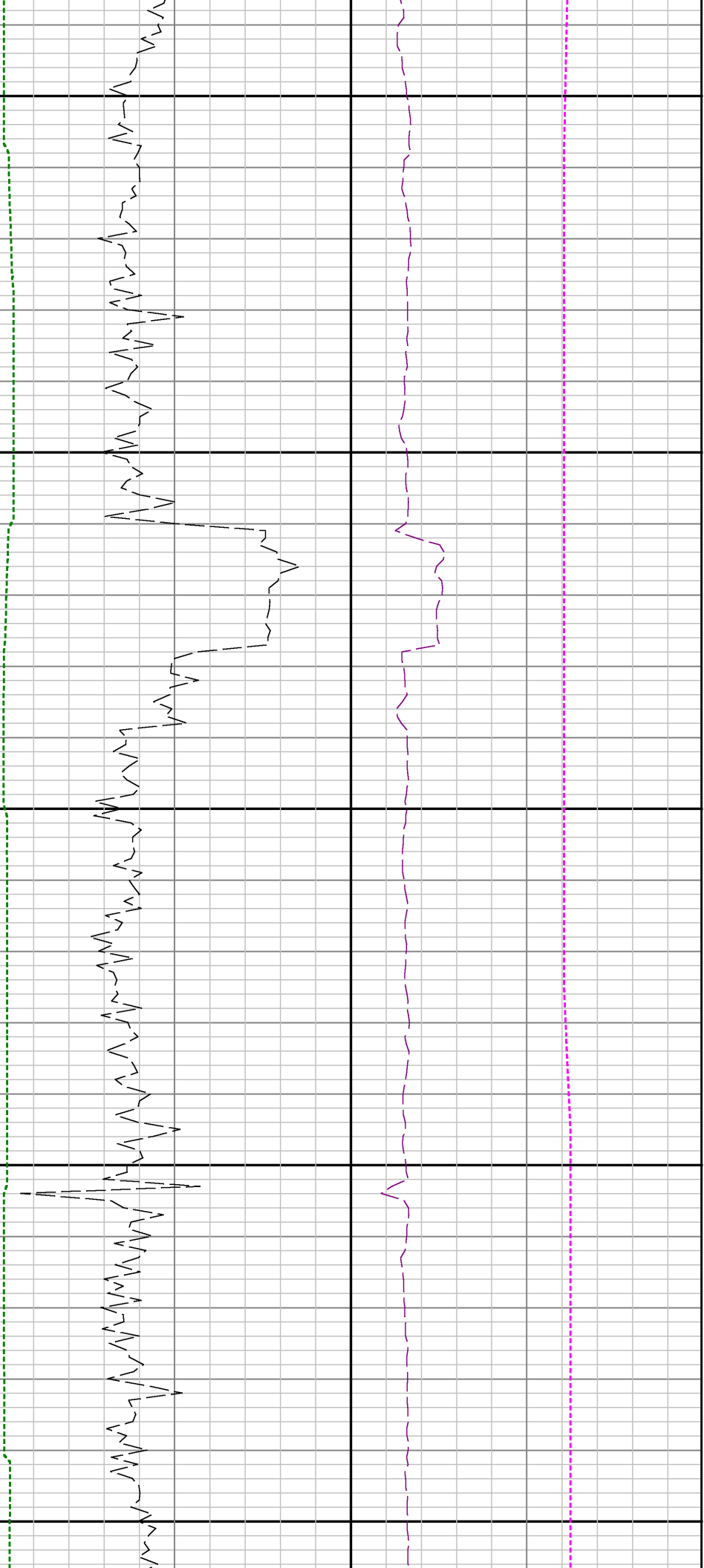




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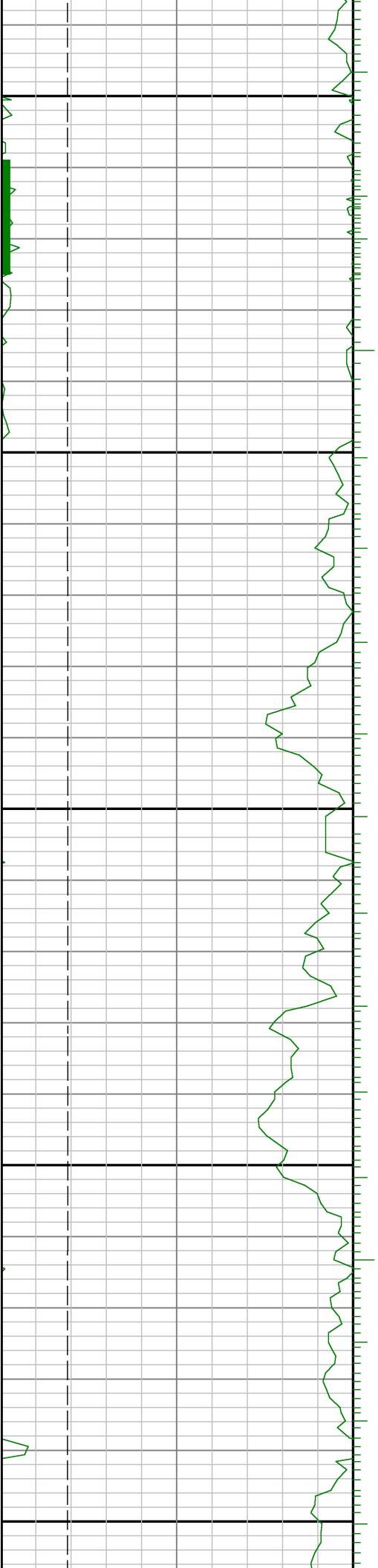


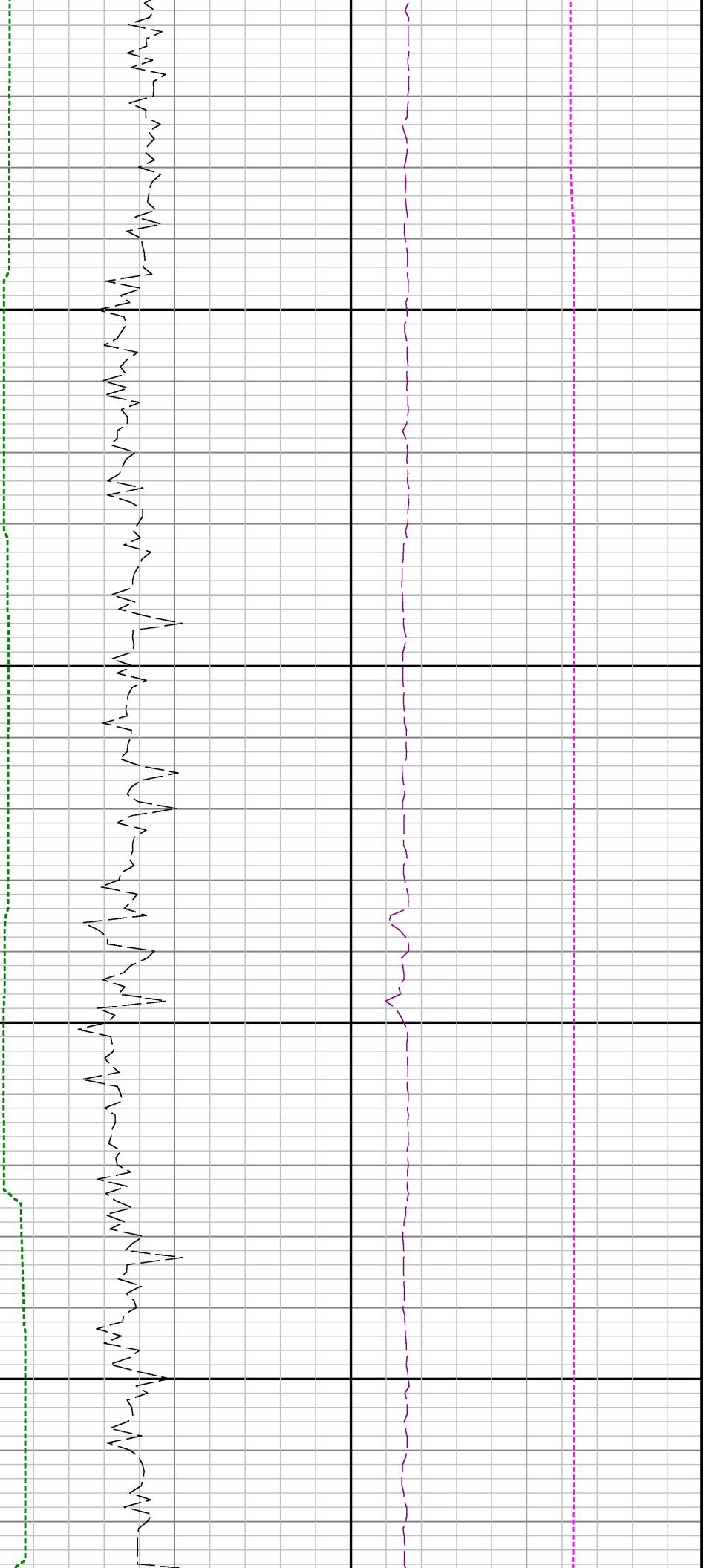


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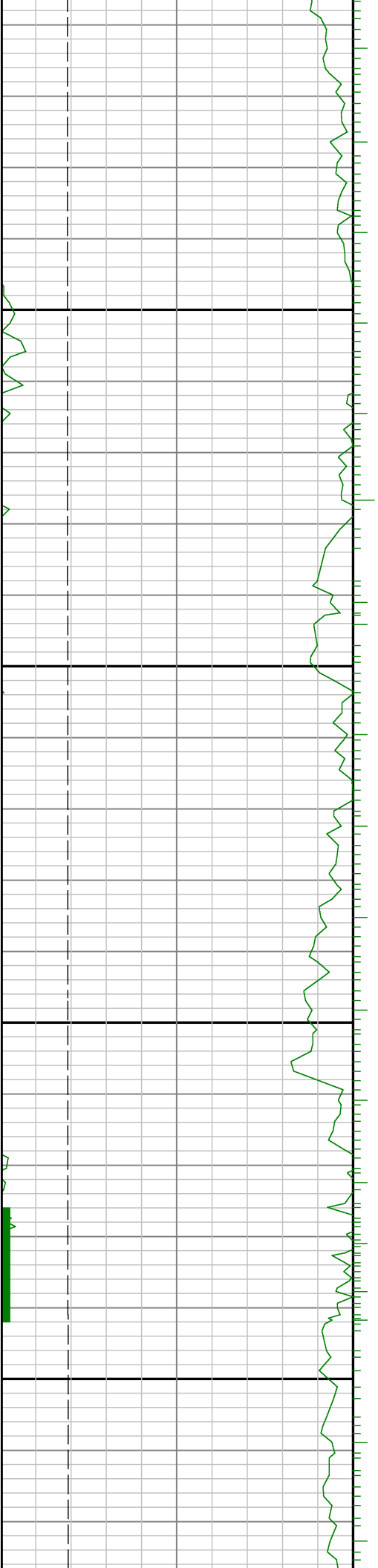
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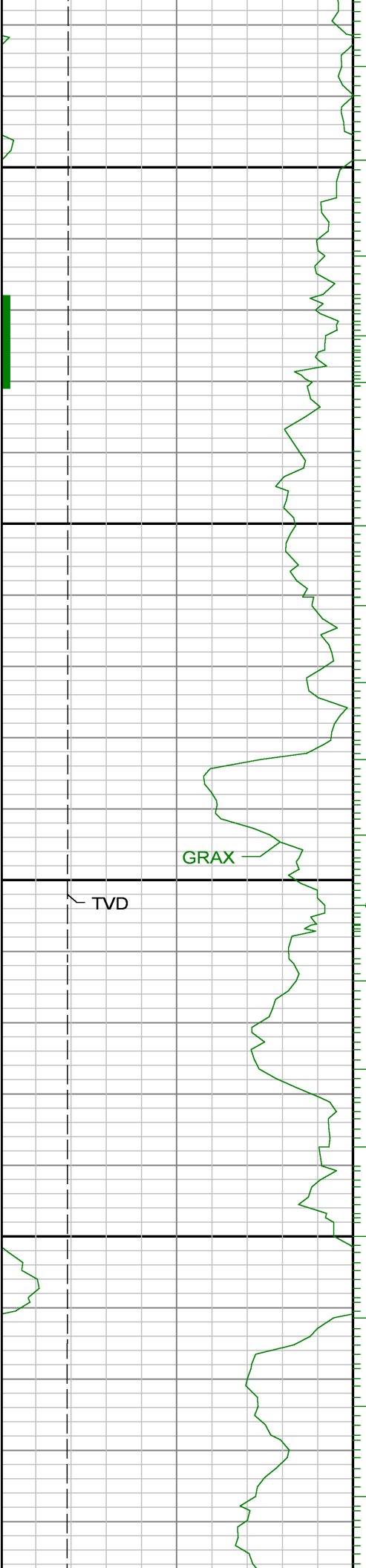




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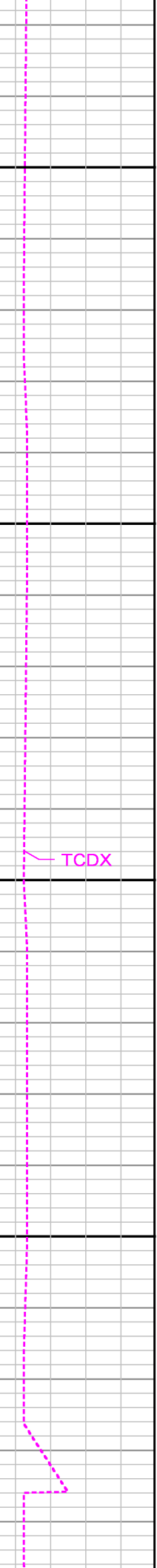
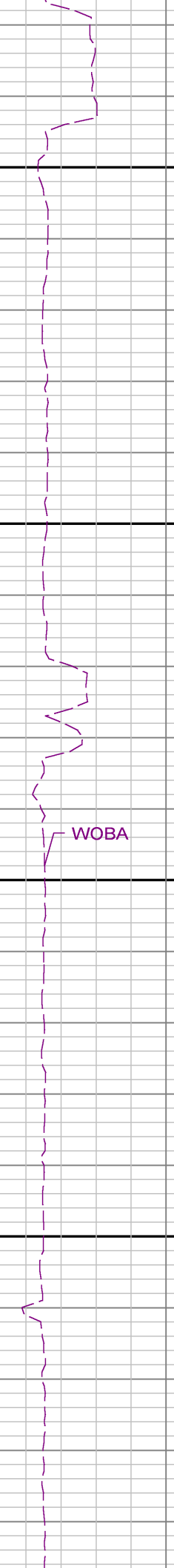
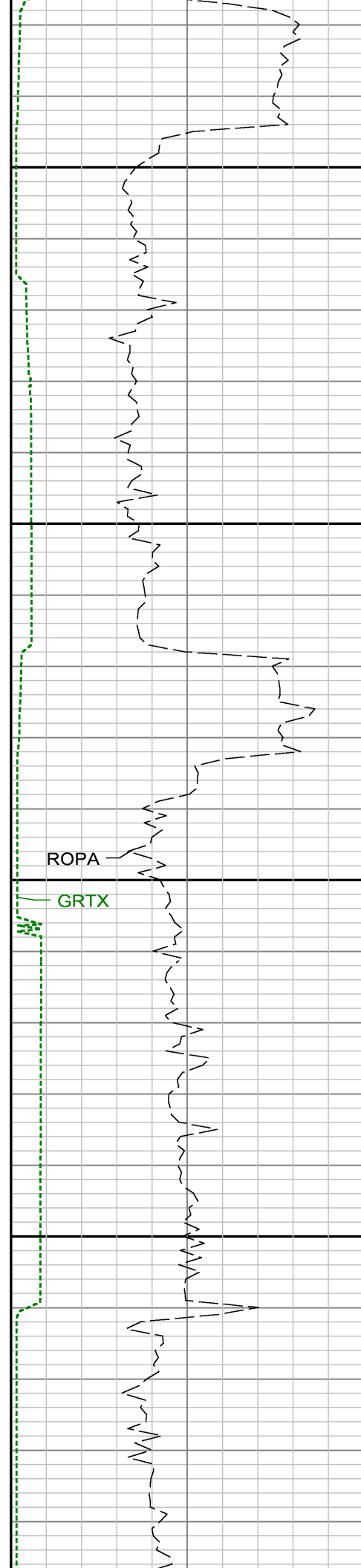


