

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+ (%)
15 Mar 2014	8:00	2	6511.0	Water Based	9.2	43	8.3	NA	0.0/94.0	Suction Line	700	NA
16 Mar 2014	7:30	3	6563.0	Water Based	9.2	44	8.3	NA	0.0/94.0	Suction Line	700	NA

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	mins
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	DIR	12373466	Directional	48.55	6.750	3.250
1	SRIG	11714036	Gamma	45.18	6.750	3.250
2	DIR	12373466	Directional	39.97	6.750	3.250
2	SRIG	11714036	Gamma	36.60	6.750	3.250
3	DIR	12142328	Directional	51.60	4.750	2.750
3	SRIG	12380940	Gamma	48.22	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

- 1.) Depths and depth measurements were 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 calibrations and measurements could not be independently verified. These unverified depths are being used to represent logging data.
- 2.) A sliding indicator is shown on the left side of track 1 as a heavy line. This indicator has been shifted to the Gamma Ray sensor offset to correspond with Gamma Ray data acquired while sliding.
- 3.) Baker Hughes INTEQ run 2 utilize a 6.75 inch Navigamma (Directional and Gamma Ray) tool behind an 8.75 inch bit and steerable assembly from 5690 ft. to 6563 ft. MD (5621 ft. to 6174 ft. TVD).
- 4.) Baker Hughes INTEQ run 3 utilize a 4.75 inch Navigamma (Directional and Gamma Ray) tool behind a 6.125 inch bit and steerable assembly from 6563 ft. to 10840 ft. MD (6174 ft. to 6170 ft. TVD).

Remarks

Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6532	8.750	2	Interval from 6525 ft. to 6563 ft. MD (6174 ft. to 6174 ft. TVD) has no GRTX due to the Gamma Ray sensor offset from the bit at well TD.
2	10797	6.125	3	Interval from 10790 ft. to 10840 ft. MD (6171 ft. to 6170 ft. TVD) was not logged due to the Gamma Ray sensor offset from the bit at well TD.

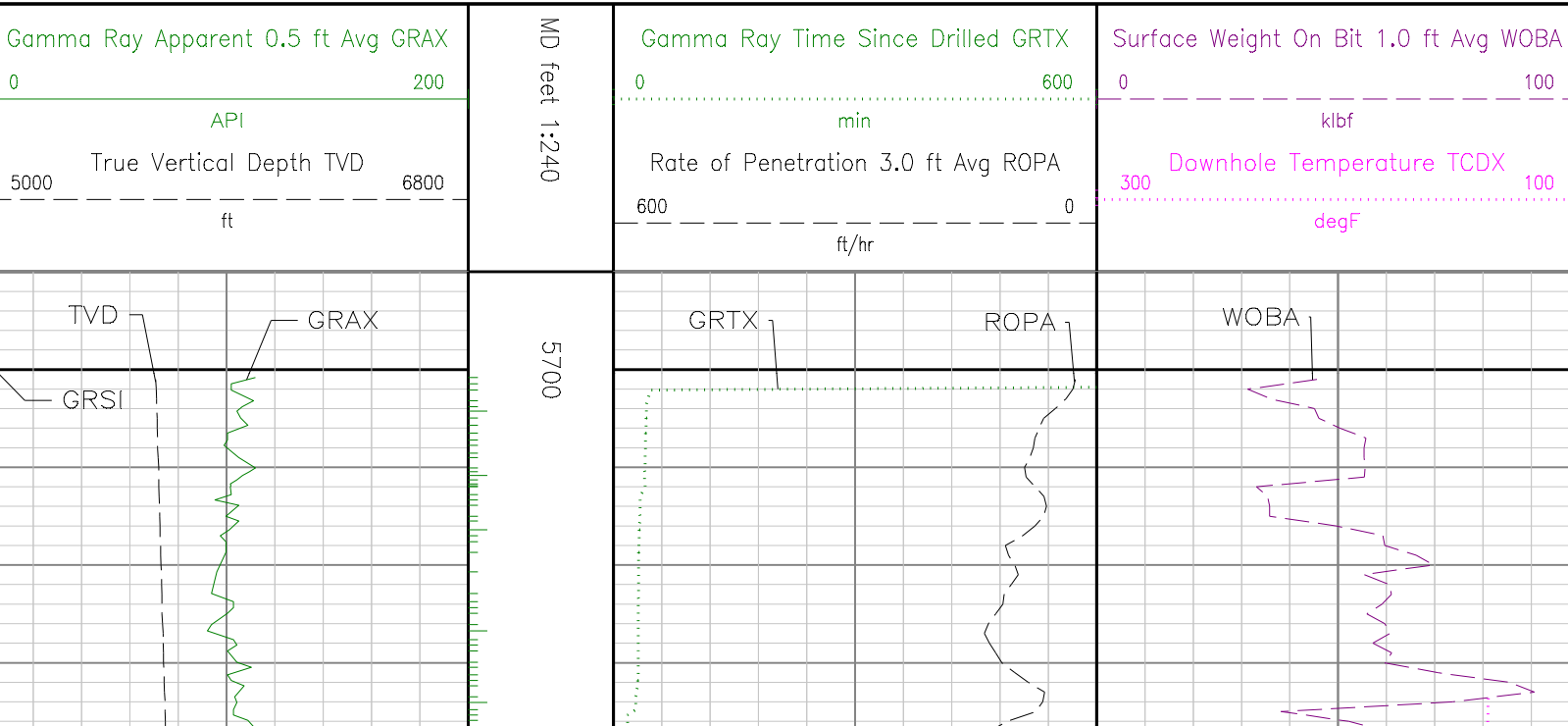
Curve Mnemonics

Curve	Description	Units
GRAX	Gamma Ray – Apparent	API
GRIX	Gamma Ray – Data Point Indicator	unitless
GRSIM	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled GRTX	min
ROP_AVG	Depth Averaged ROP	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth TVD	ft
WOB_AVG	AVERAGE Weight On Bit	klbf



INTEQ

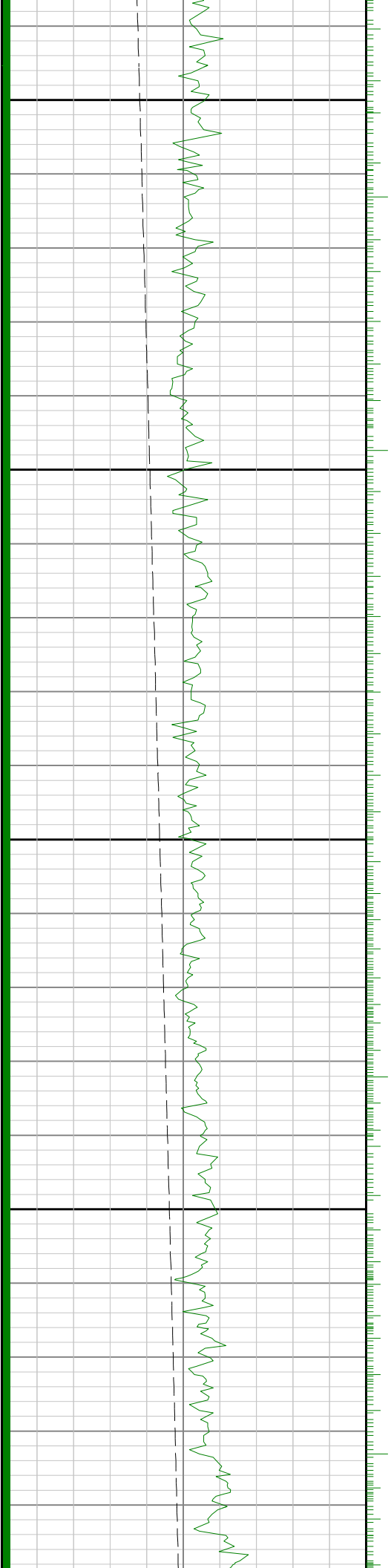
Company : Bonanza Creek
Well : State Antelope 24-21-12HNC
Interval : 5690.00 - 10860.00 feet
Created : 19/Mar/2014 1:55:51 AM

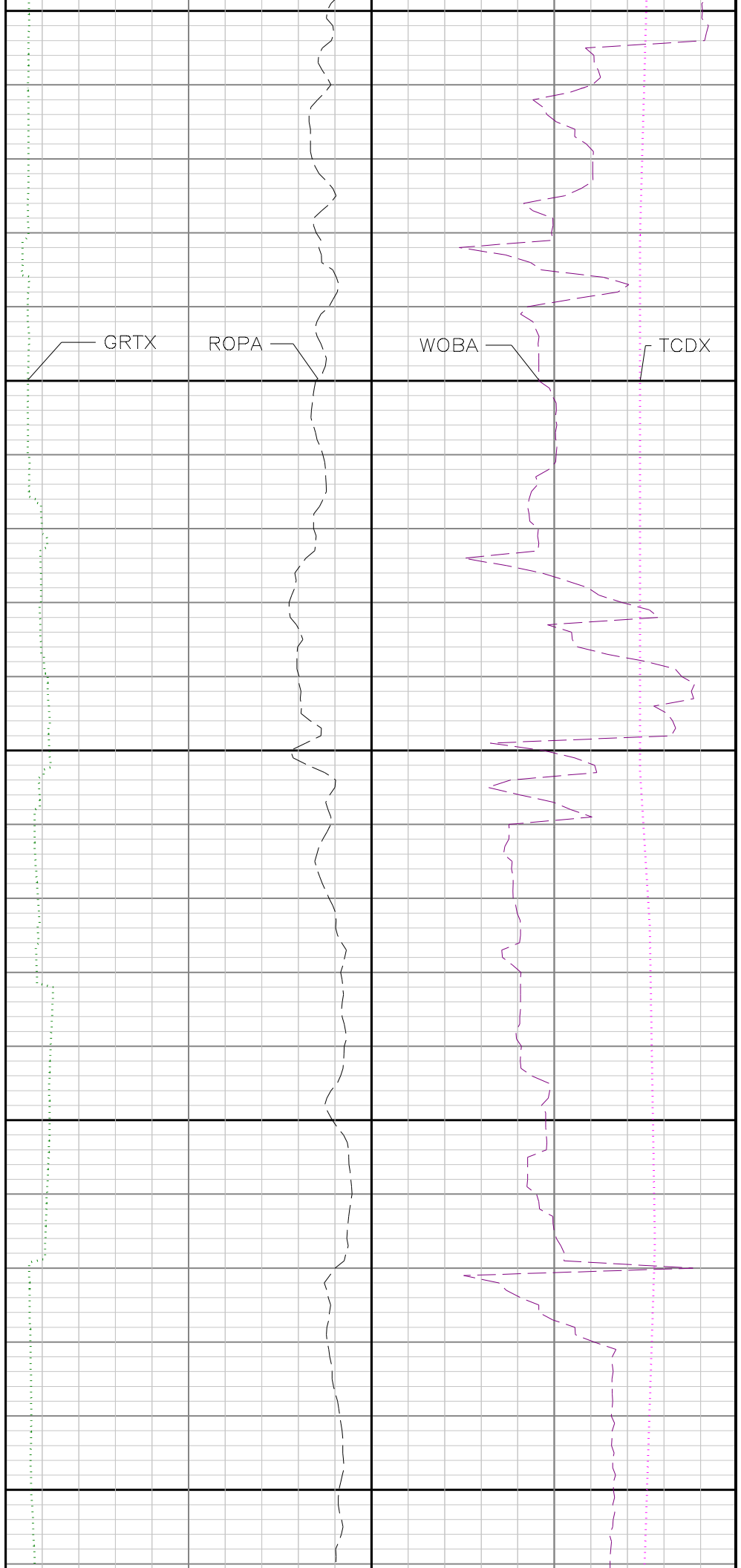
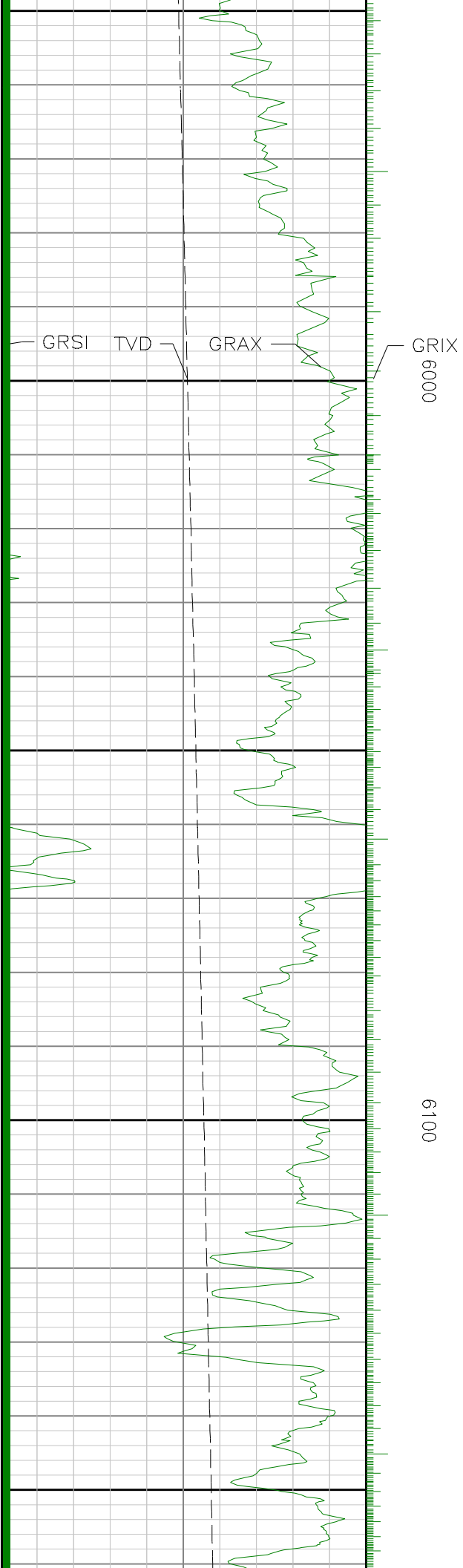




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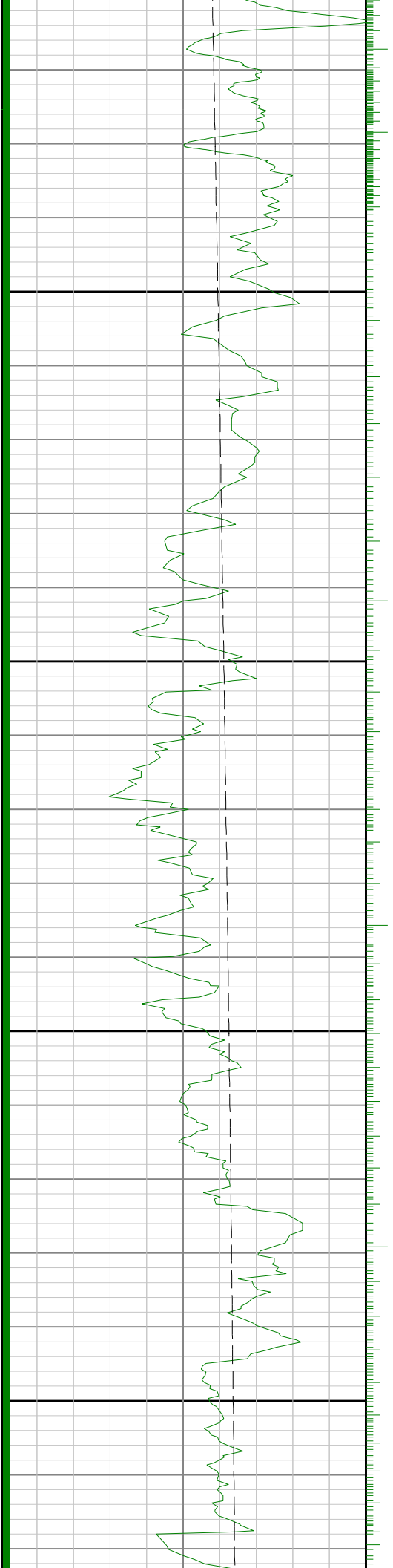


