


LWD MEMORY LOG									
<div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div></div></div>				Gamma Ray					
Scale:		Company: Great Western Operating Company LLC							
1:240		Well: RIO LC 12-368HC							
Measured Depth		Field: Adams County							
		County: Adams							
		Country: United States							
Depth Reference:		State: Colorado							
Driller's Depth		Other Services:							
Status:		Surface Location:				Latitude: 039° 59' 58.182" N			
Final Print		Longitude: 104° 56' 23.215" W				Directional			
API No: 05-001-10462		SEC: 6 TWN: 1S RGE: 67W				Elev. KB: 5088.40 ft			
Job ID: 109935036		Permanent Datum (P.D.): Ground Level				Elev. DF: 5068.40 ft			
Log Measured From: Rig Floor		Above P.D.: 20.00 ft				Elev. GL: 5068.40 ft			
Dates		Interval		Magnetic Field Reference					
From: 2019-07-26		Drilled (ft)		Logged (ft)		Azi Reference North:		True Dip Angle: (deg)	
To: 2019-08-03		Top: 1772.00		Top: 1772.00		Total Magnetic Field Strength: (nT)		51903	
Spud: 2019-07-04		Bottom: 18283.00		Bottom: 18270.00		Mag to Reference North Correction: (deg)		8.24	
Borehole Record									
Casing Record									
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)	
13.500		20.00		1772.00		9.625		36.00	
8.500		1772.00		18283.00					

2	AutoTrak Curve Steering Unit	14547138	Near Bit VSS	5.93	6.90	7.000	4.330
2	AutoTrak Curve Steering Unit	14547138	Near Bit Inclination	5.93	6.90	7.000	4.330
2	AutoTrak Curve MWD	14381913	Gamma (single)	2.20	12.52	7.000	3.250
2	AutoTrak Curve MWD	14381913	Directional (mag)	12.27	22.59	7.000	3.250
3	AutoTrak Curve Steering Unit	14547138	Near Bit Inclination	5.93	7.02	7.000	4.330
3	AutoTrak Curve Steering Unit	14547138	Near Bit VSS	5.93	7.02	7.000	4.330
3	AutoTrak Curve MWD	14381913	Gamma (single)	2.20	12.64	7.000	3.250
3	AutoTrak Curve MWD	14381913	Directional (mag)	12.27	22.71	7.000	3.250
4	AutoTrak Curve Steering Unit	14262242	Near Bit Inclination	5.93	7.02	7.000	4.330
4	AutoTrak Curve Steering Unit	14262242	Near Bit VSS	5.93	7.02	7.000	4.330
4	AutoTrak Curve MWD	14305965	Gamma (single)	2.75	13.19	7.000	3.250
4	AutoTrak Curve MWD	14305965	Directional (mag)	12.27	22.71	7.000	3.250
5	AutoTrak Curve Steering Unit	14856336	Near Bit VSS	5.93	6.93	7.000	4.330
5	AutoTrak Curve Steering Unit	14856336	Near Bit Inclination	5.93	6.93	7.000	4.330
5	AutoTrak Curve MWD	14307439	Gamma (single)	2.78	13.10	7.000	3.250
5	AutoTrak Curve MWD	14307439	Directional (mag)	12.27	22.59	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit
ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	Auto Trak Curve LCPM

Comments

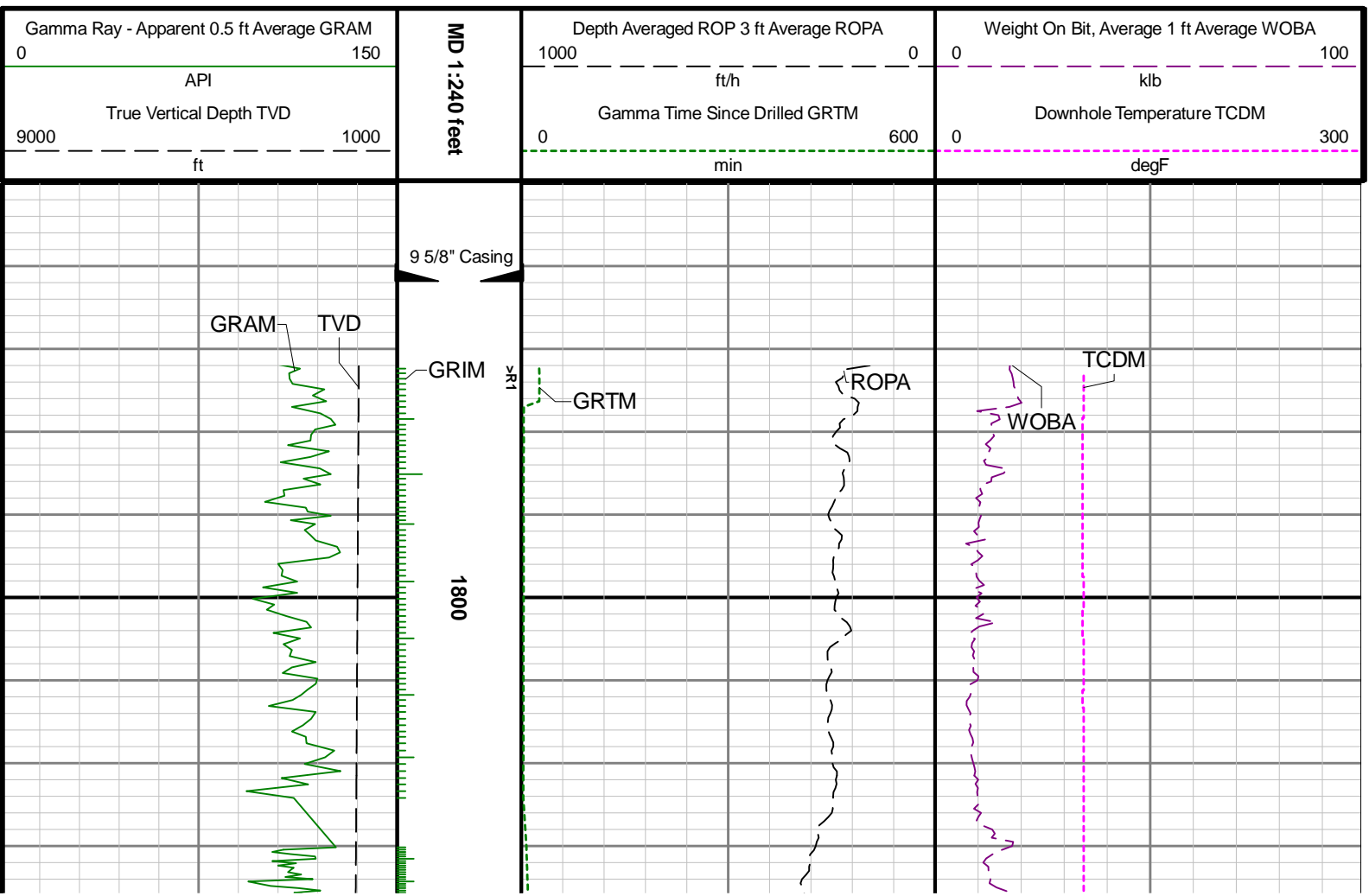
1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes, a GE Company (BHGE). Due to the lack of control by Baker Hughes, depth calibrations and measurements could not be independently verified.
2	BHGE LWD run 1 and 5 utilized a 6.75 inch NaviGamma service (Directional and Gamma Ray) behind a 8.5 inch bit and rotary steerable assembly from 1772 to 18283 feet MD (1772 to 7959 feet TVD).
3	"Date To" indicates the date and time the well reached Total Depth (TD) and logging services ended.
4	Gaps in Gamma appear in the memory logs due to memory malfunction.

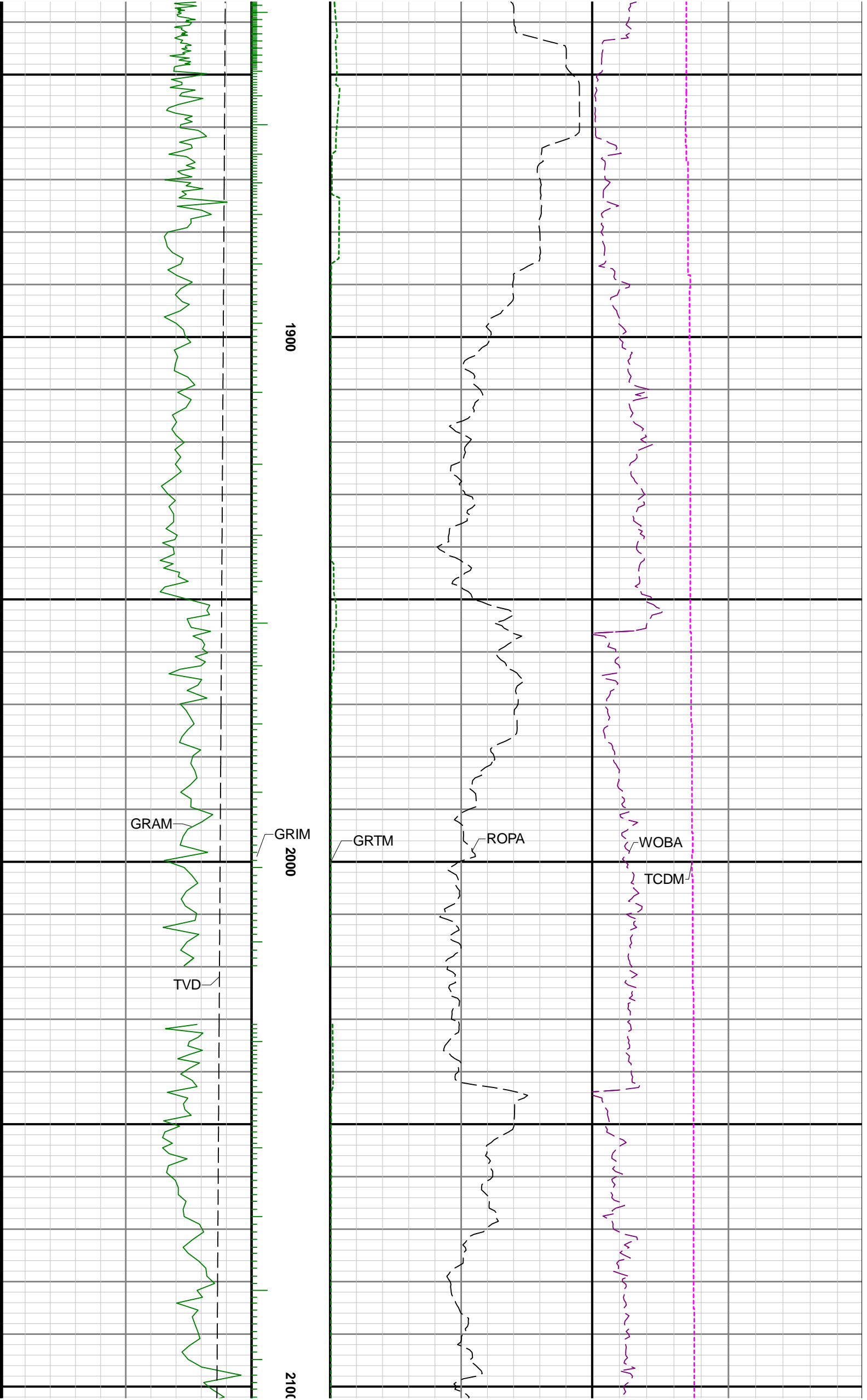
Remarks

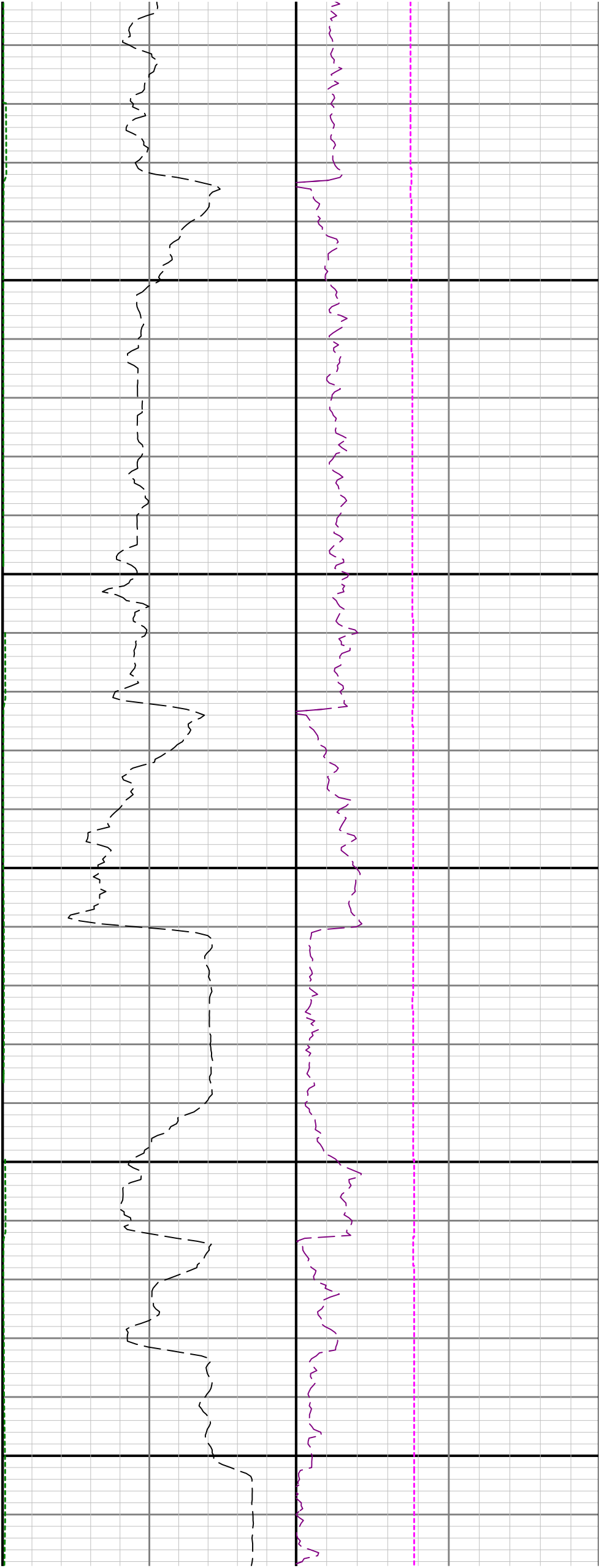
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	7038.00	8.500	2	The interval from 7038 to 7051 feet MD (6707 feet TVD) was logged up to 9.28 hours after being drilled due to a trip out of the hole to recover the rabbit used by drill crew to drift pipe on the floor.
2	15962.00	8.500	4	The interval from 15962 to 15975 feet MD (7940 feet TVD) was logged up to 35.66 hours after being drilled due to a trip out of the hole to pick up a new bit, motor, rotary steerable assembly, and third party logging tools.
3	17824.00	8.500	5	The interval from 17823 to 17837 feet MD (7962 feet TVD) was logged up to 20.5 hours after being drilled due to a trip out of the hole to pick up a new bit and rotary steerable assembly.
4	18270.00	8.500	5	The interval from 18270 to 18283 feet MD (feet TVD) was not logged after being drilled due to sensor to bit offset at well TD.

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	Gamma Ray - Time Since Drilled - Memory	min
TCDM	Directional Real-Time Survey Temperature	degF

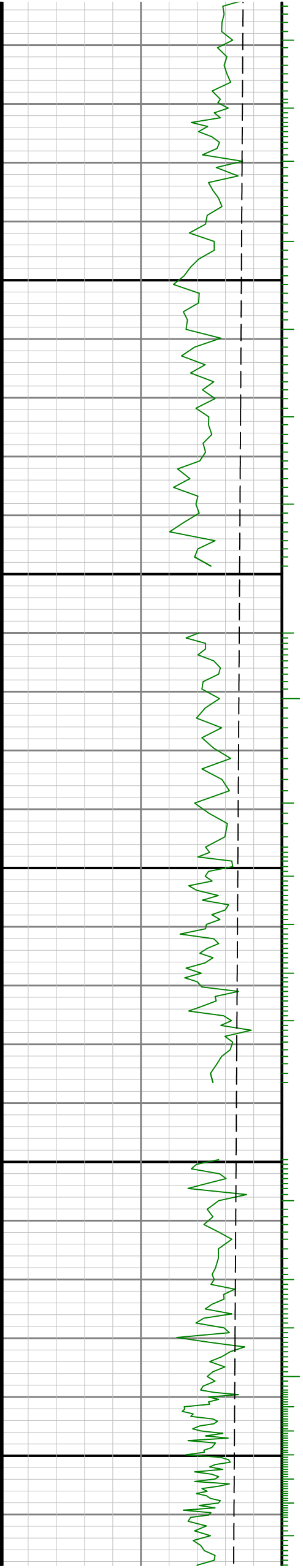


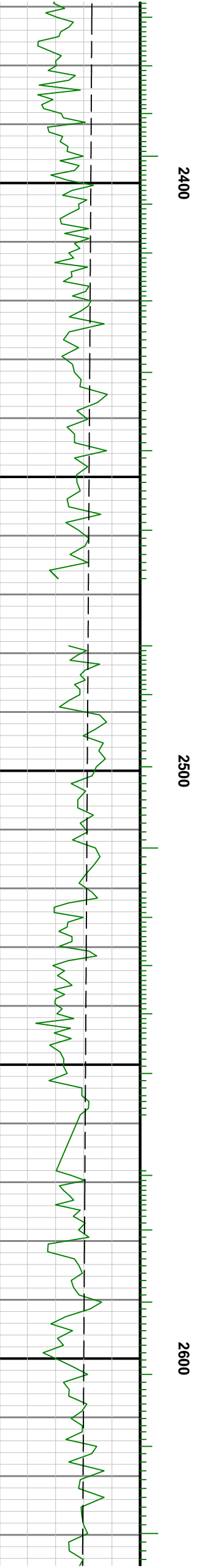


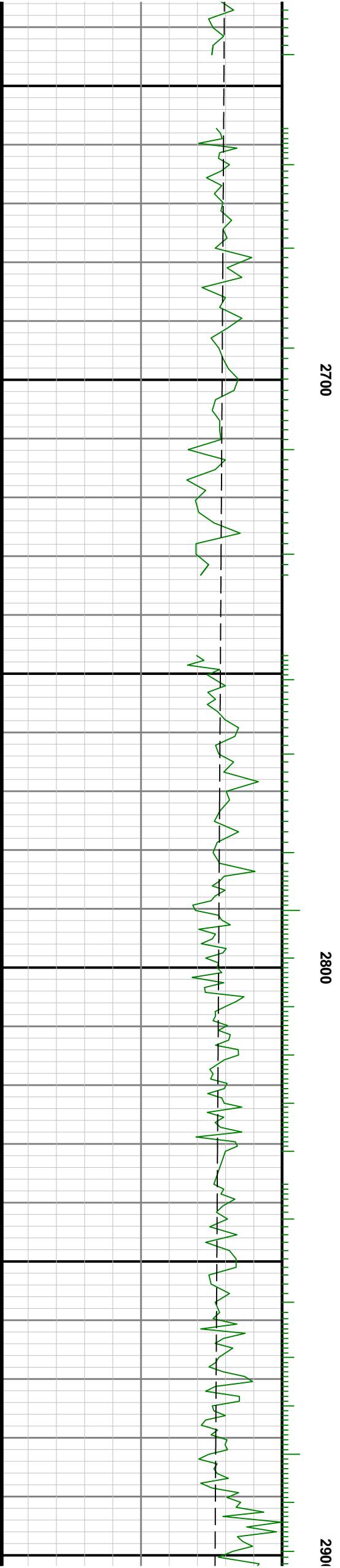
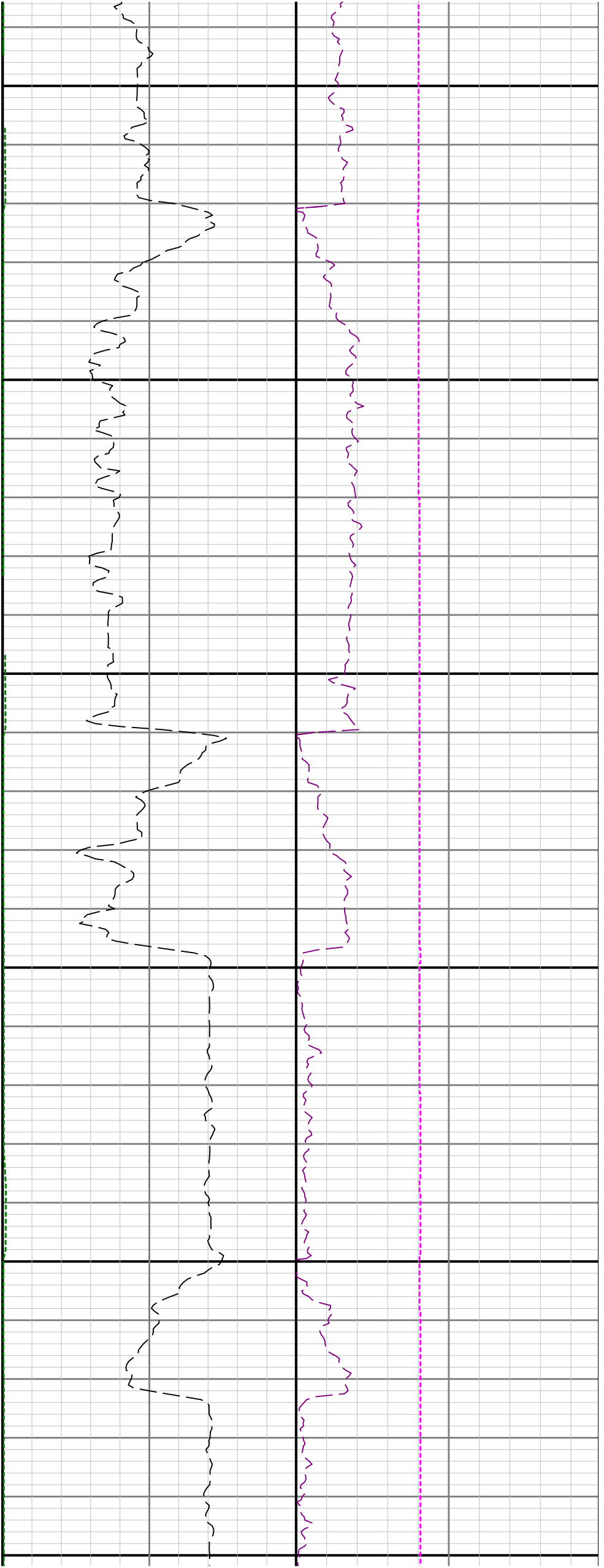