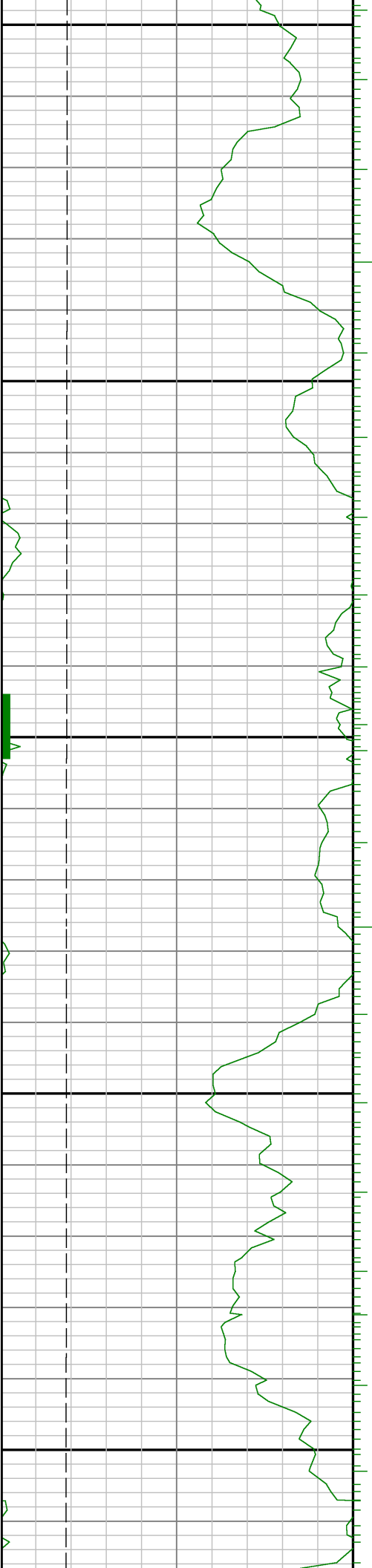
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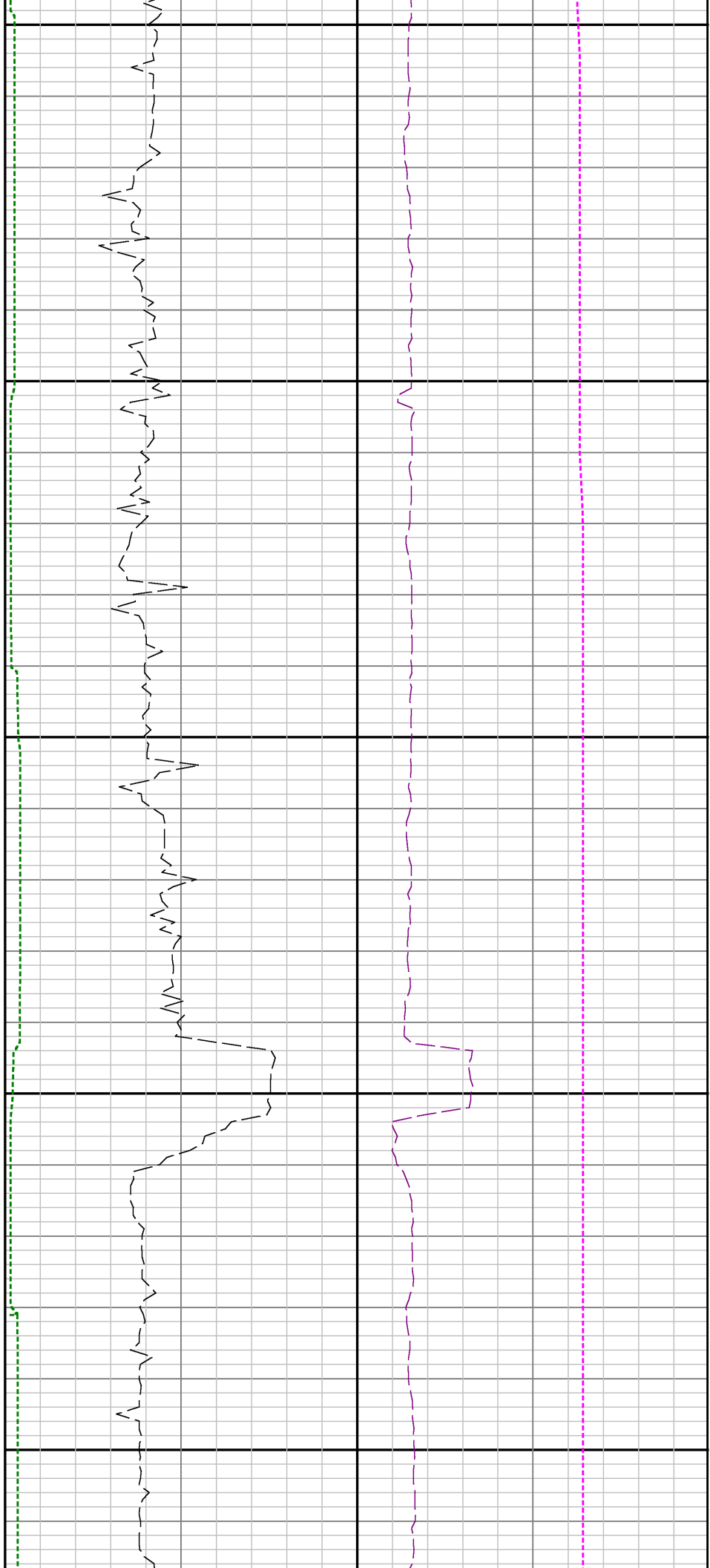
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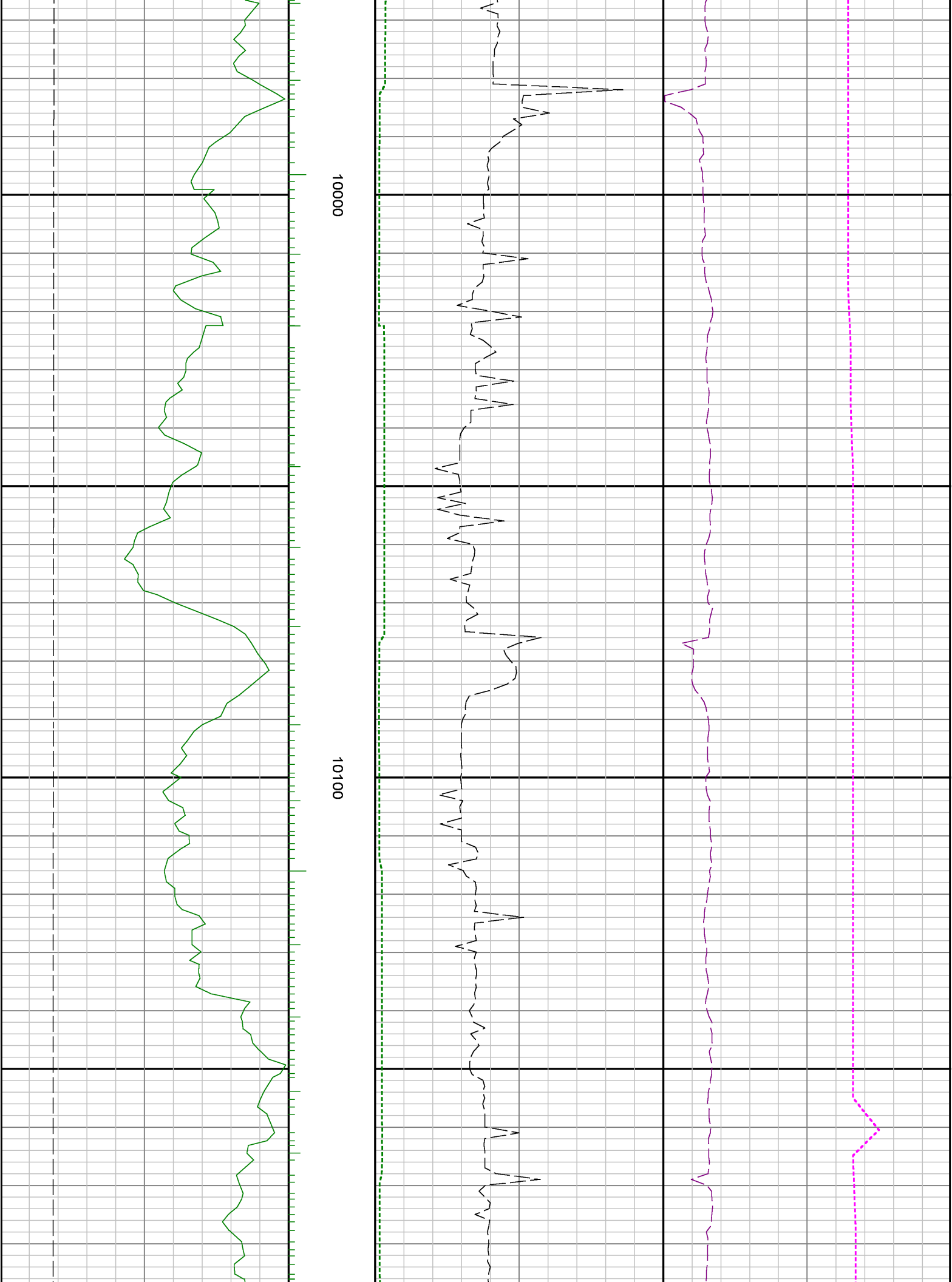


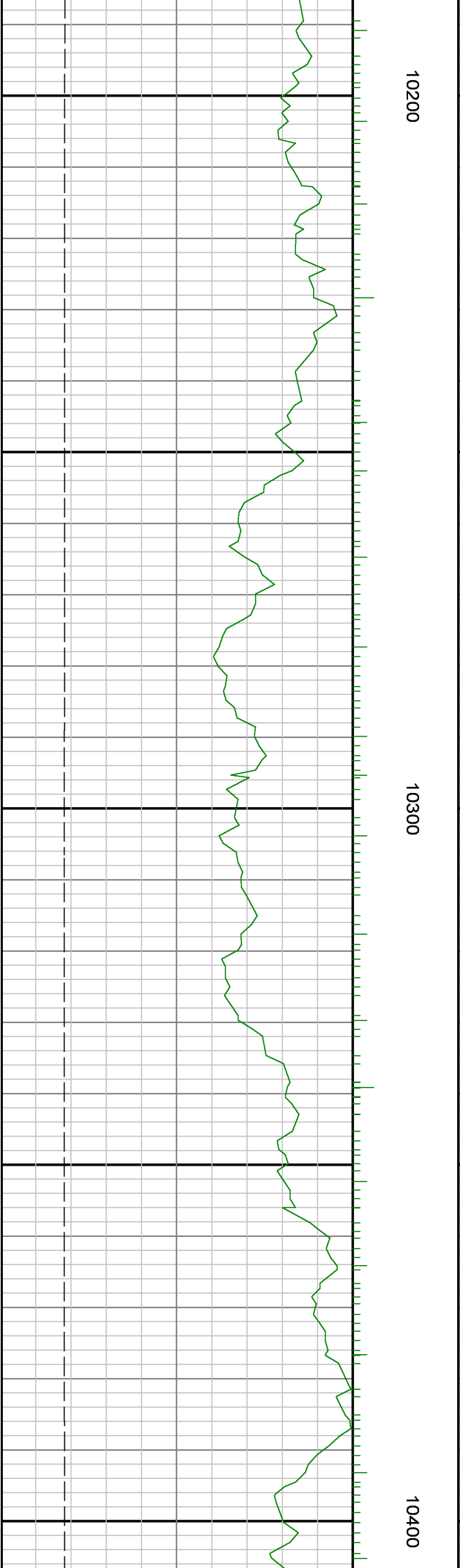
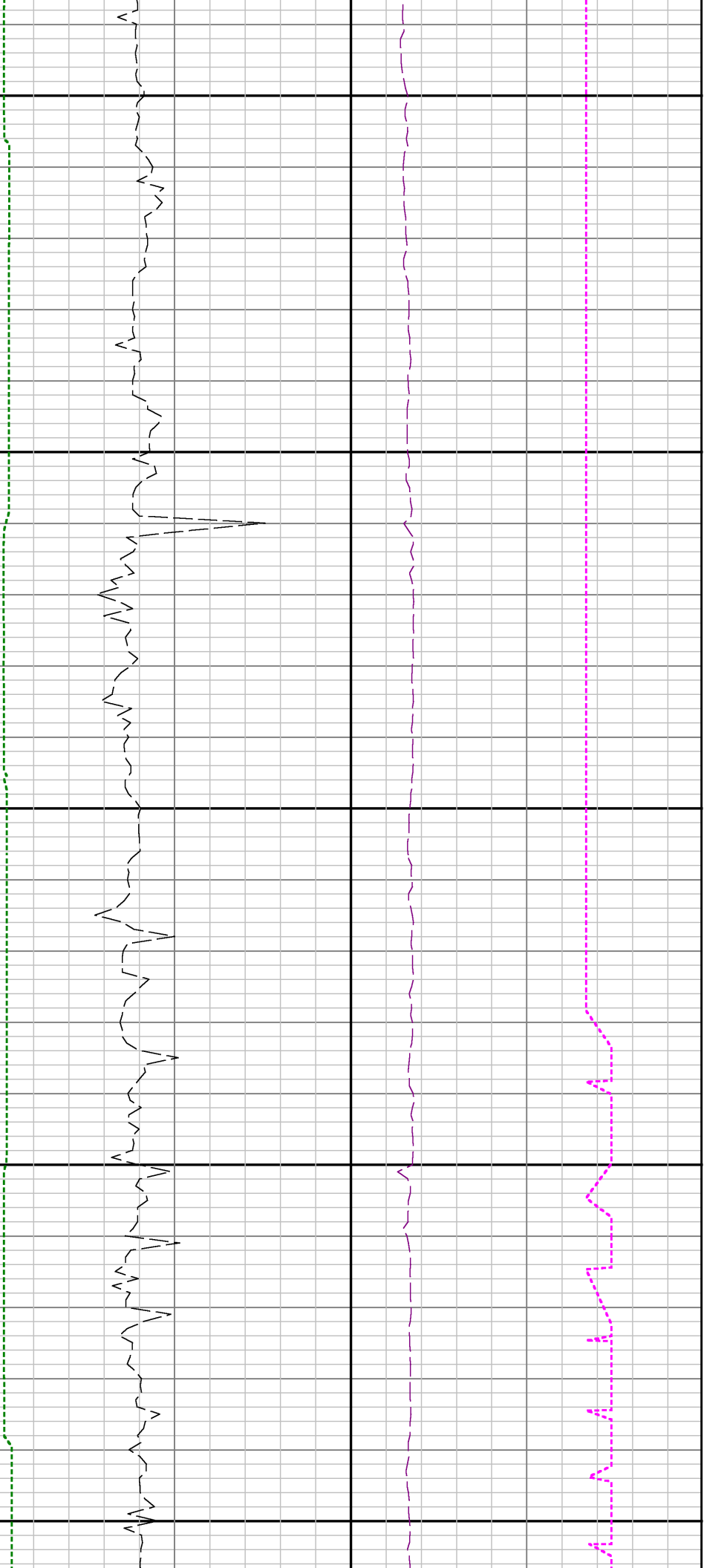