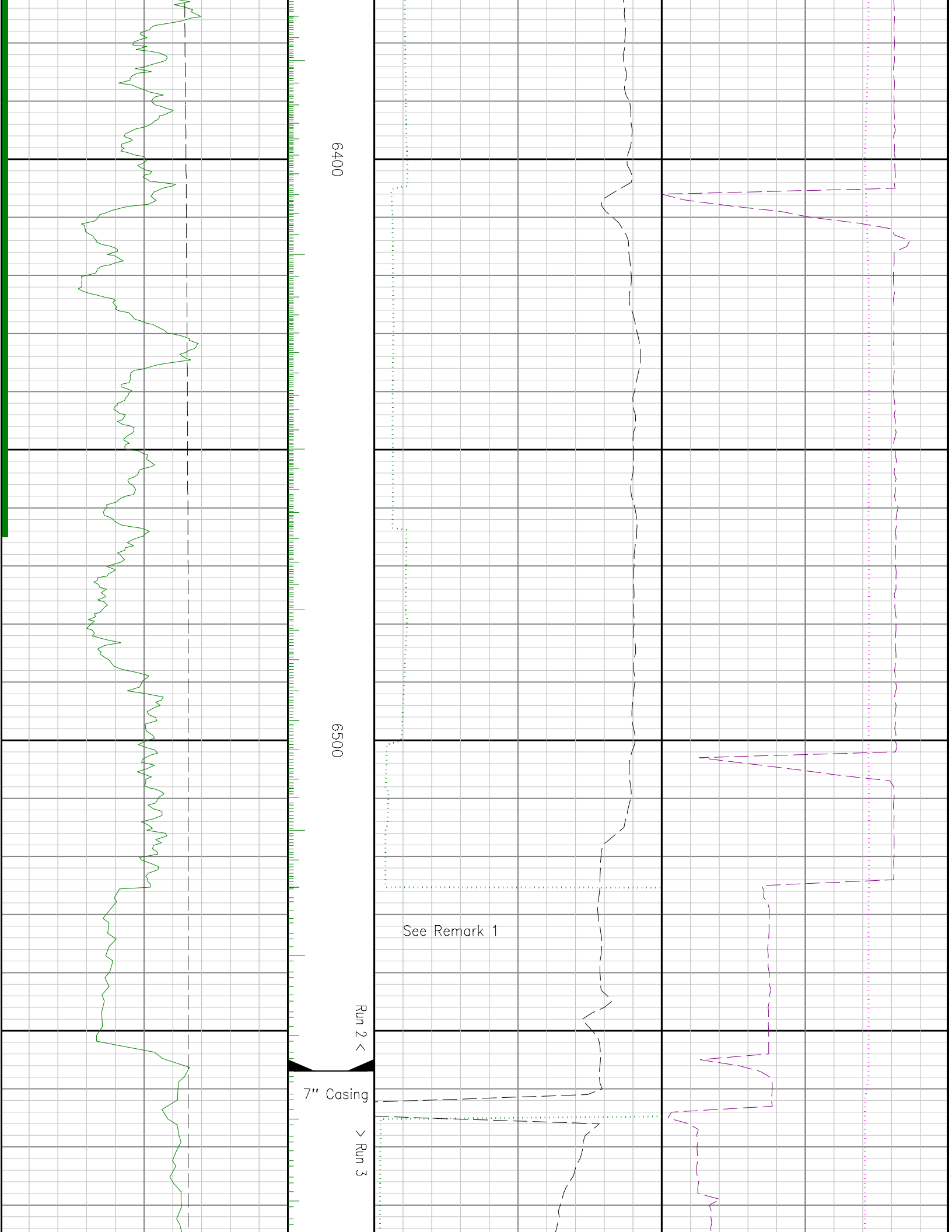


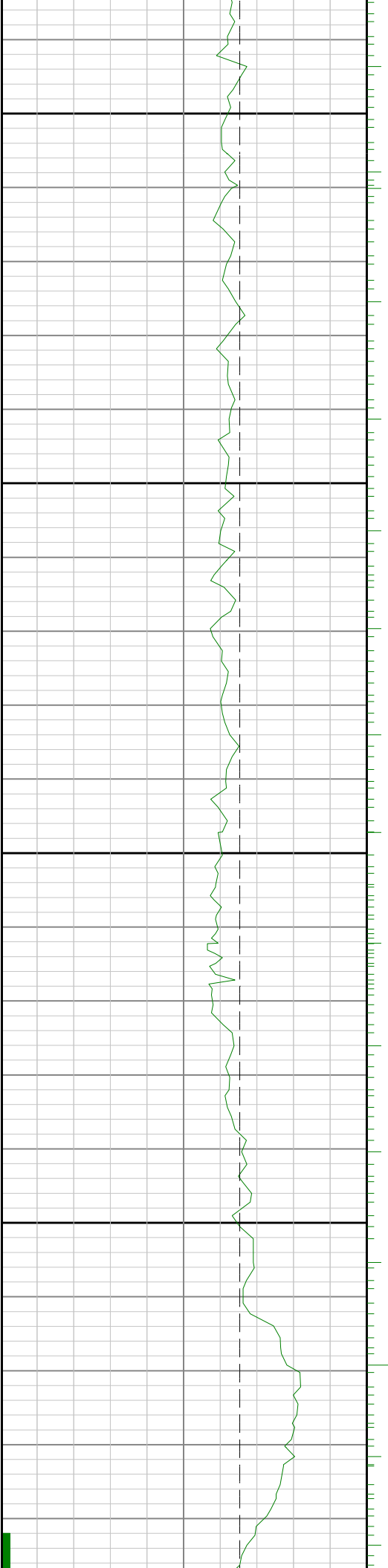


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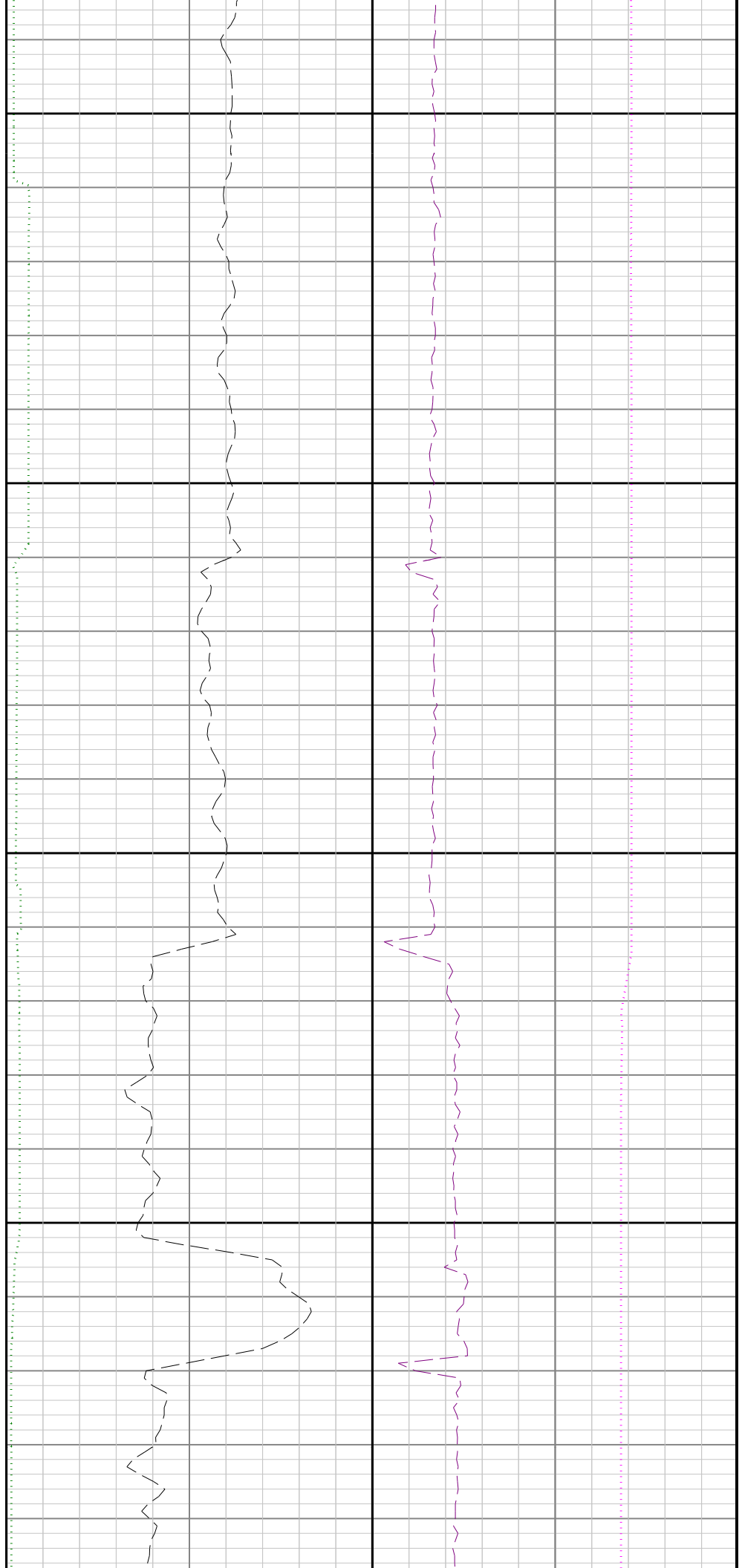


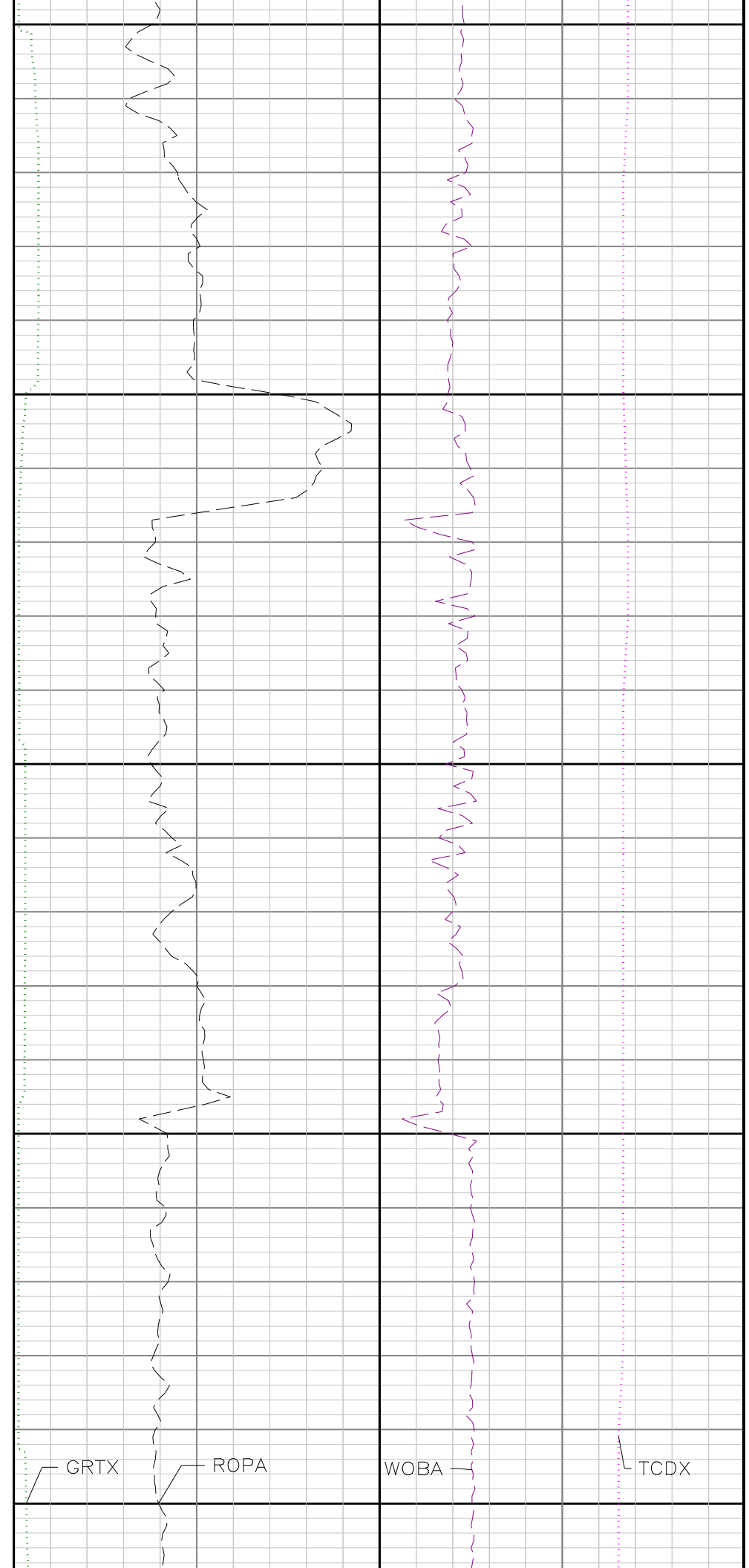
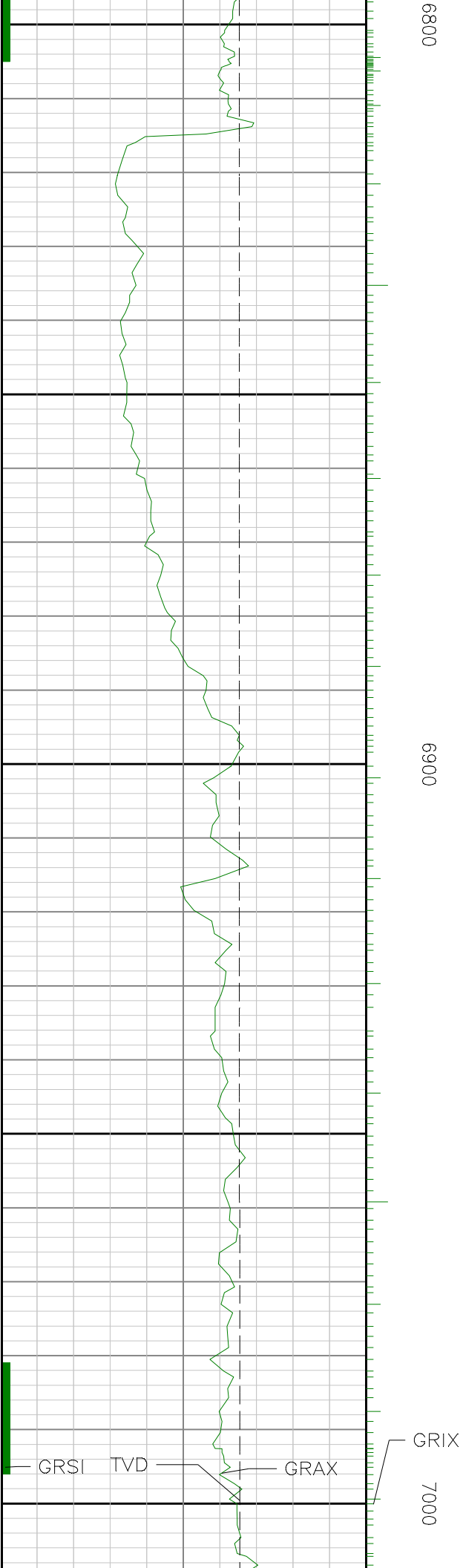