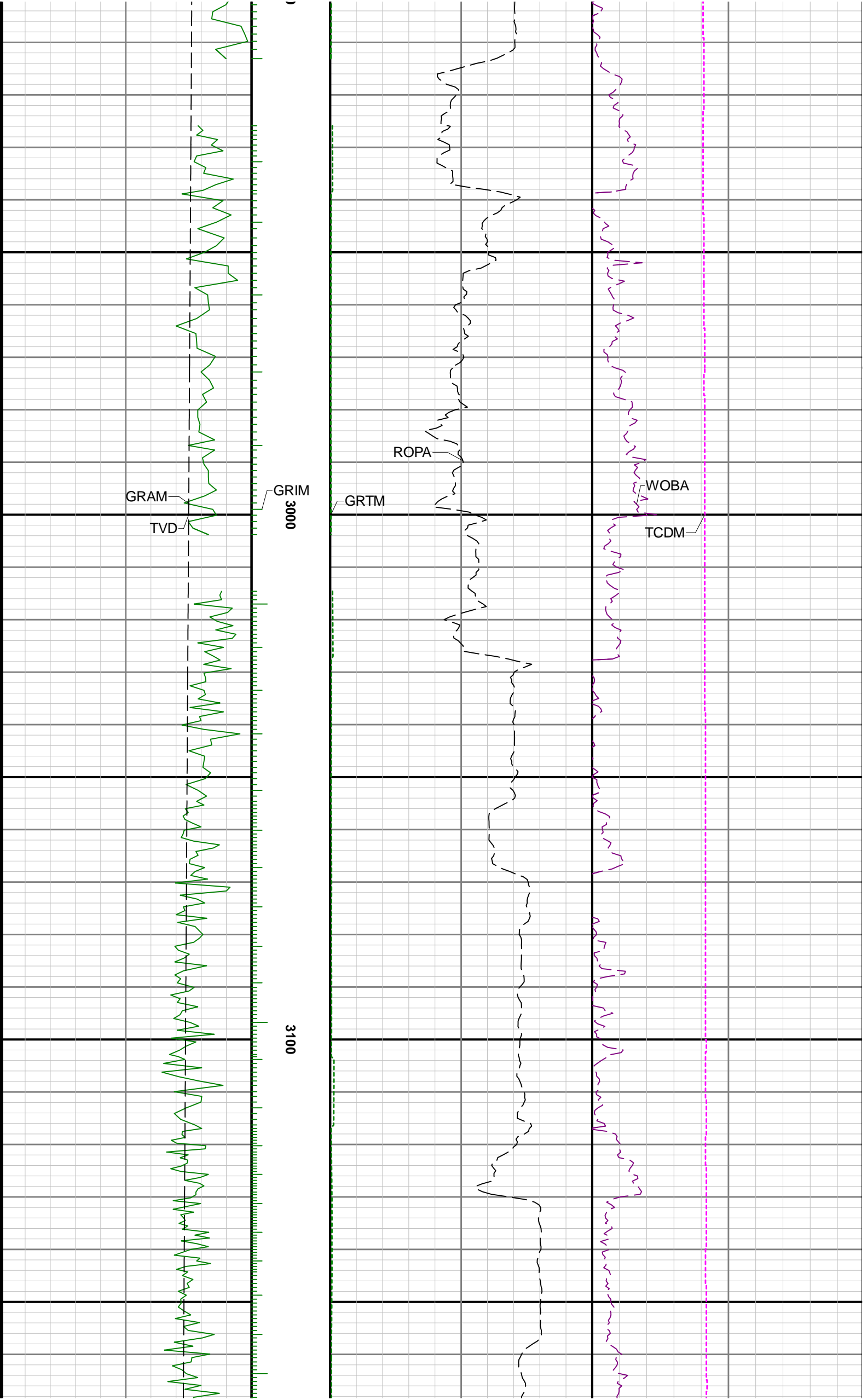
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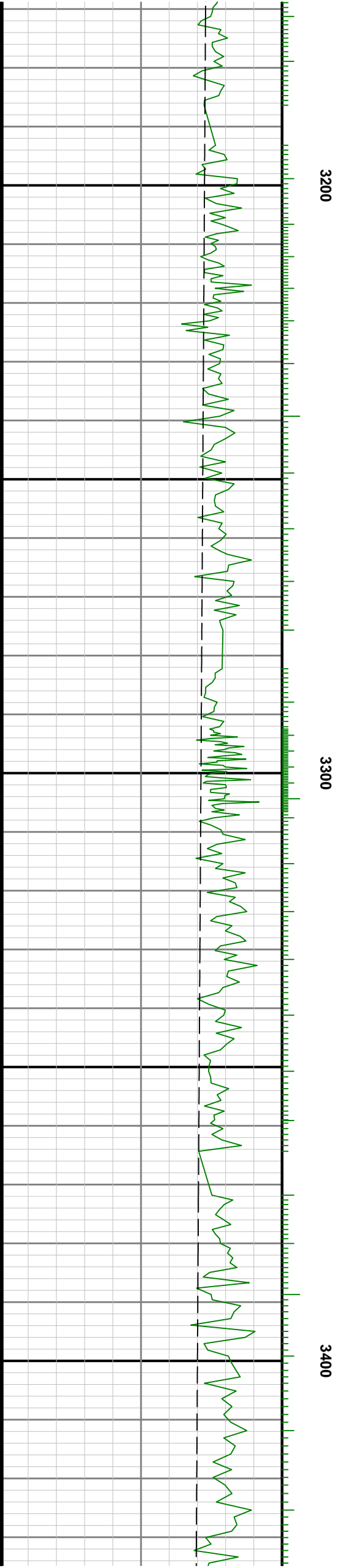
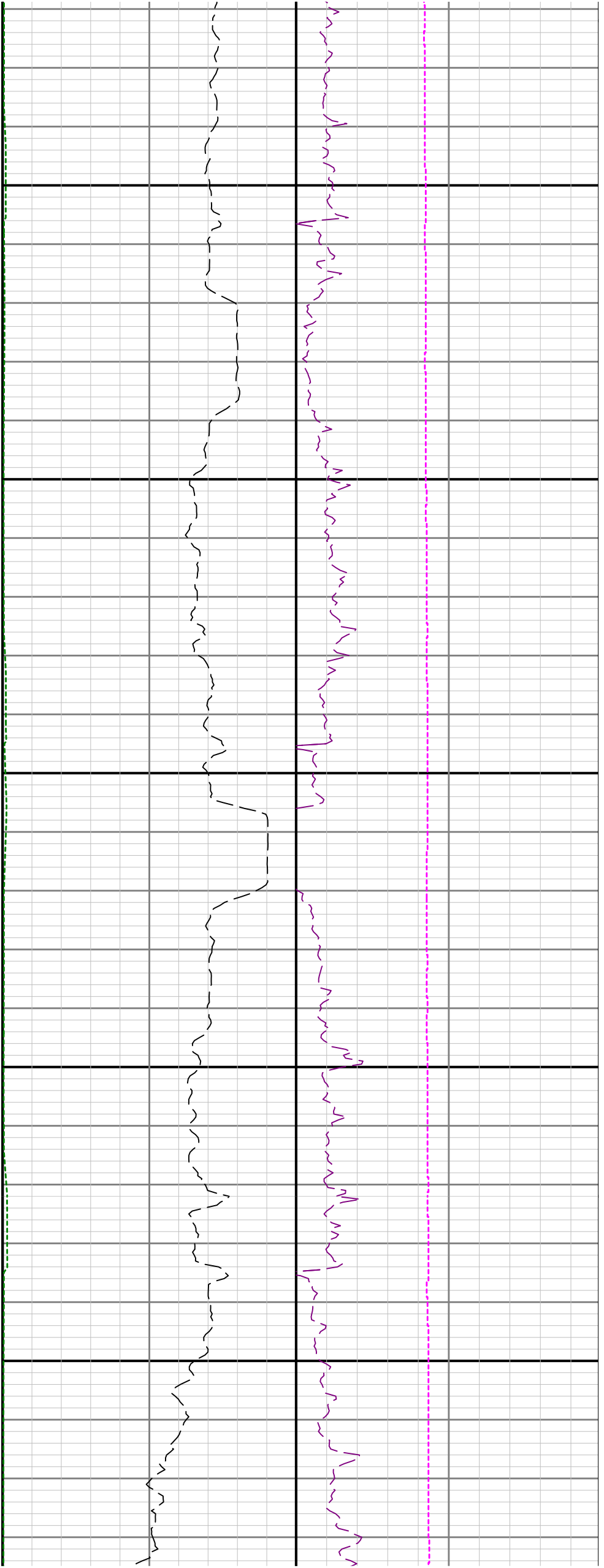
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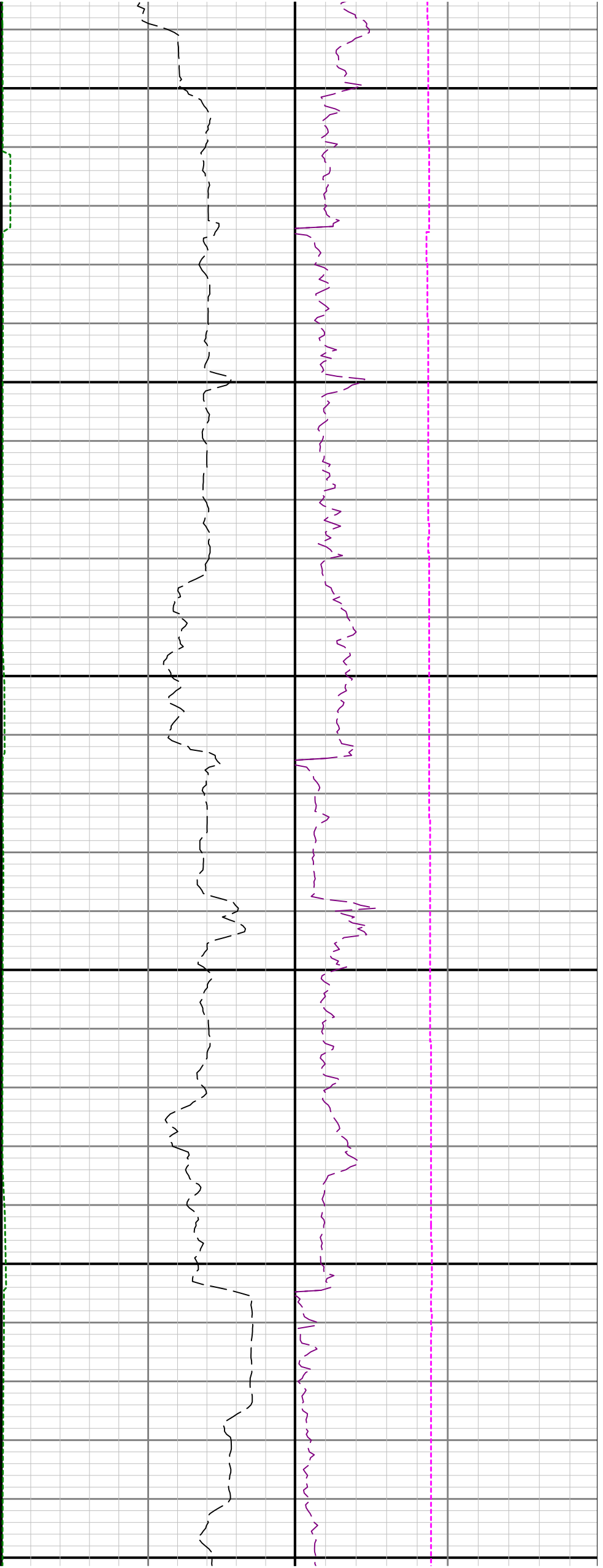








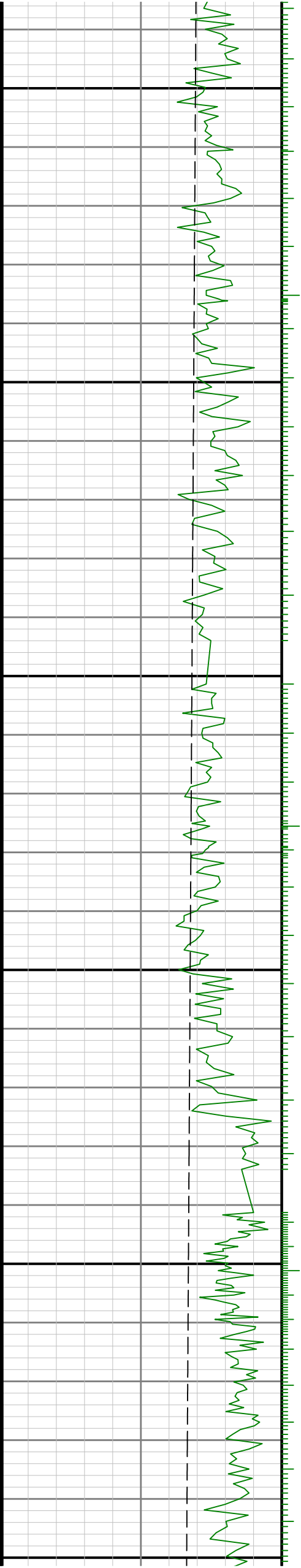


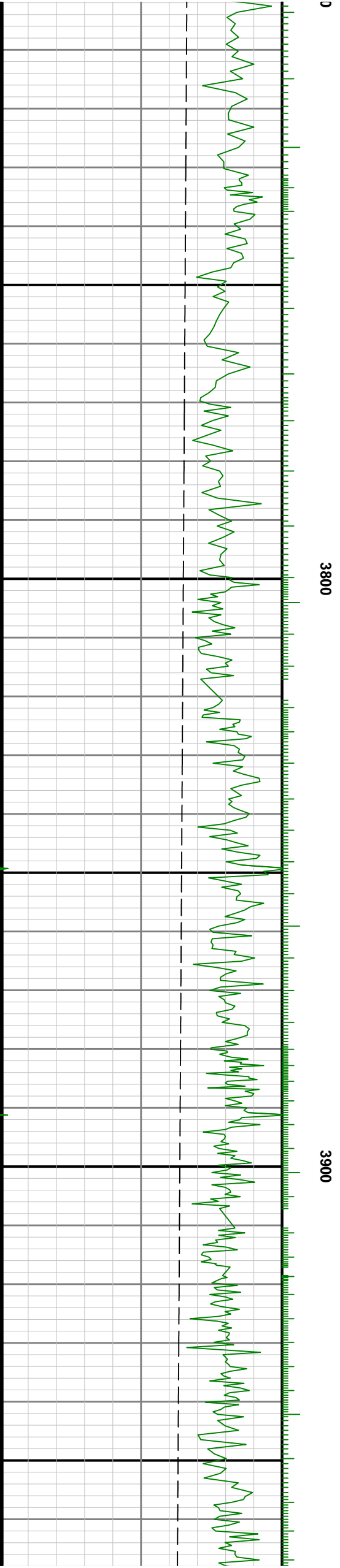
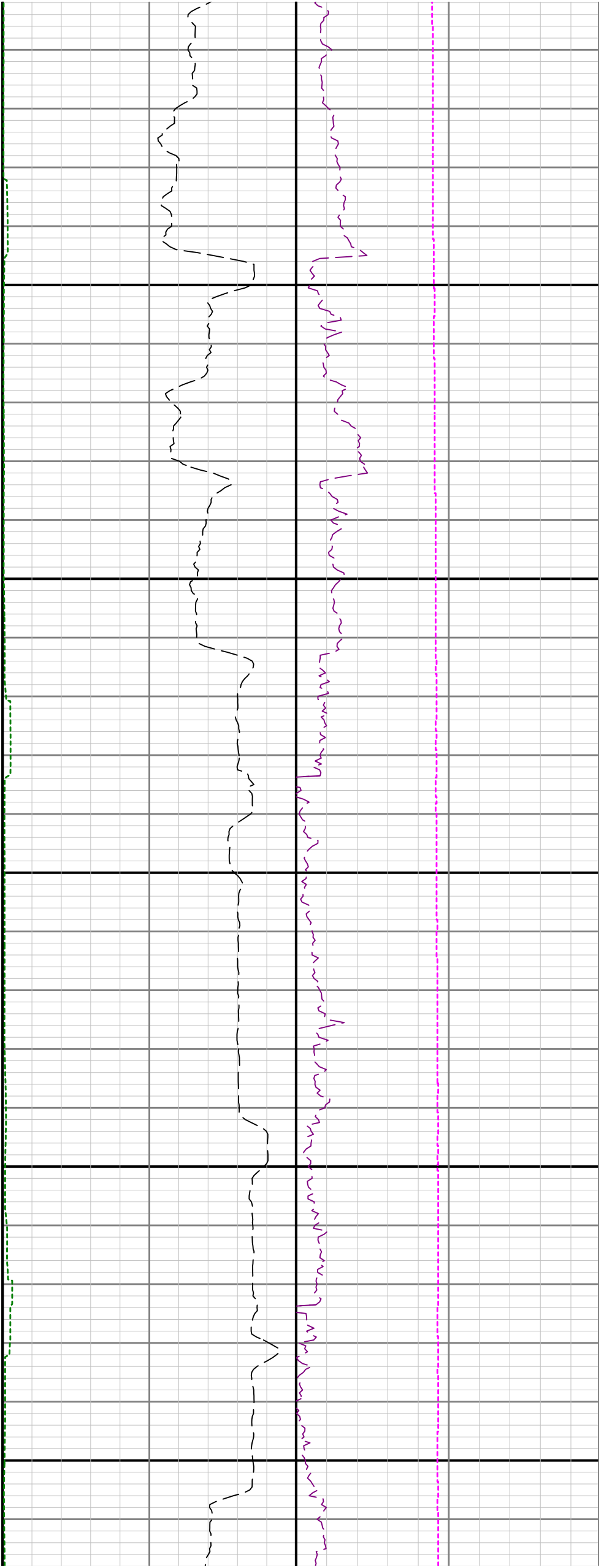