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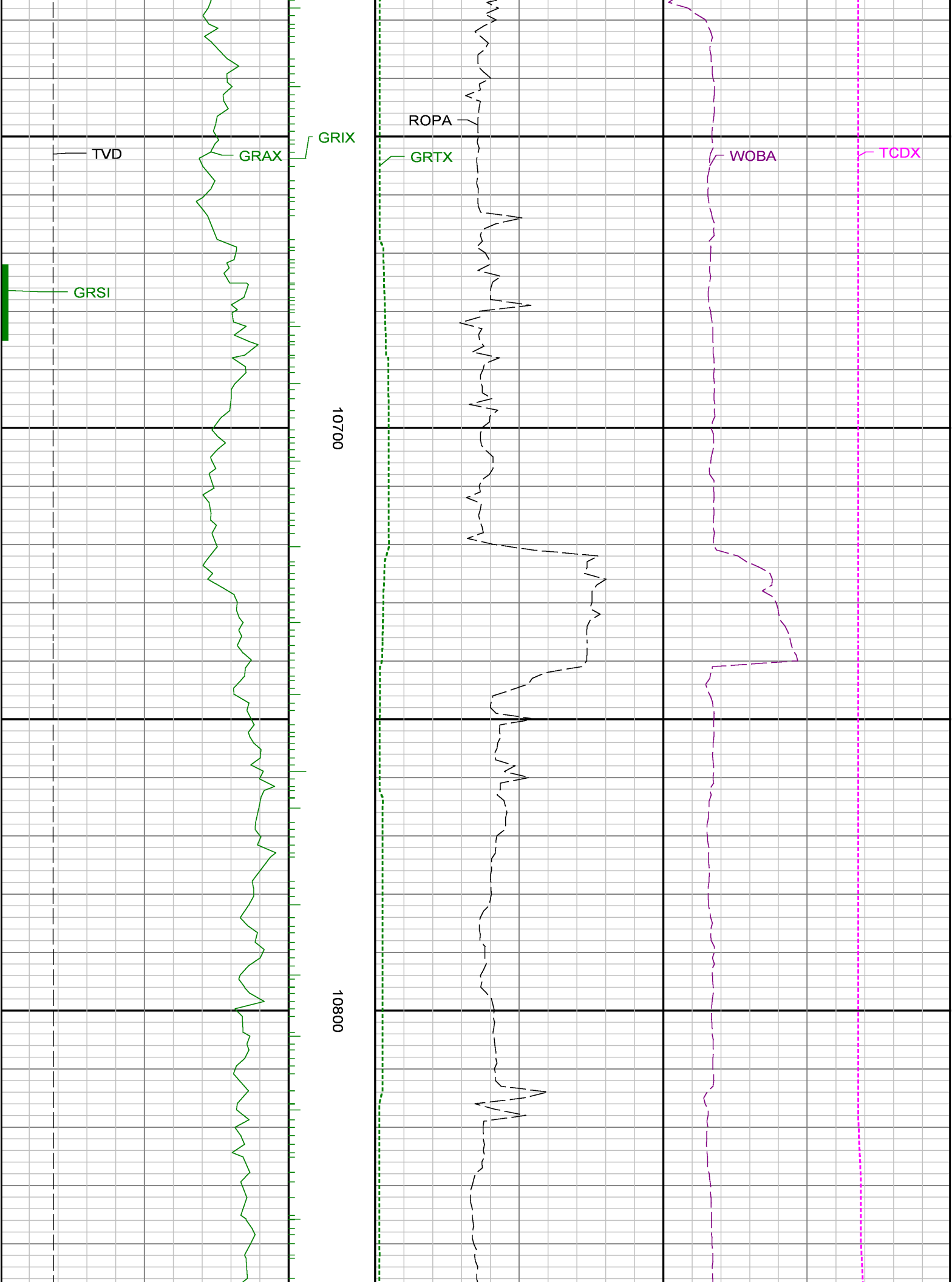
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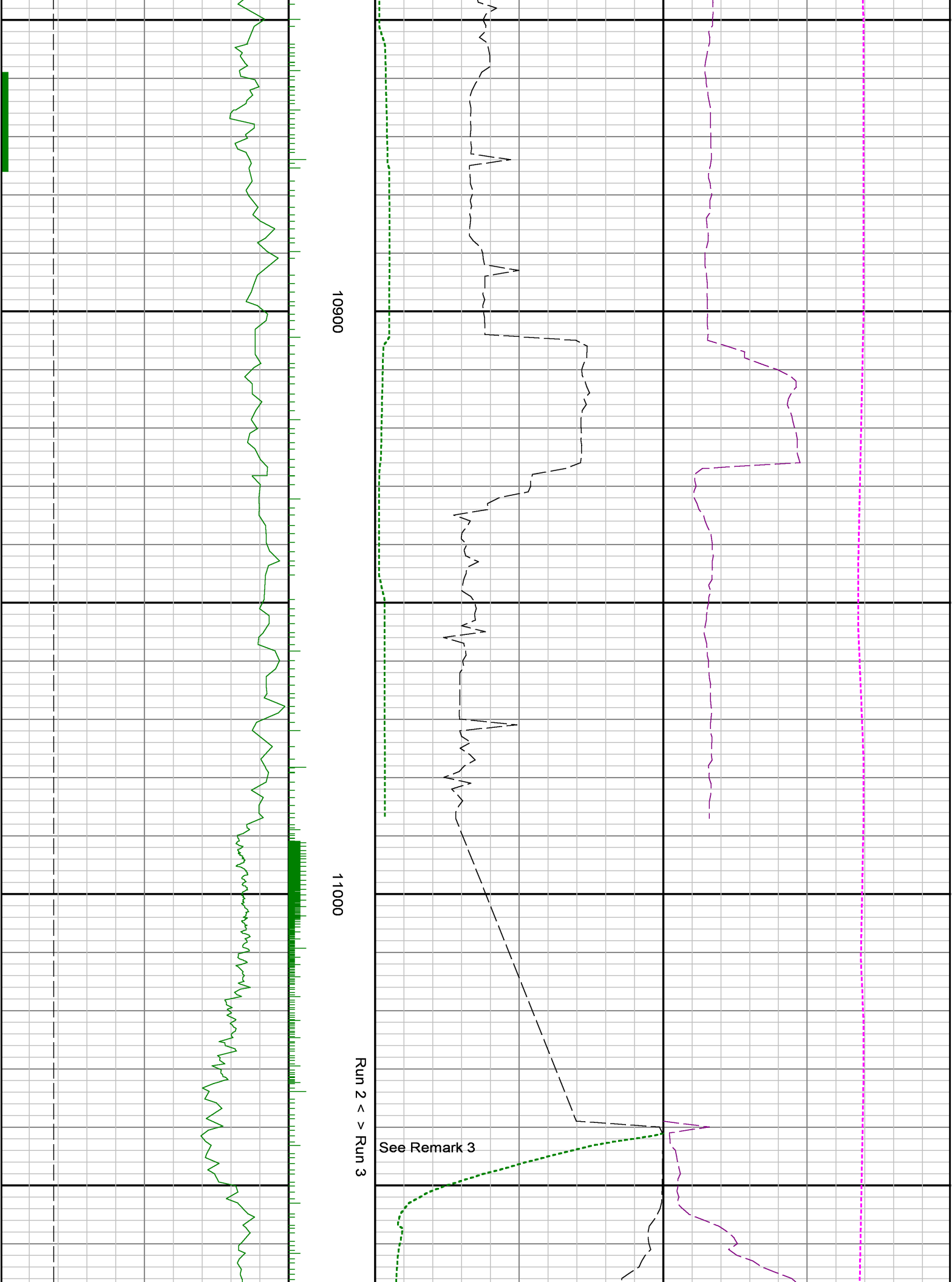


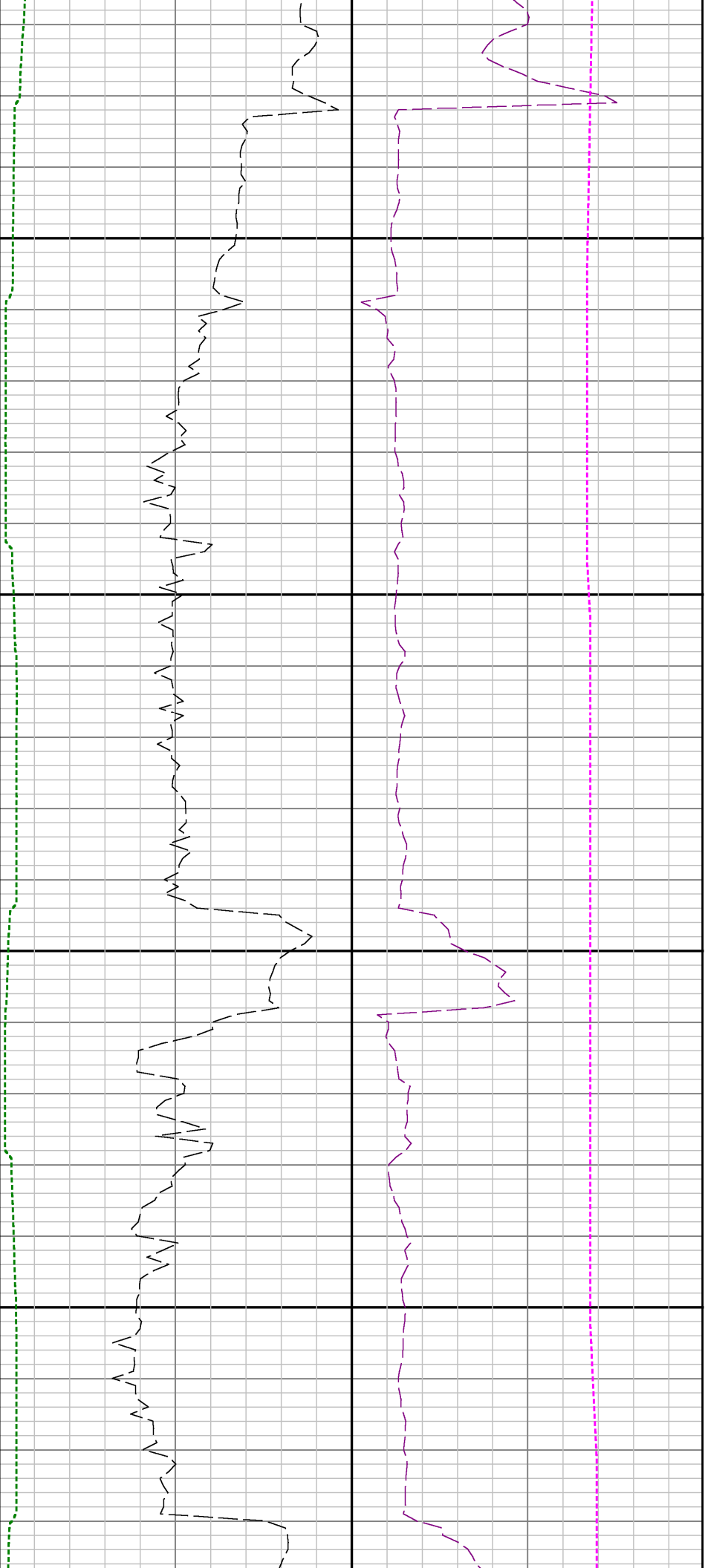






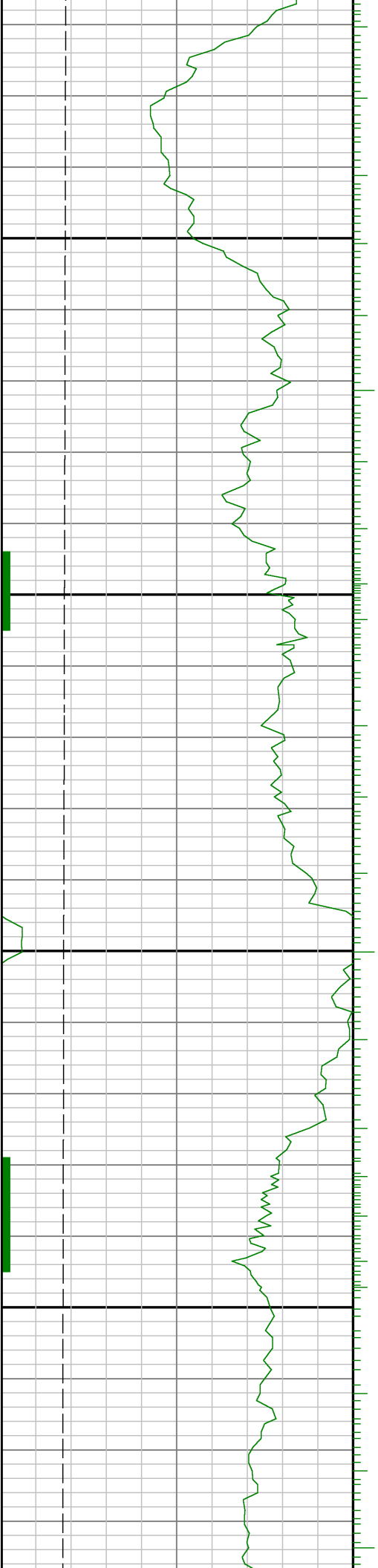


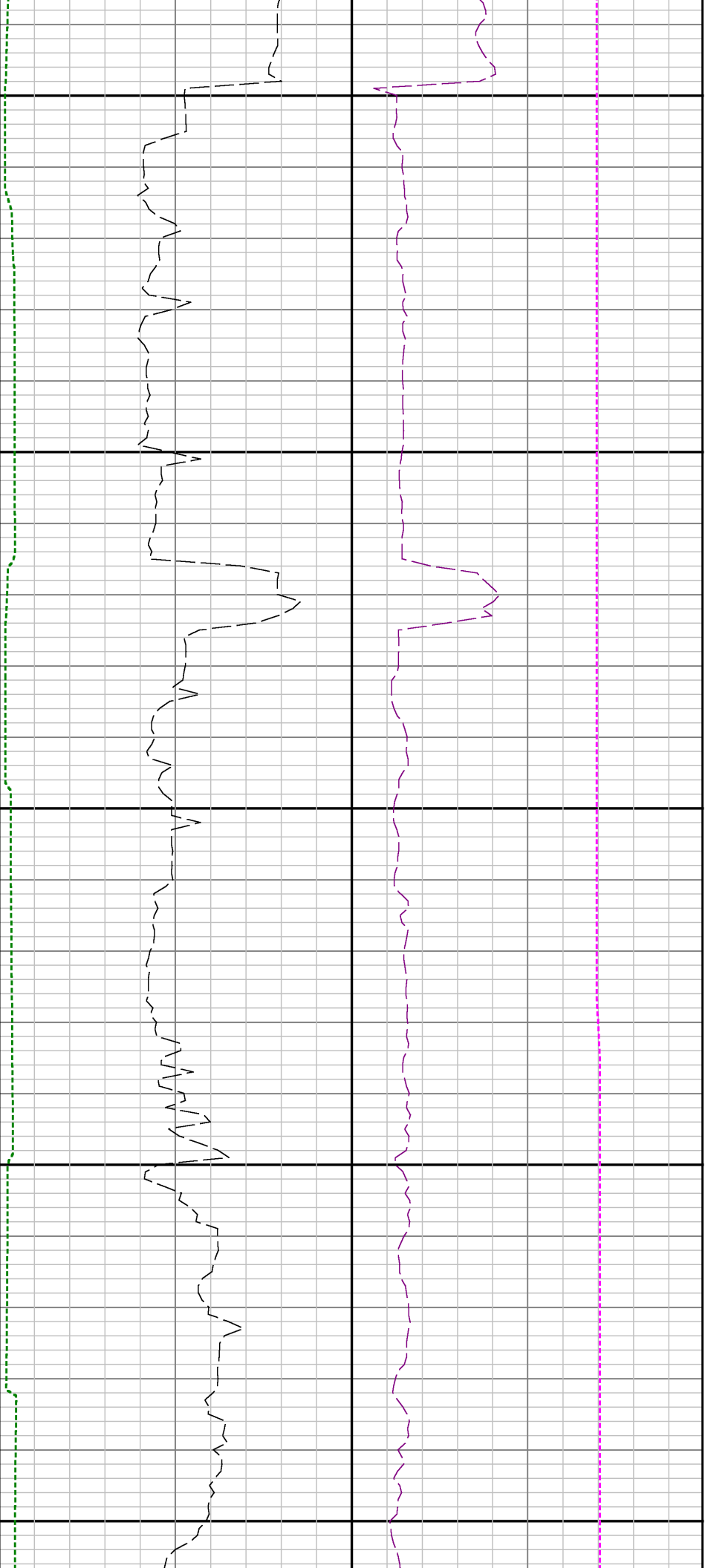




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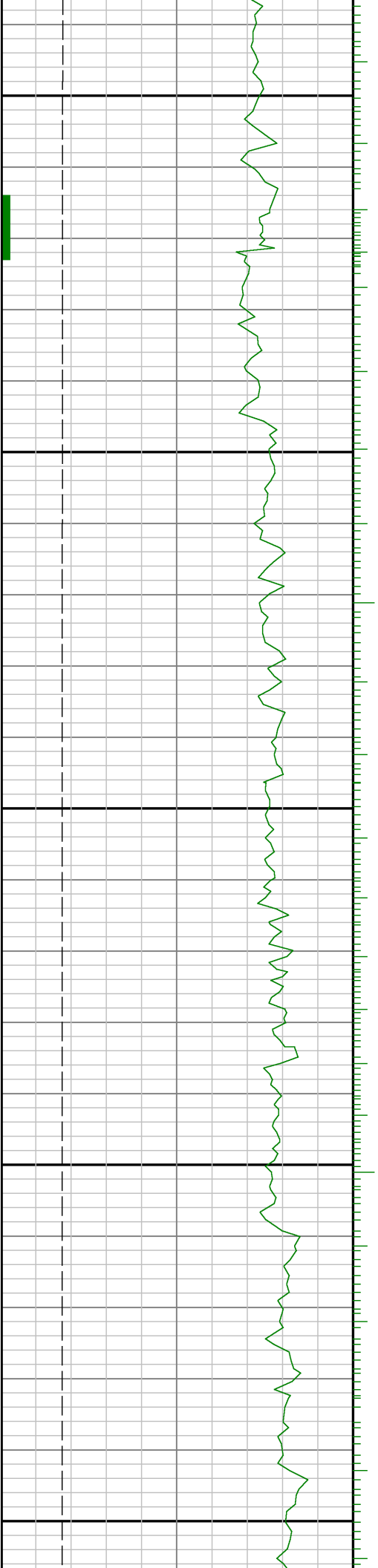