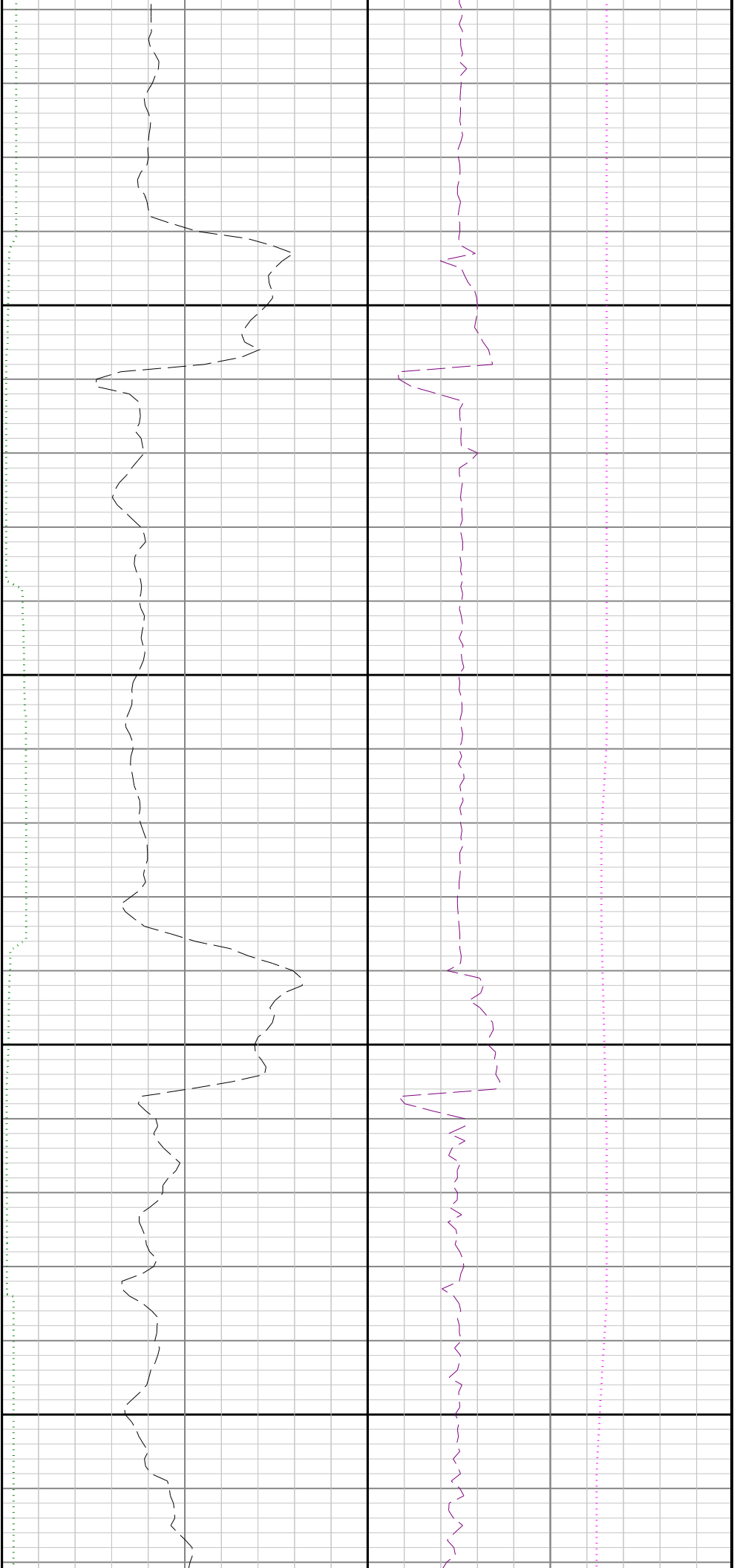


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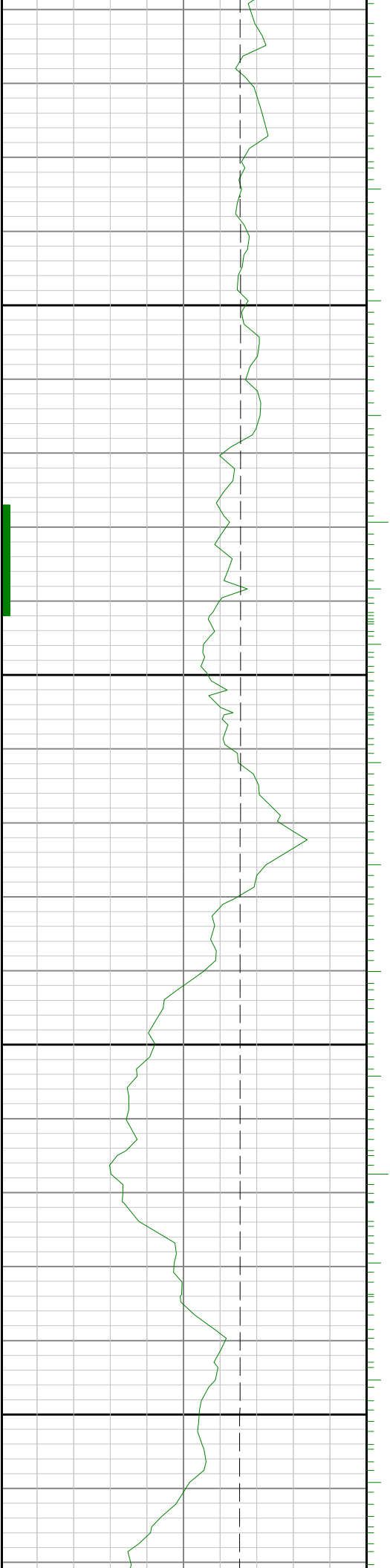


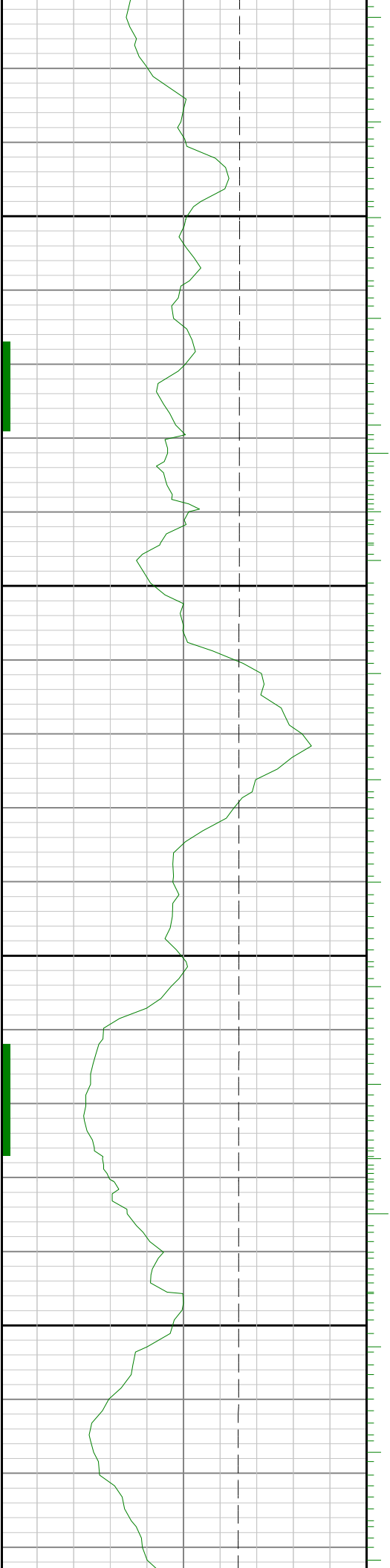




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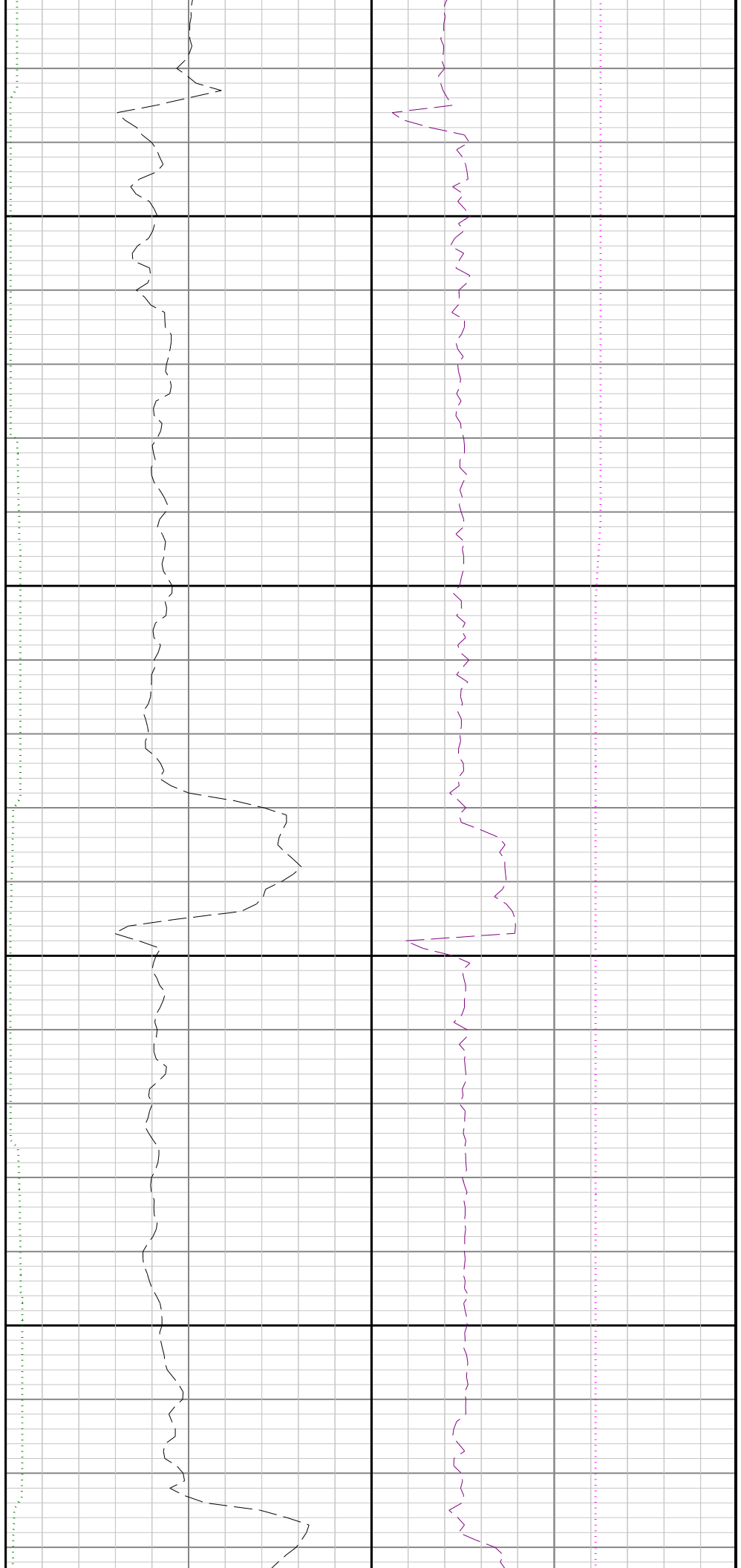
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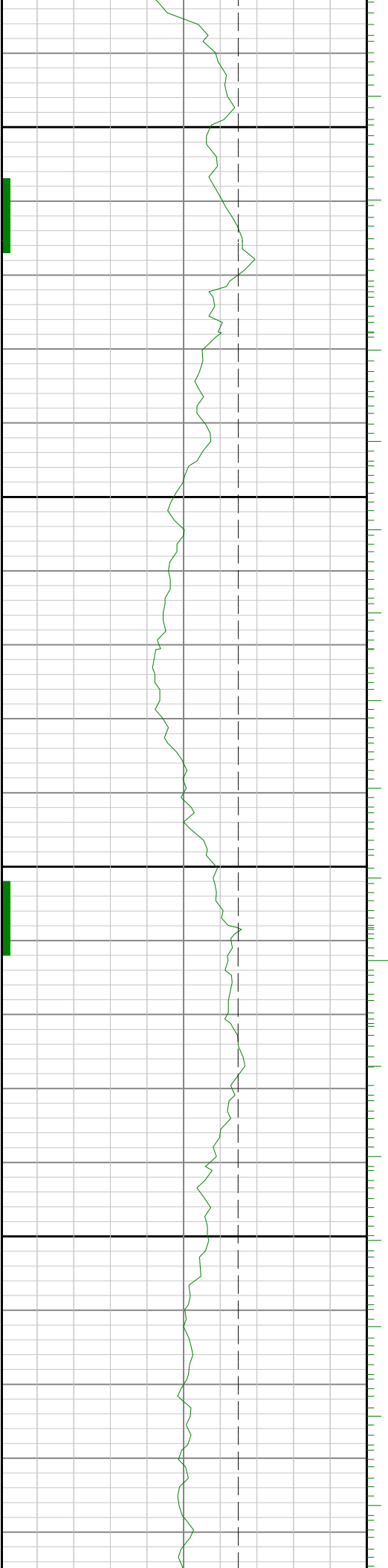




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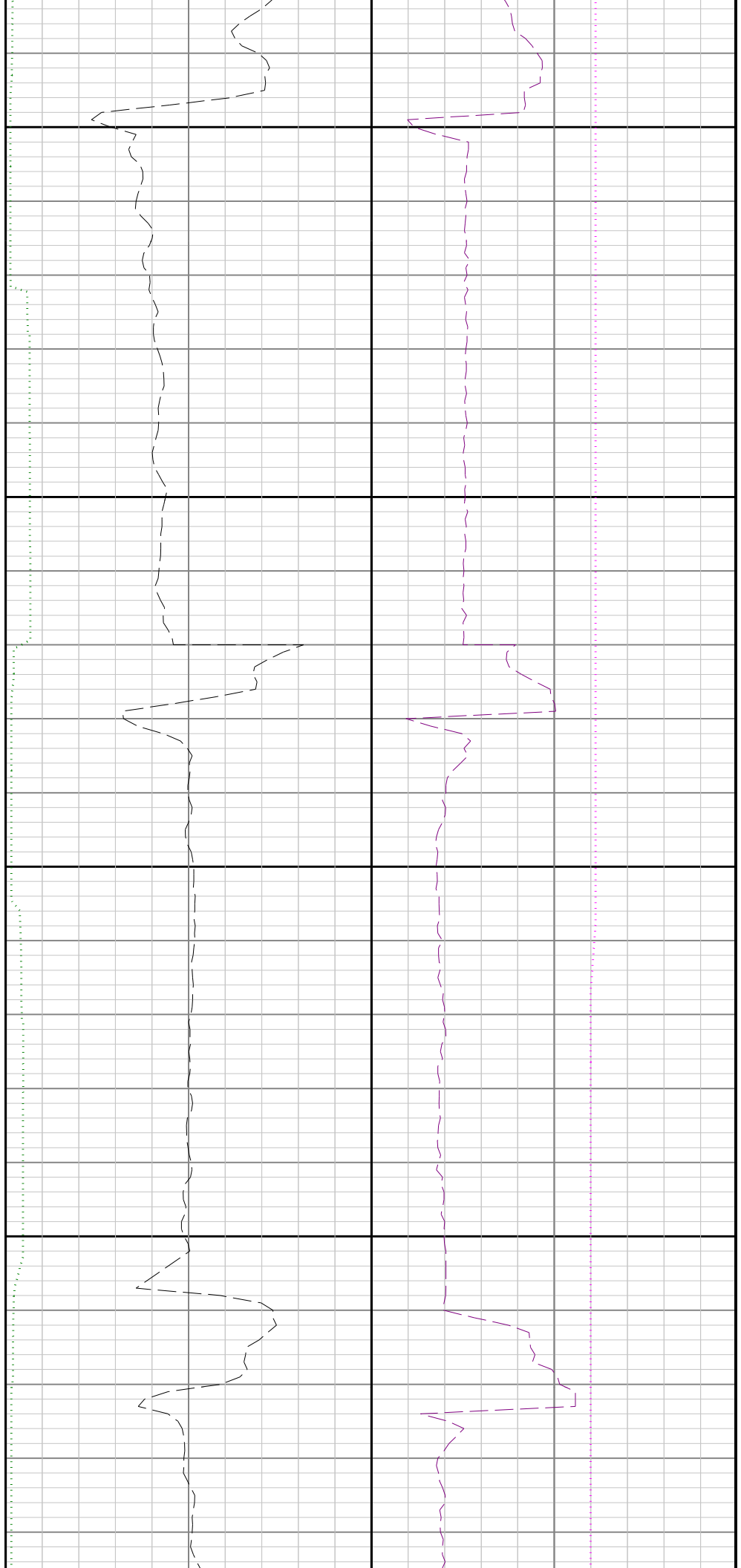
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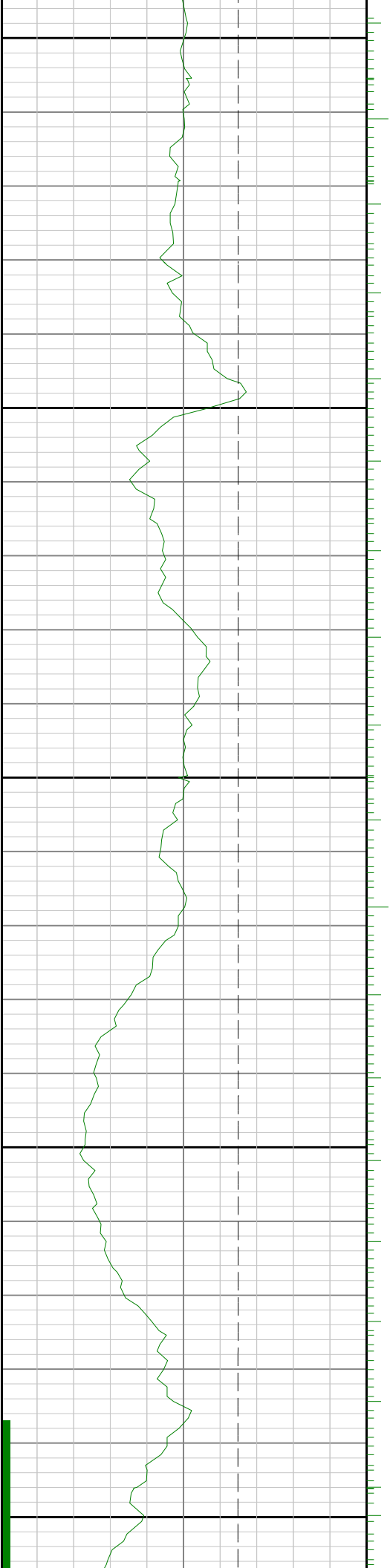