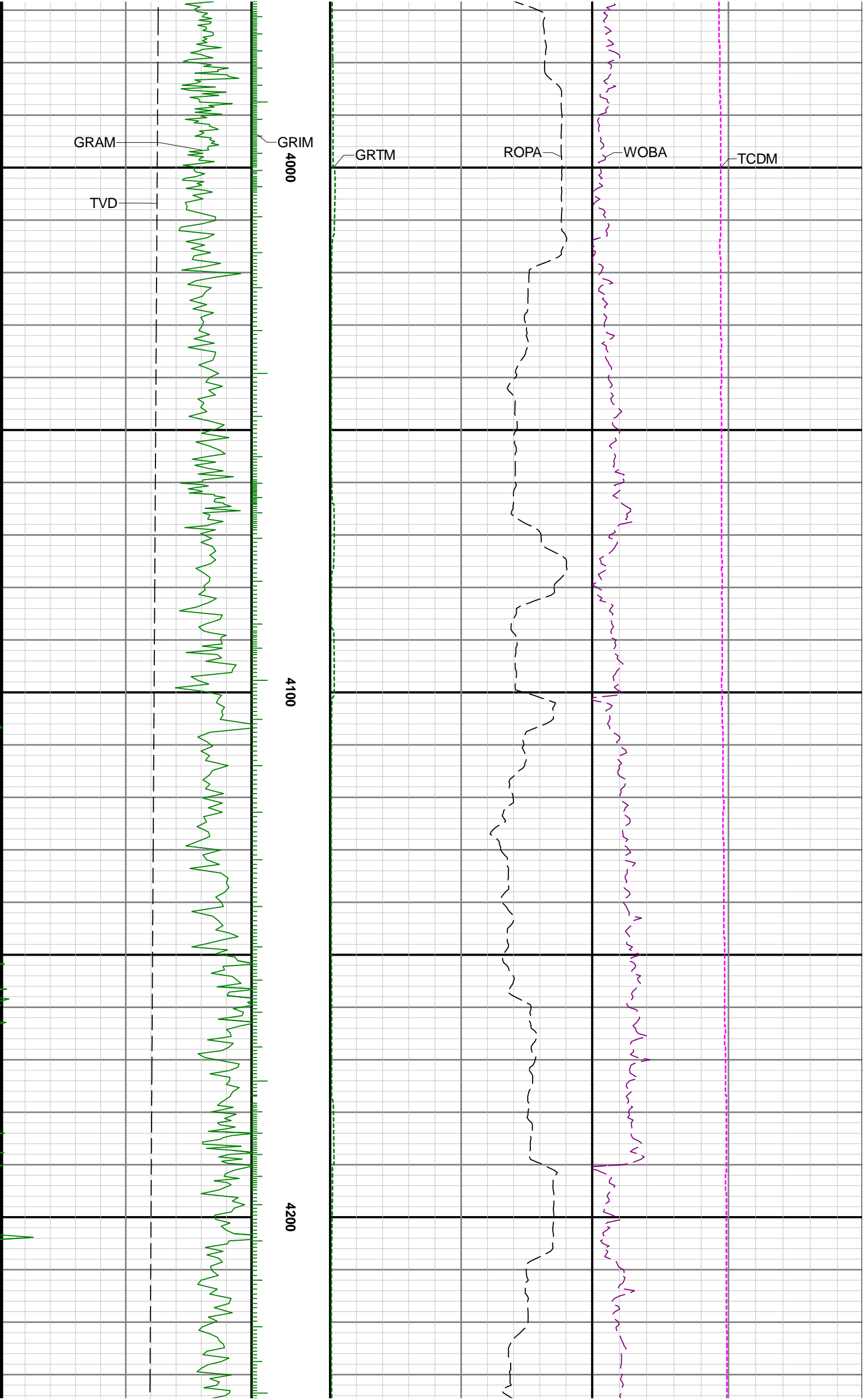
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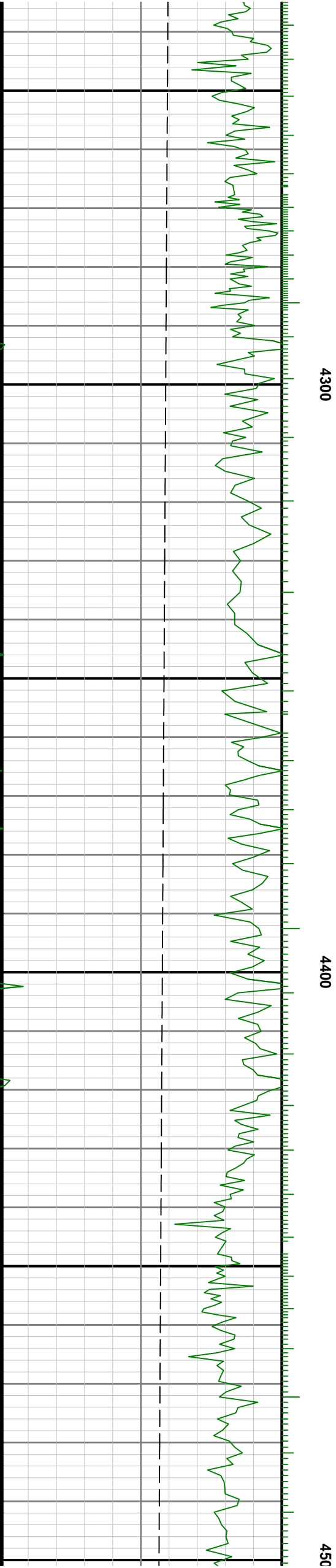
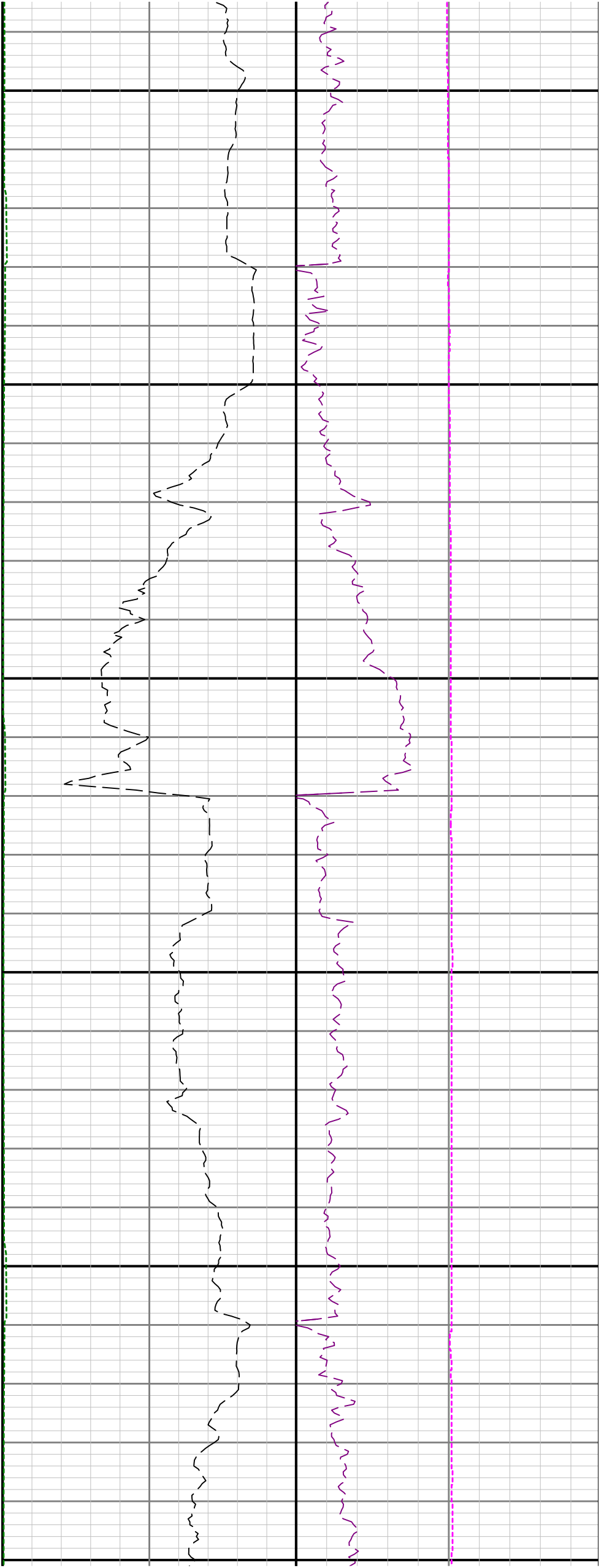
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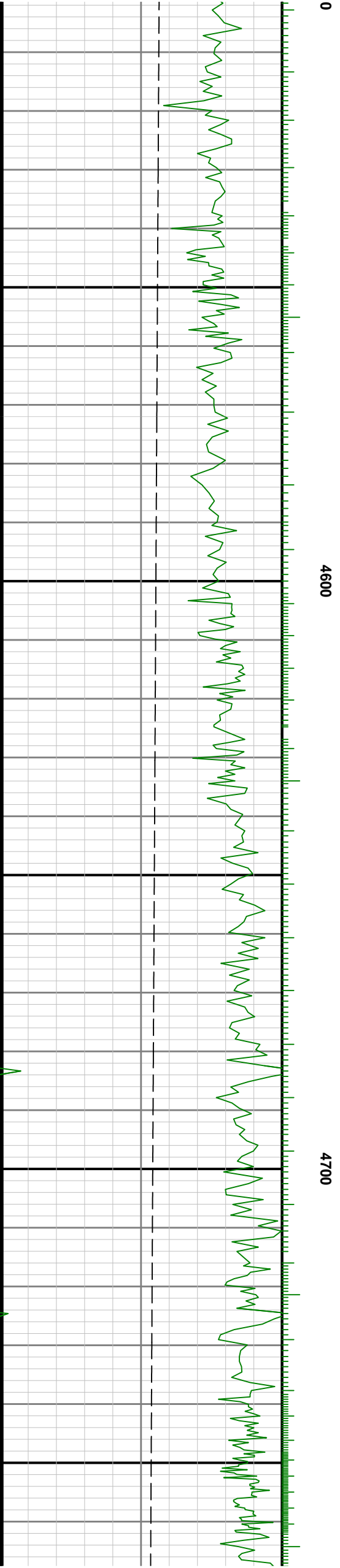
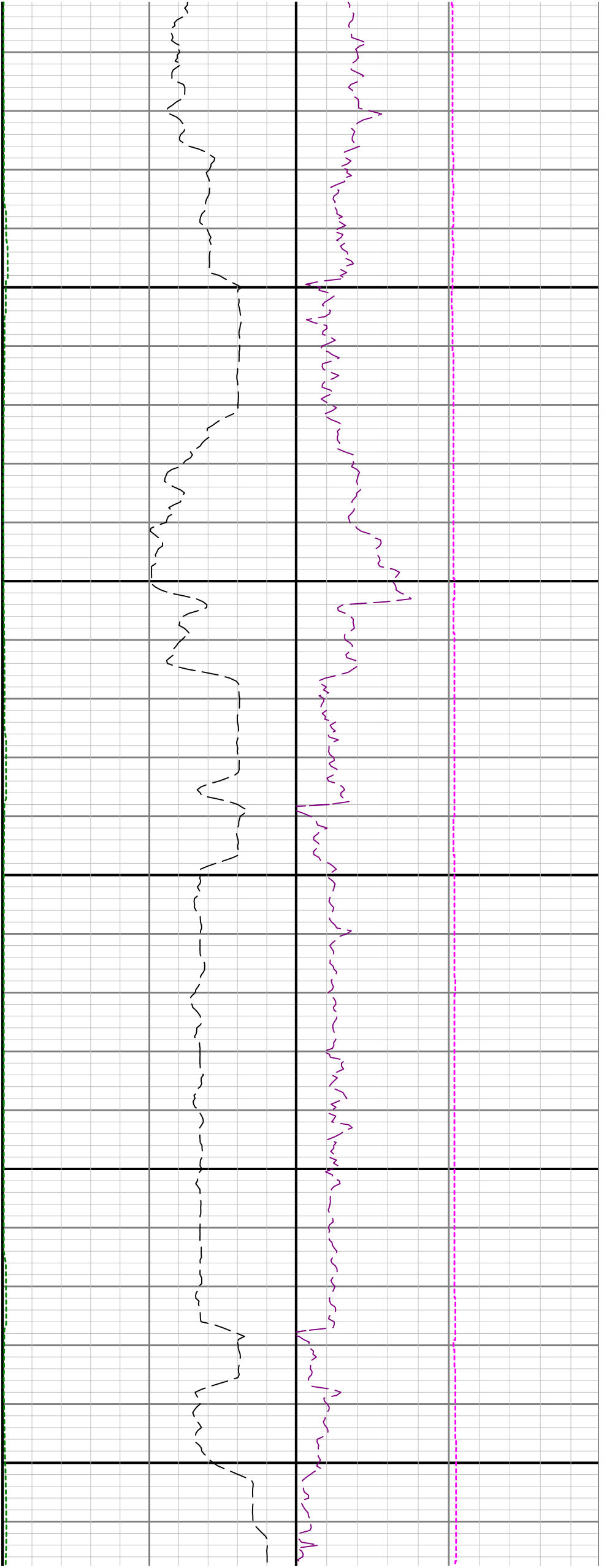
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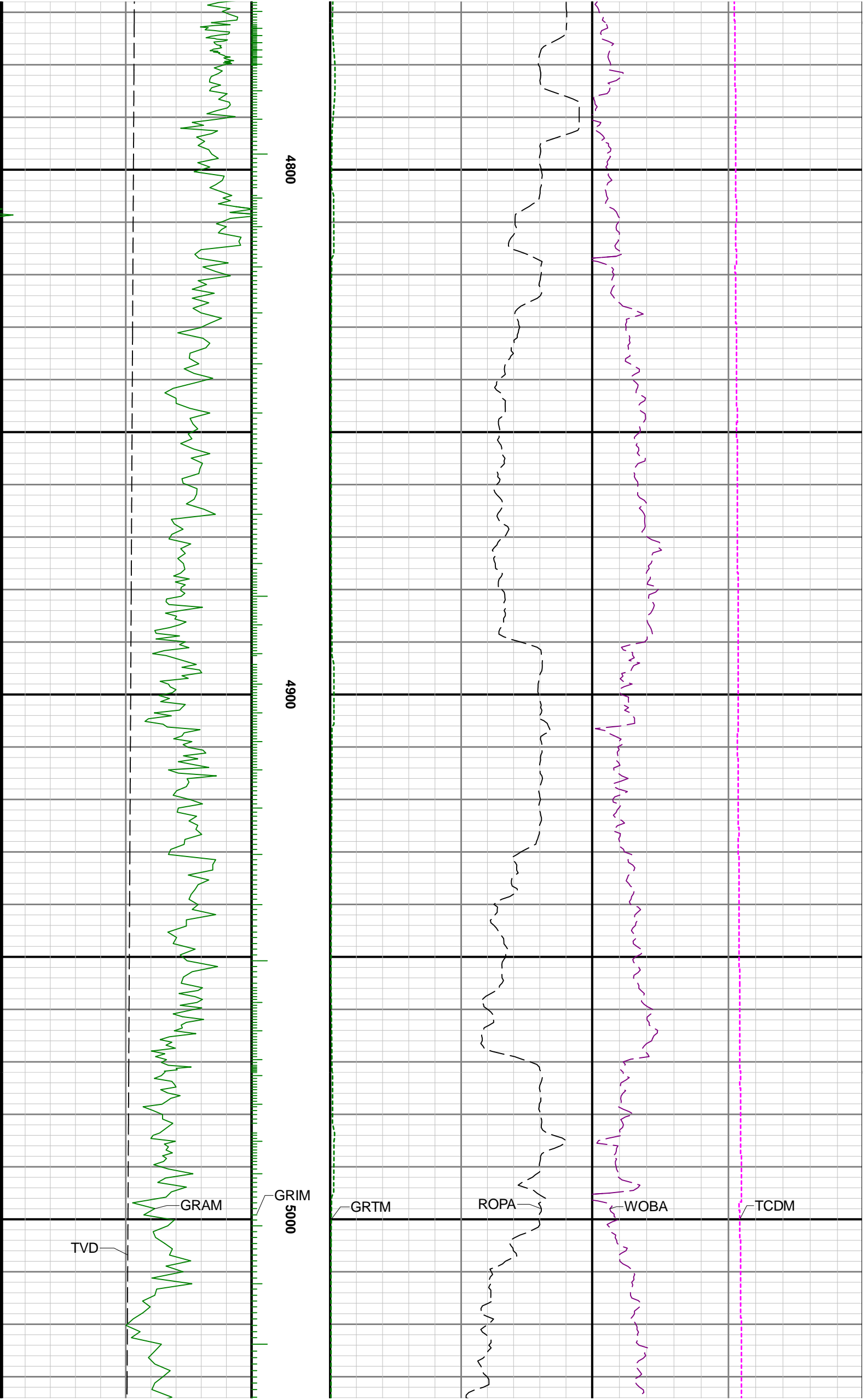


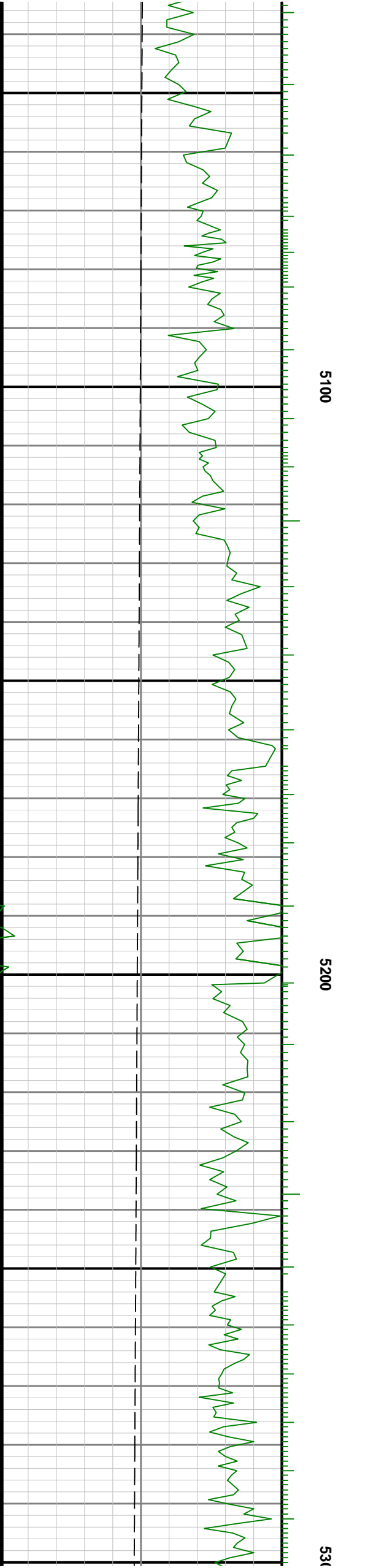
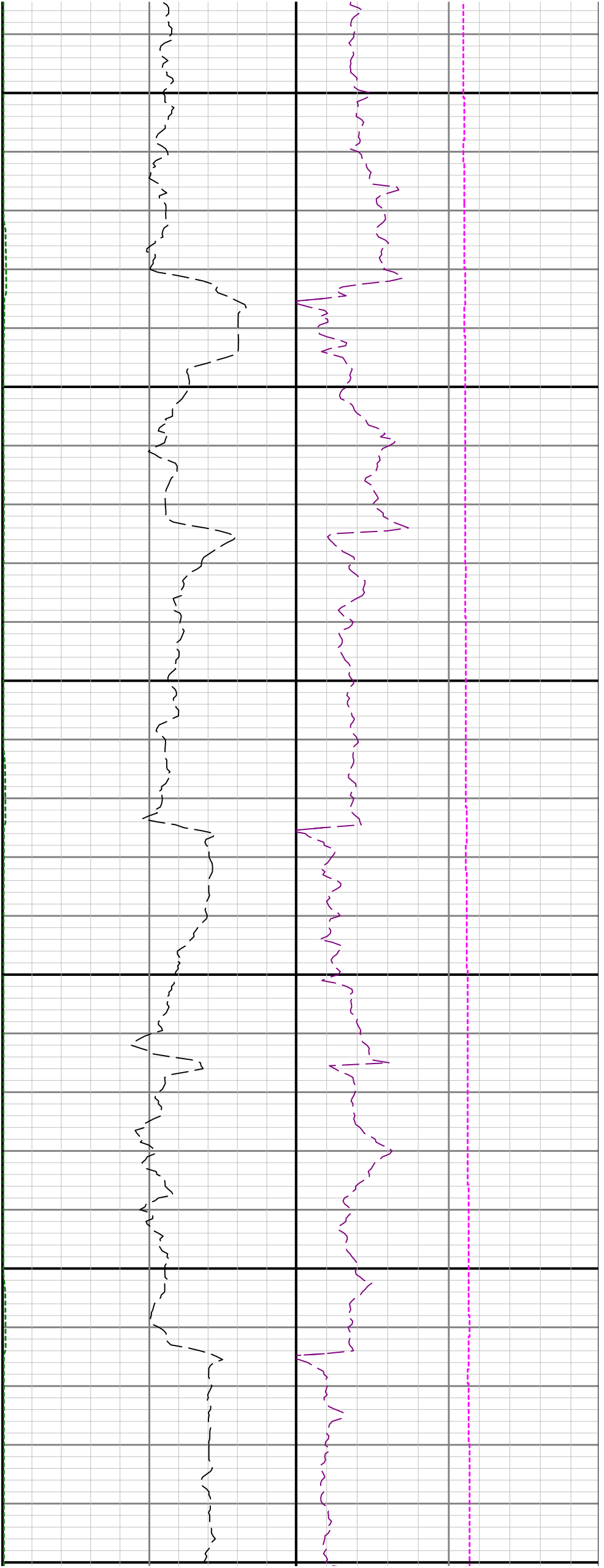


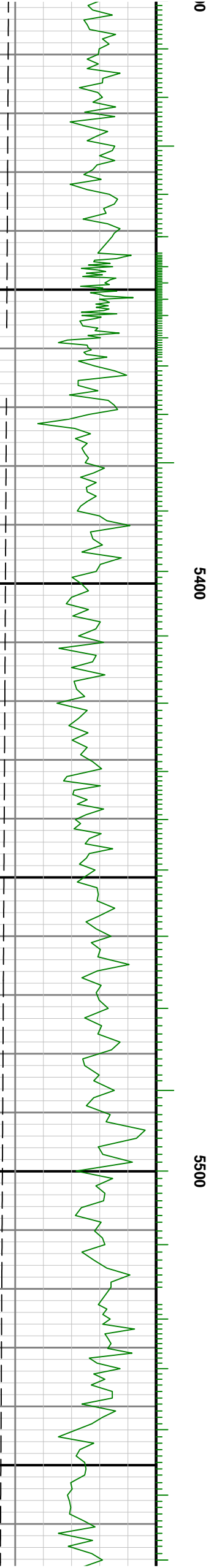
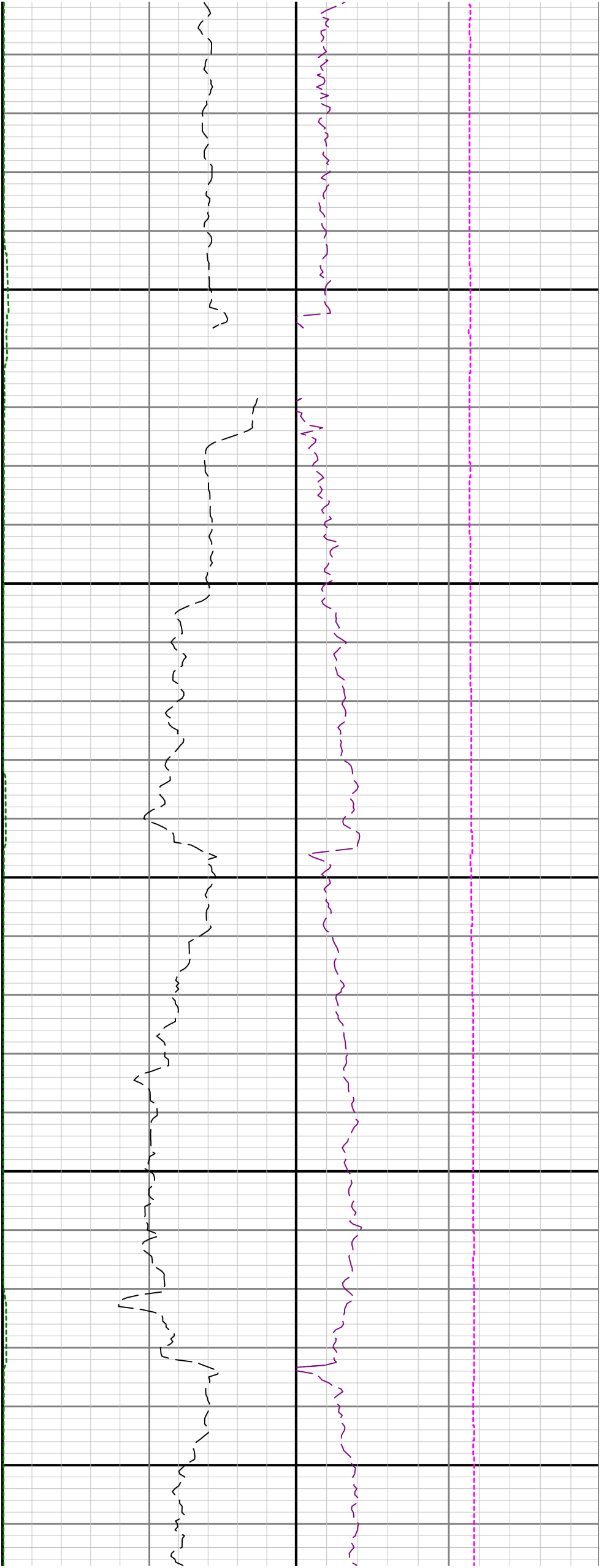


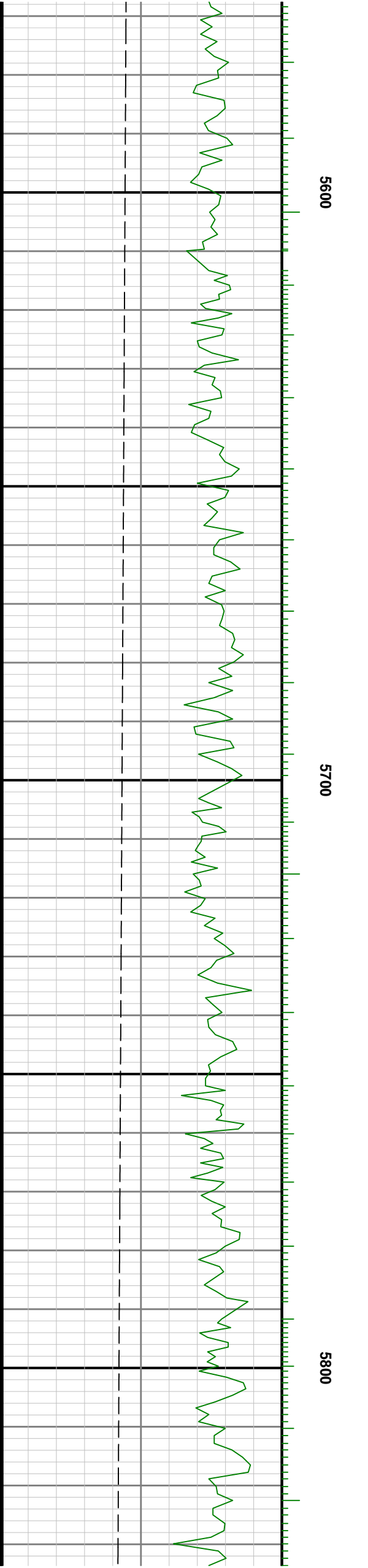
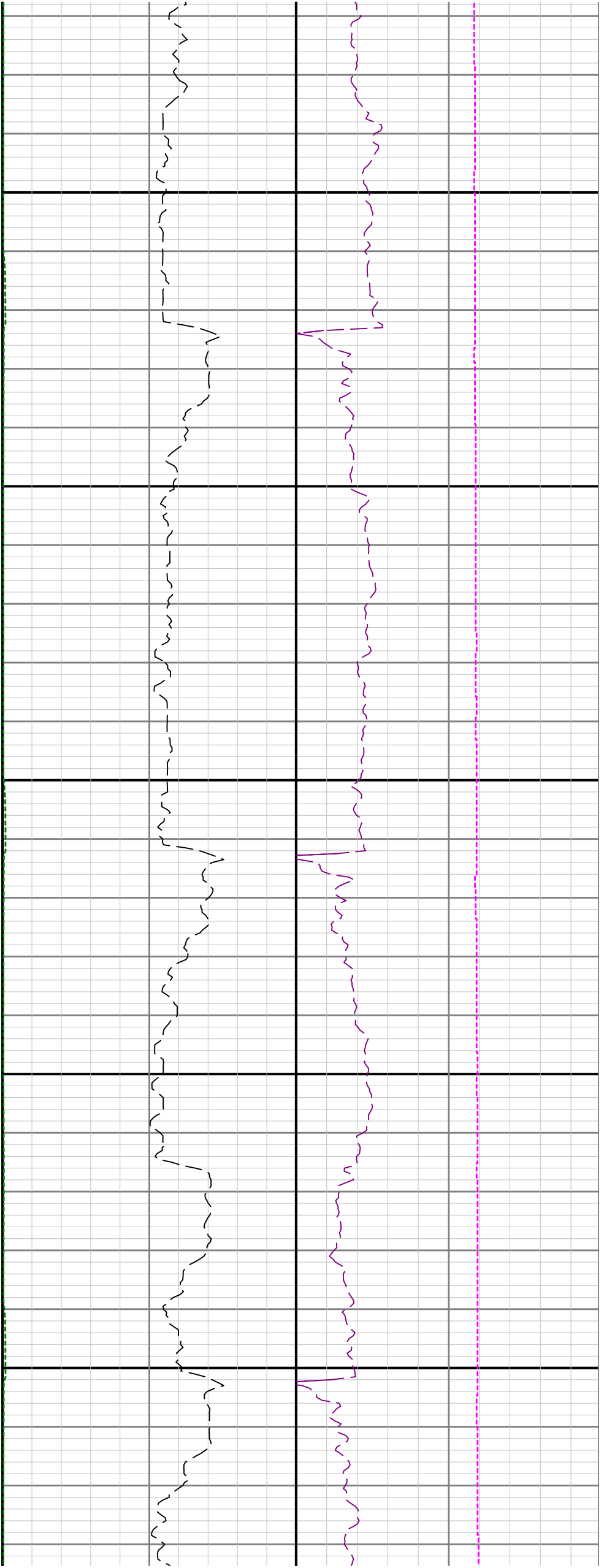