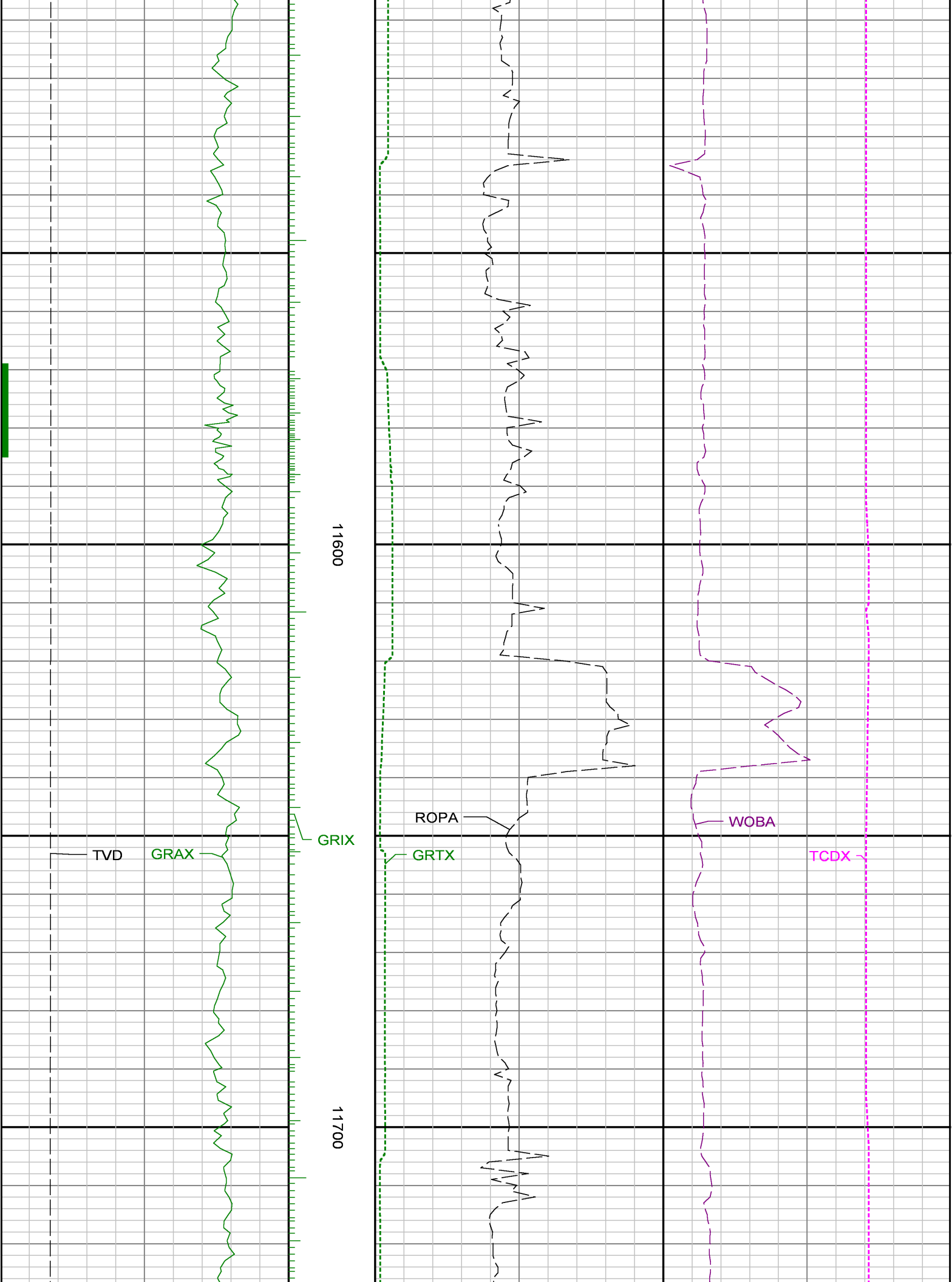


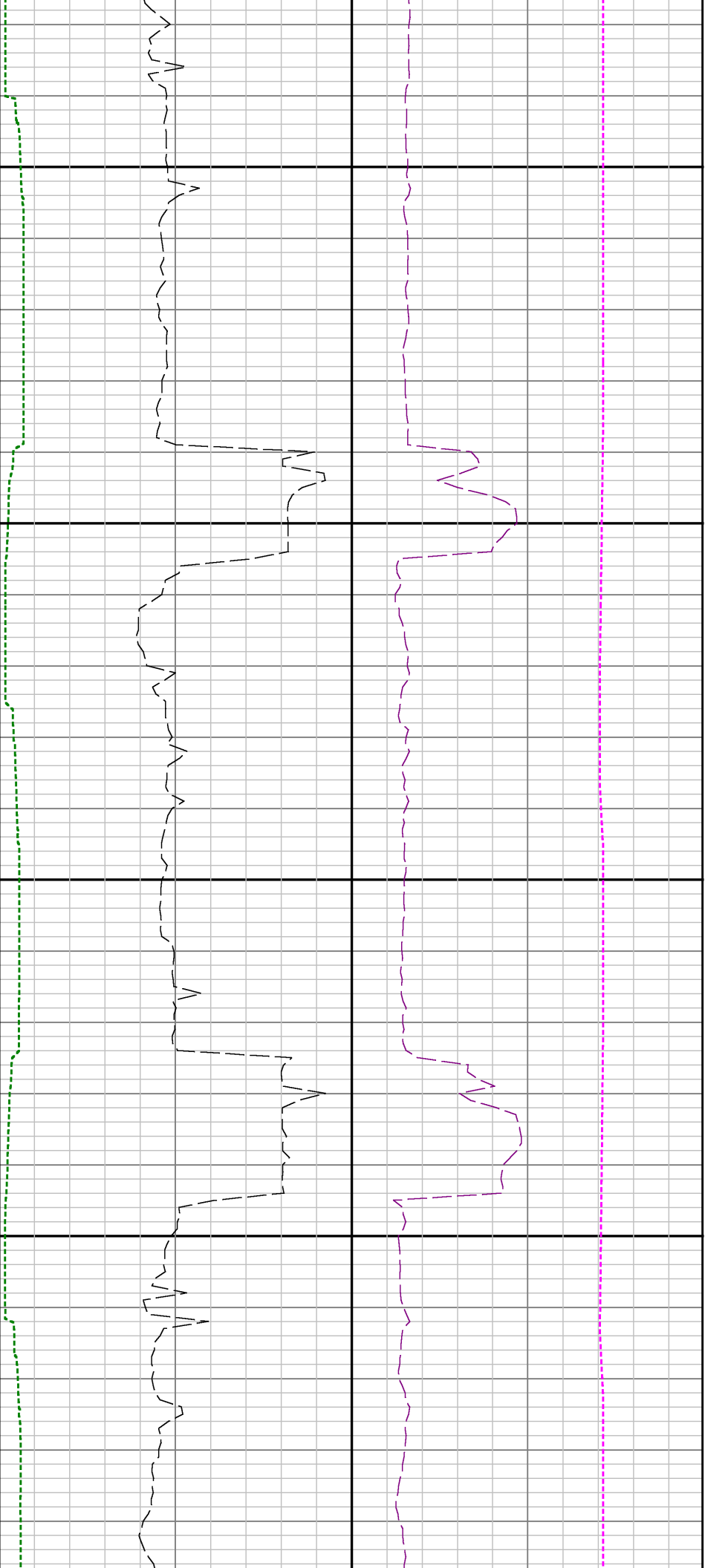
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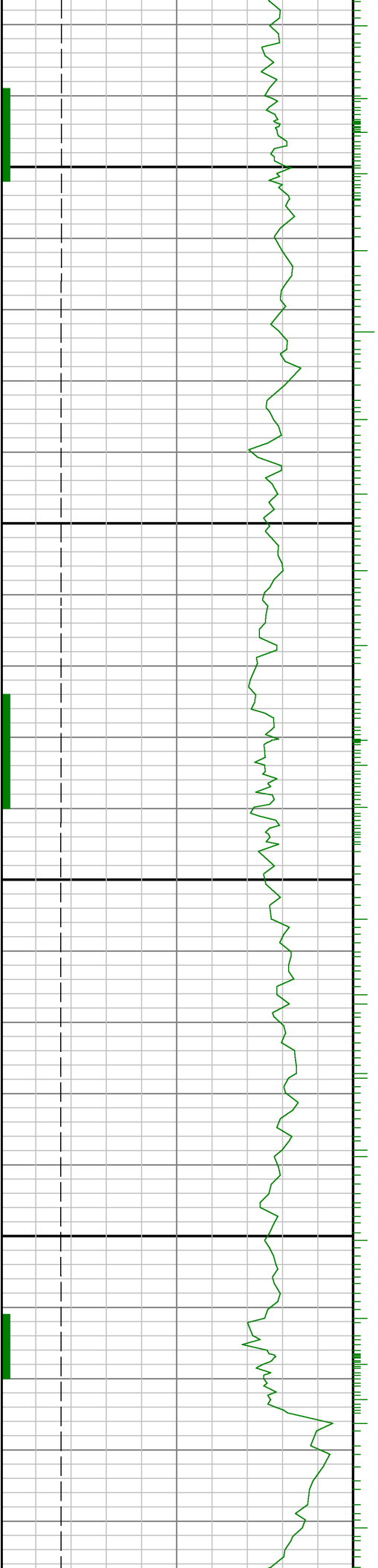


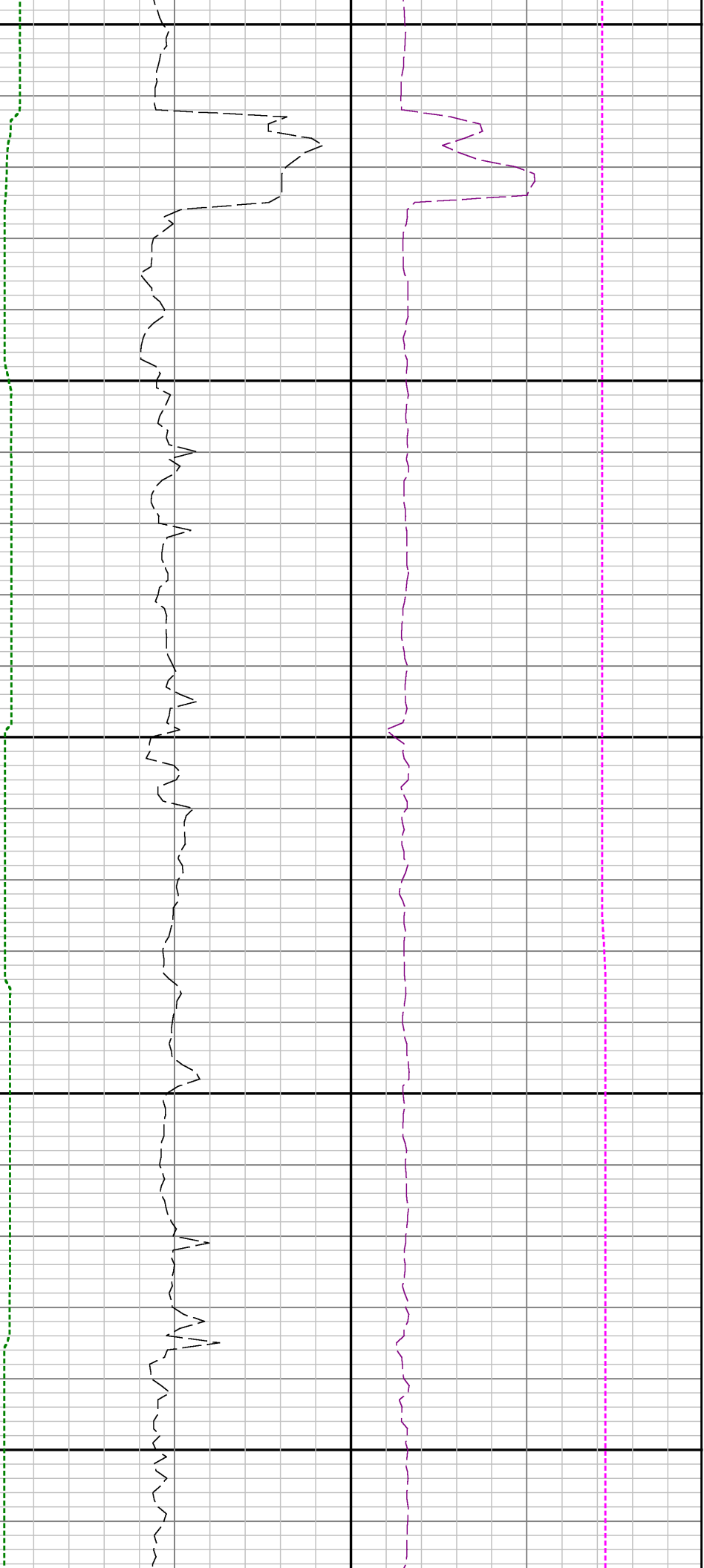




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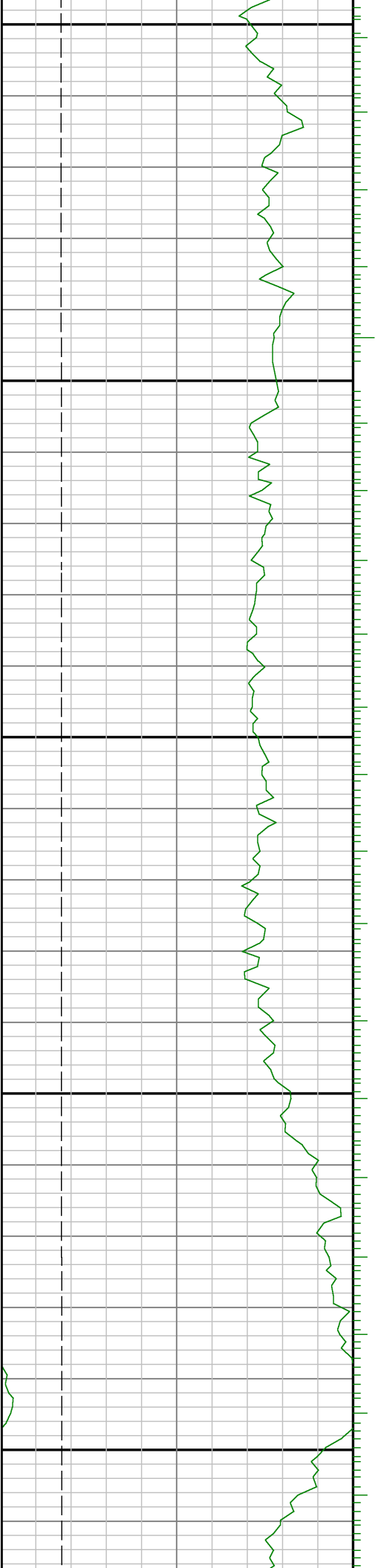
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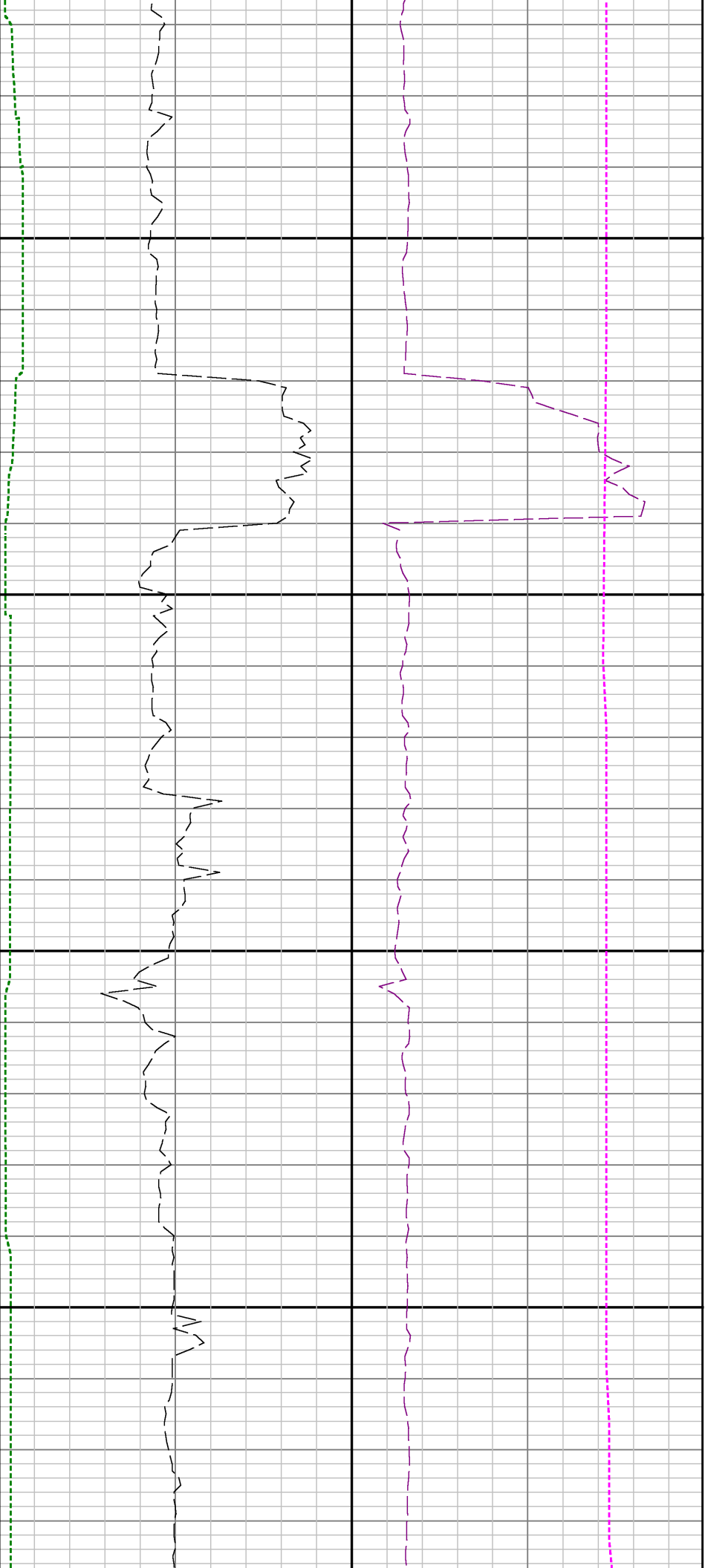