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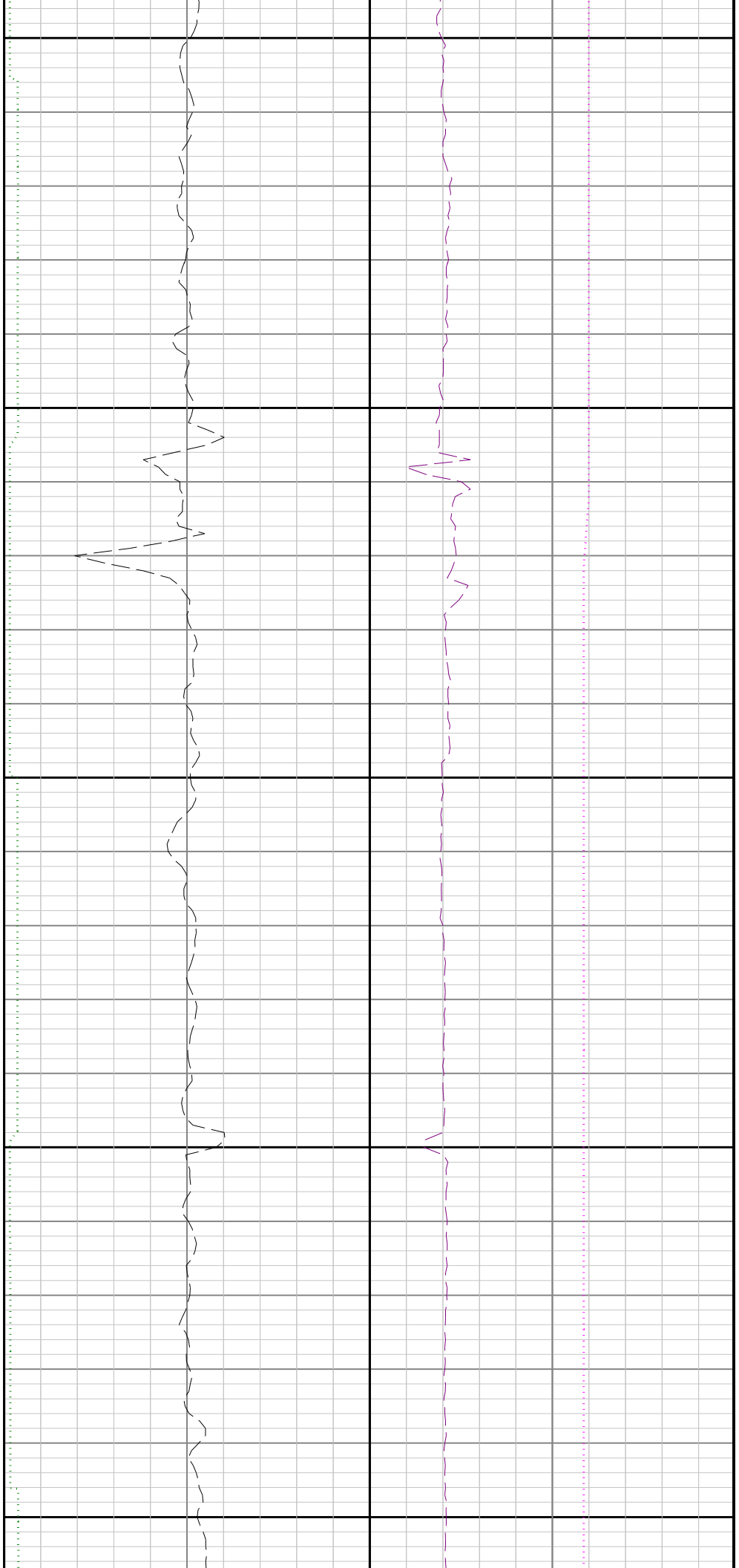
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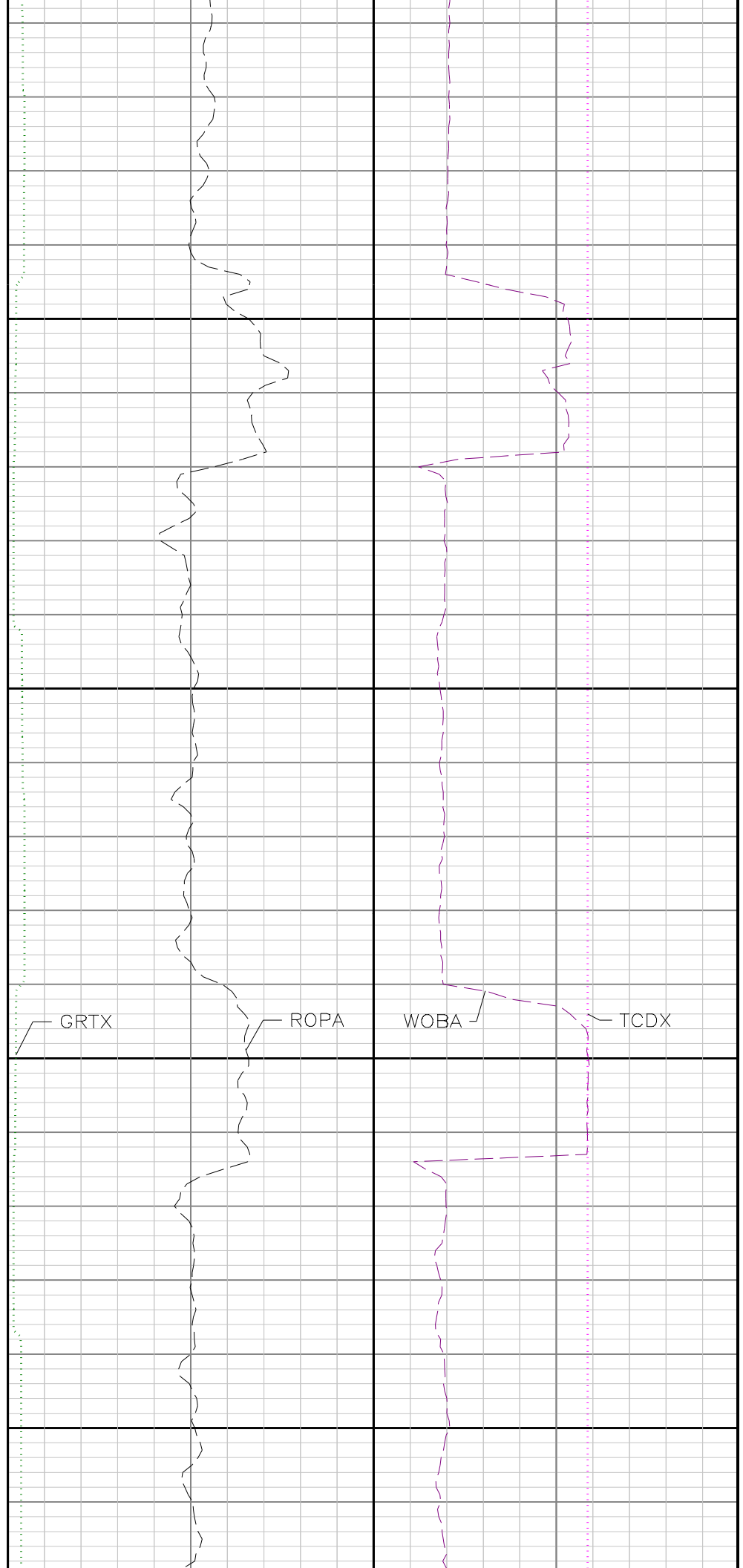
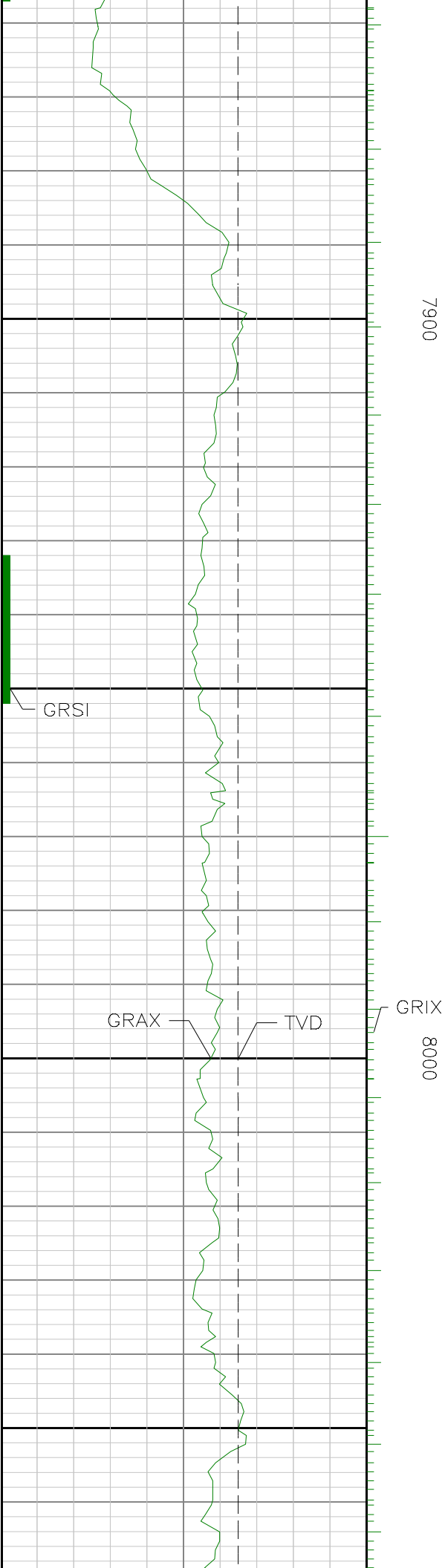




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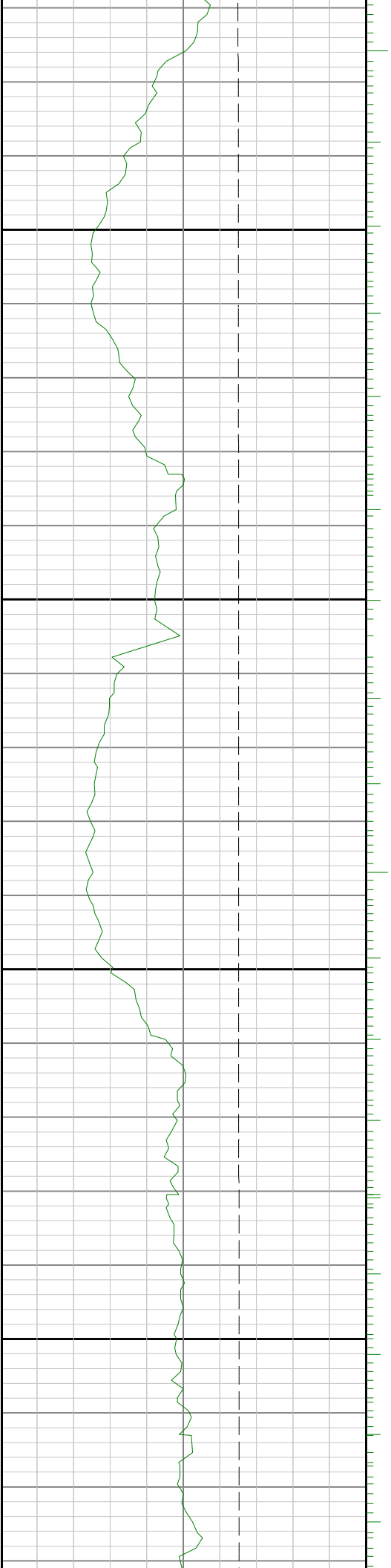