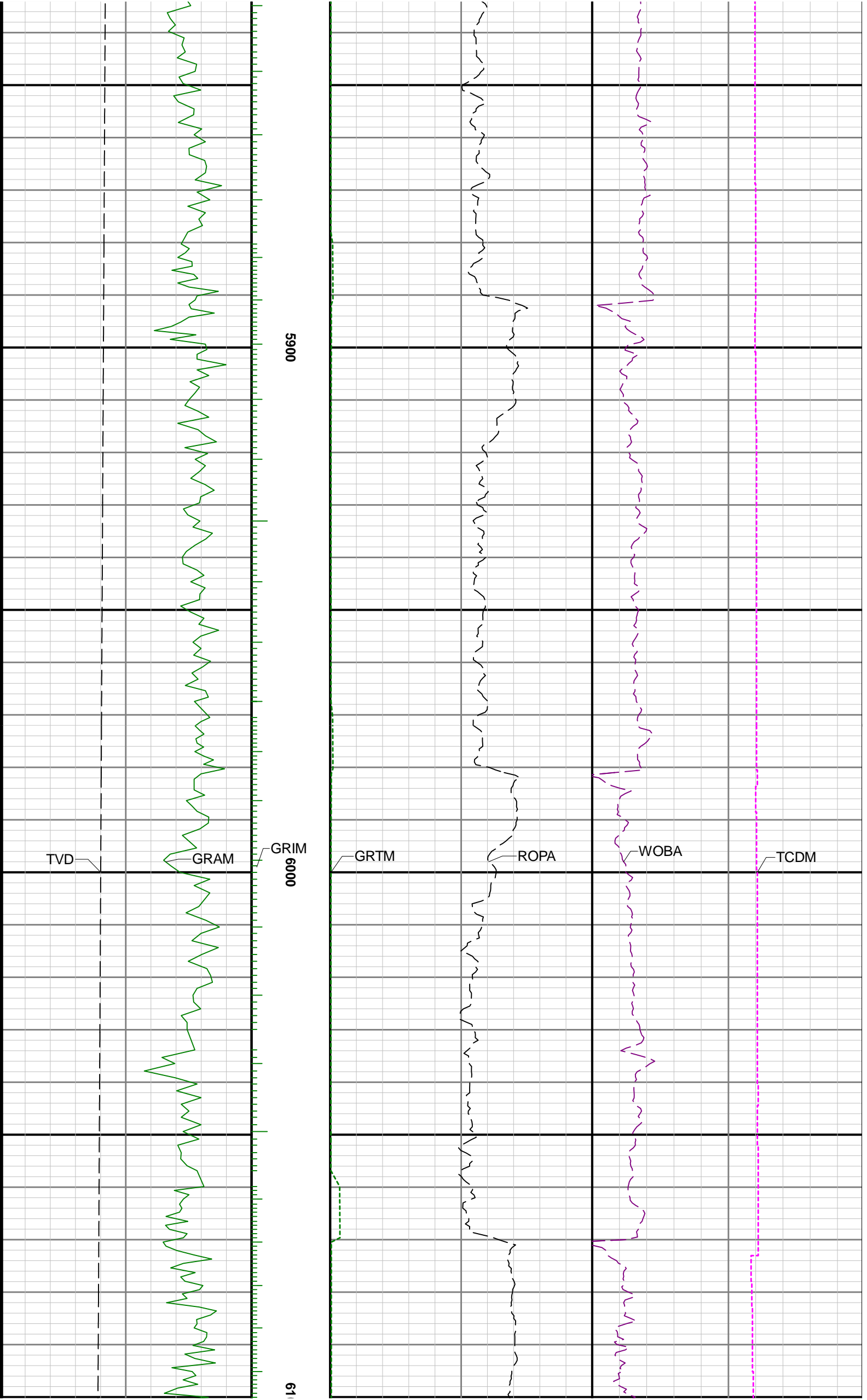


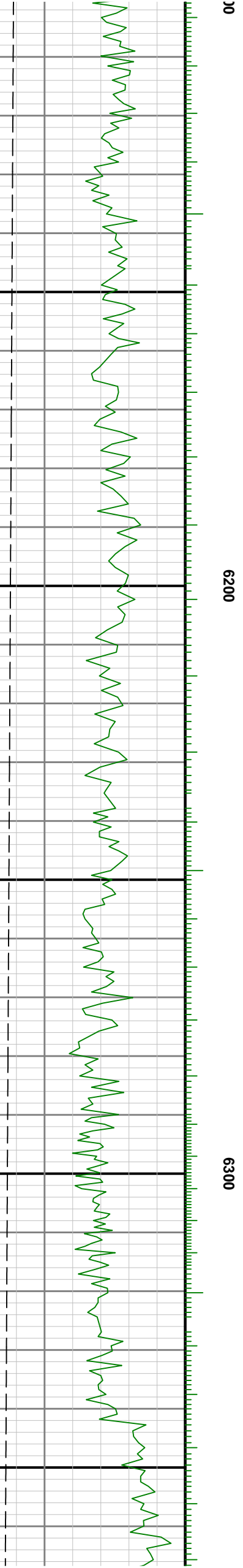
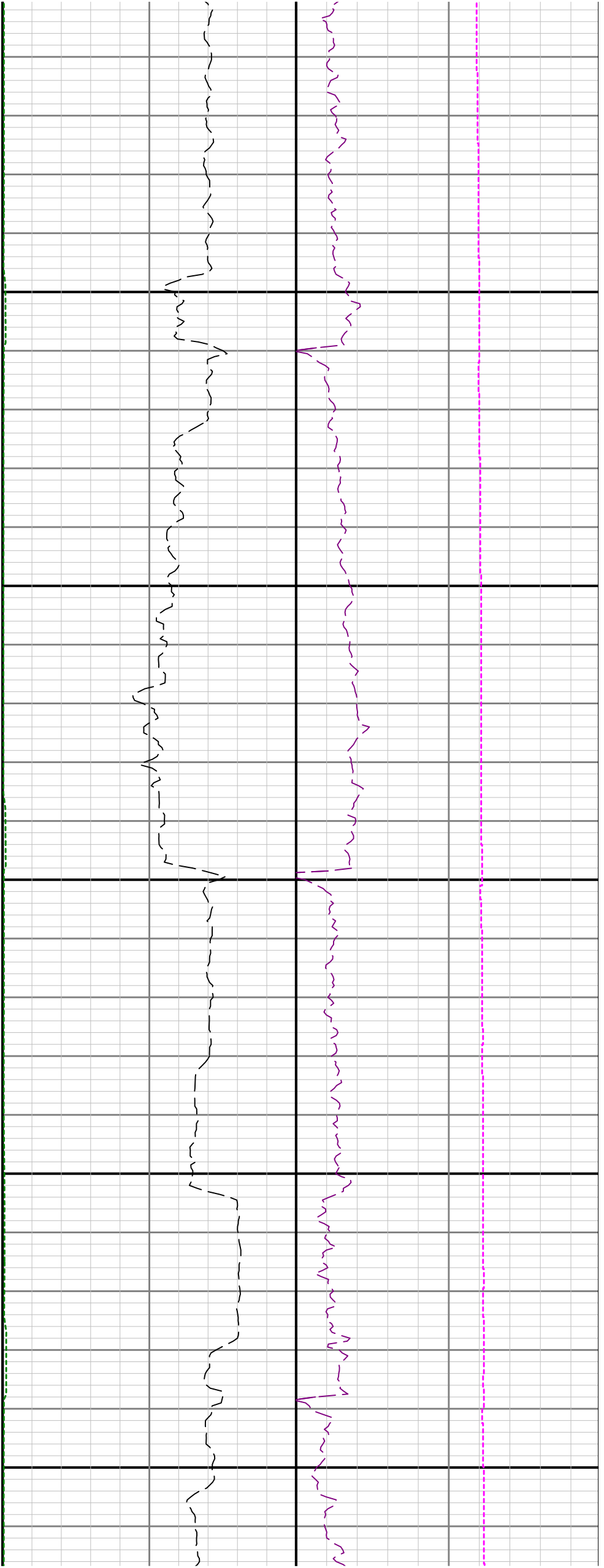


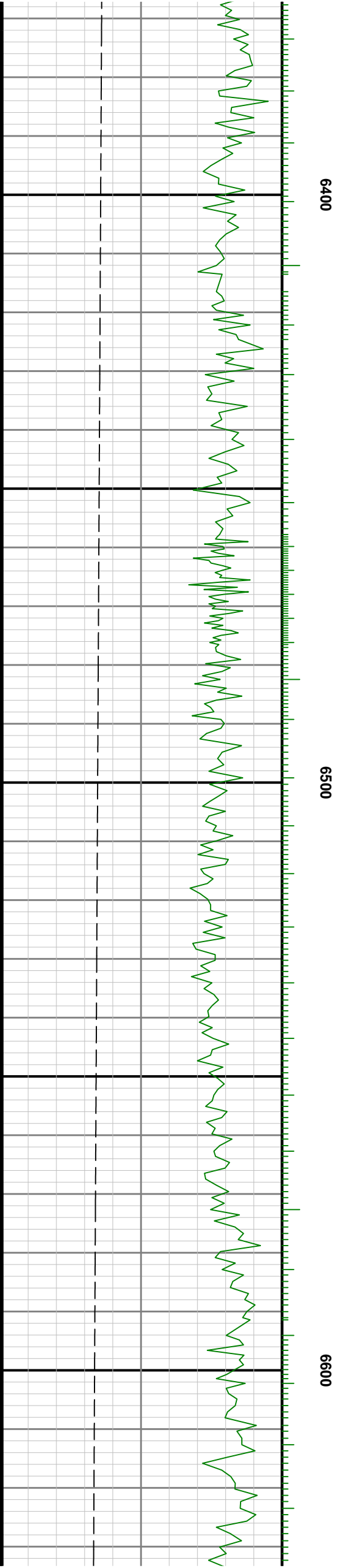
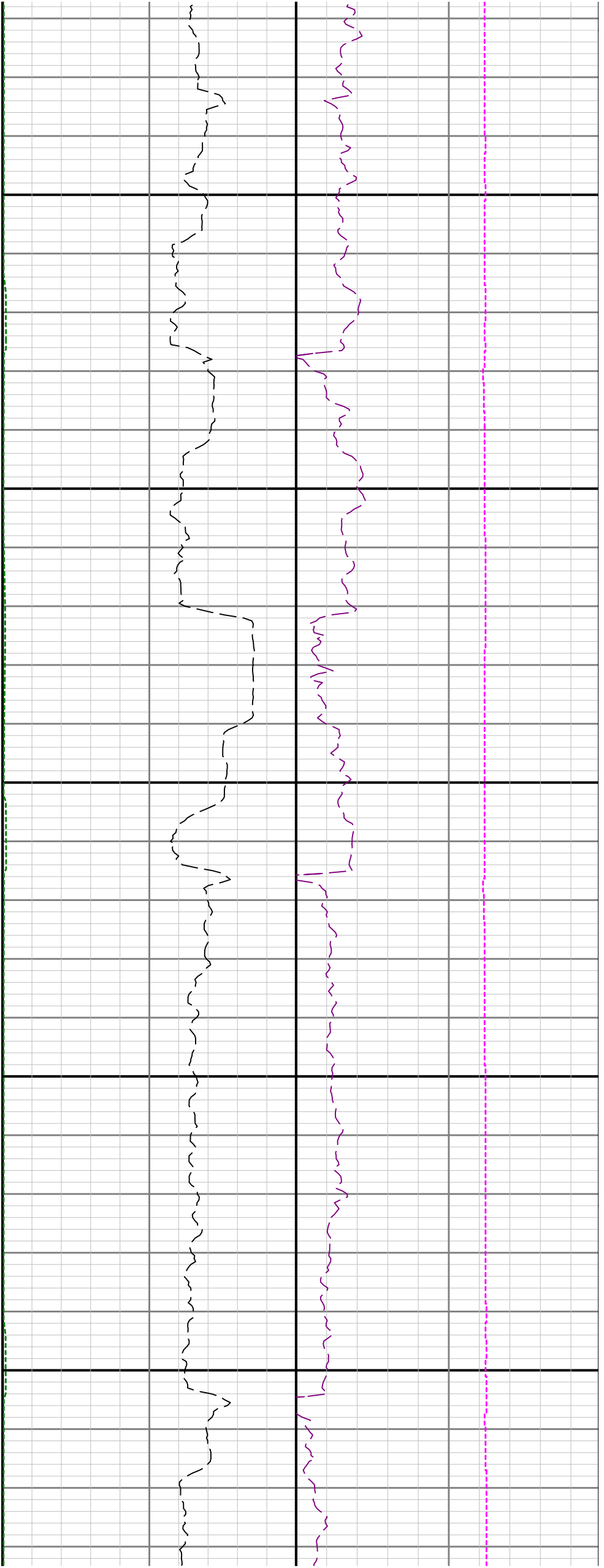


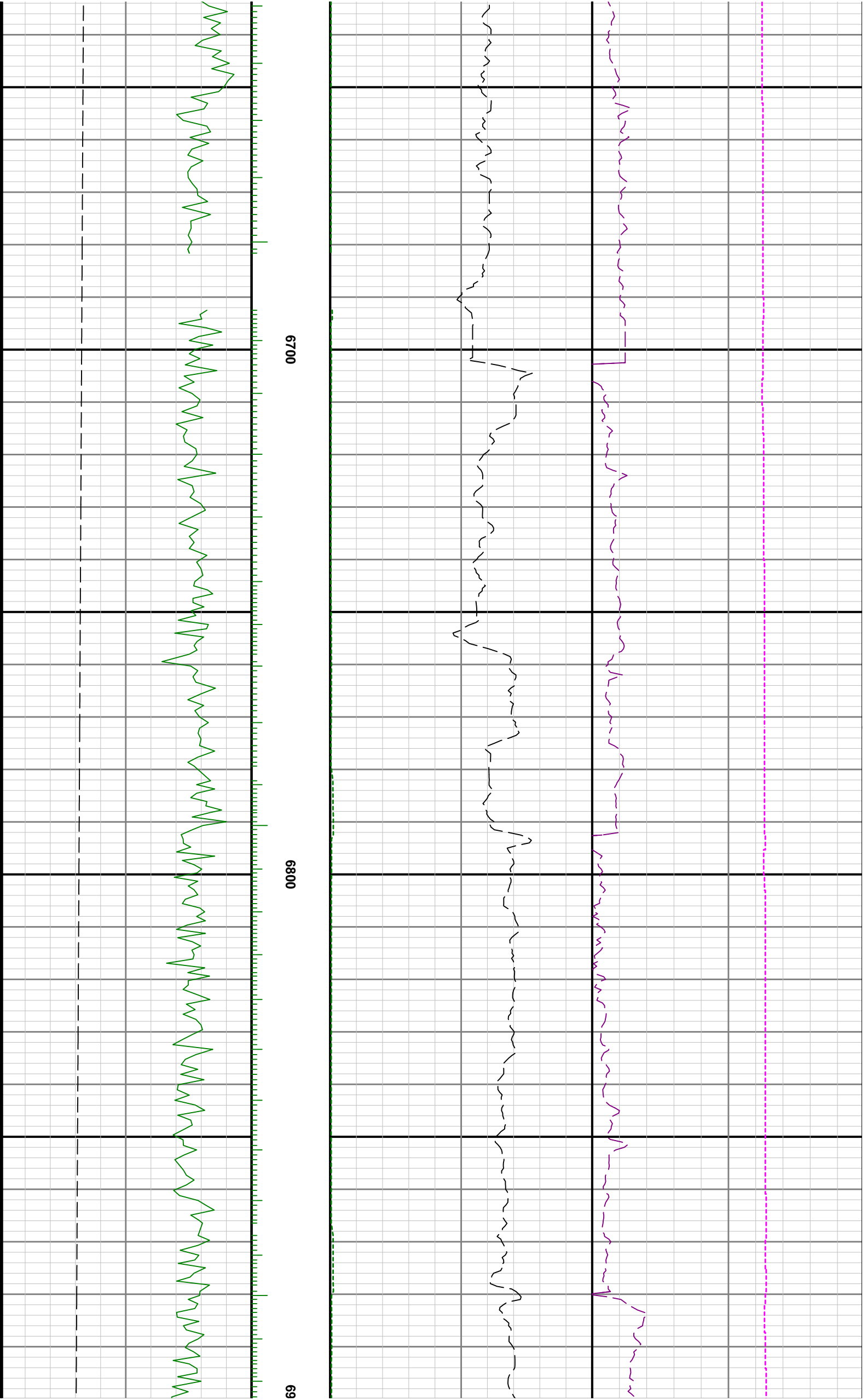


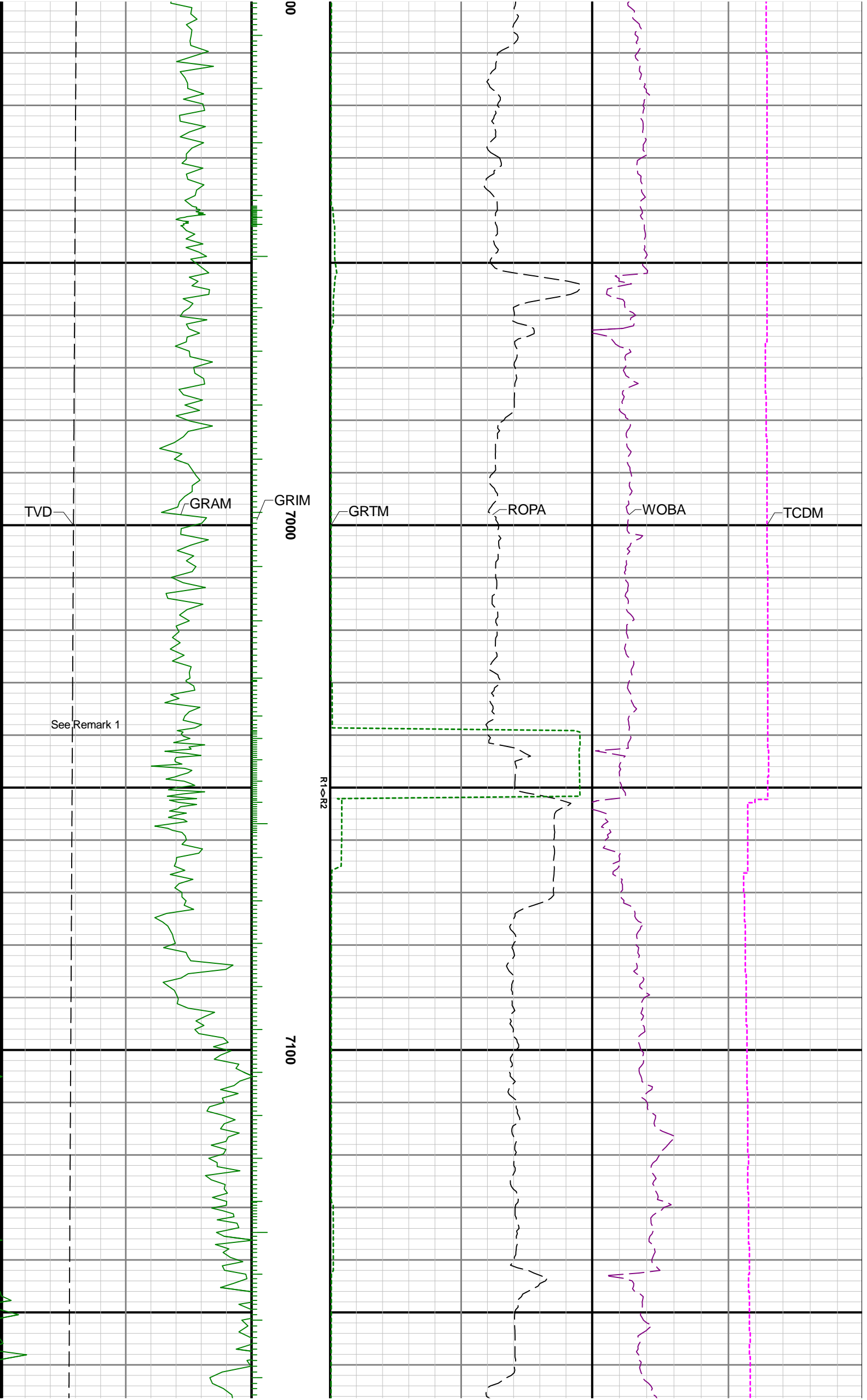


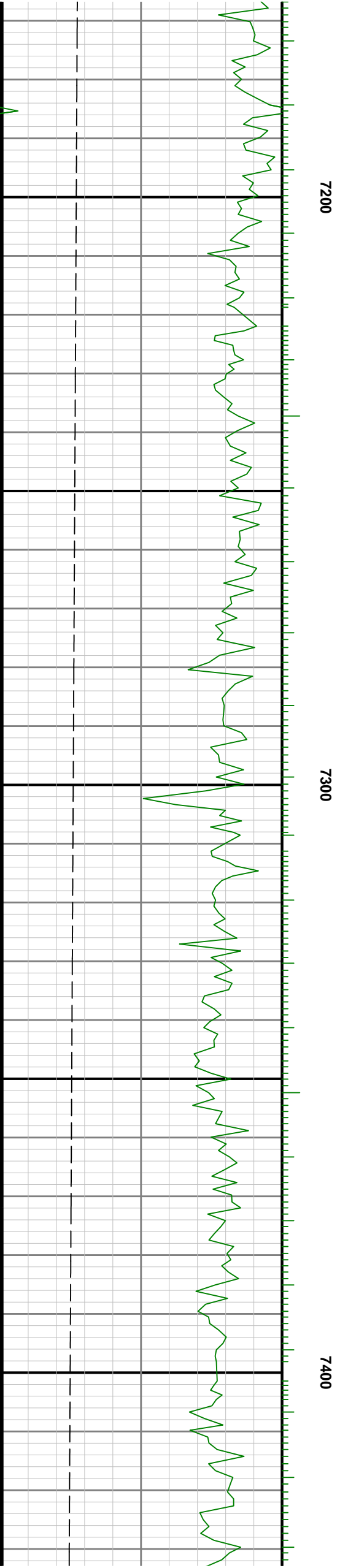
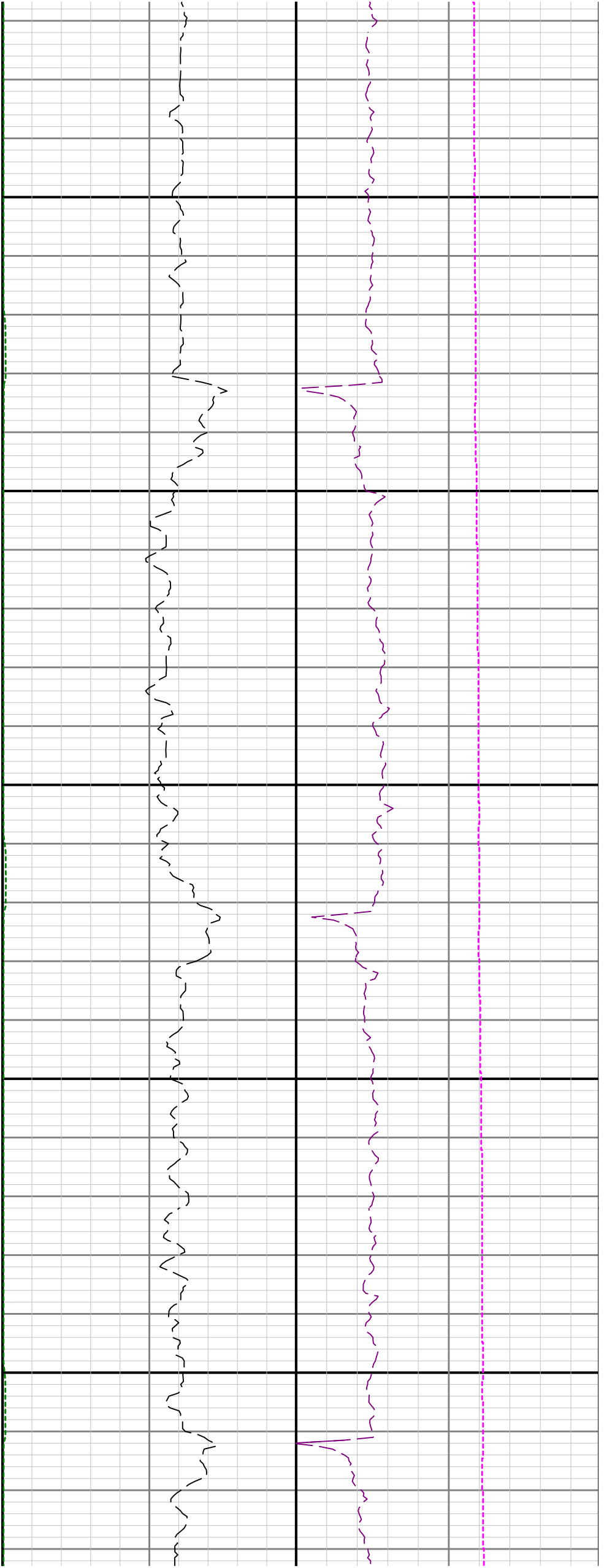