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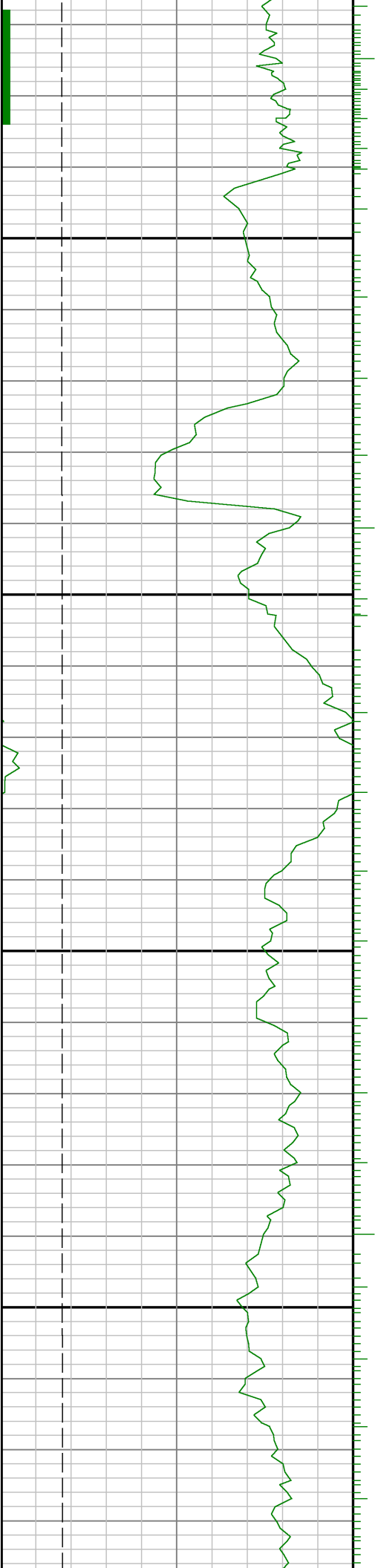
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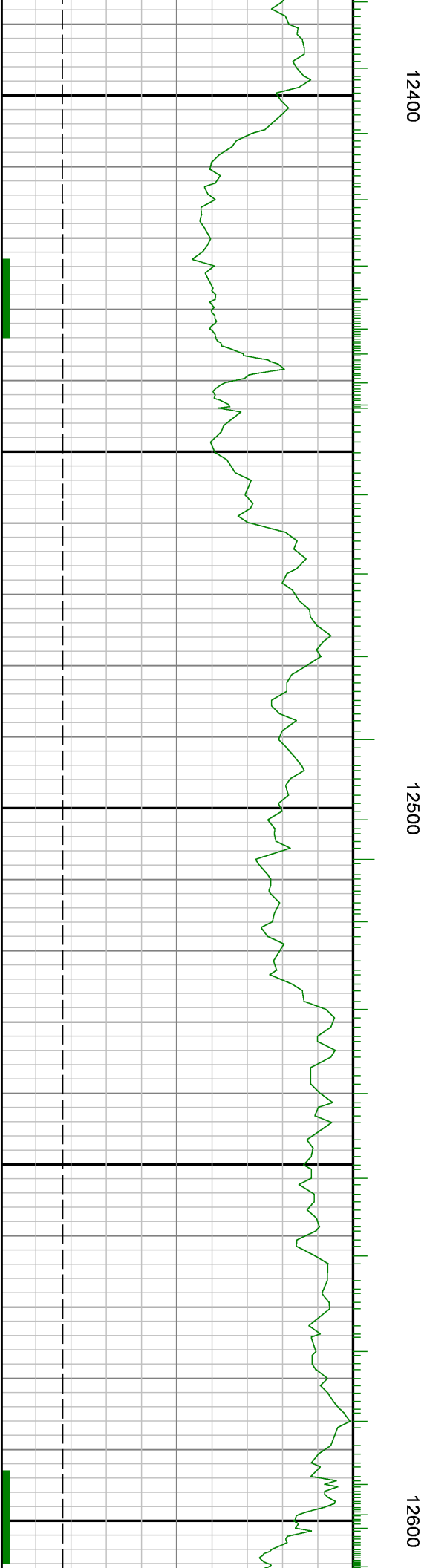
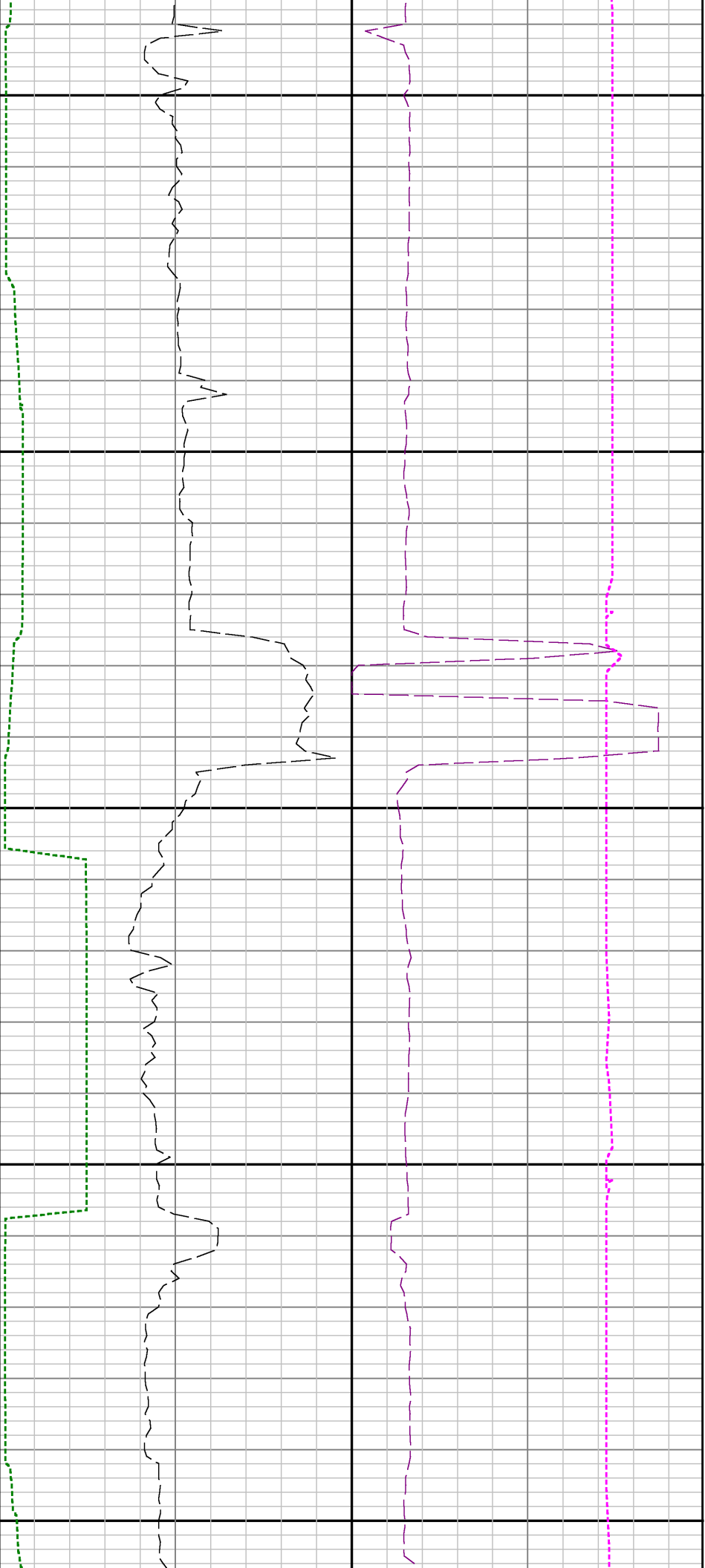


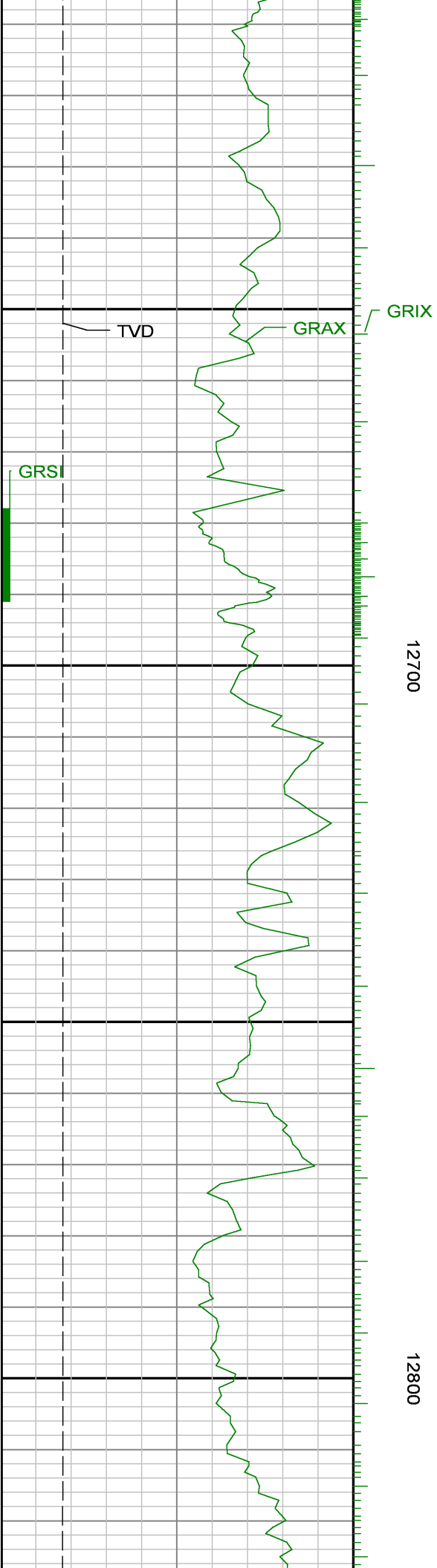


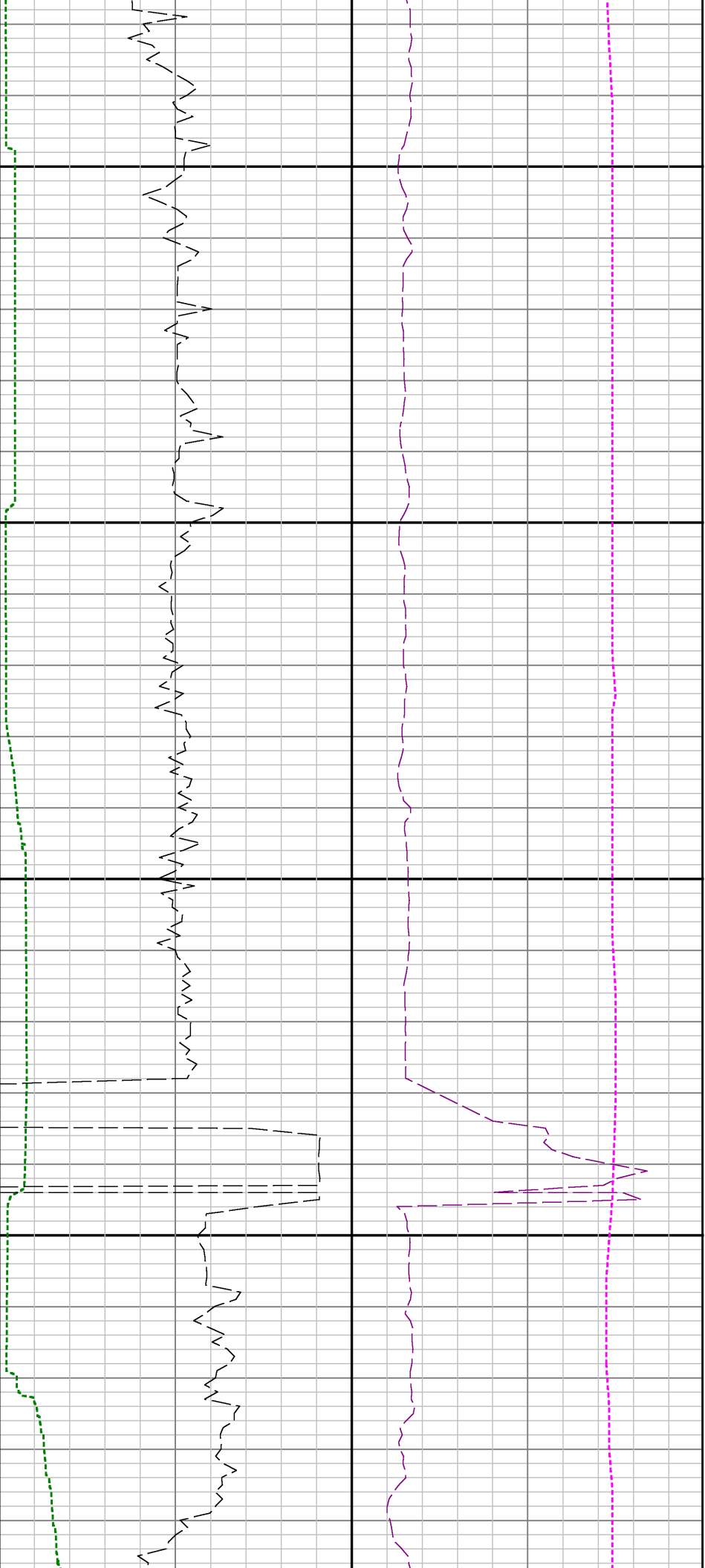
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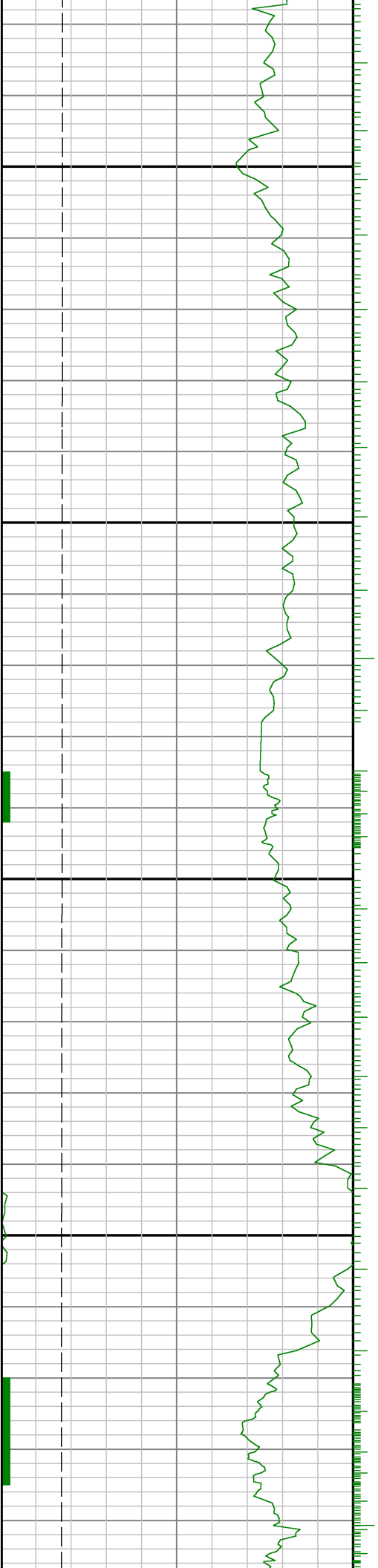