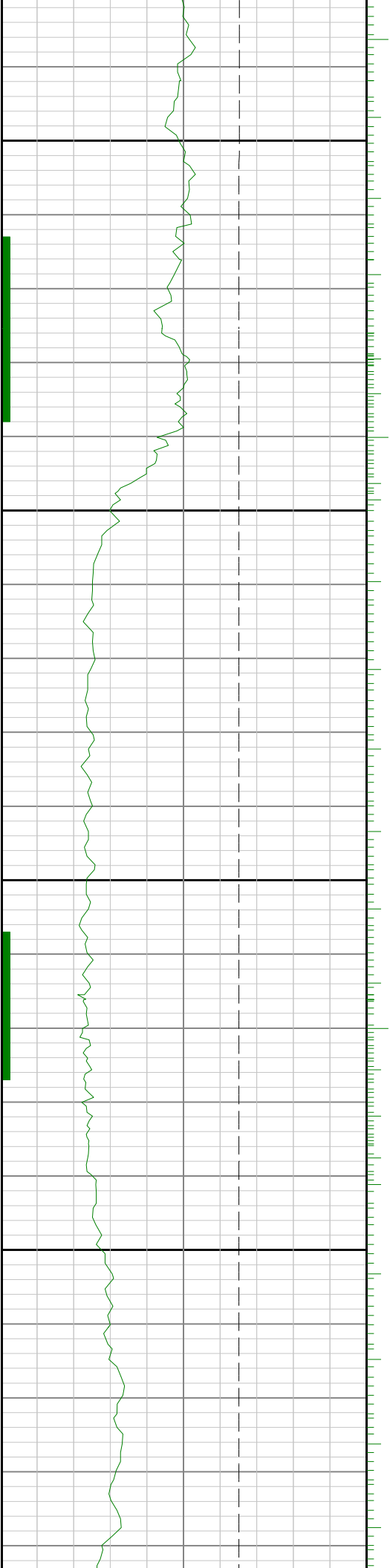
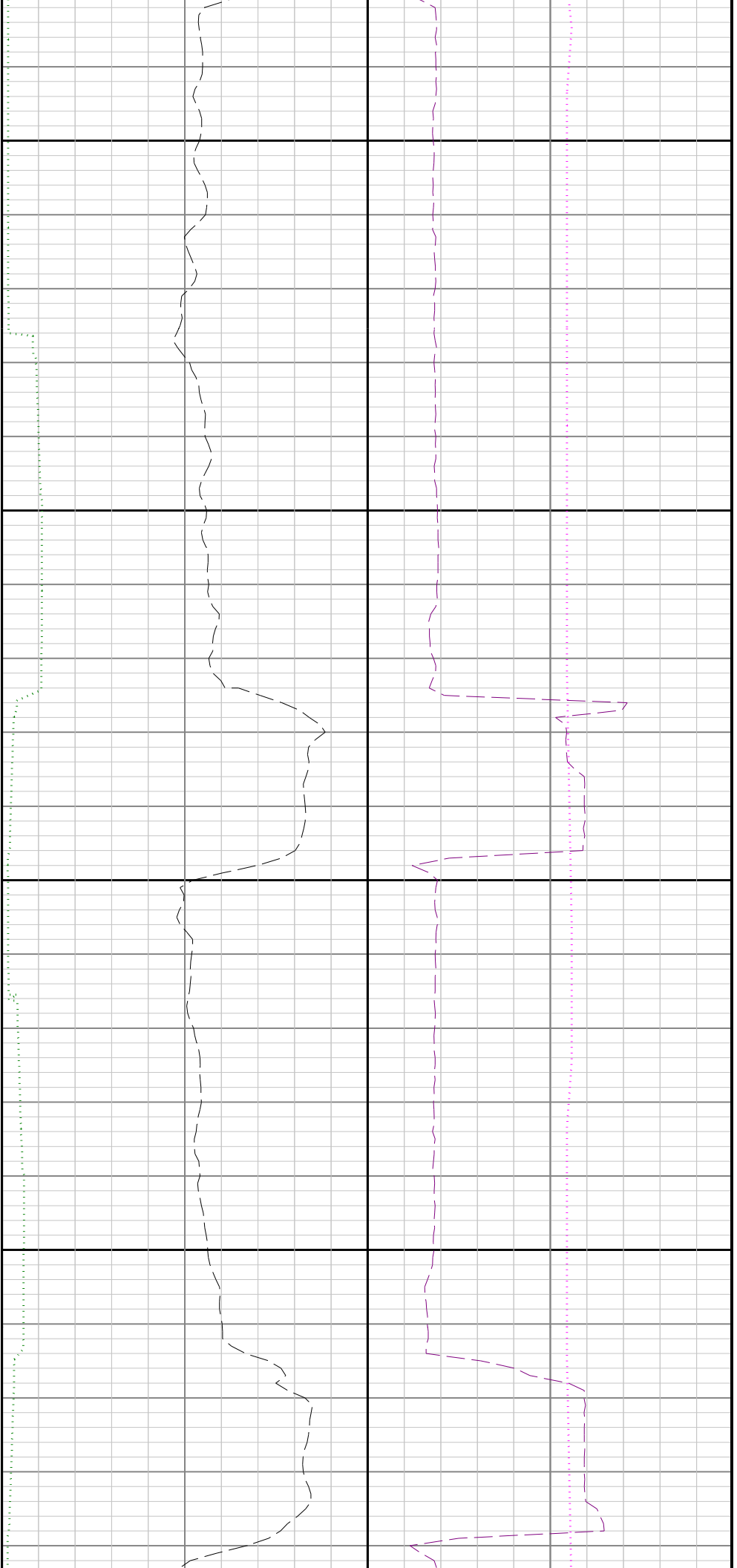


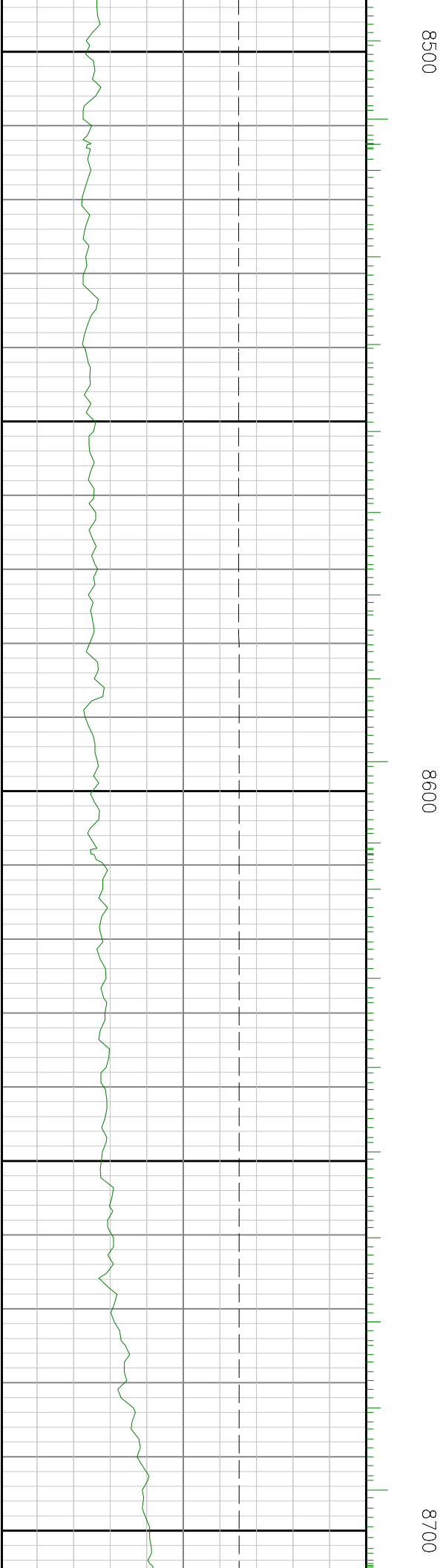
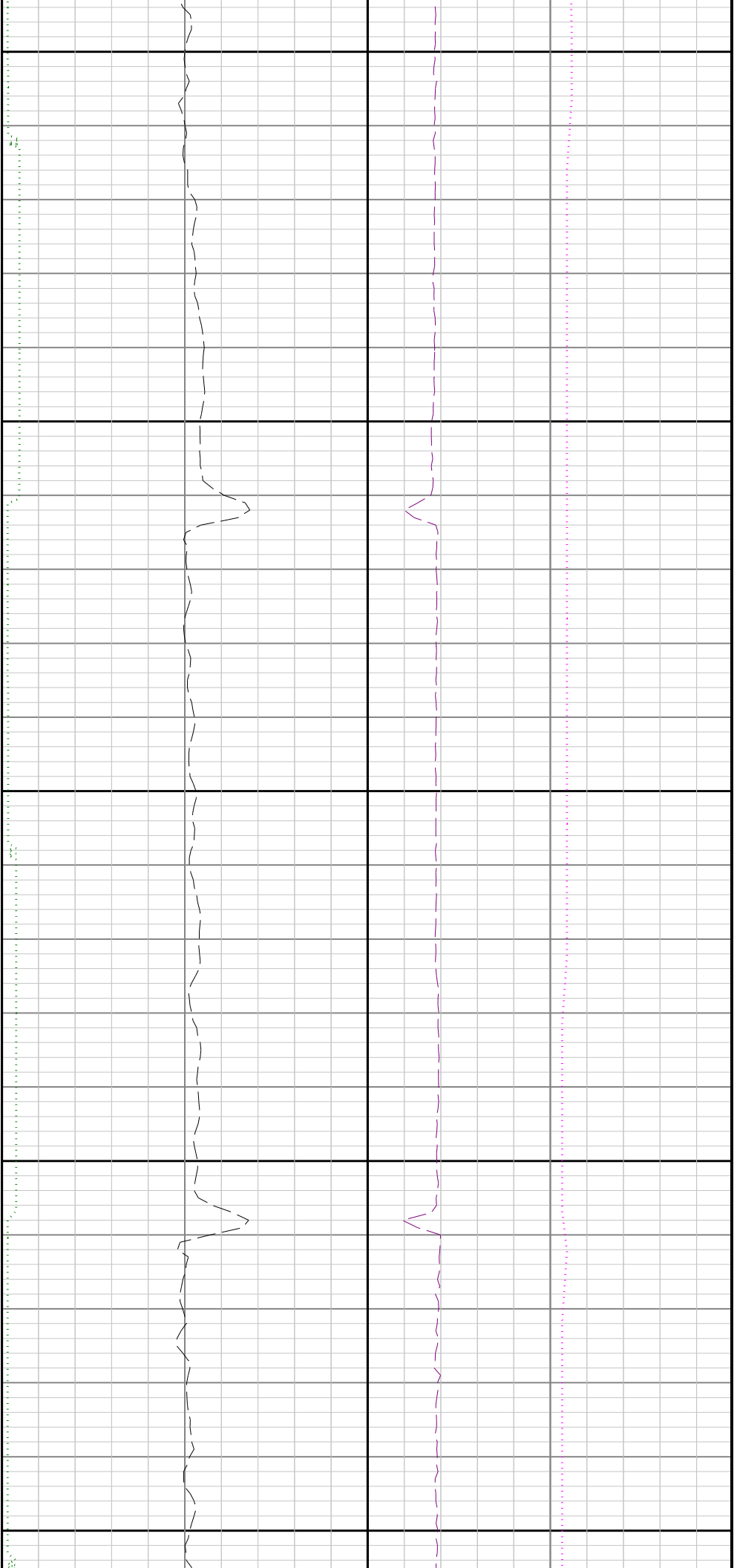


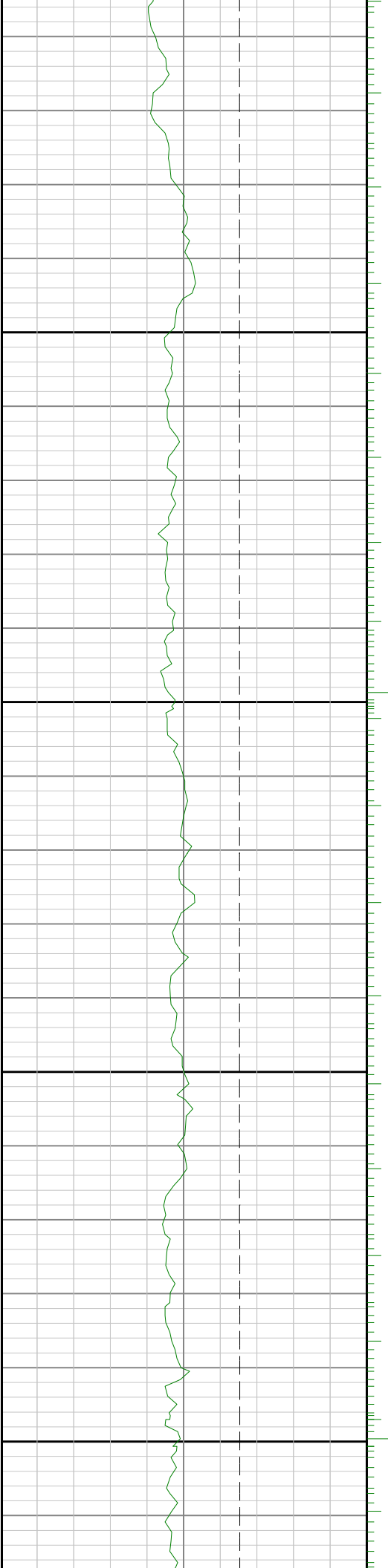
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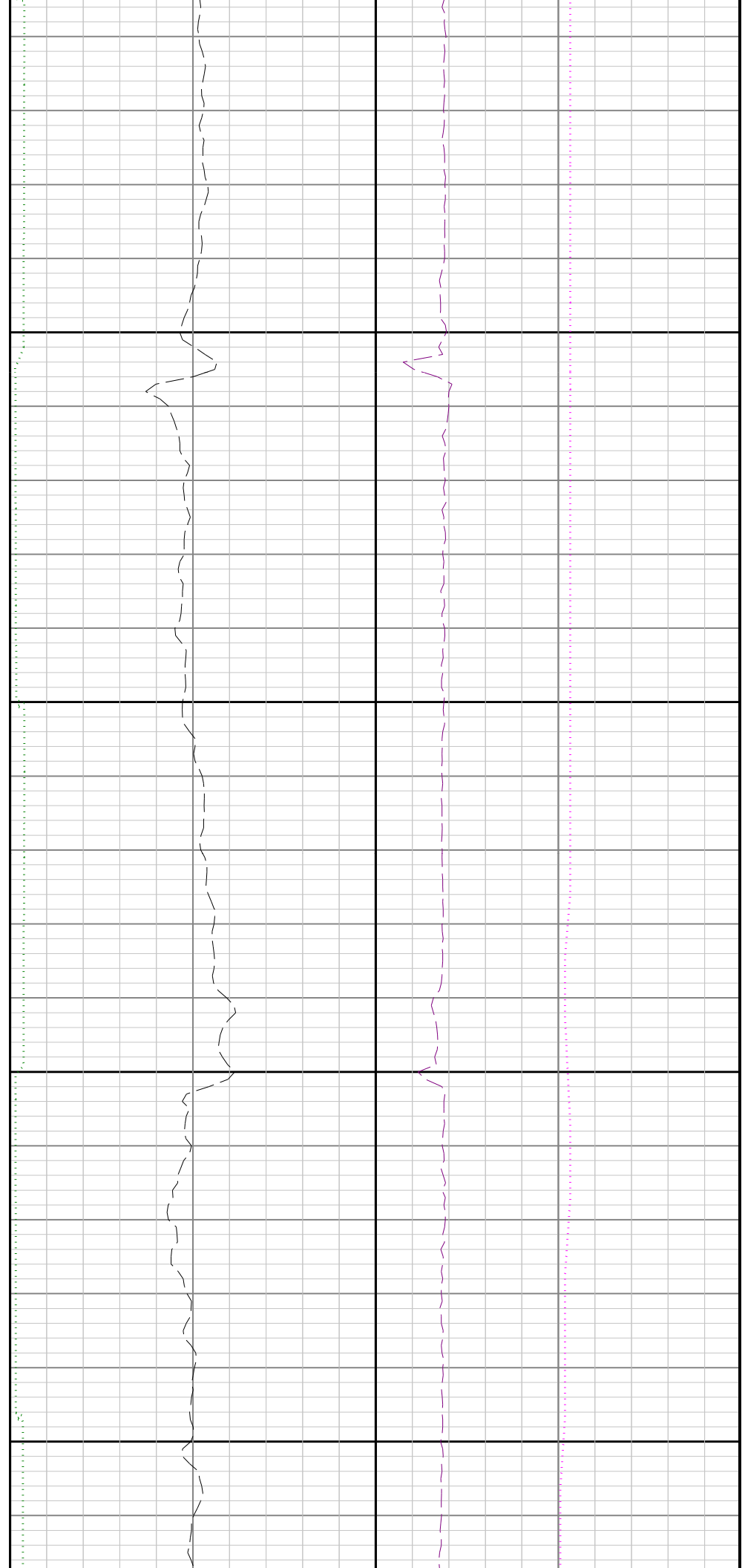