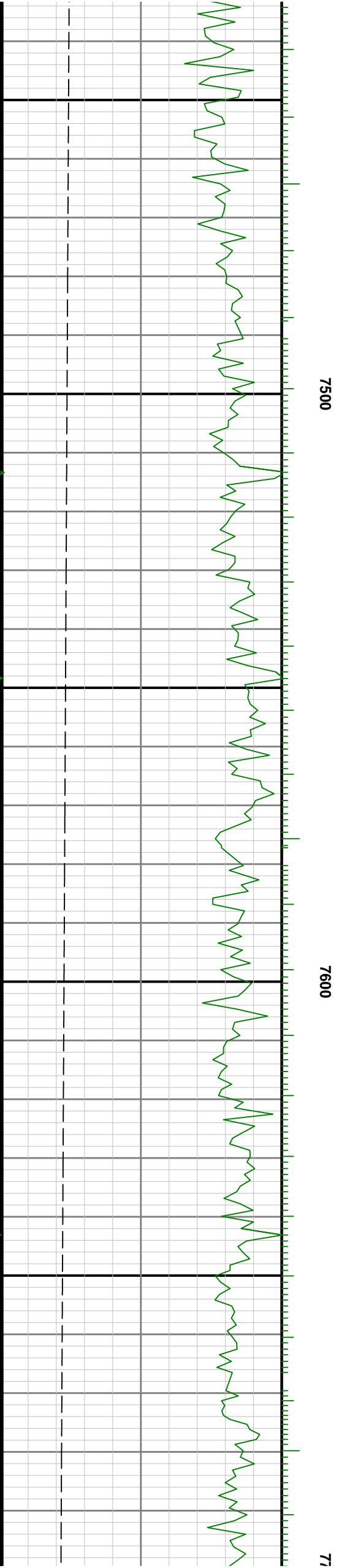
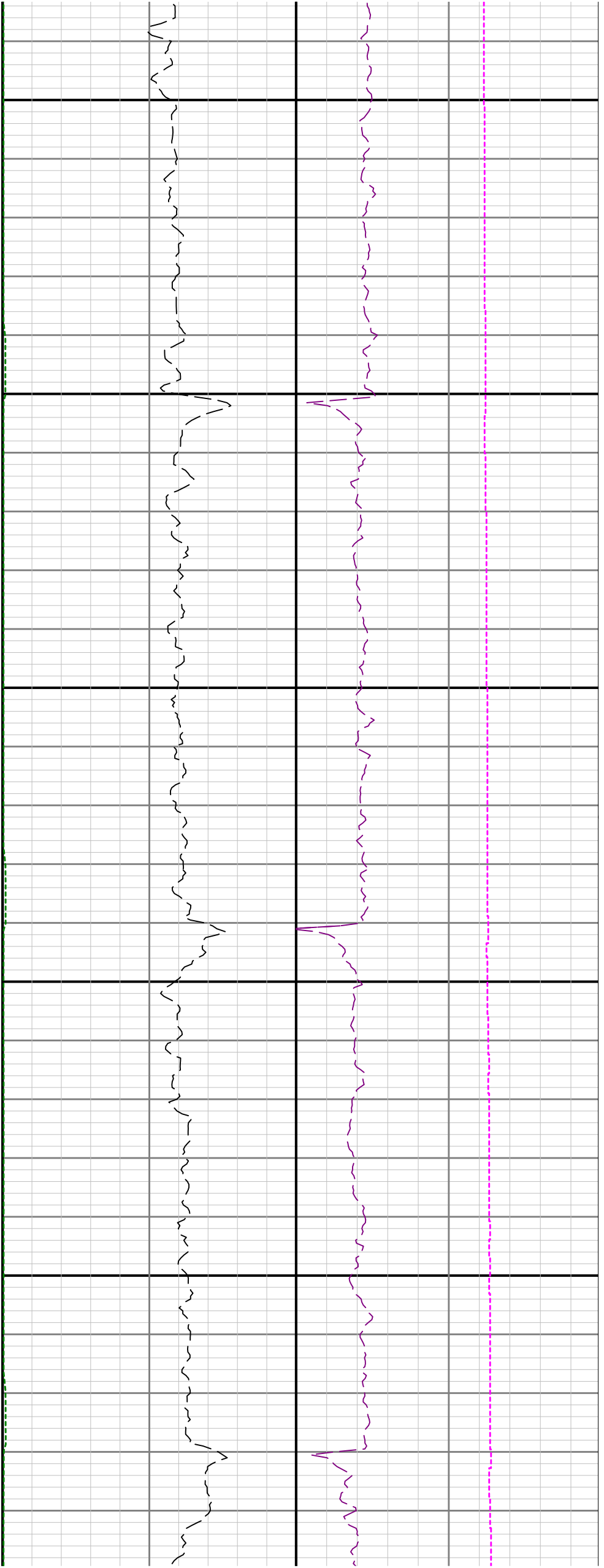


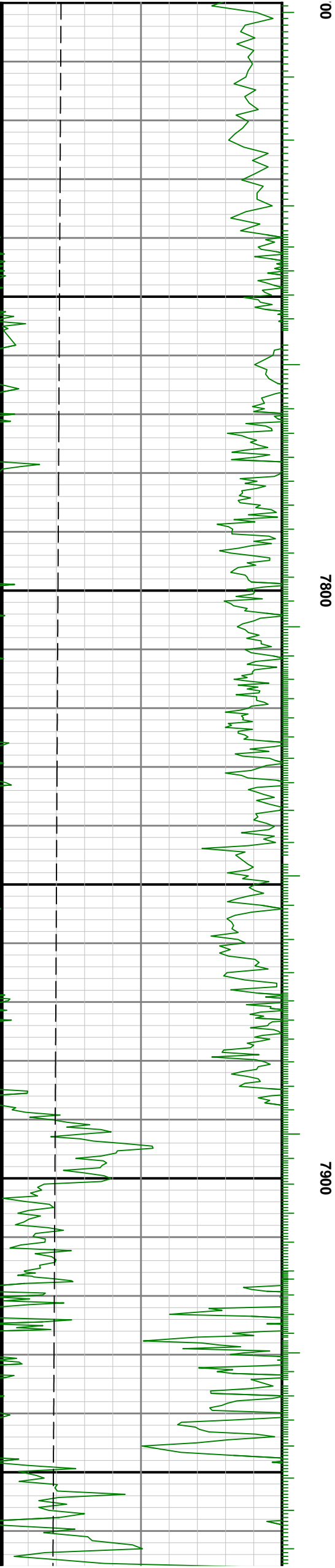


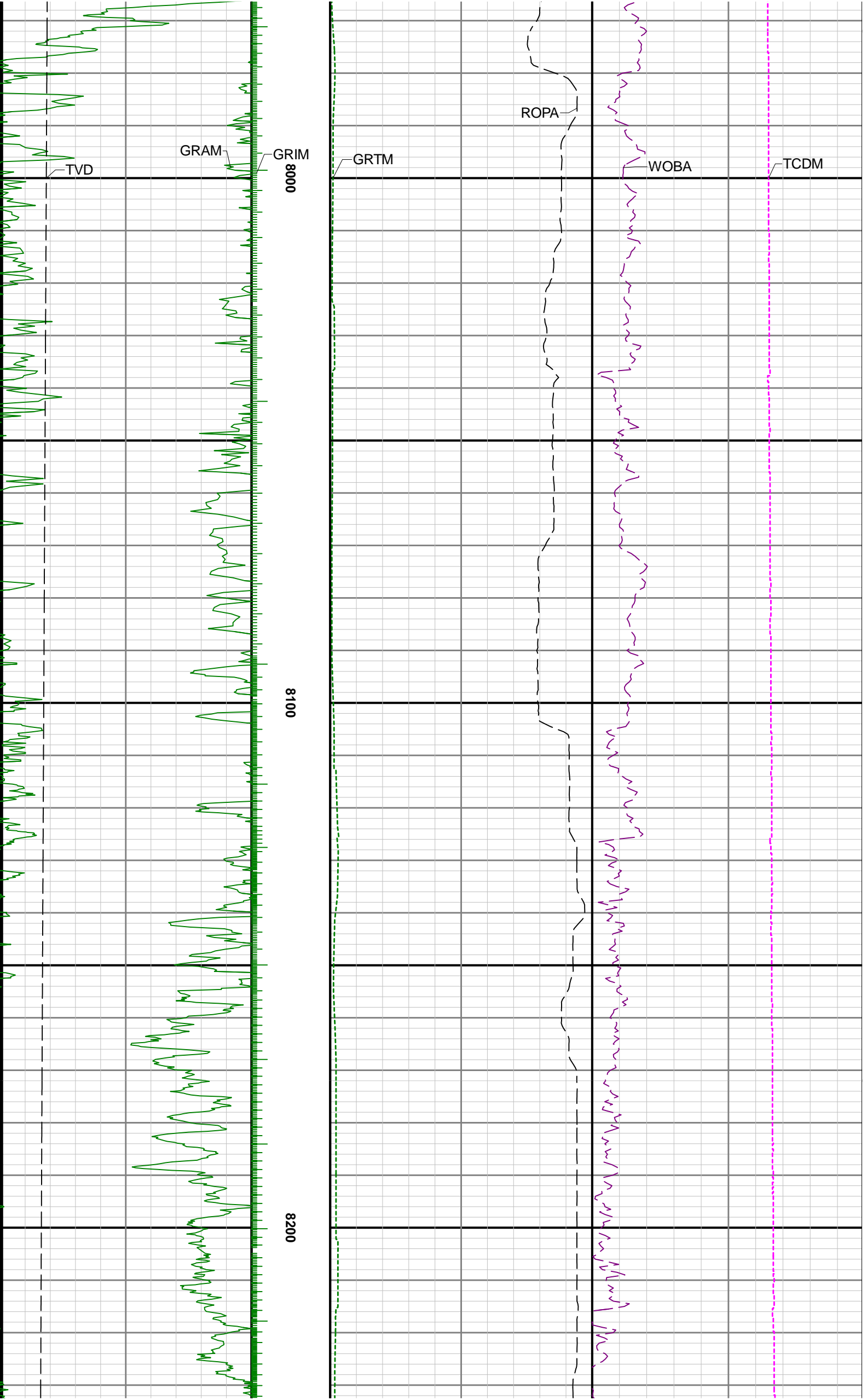


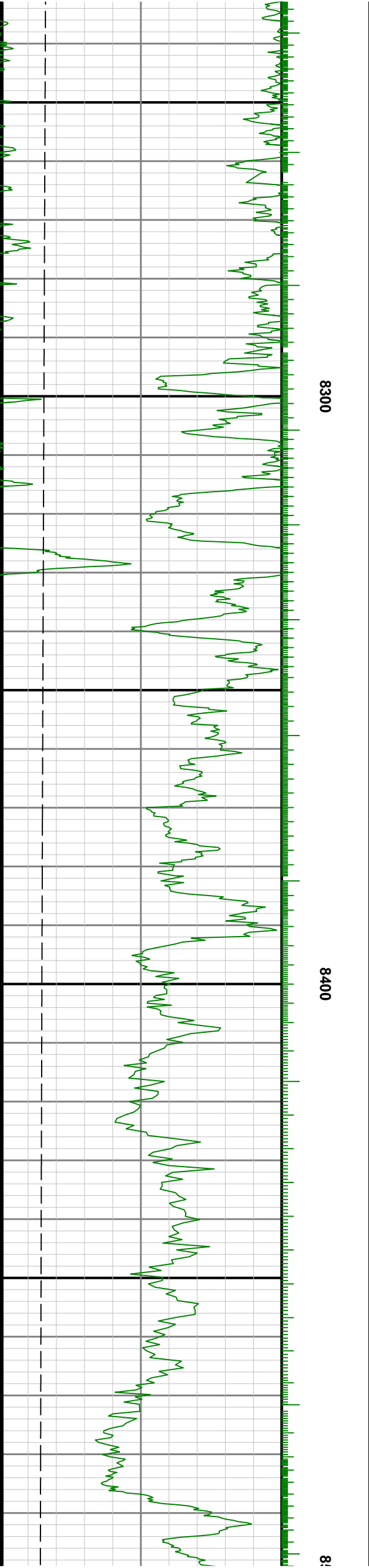


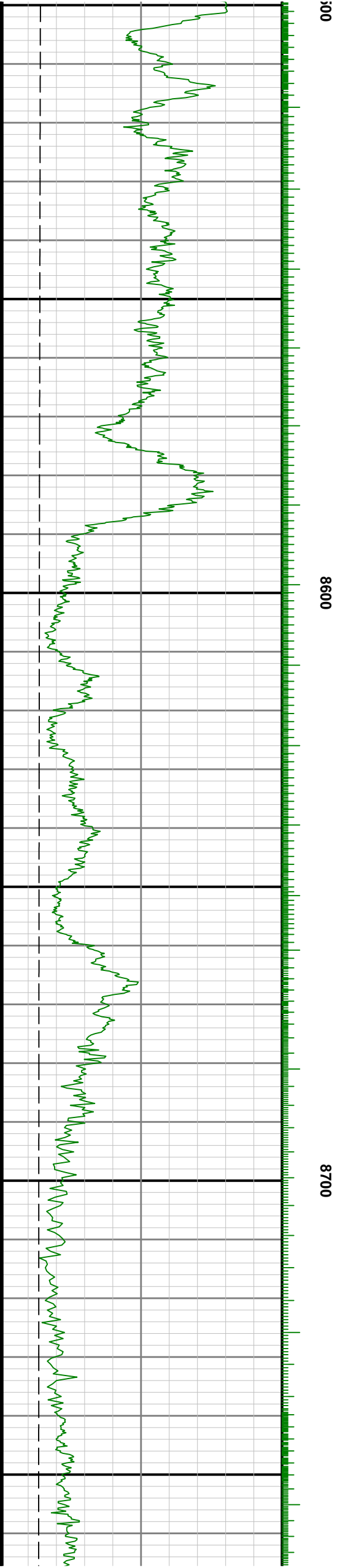
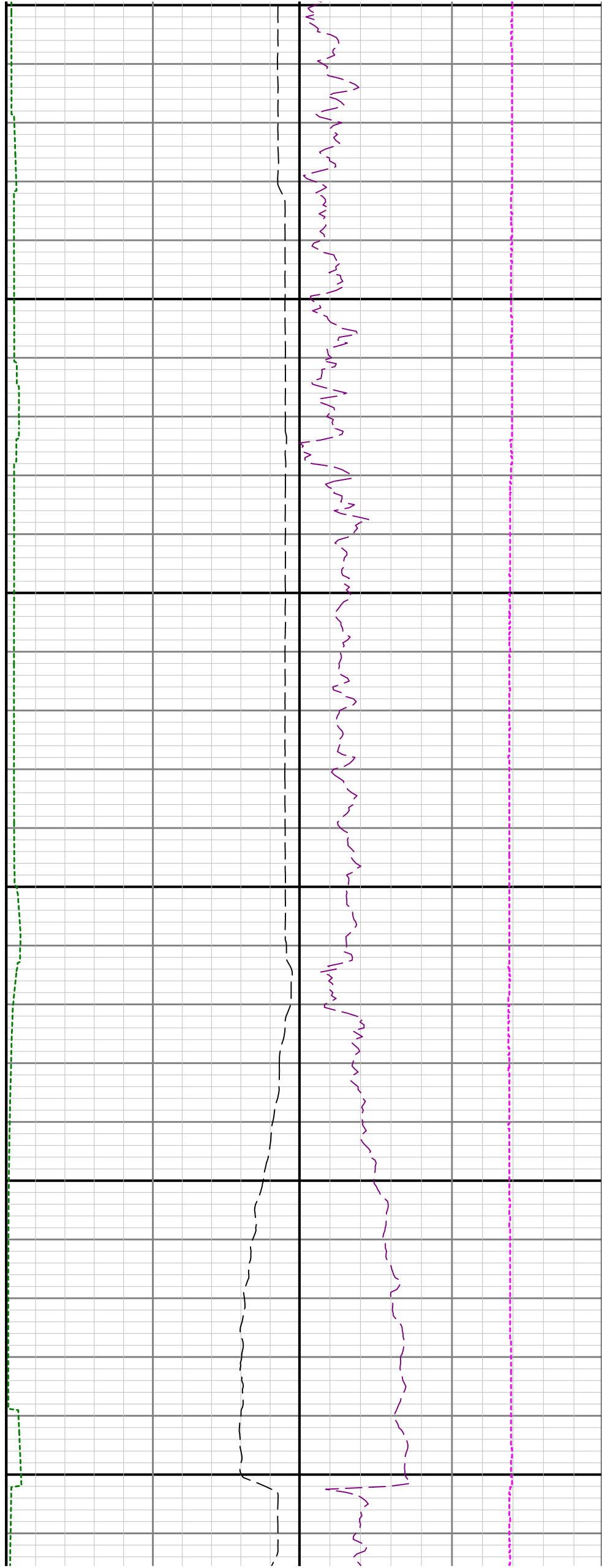


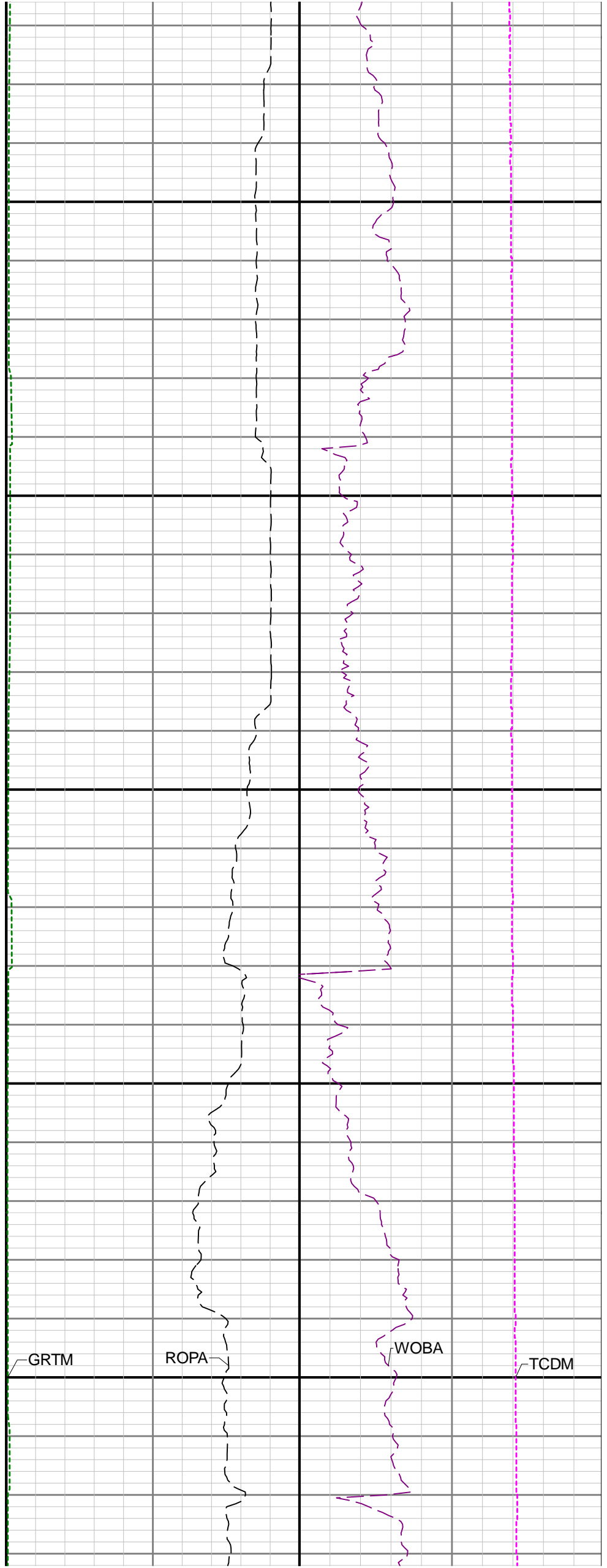
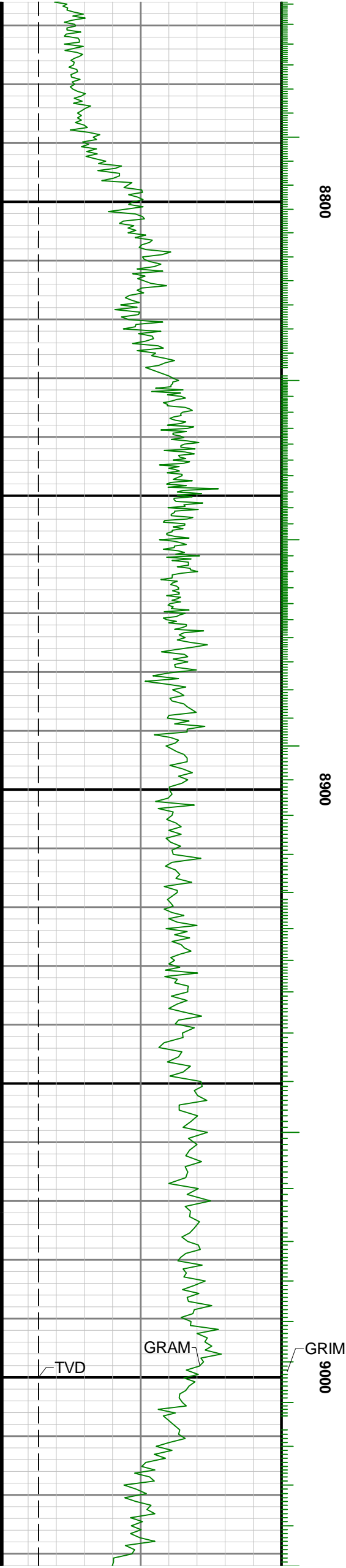