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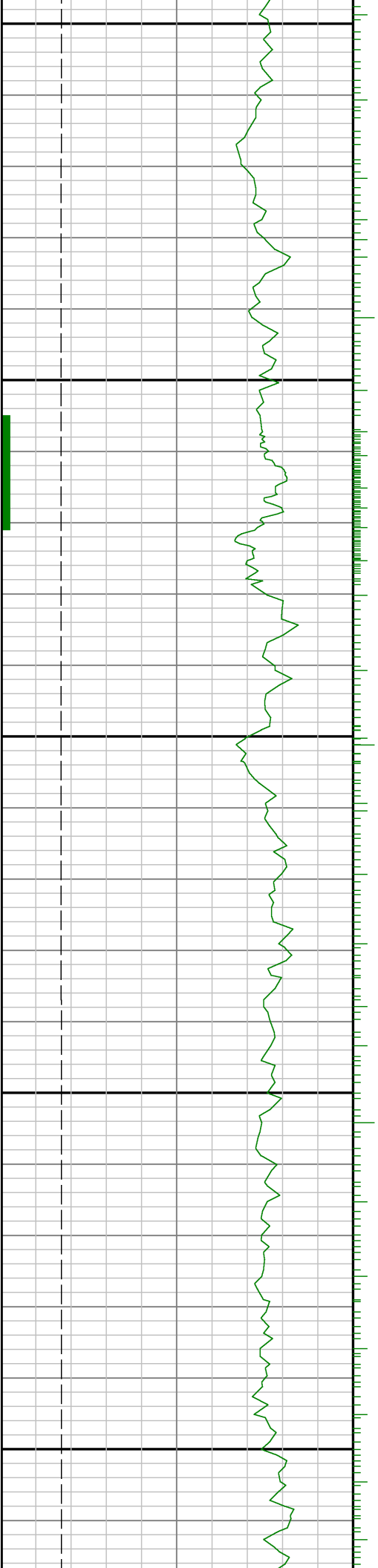
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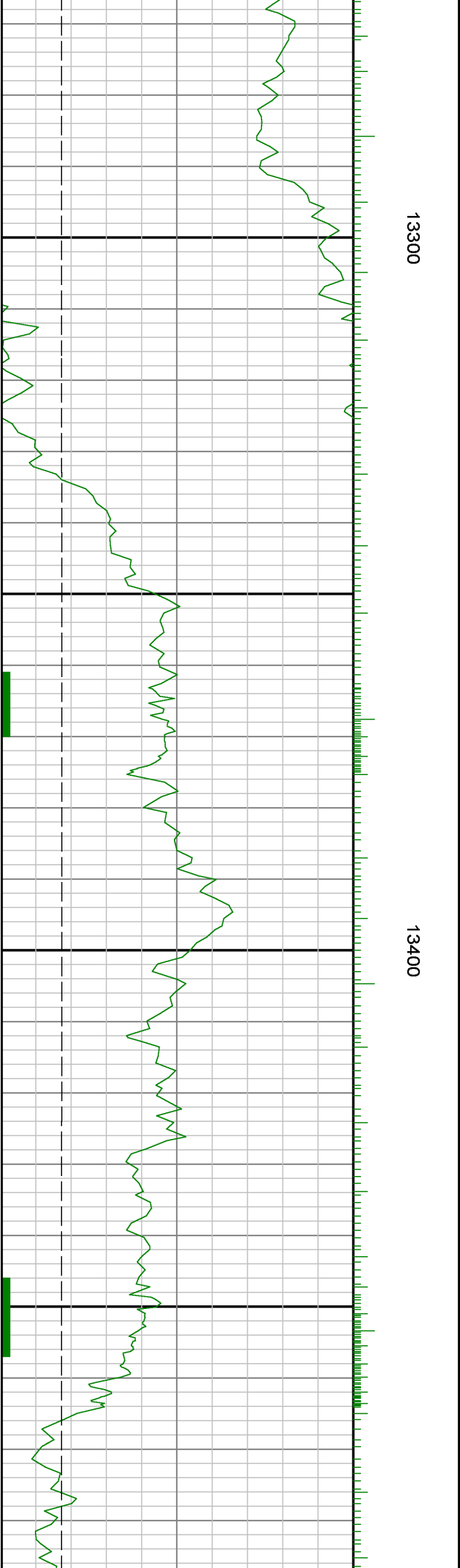
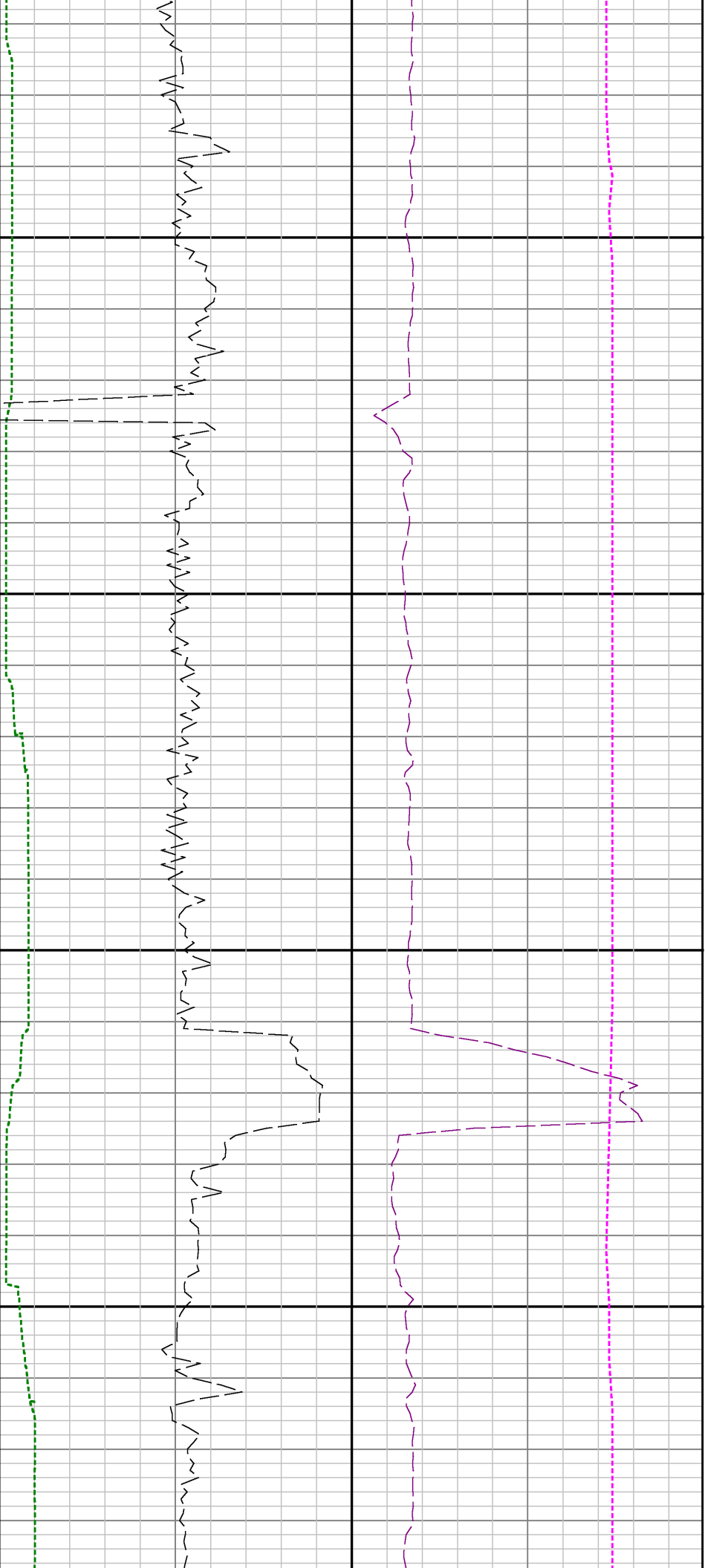


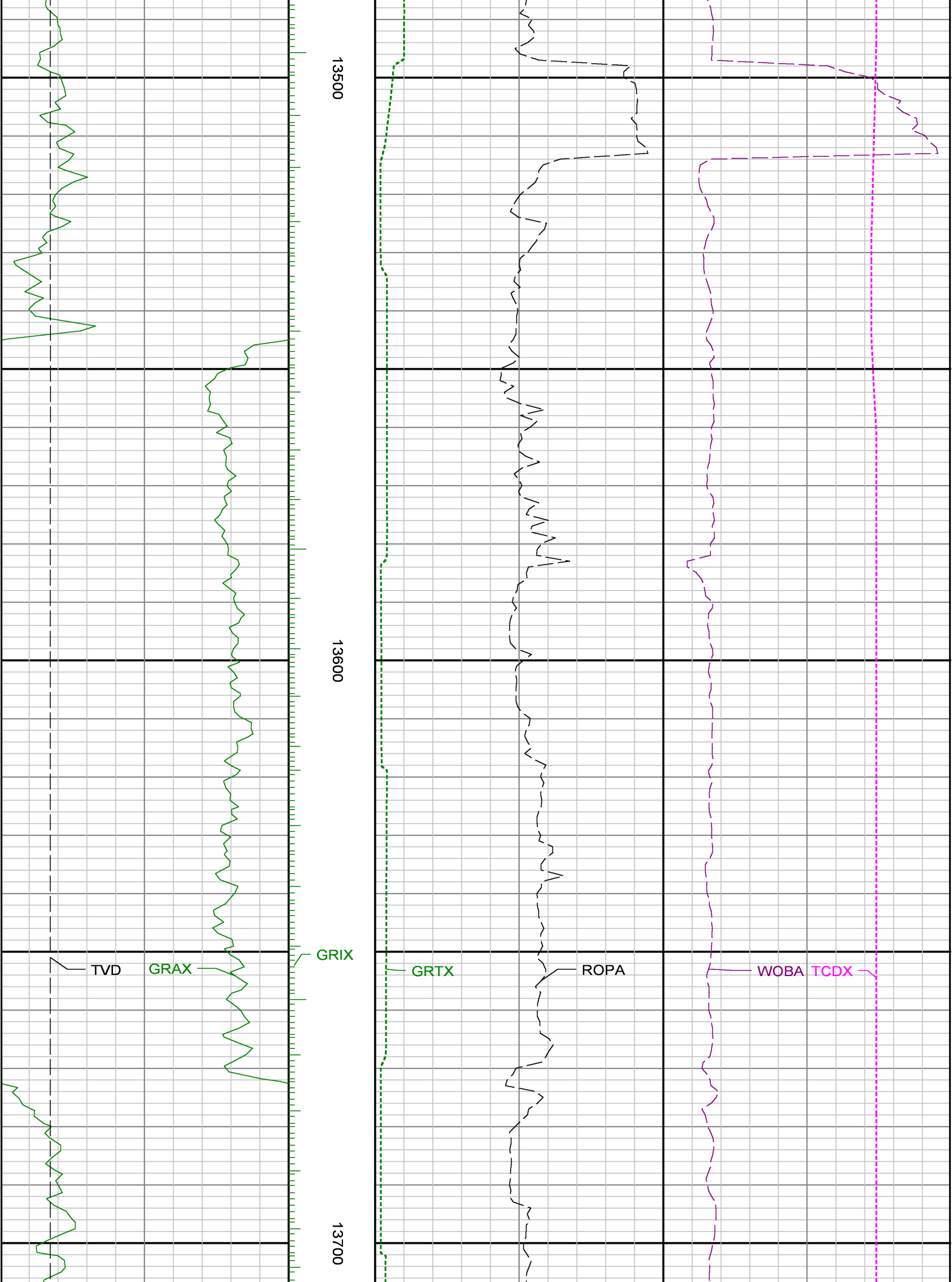


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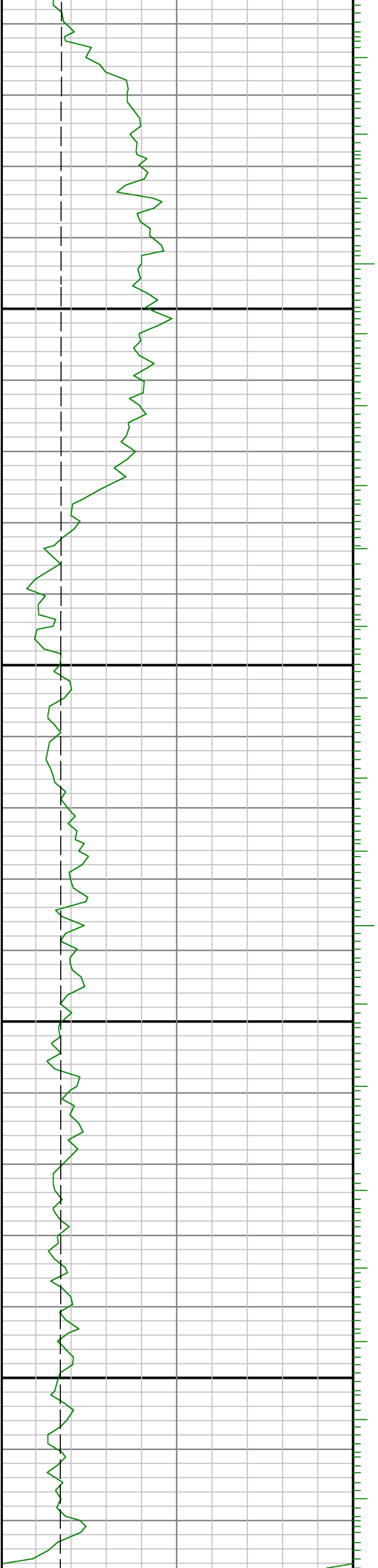