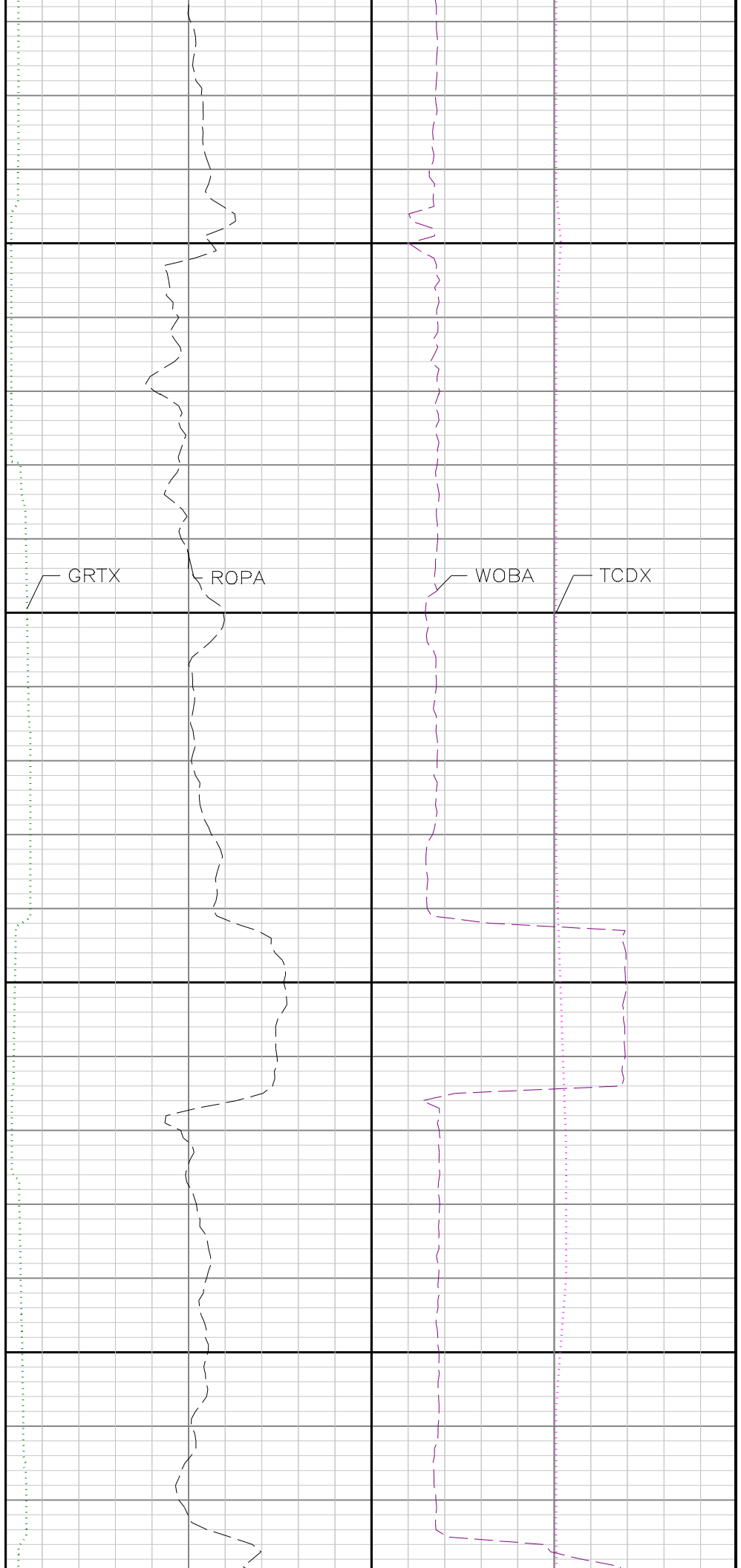
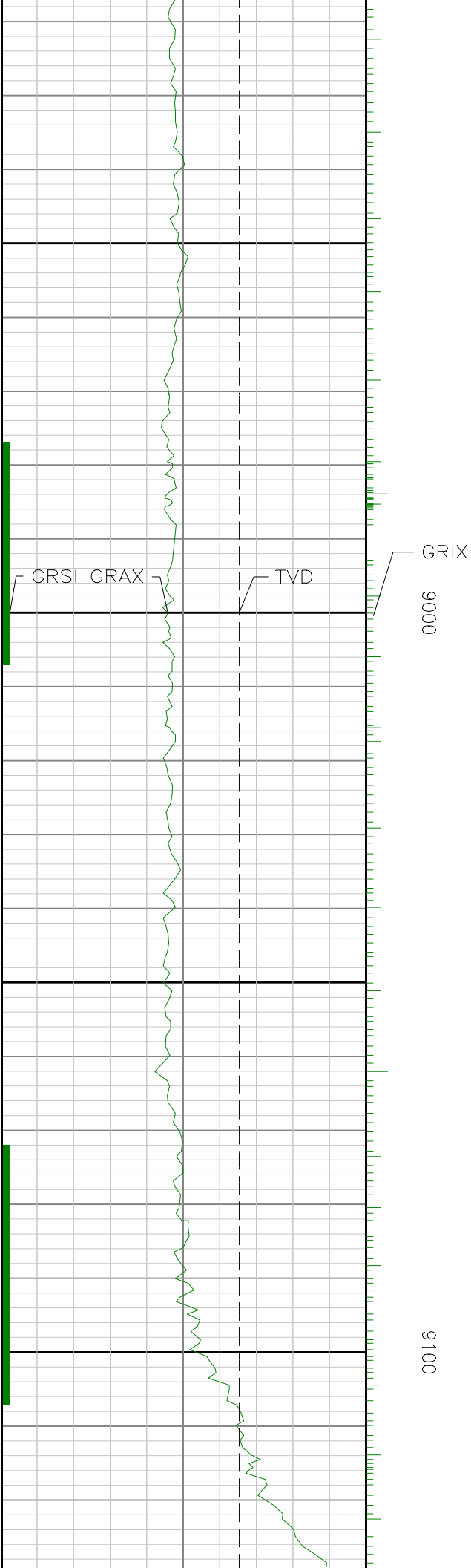


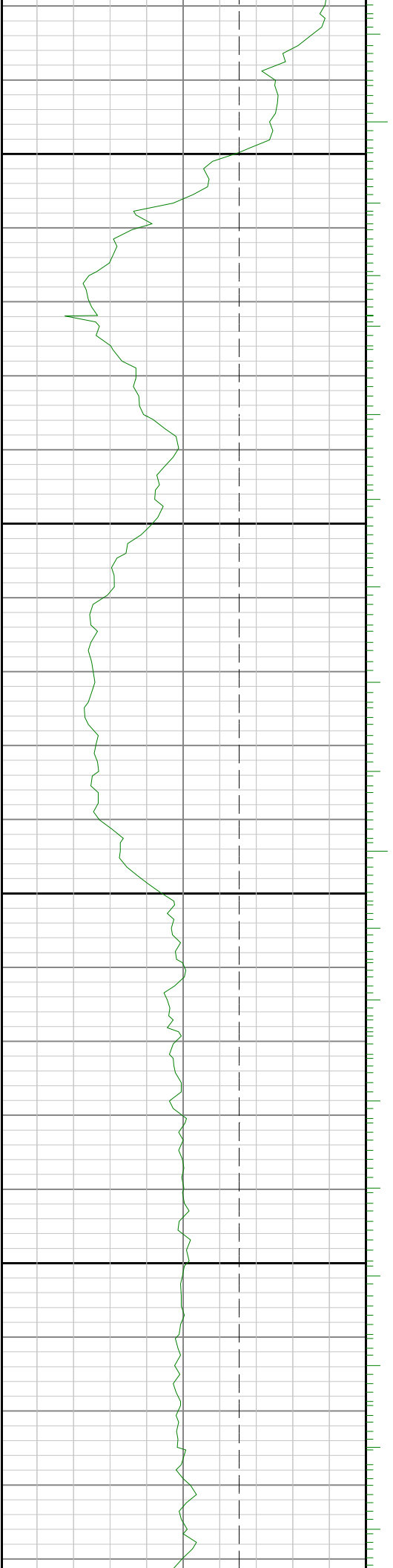


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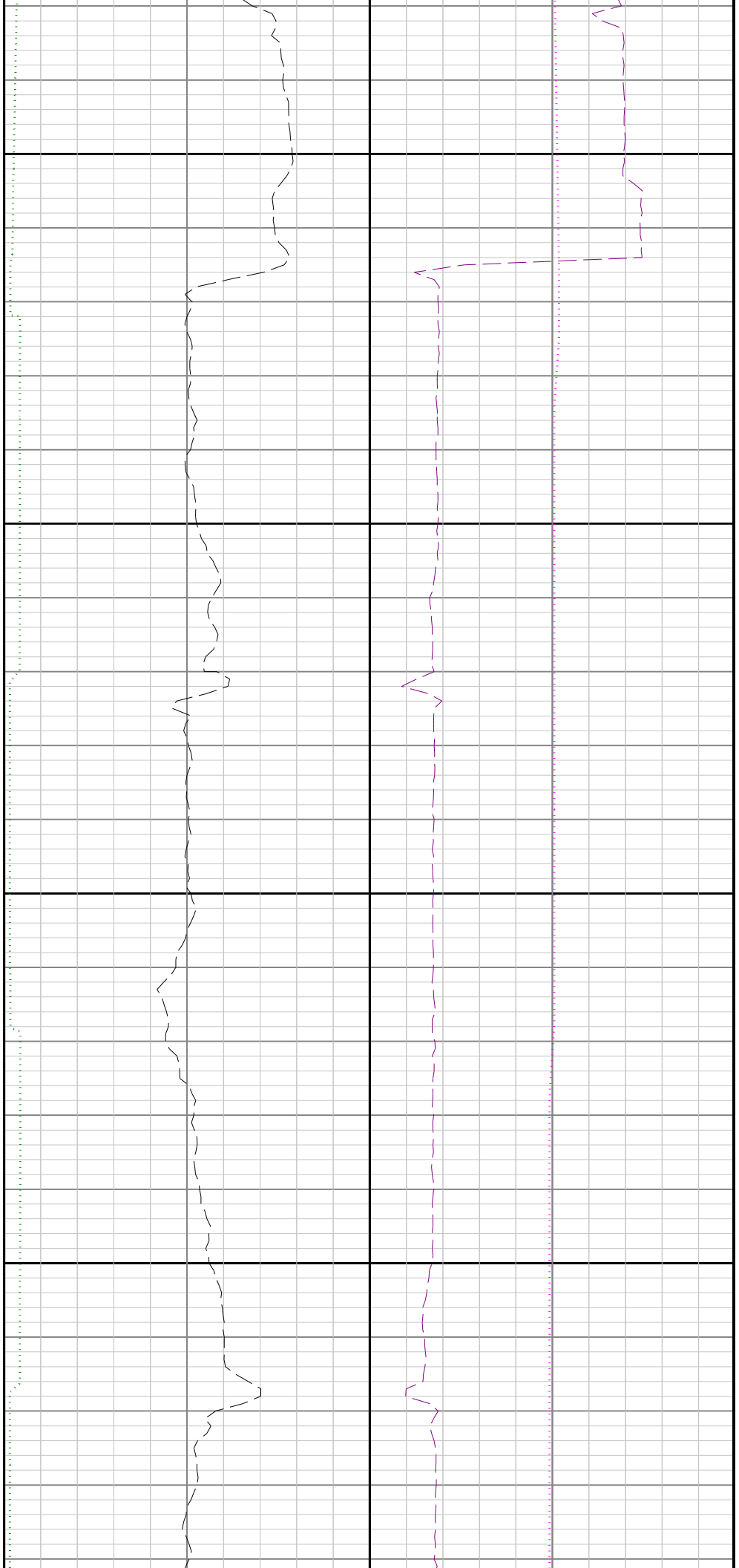