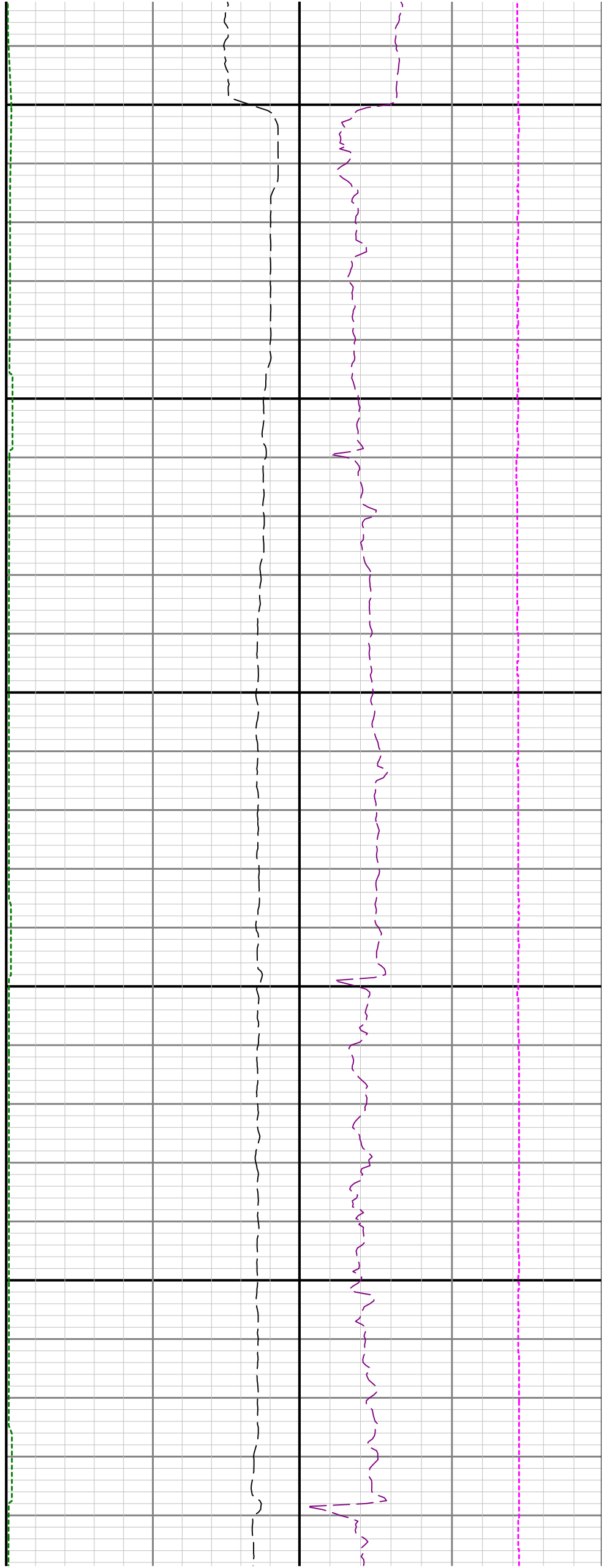








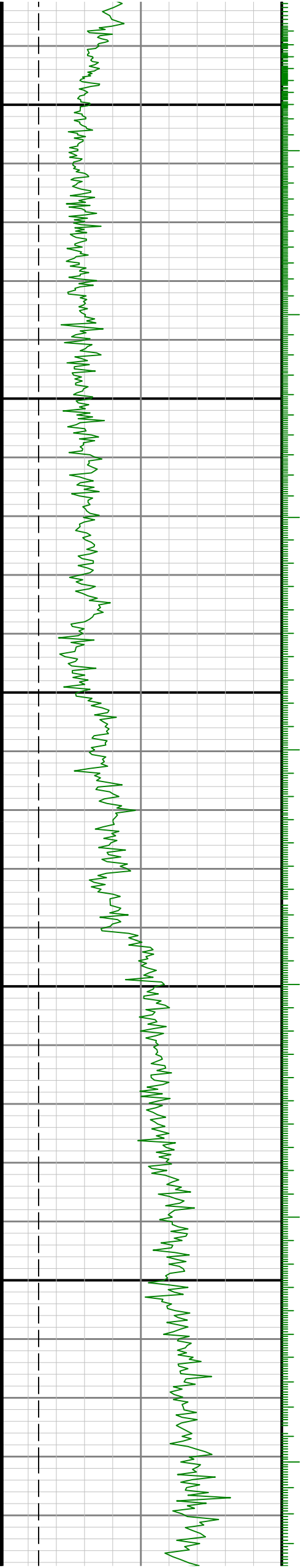


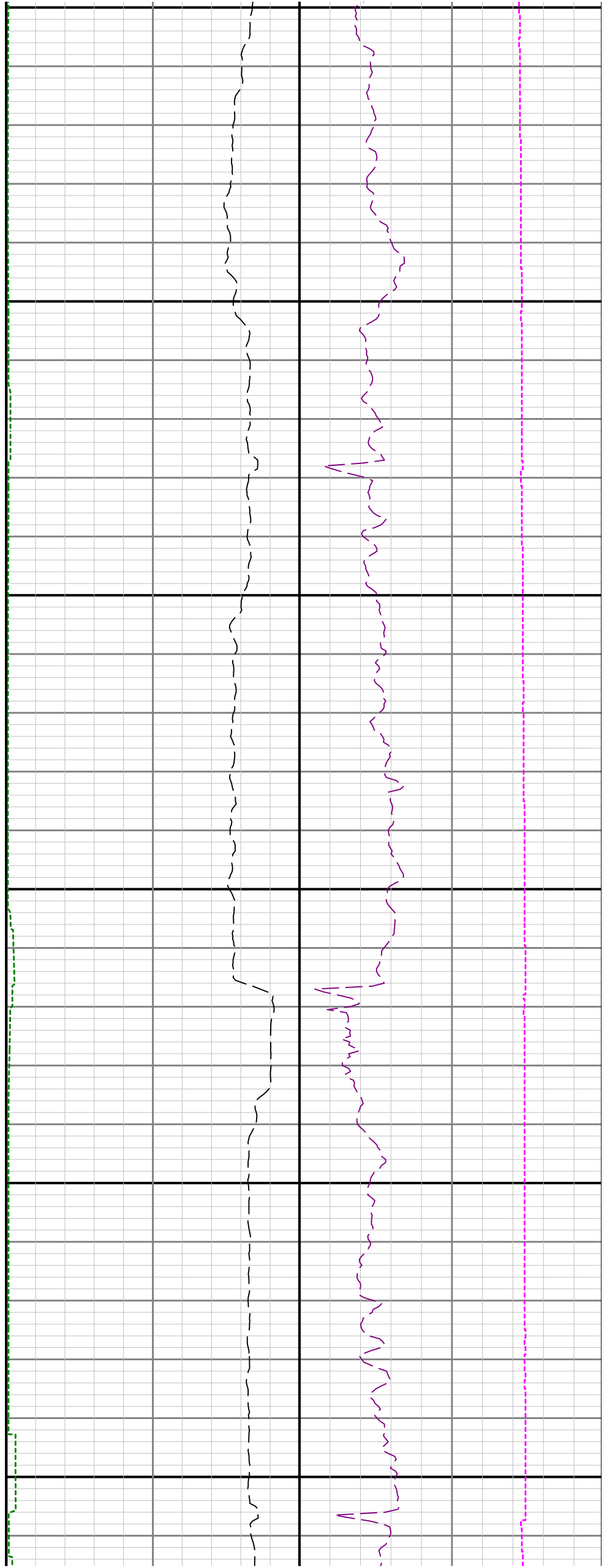


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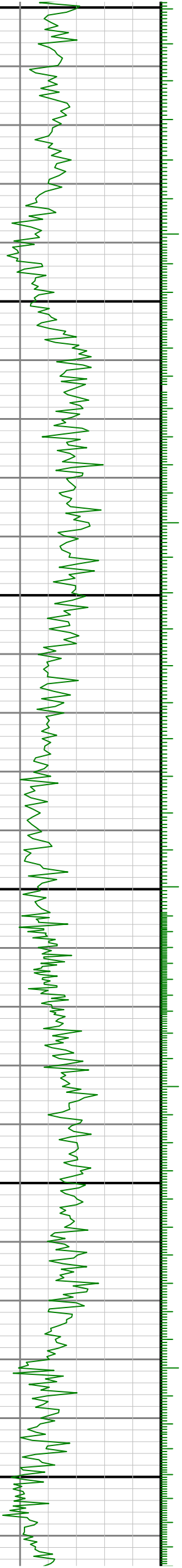


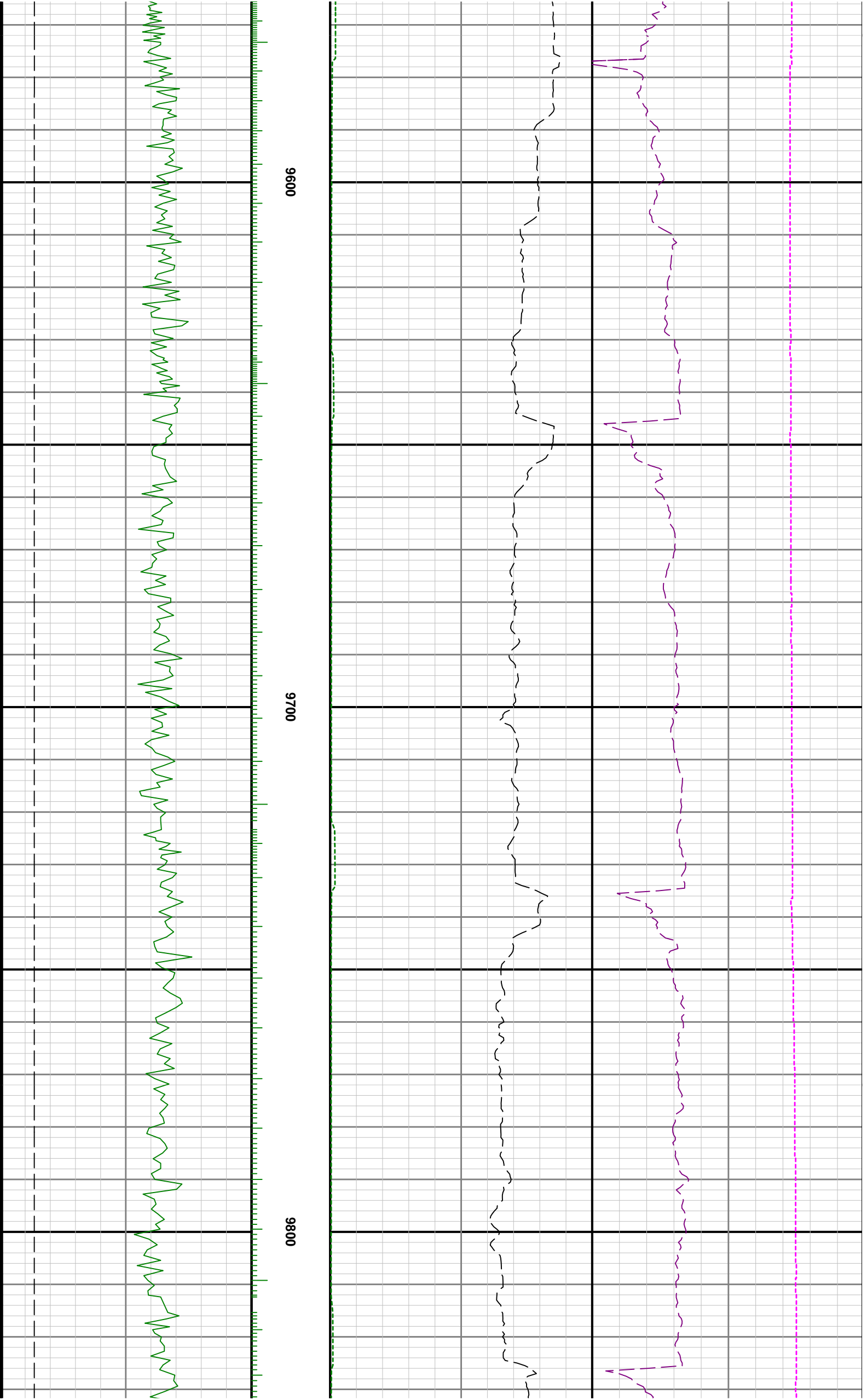


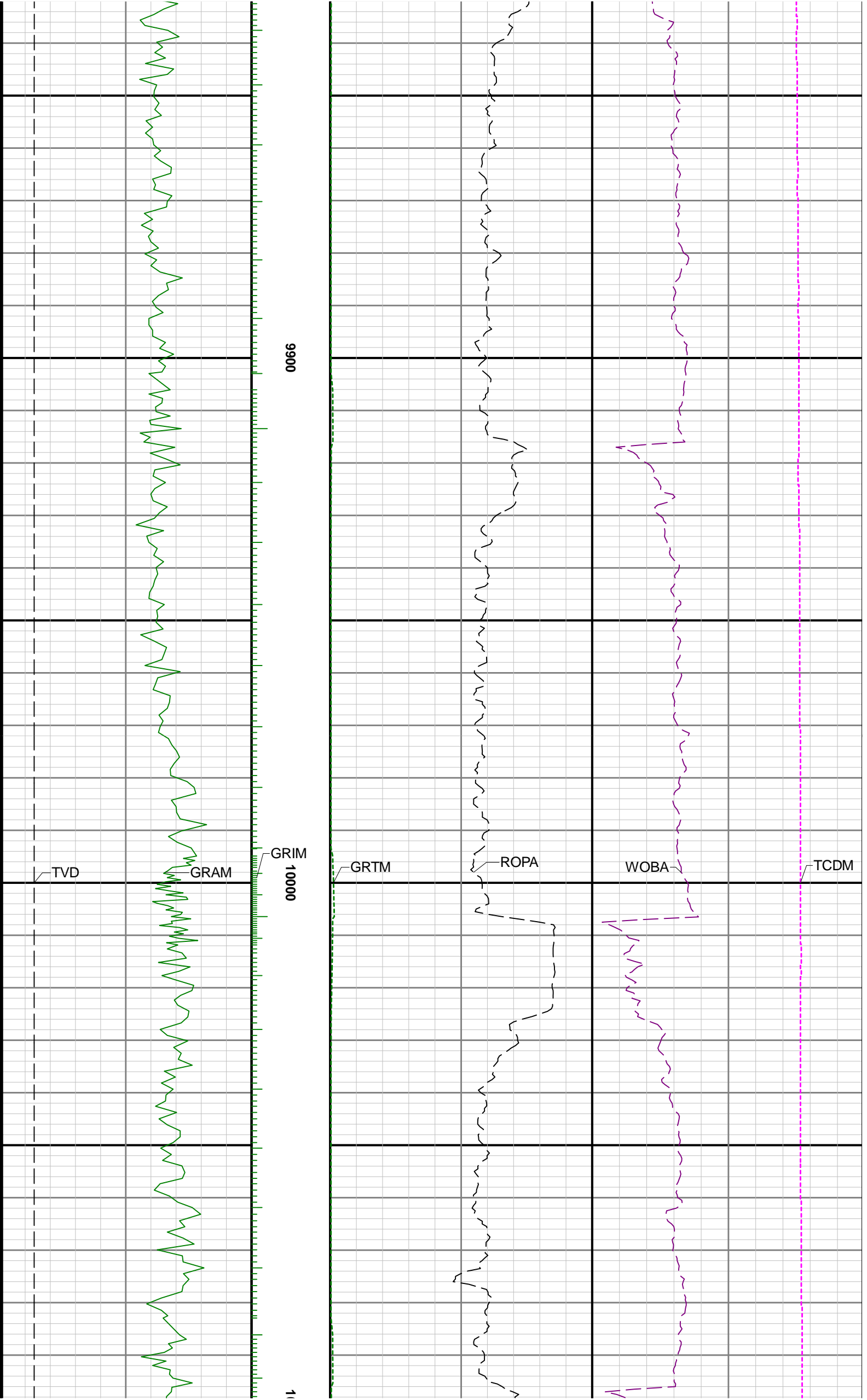
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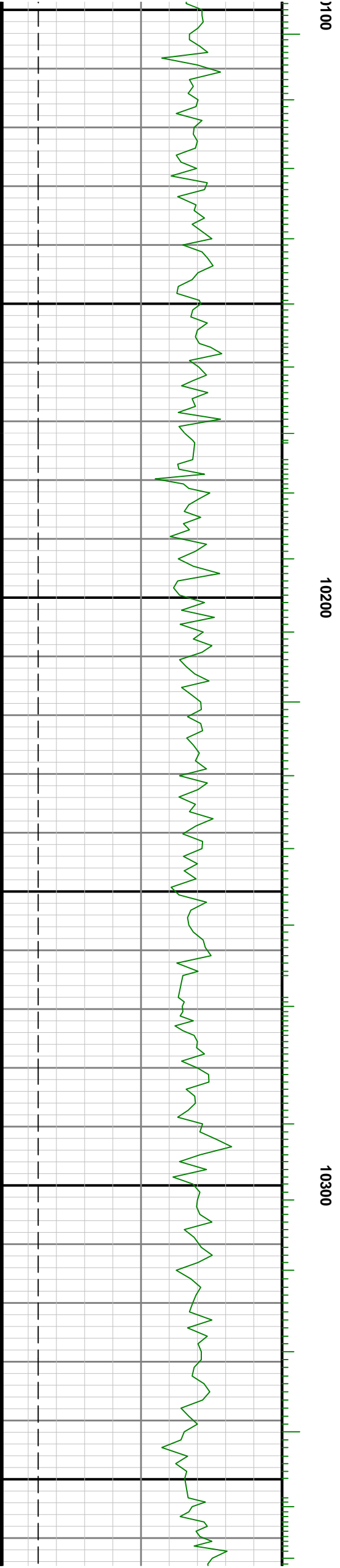
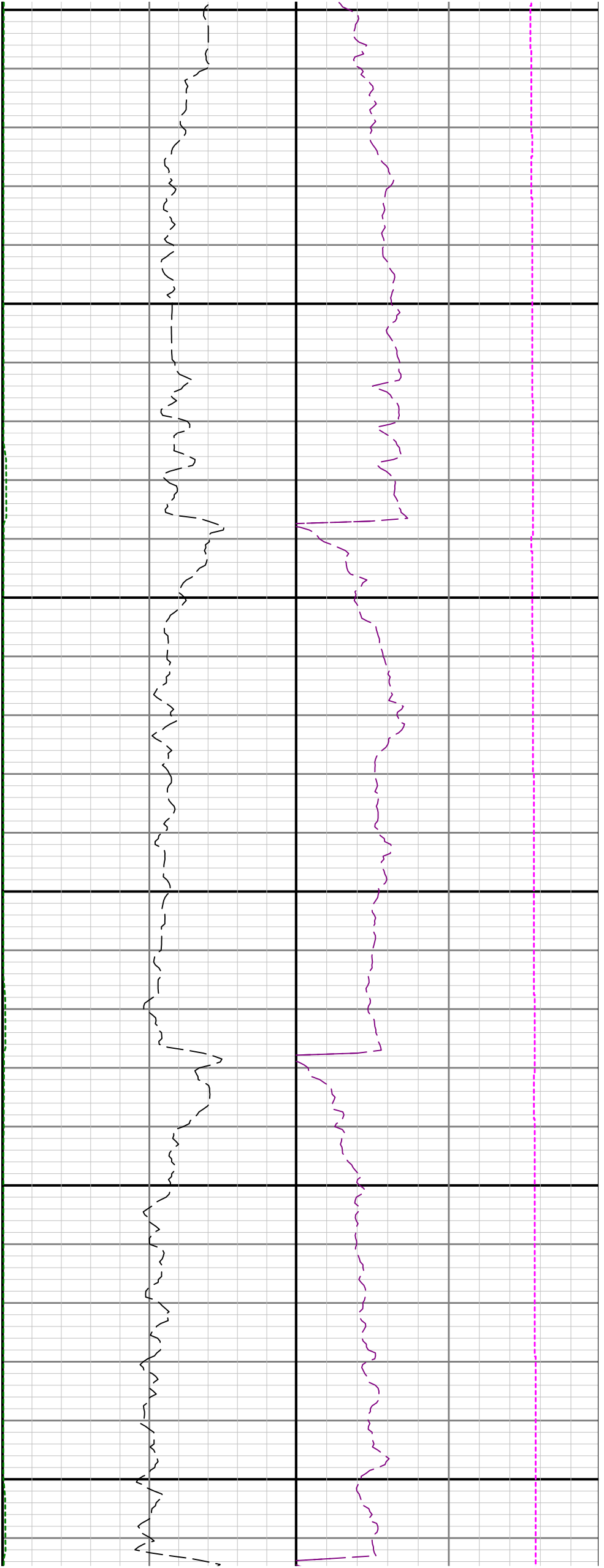
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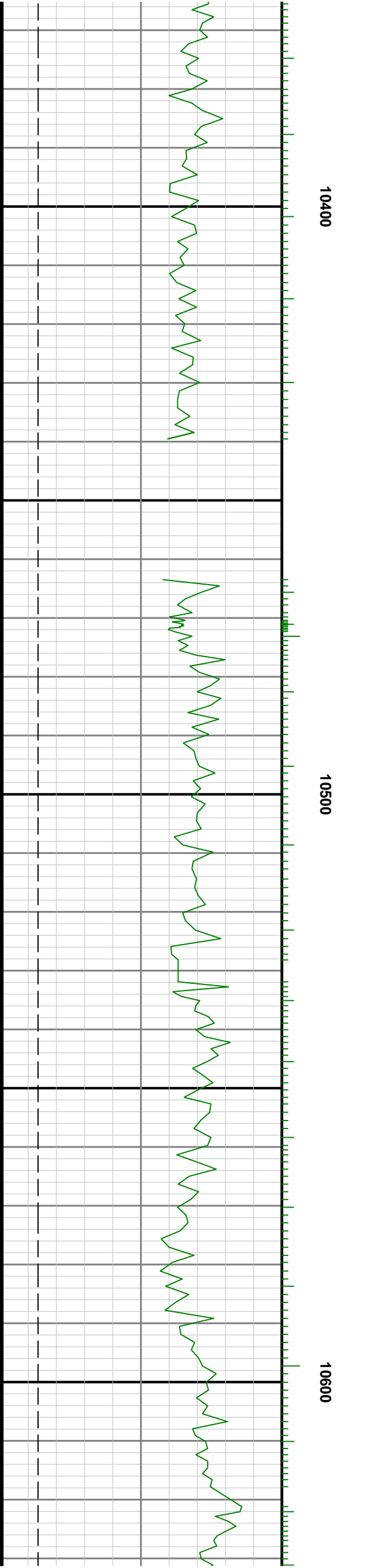
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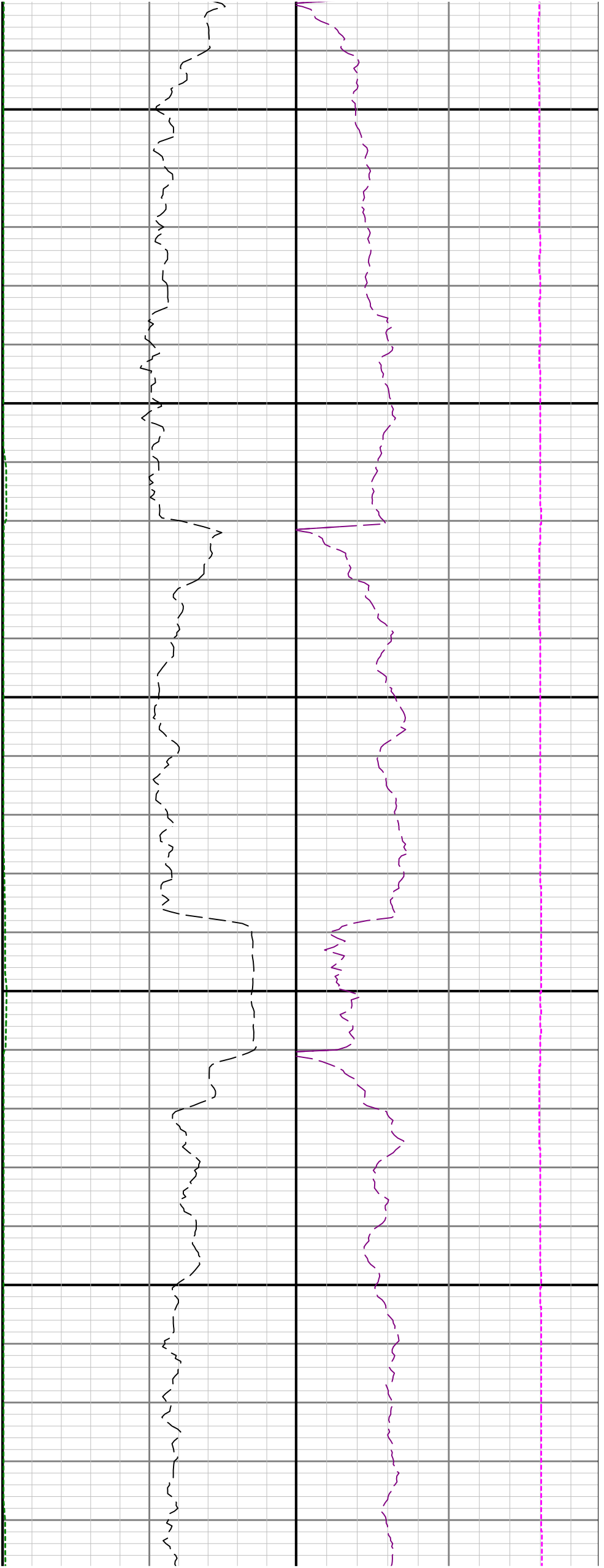