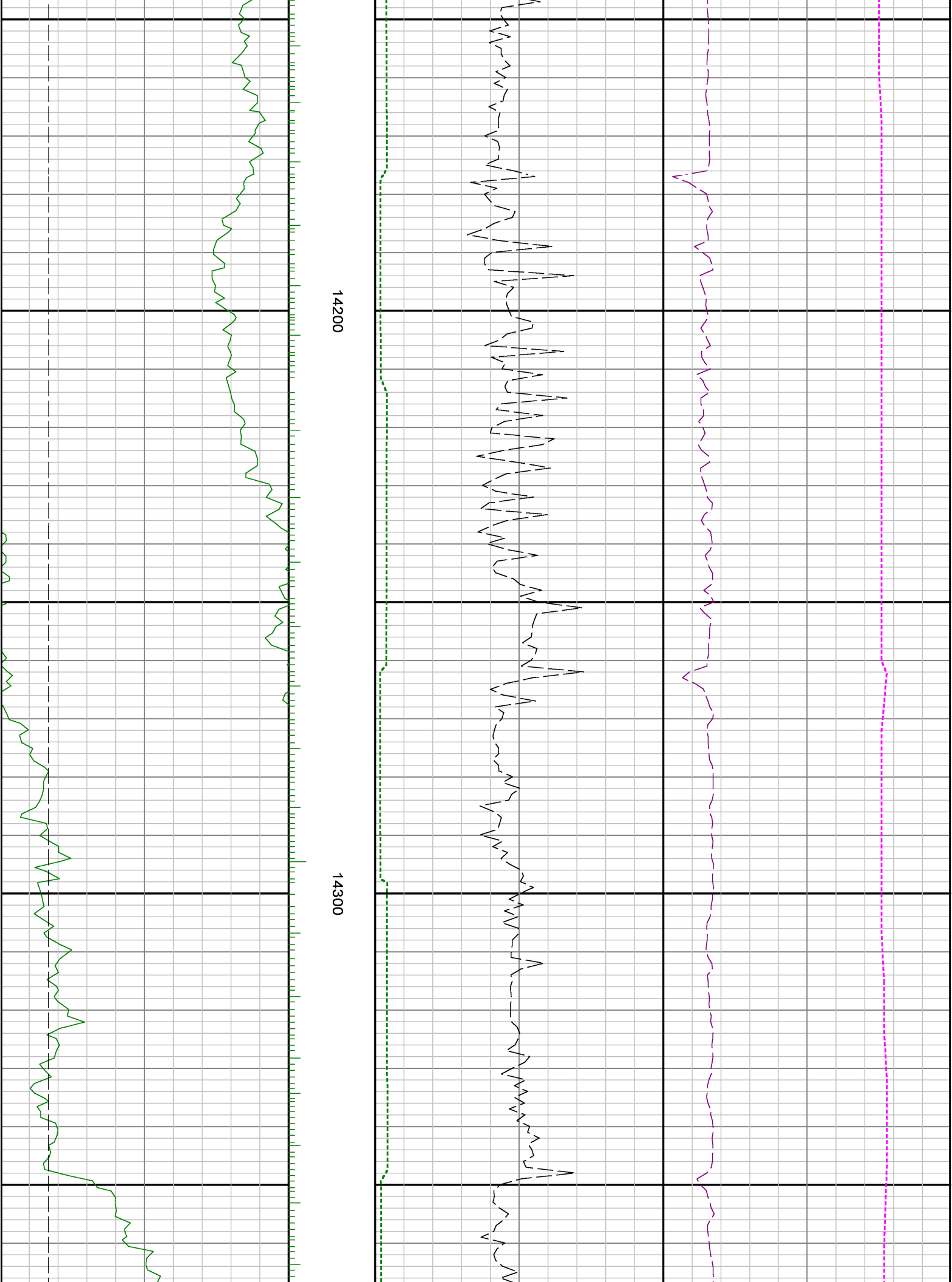


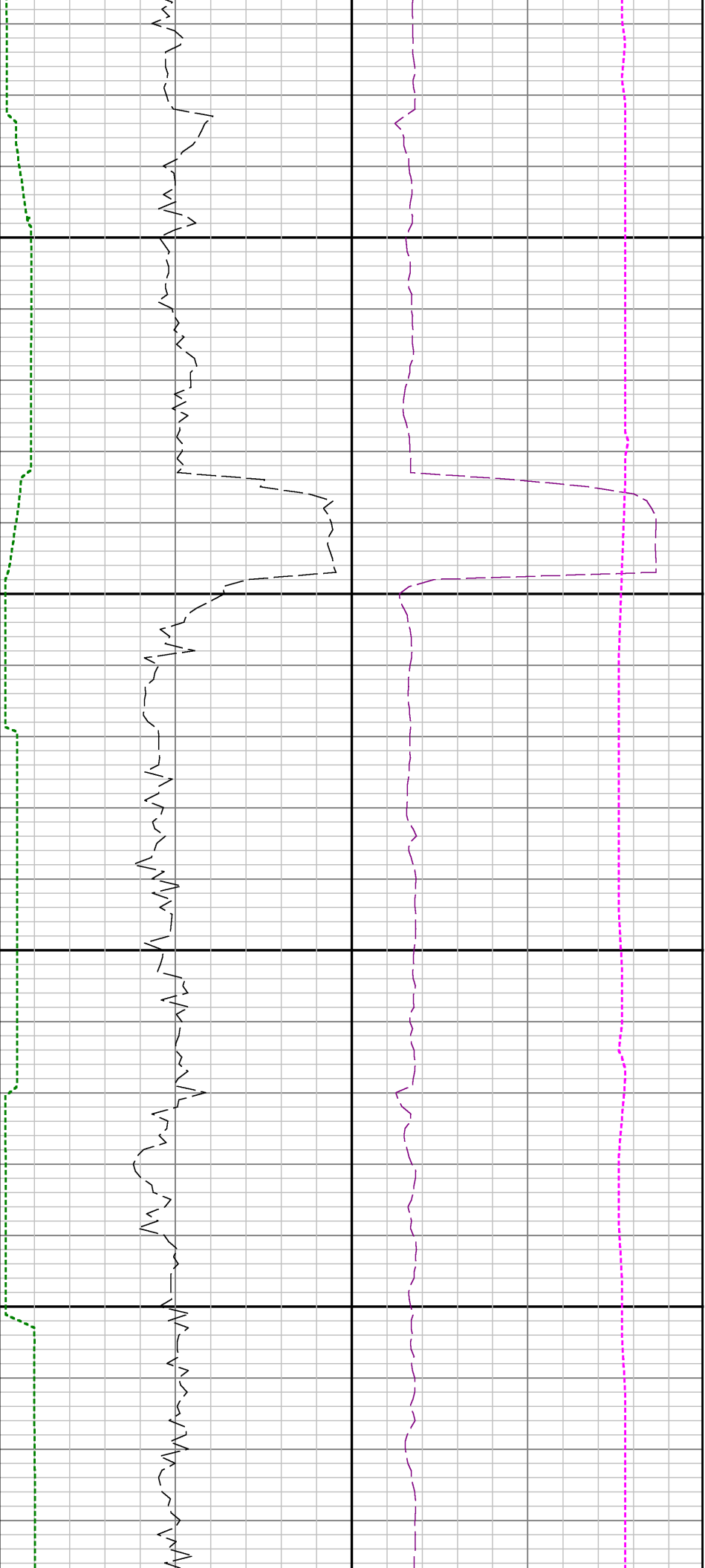
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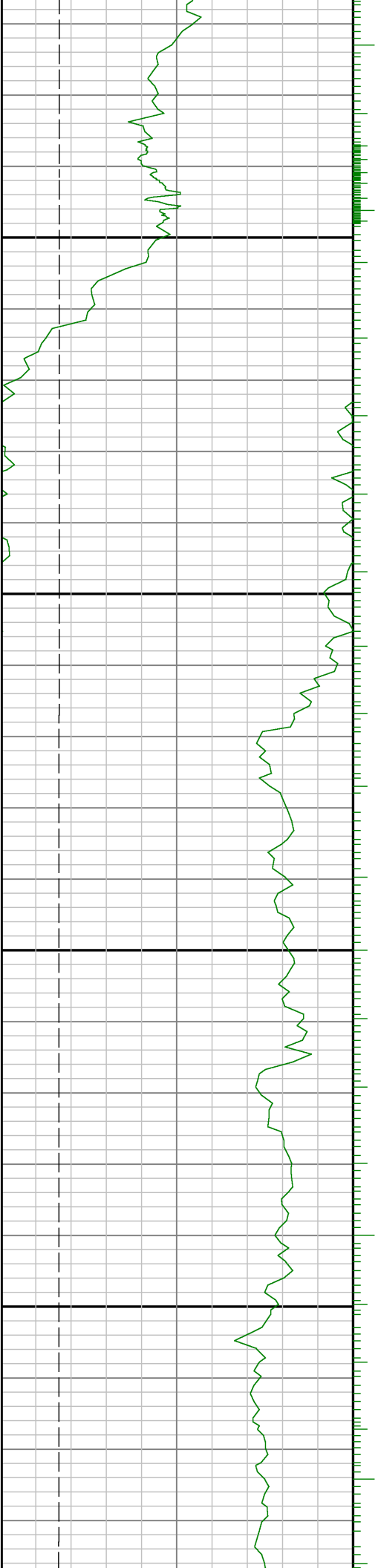


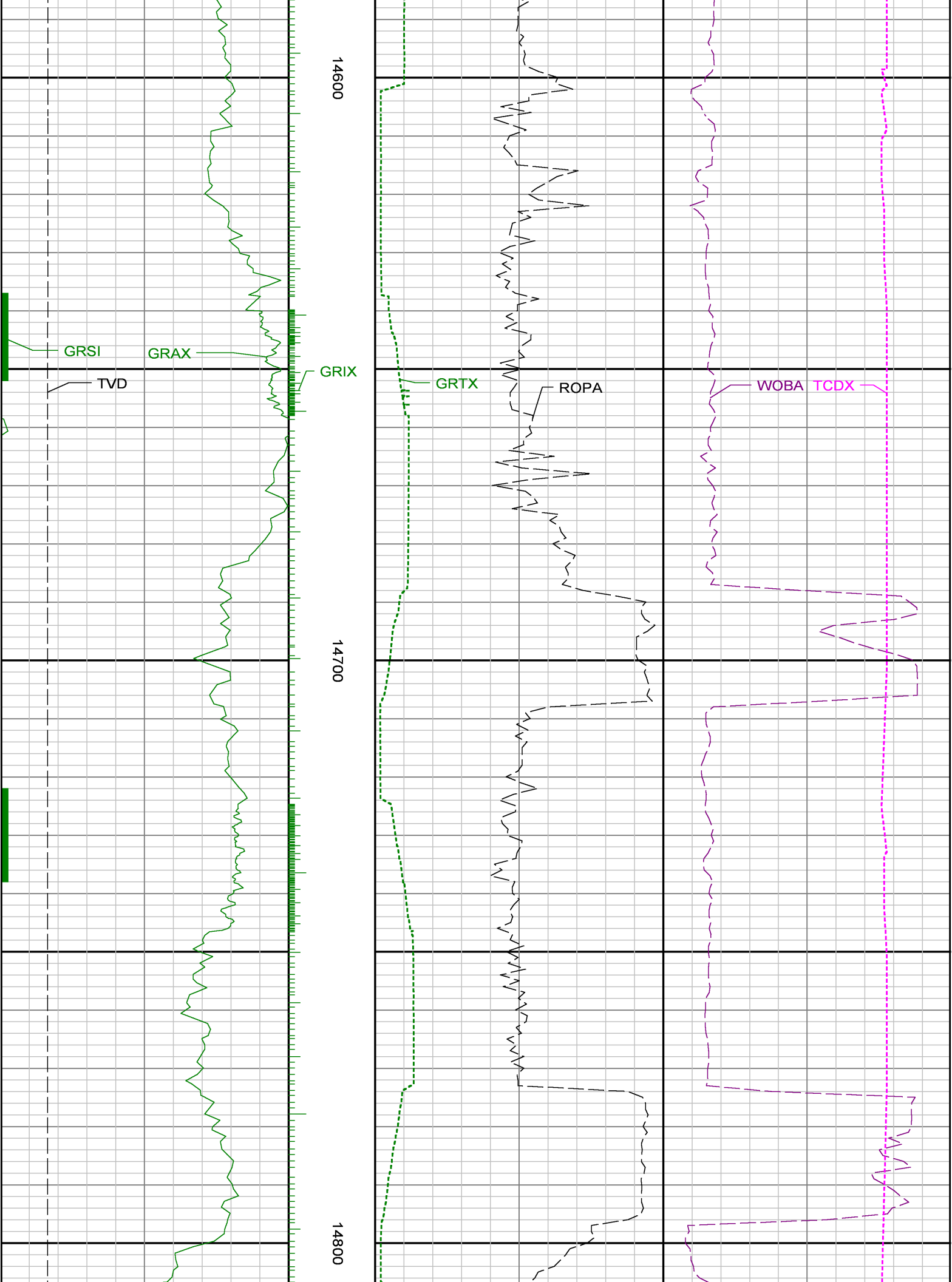


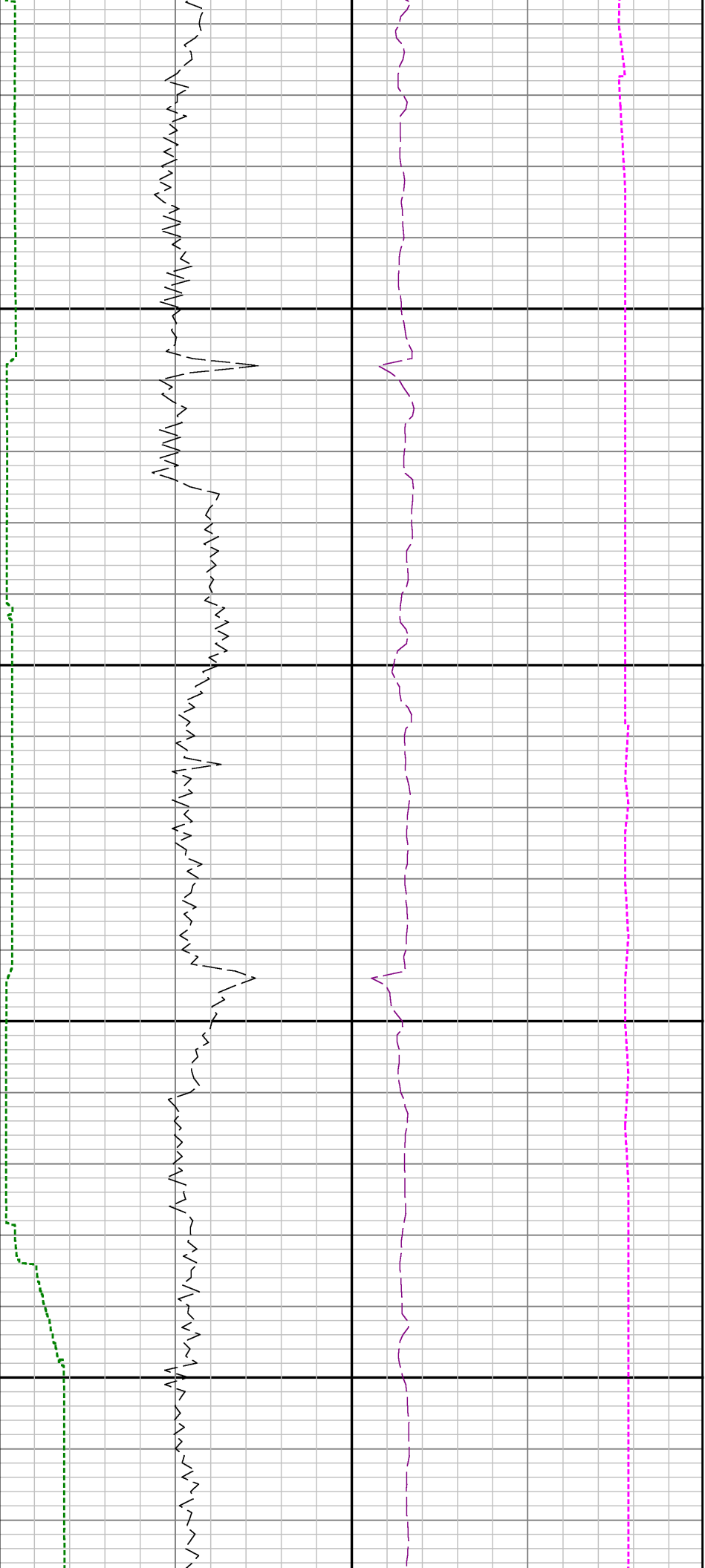


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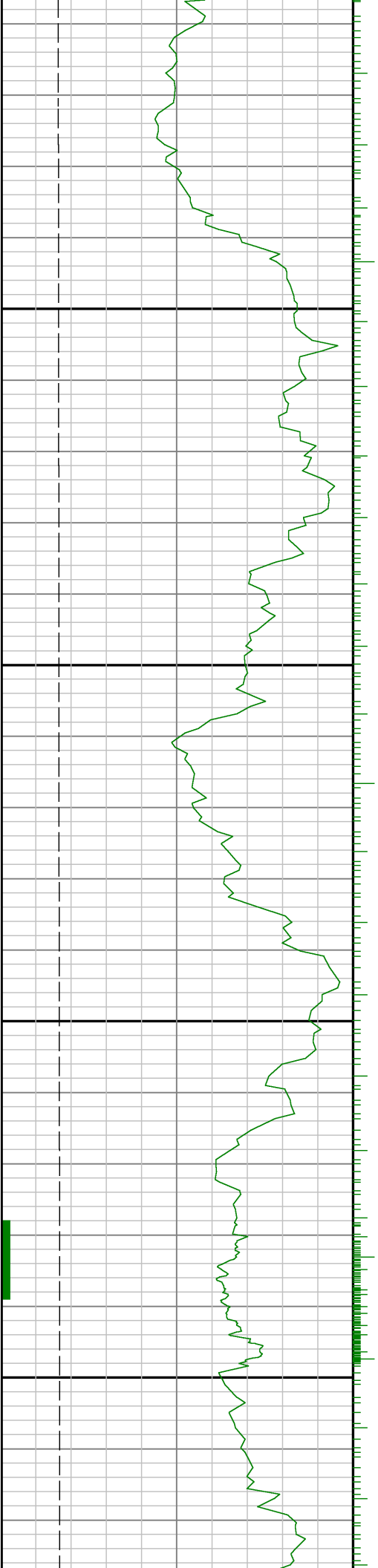