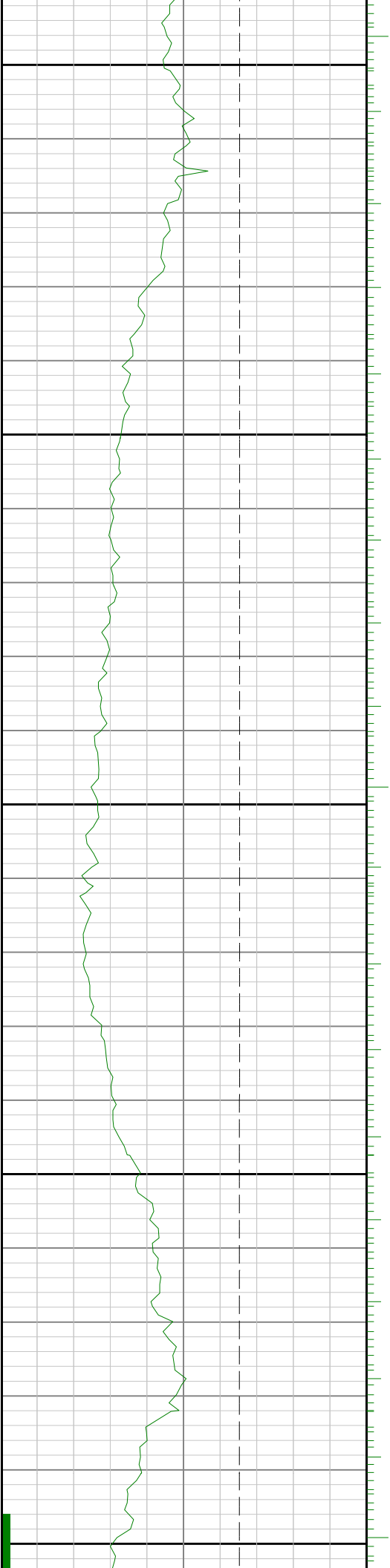




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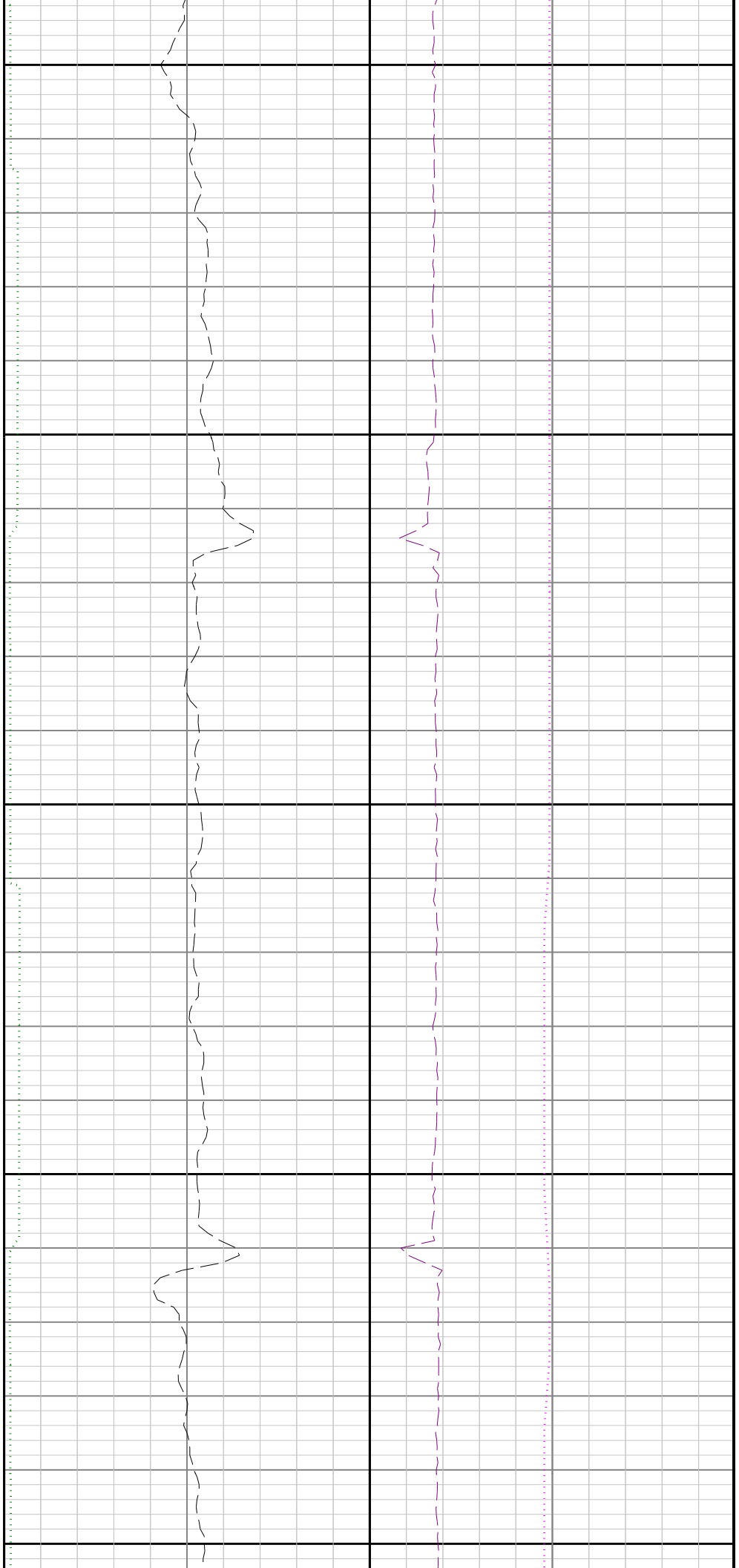
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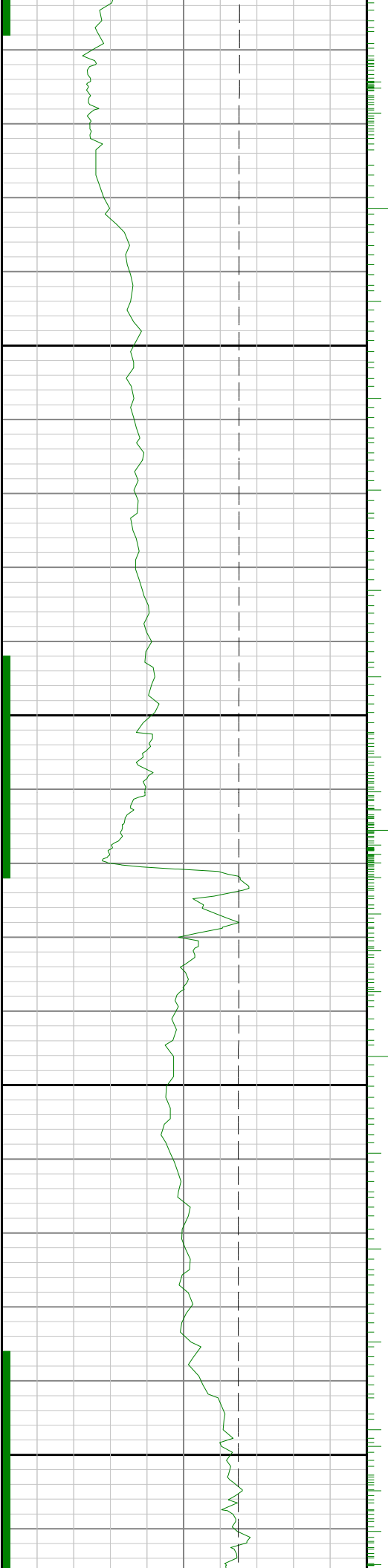




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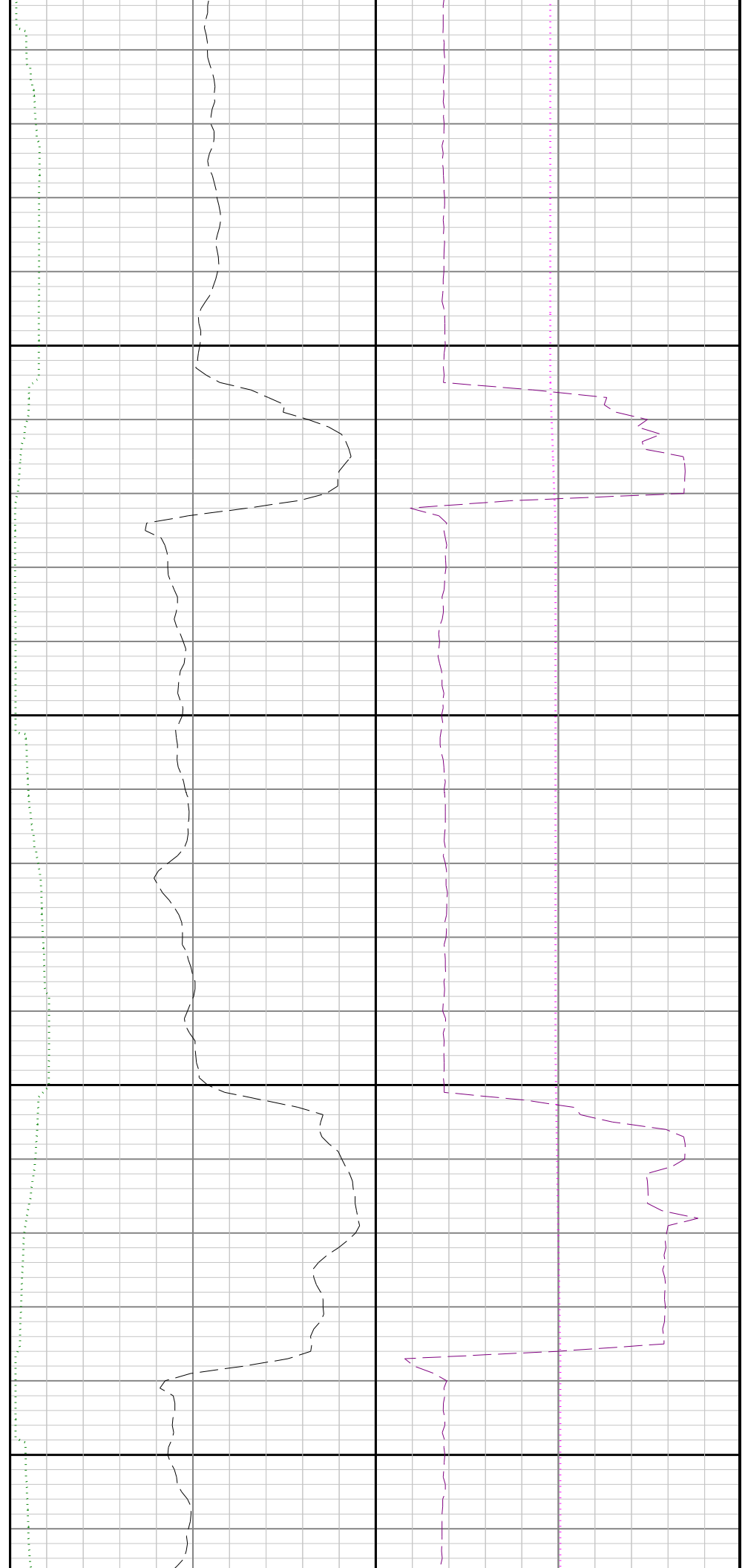
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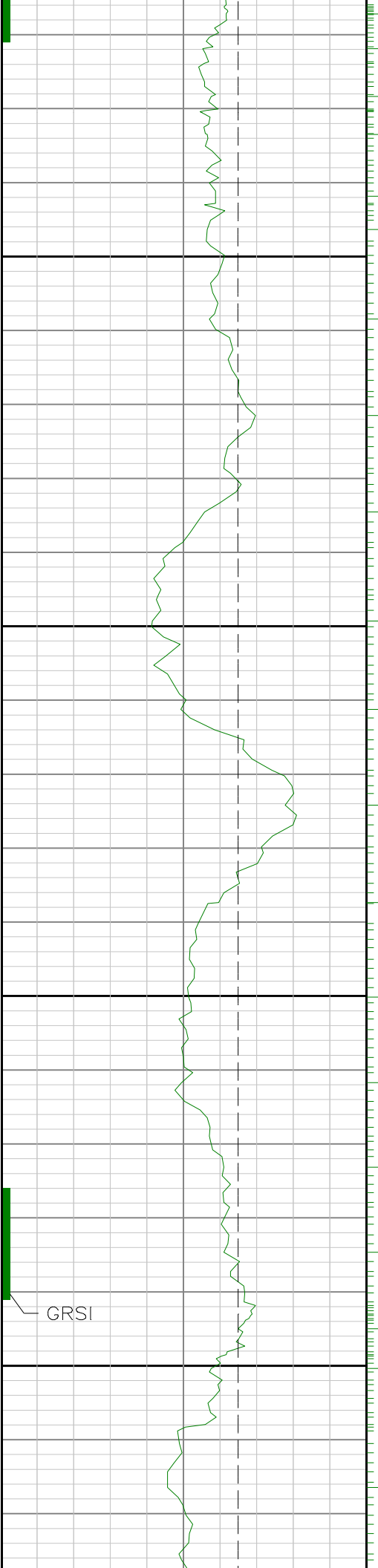




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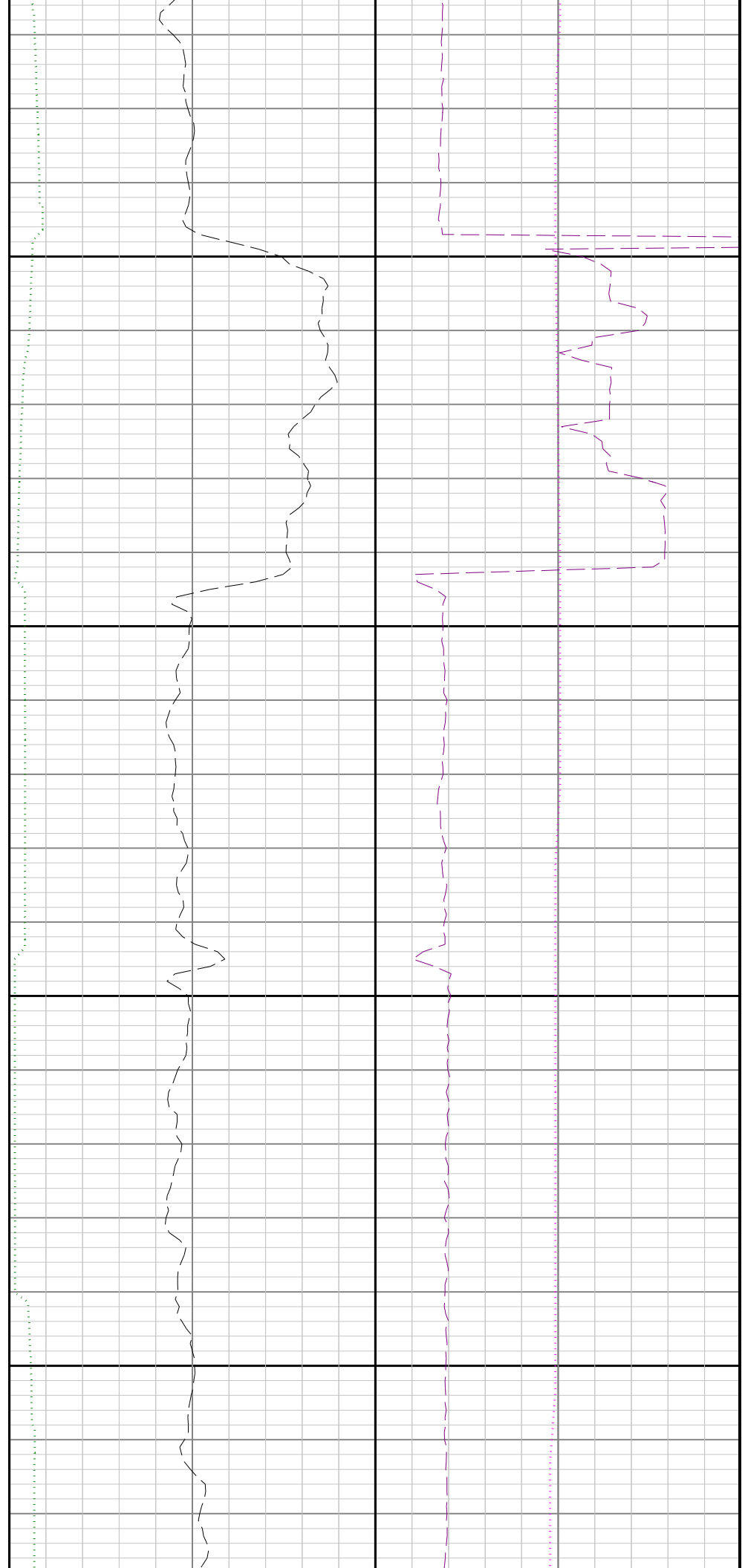
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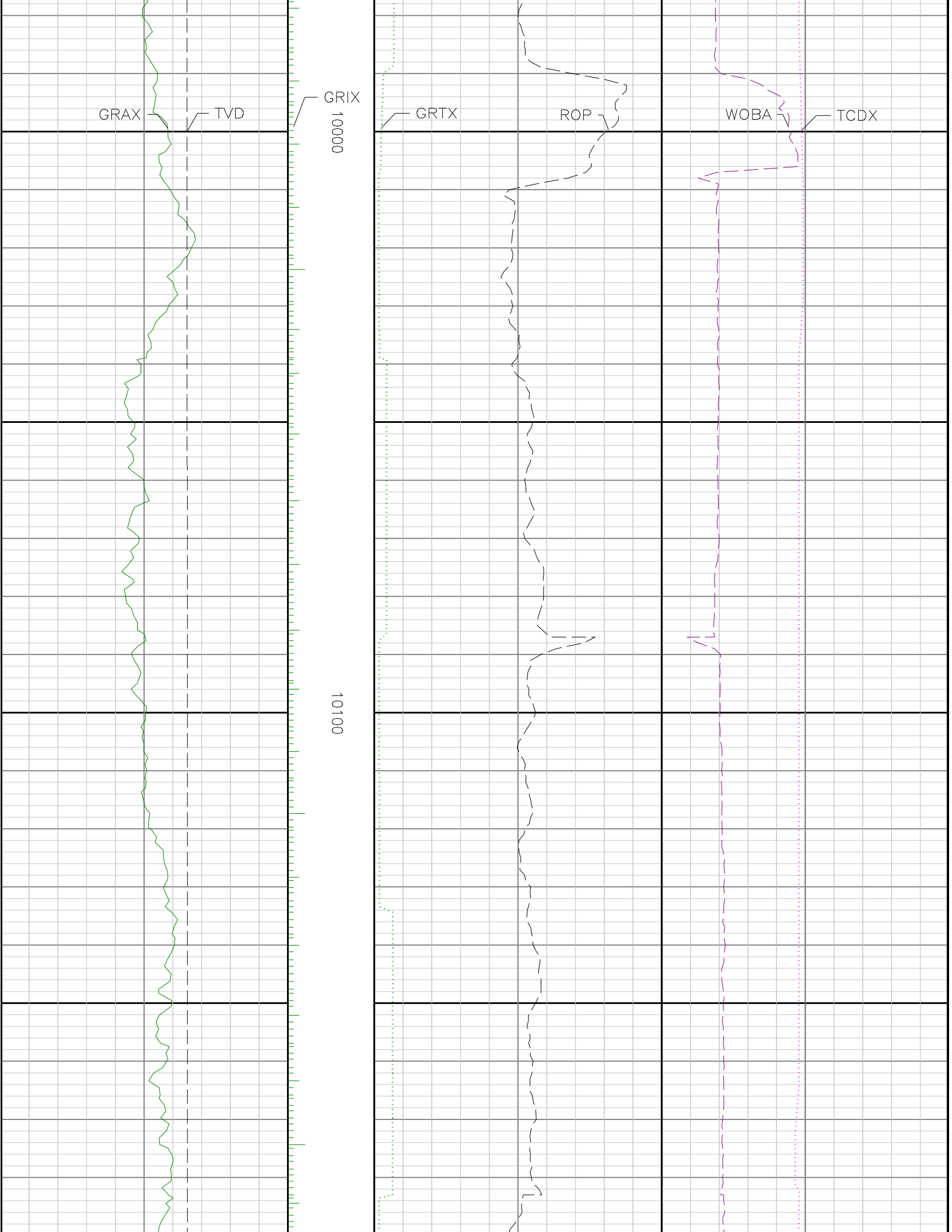