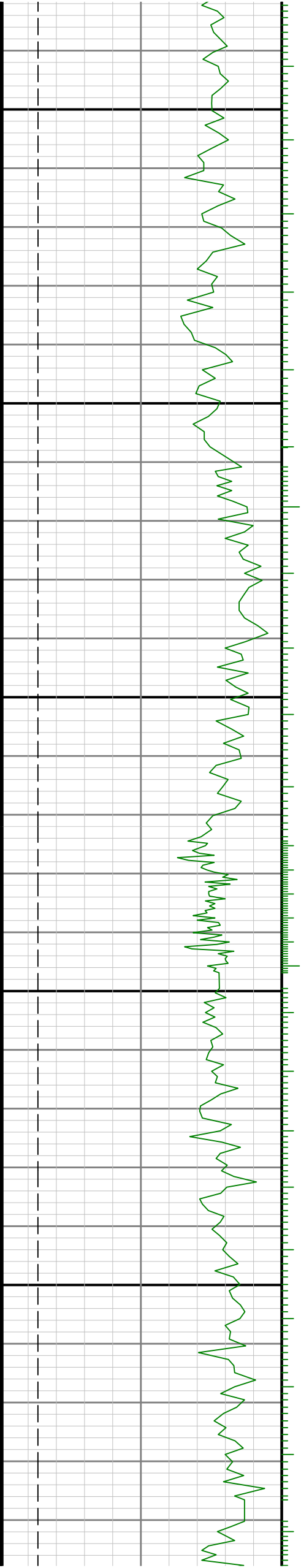


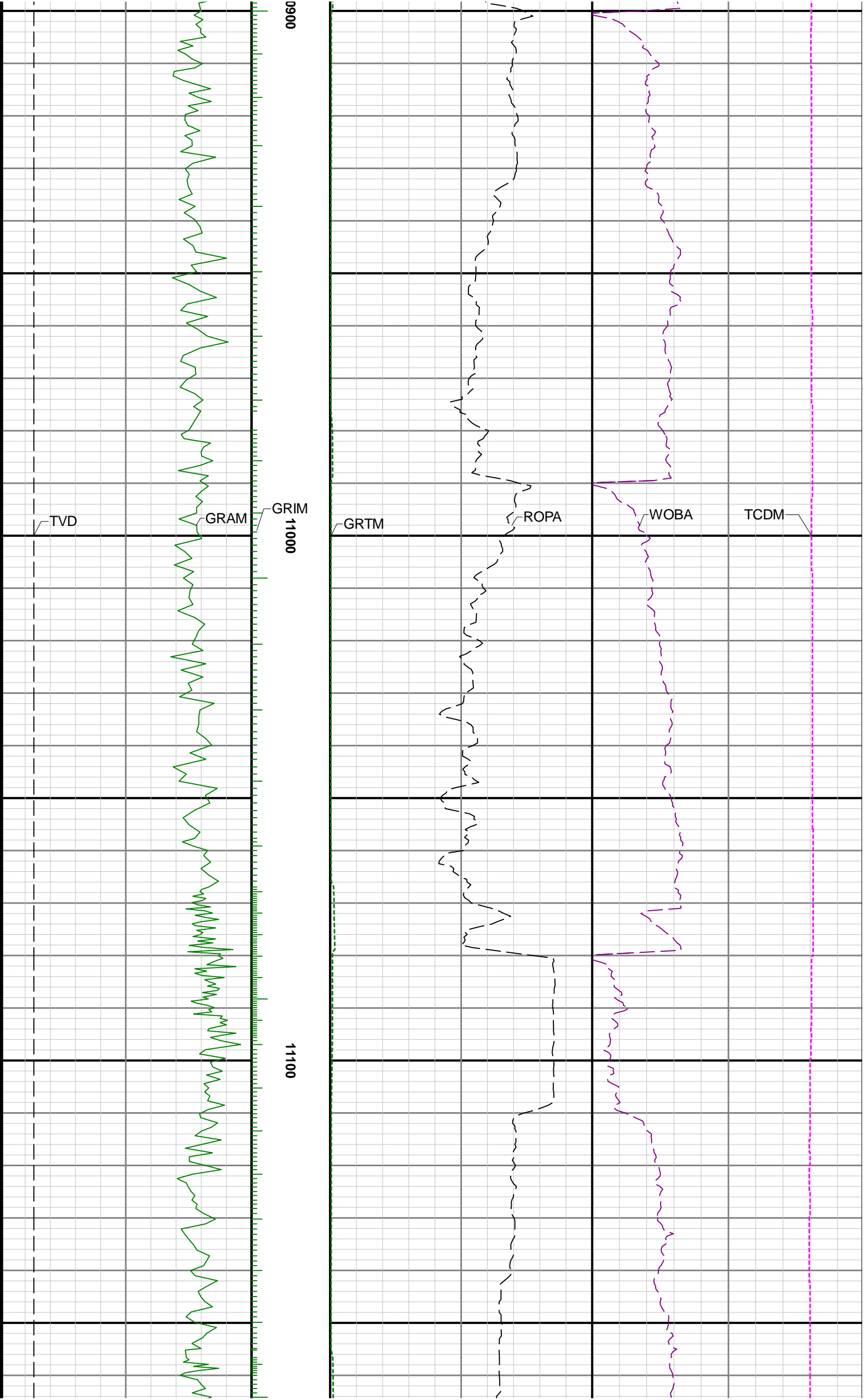


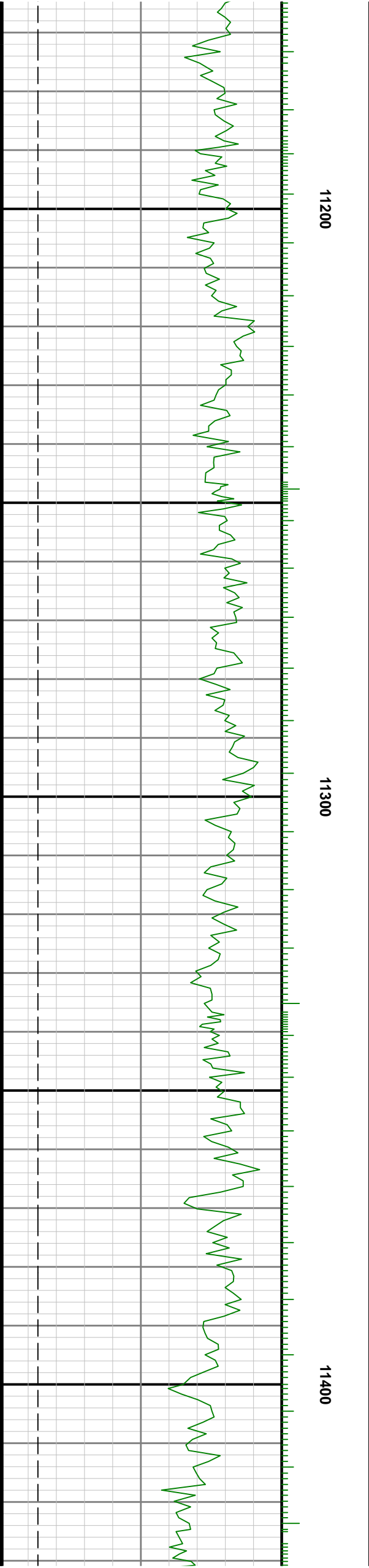
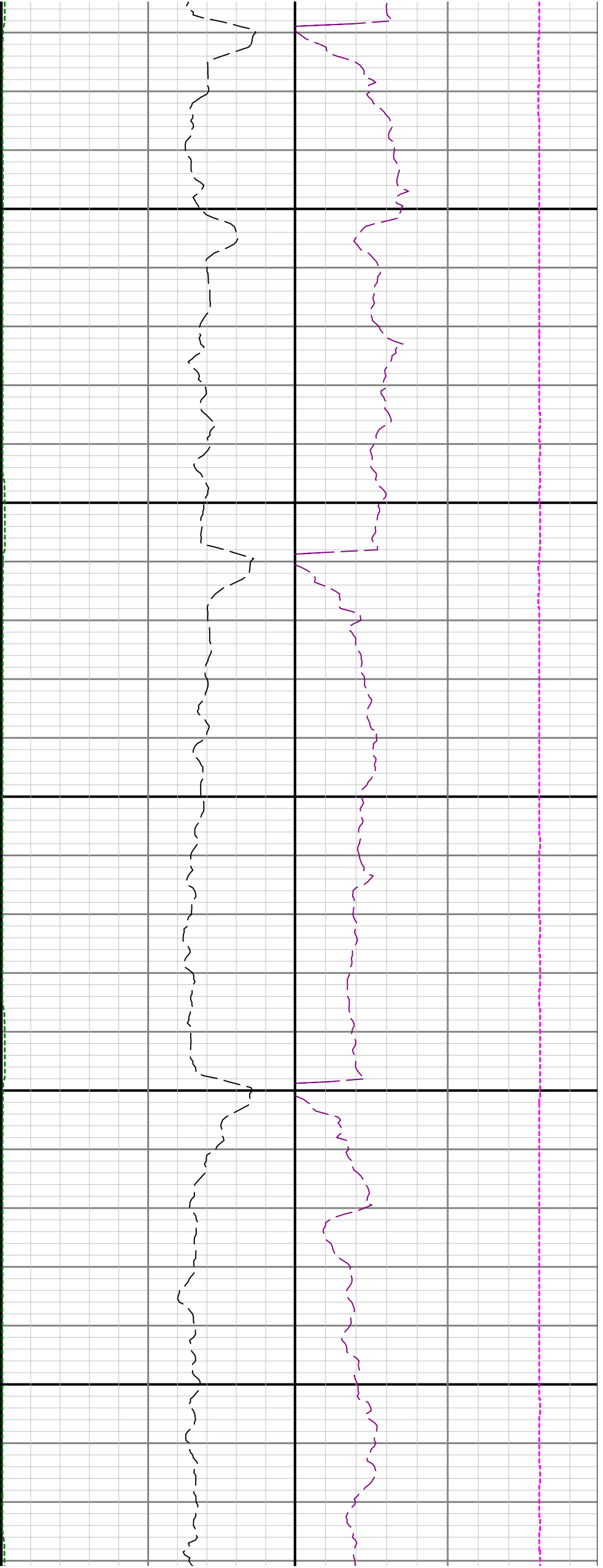
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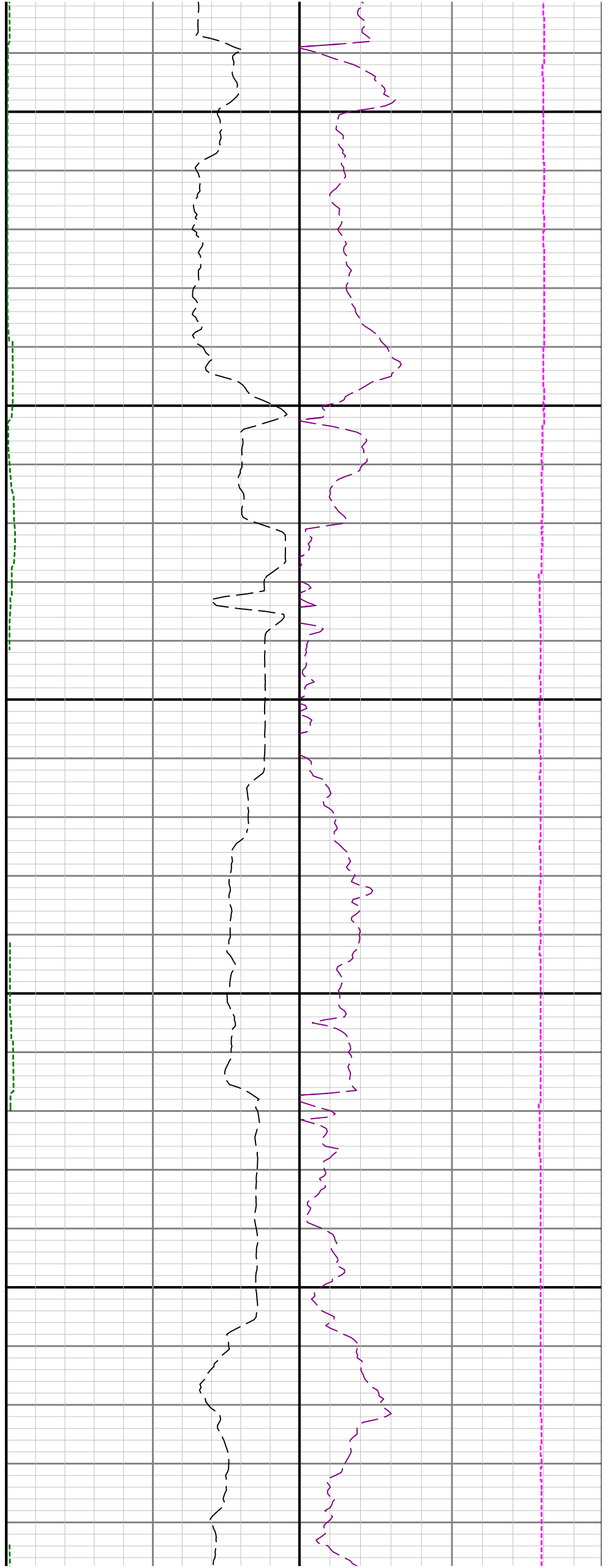
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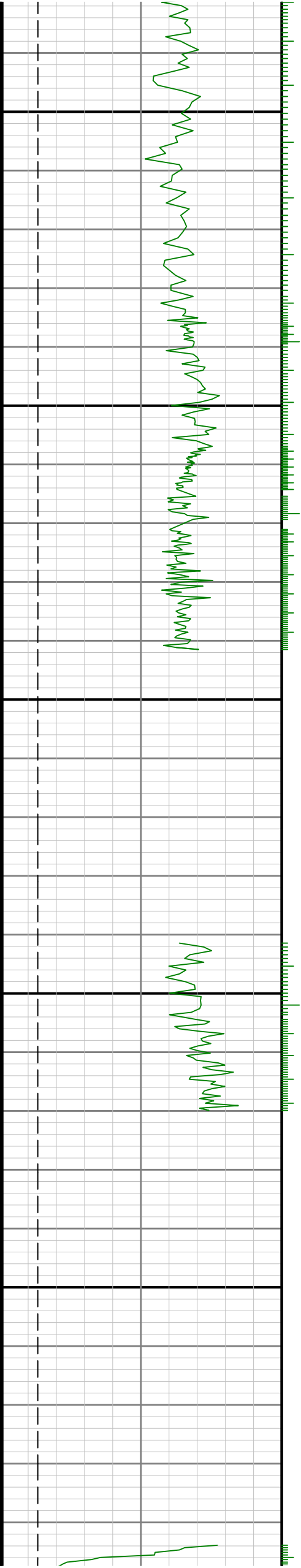