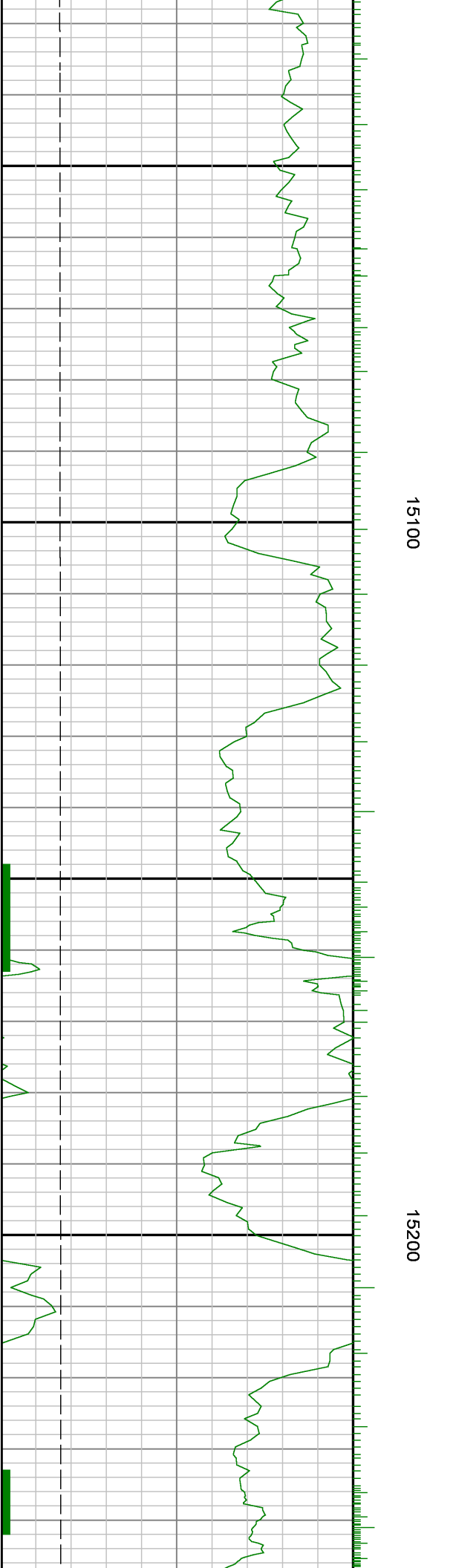


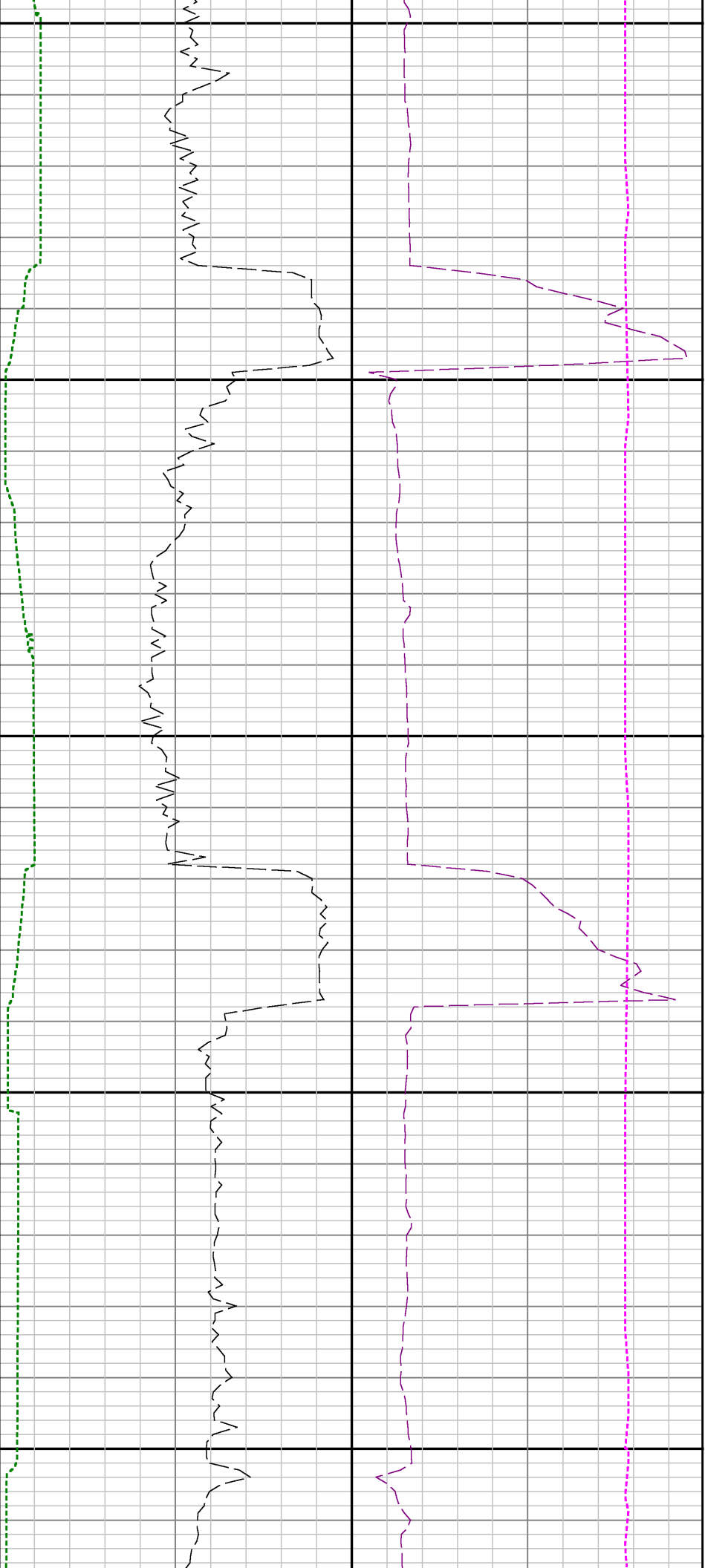


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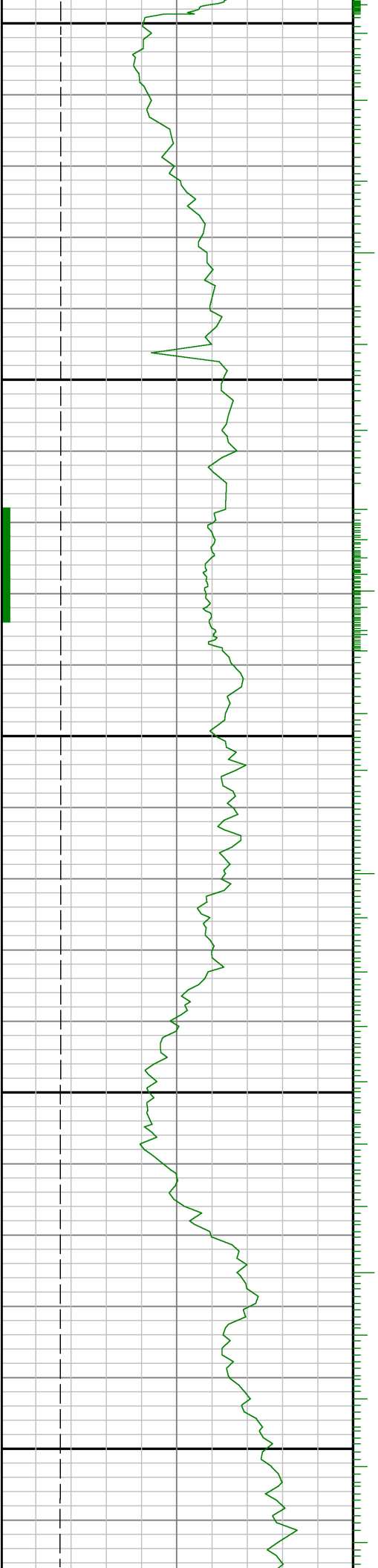


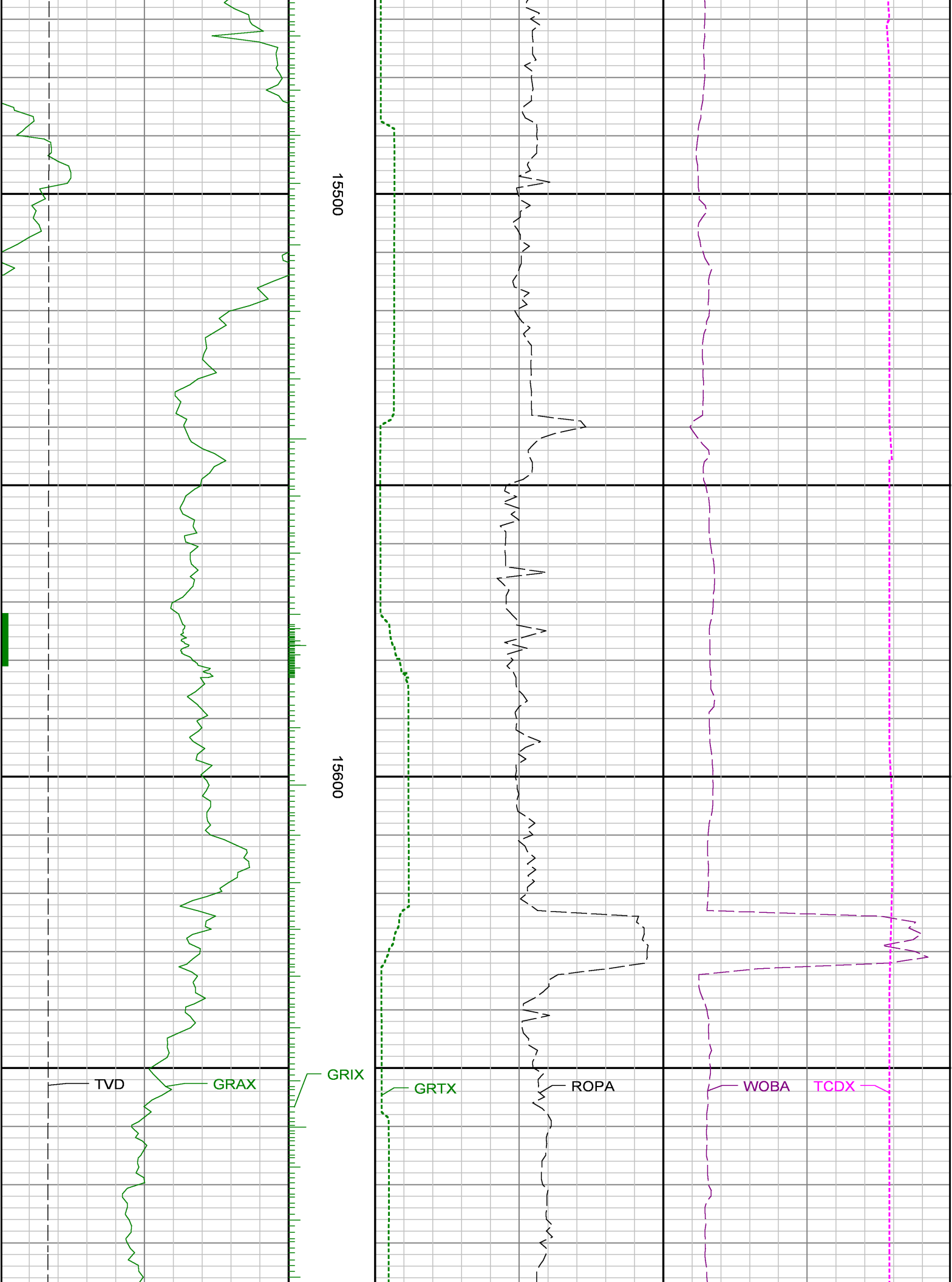




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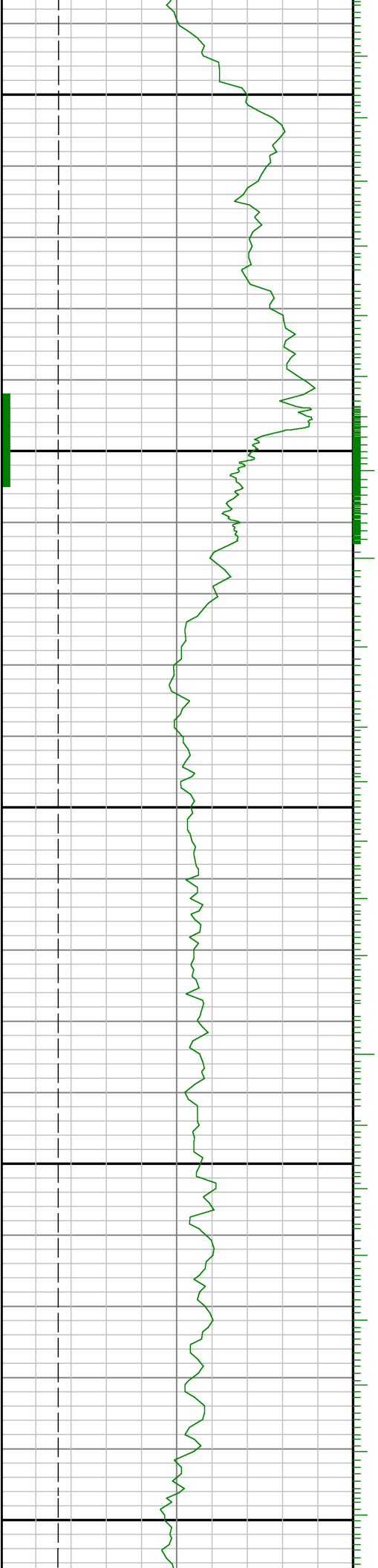




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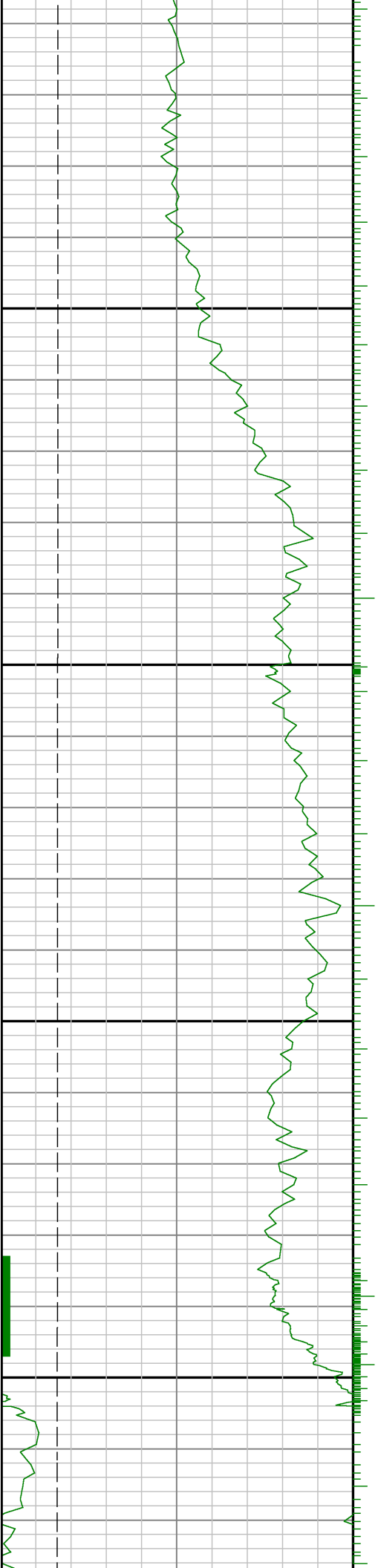
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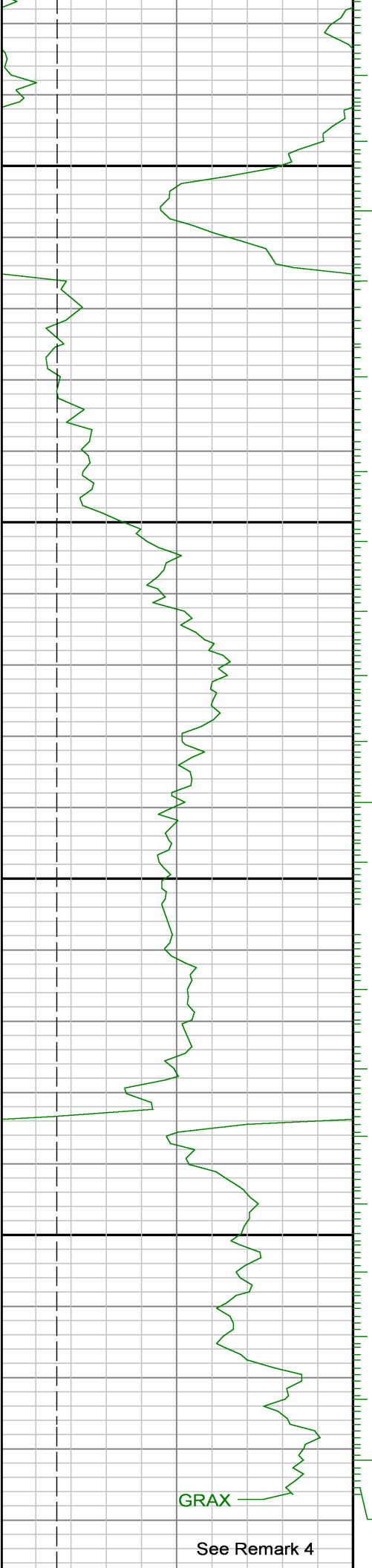




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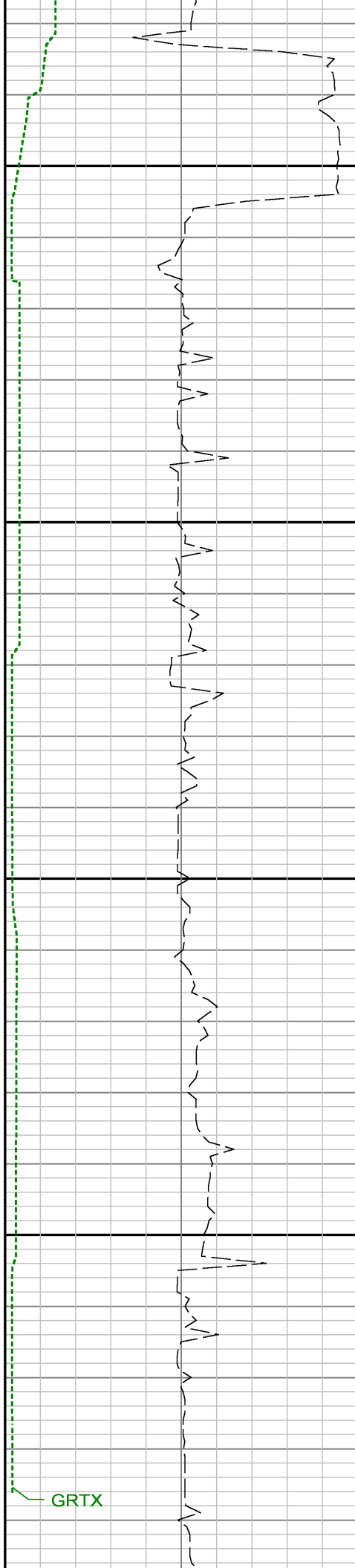
GRAX

GRAX

See Remark 4

16200

16300



GRTX