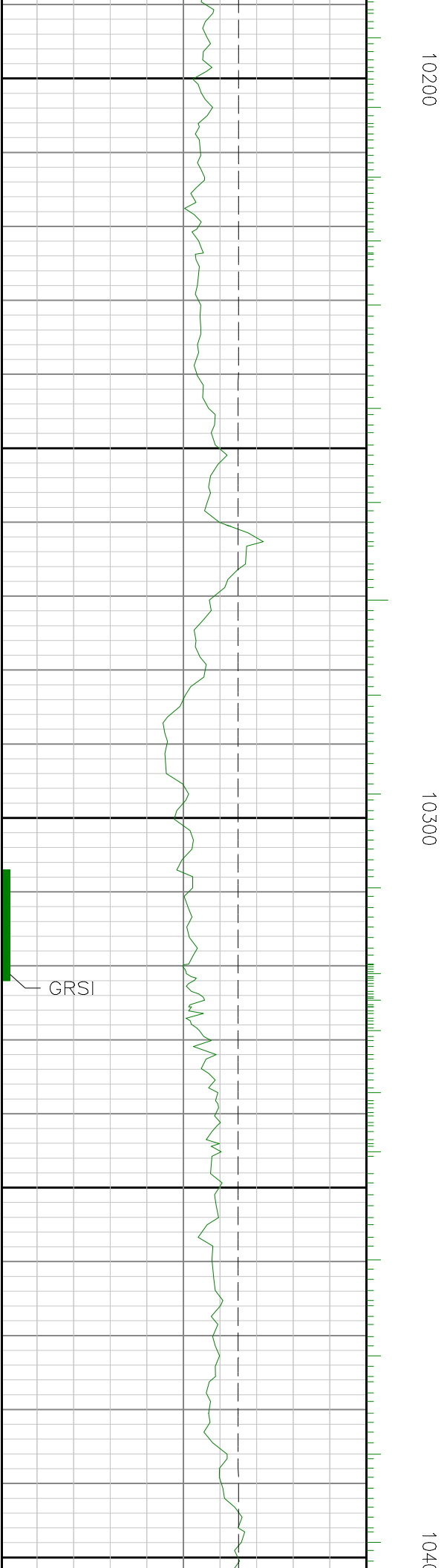
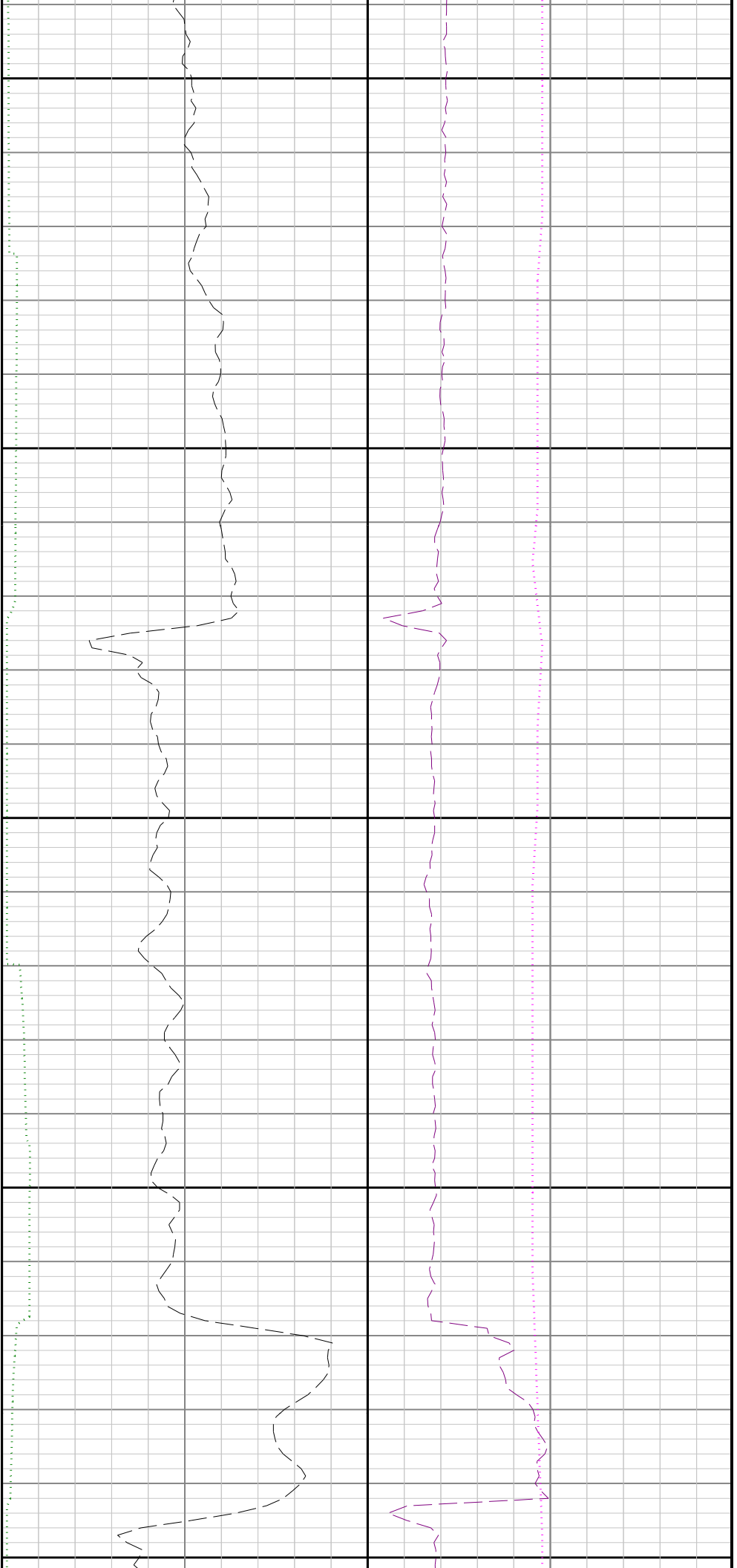


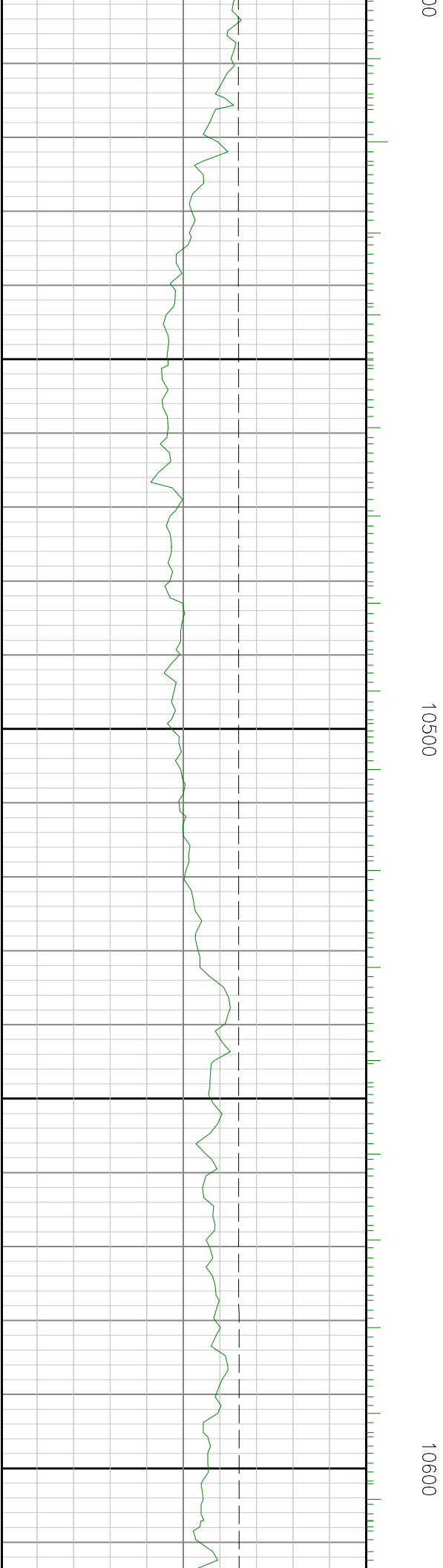
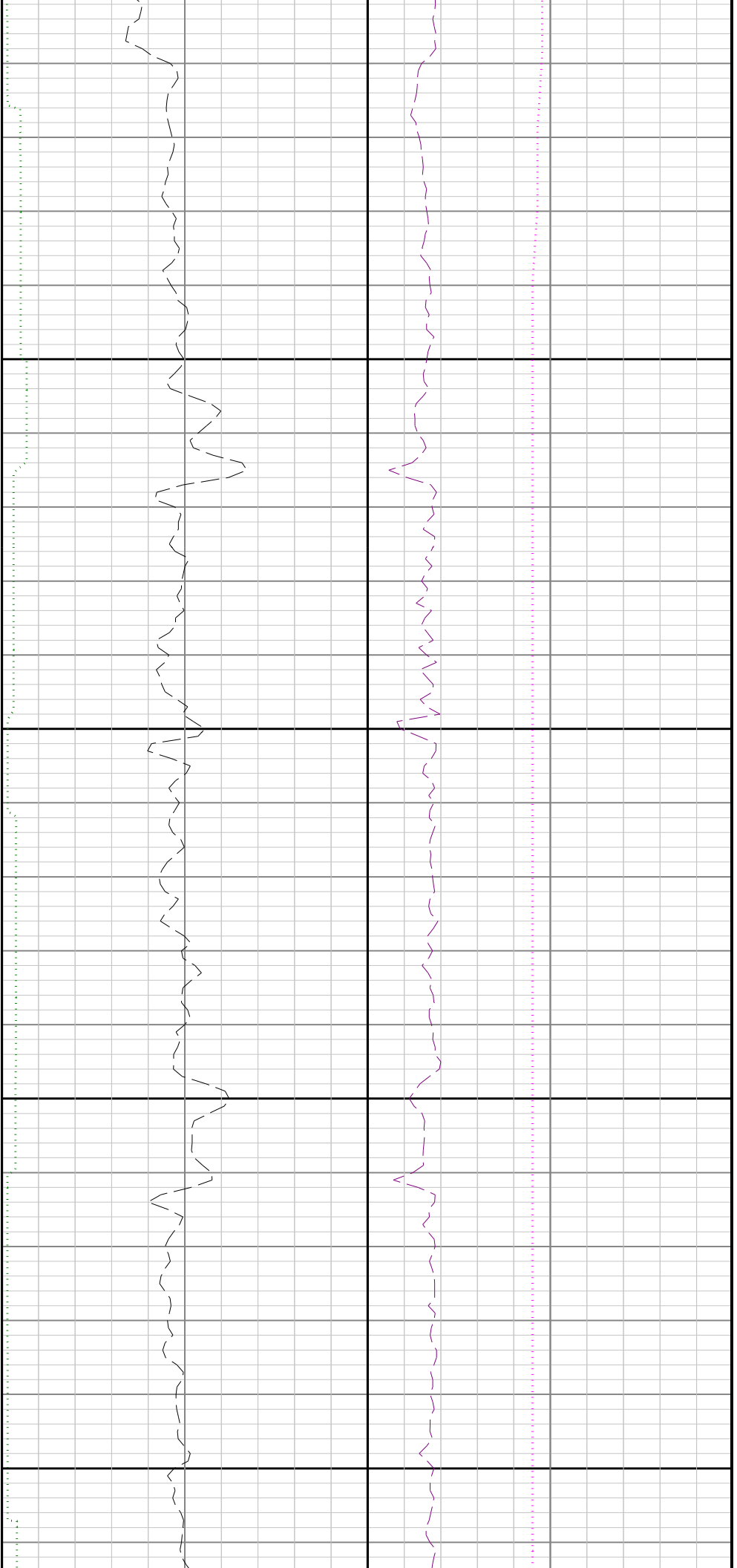
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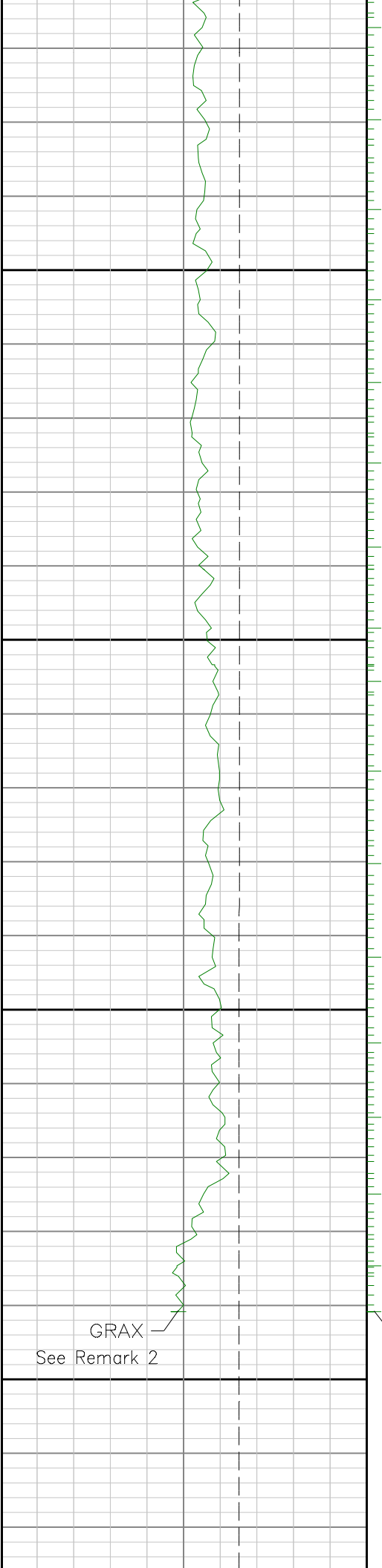
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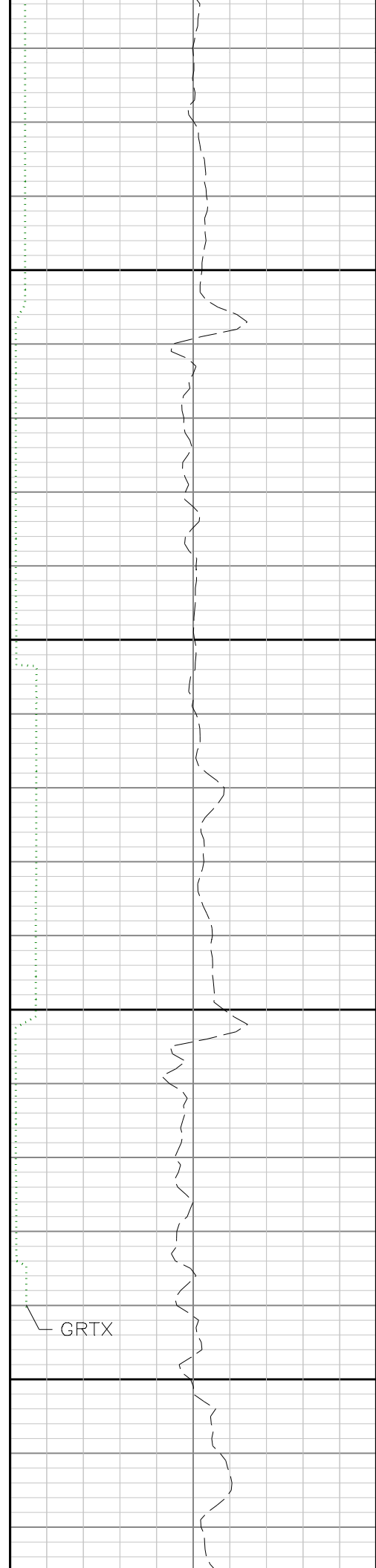




GRAX
See Remark 2

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GRTX