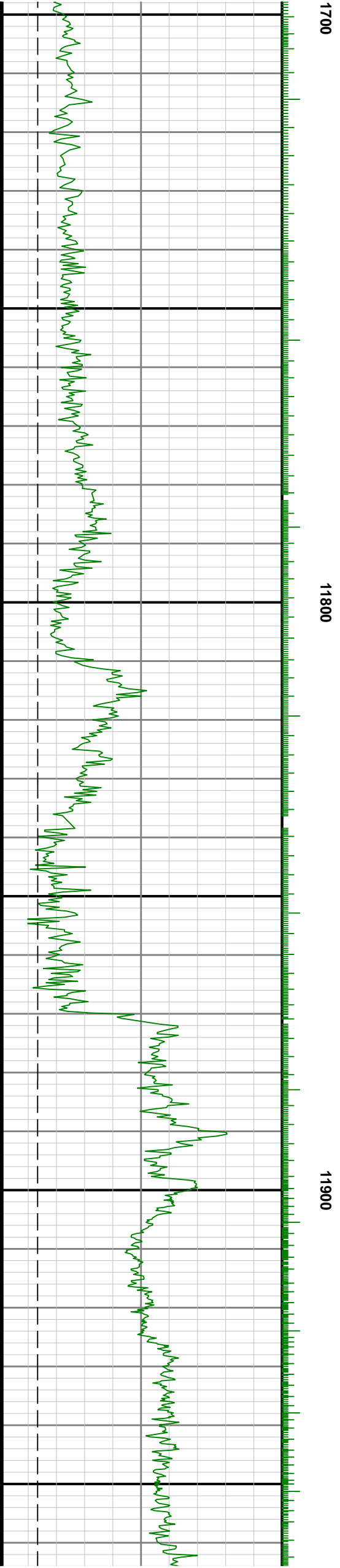


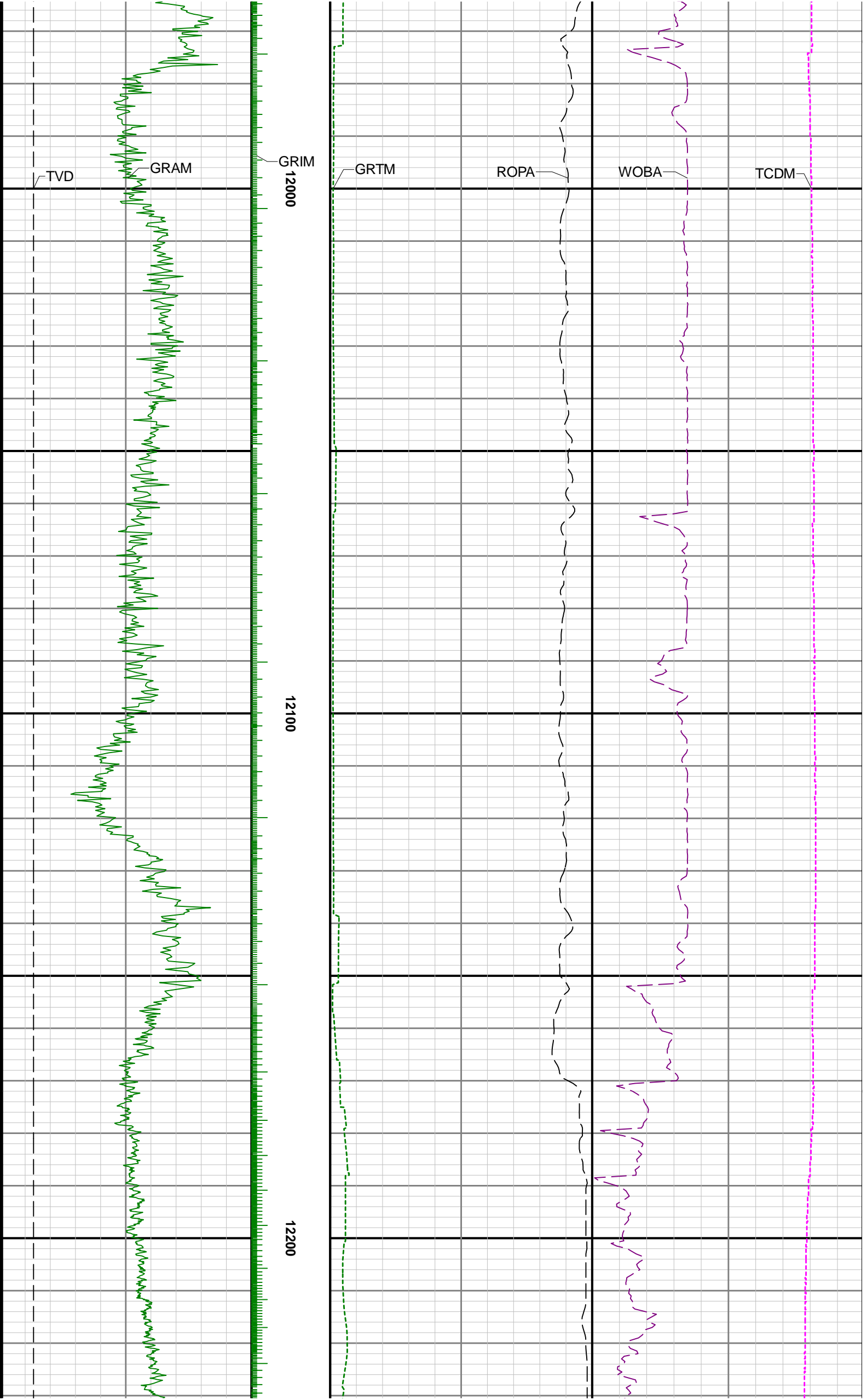
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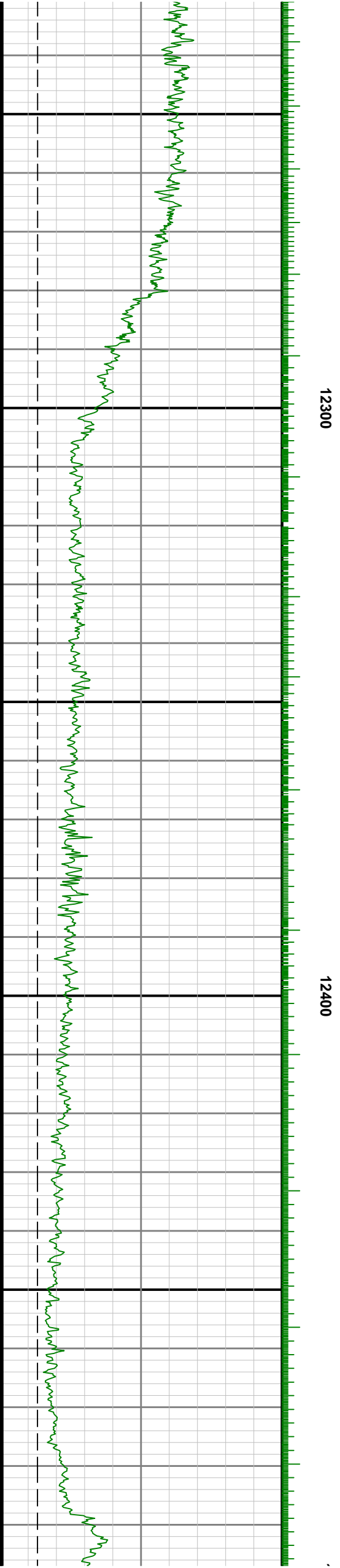
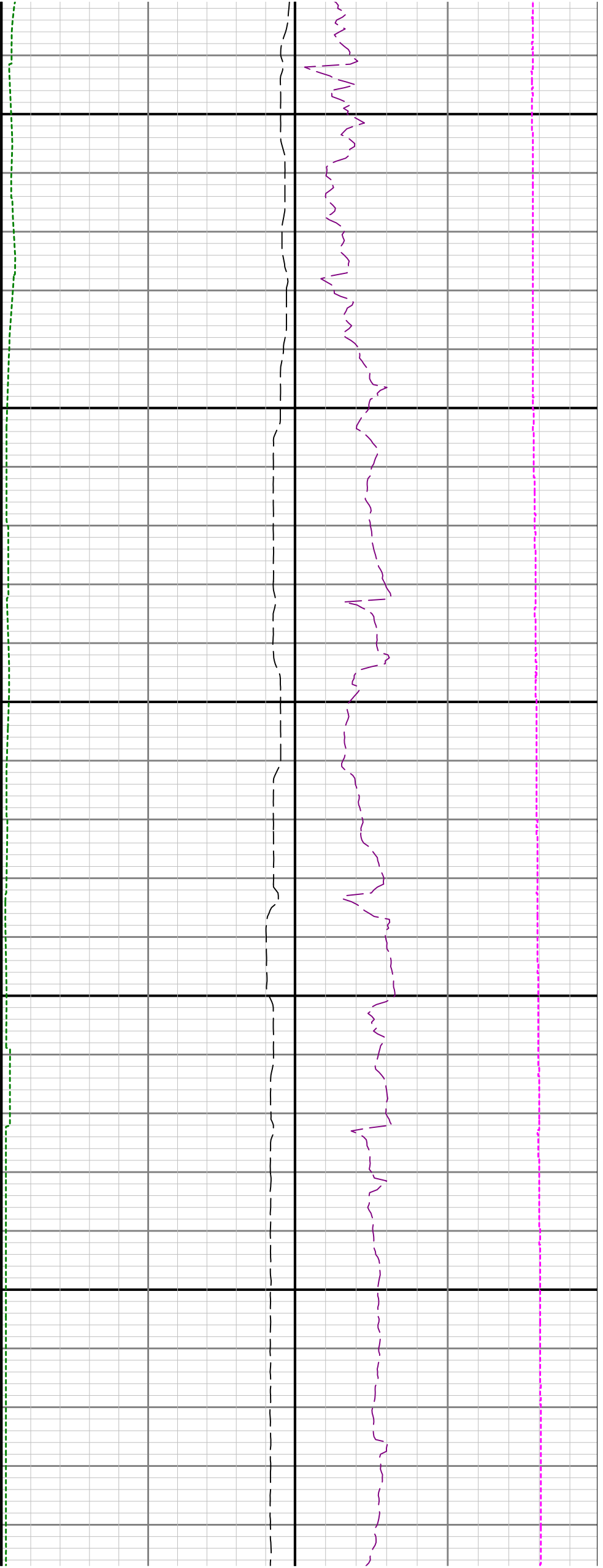
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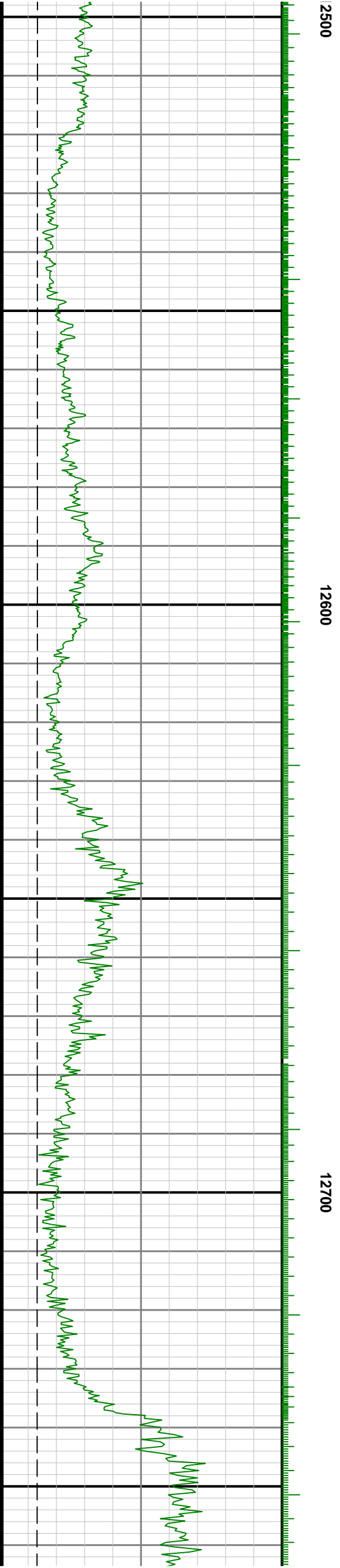
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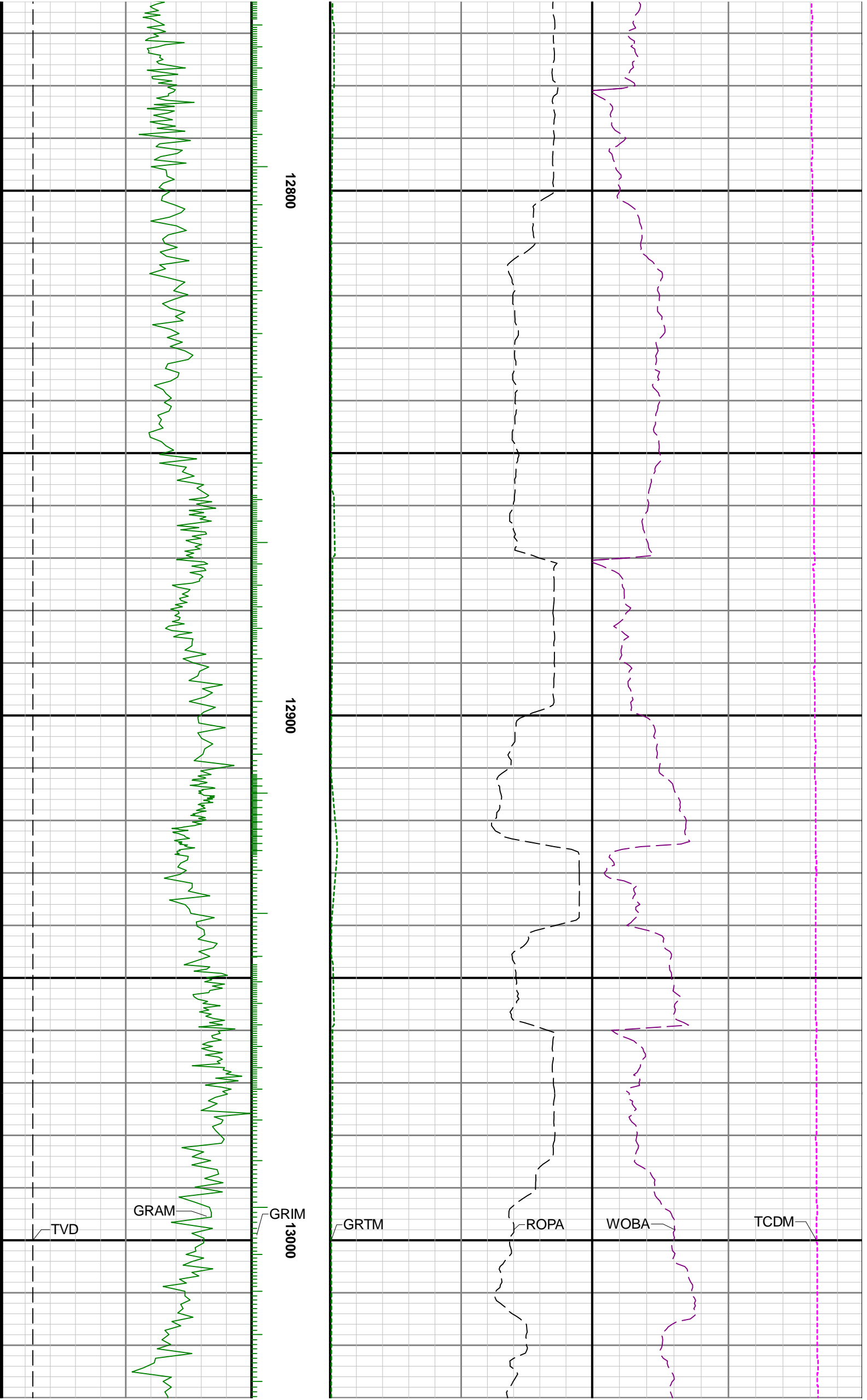


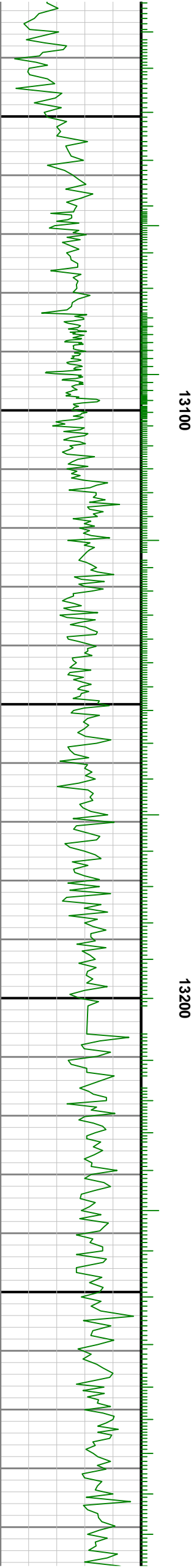
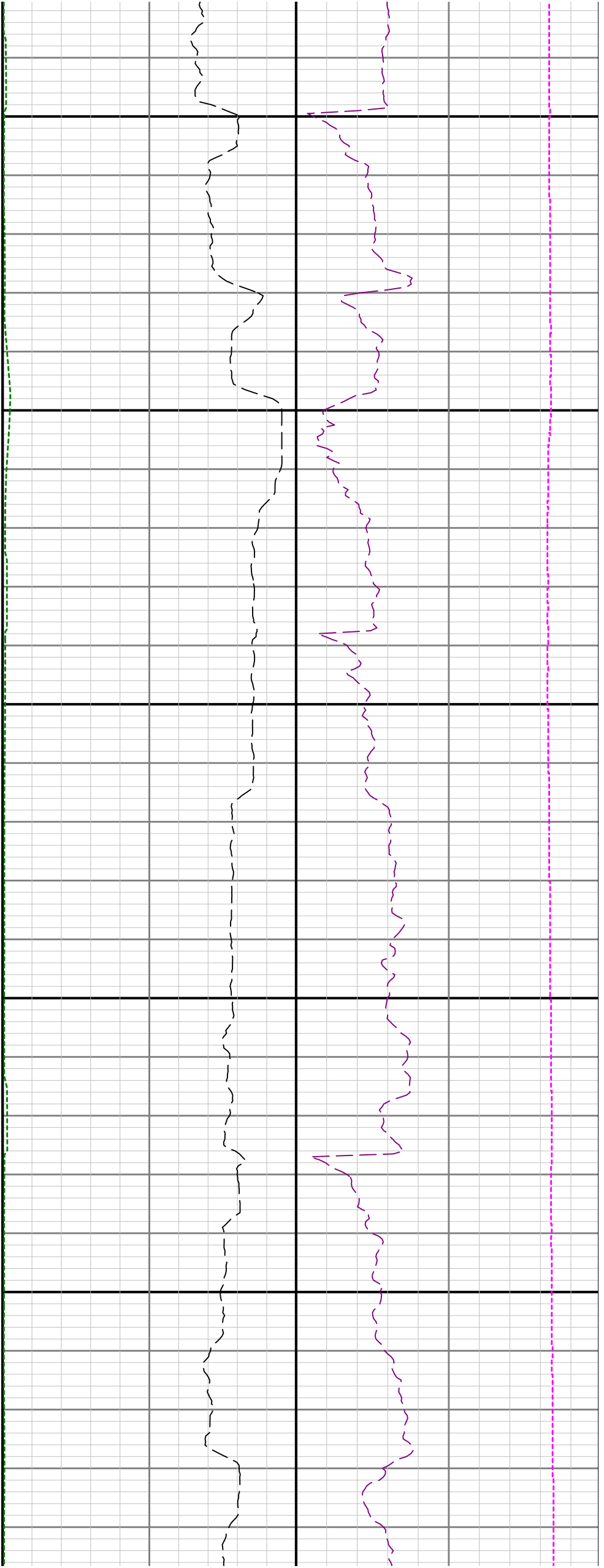


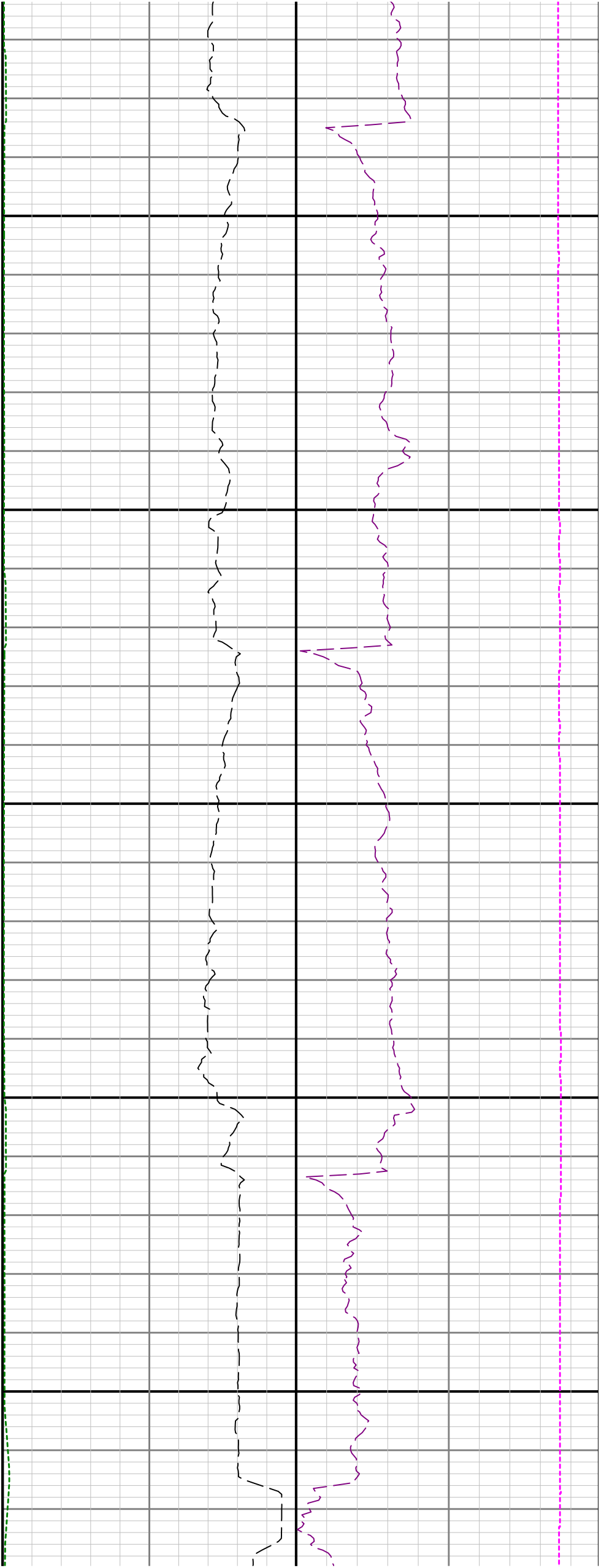








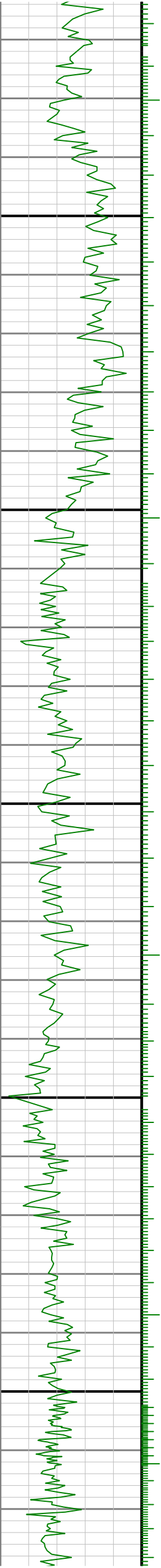


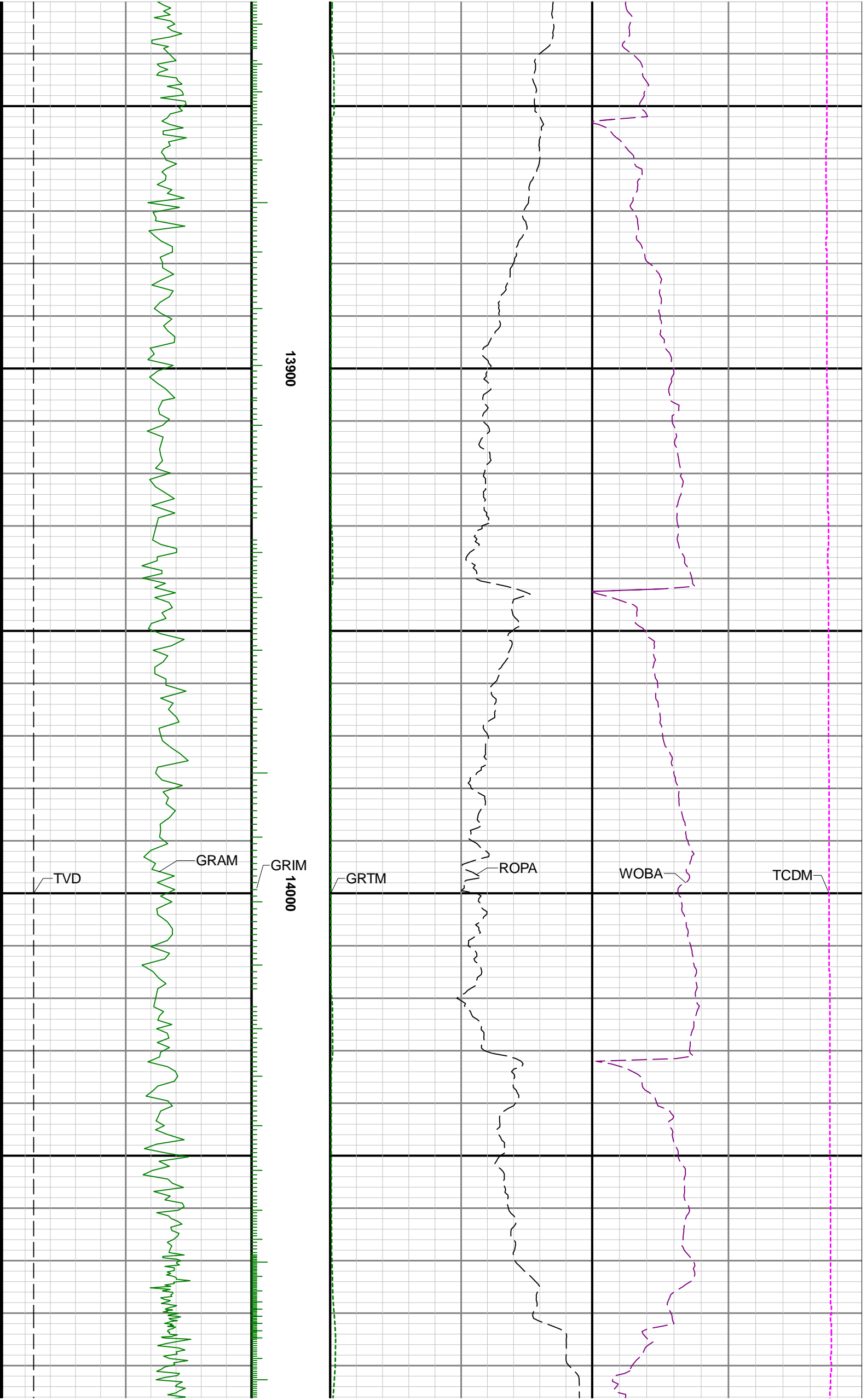


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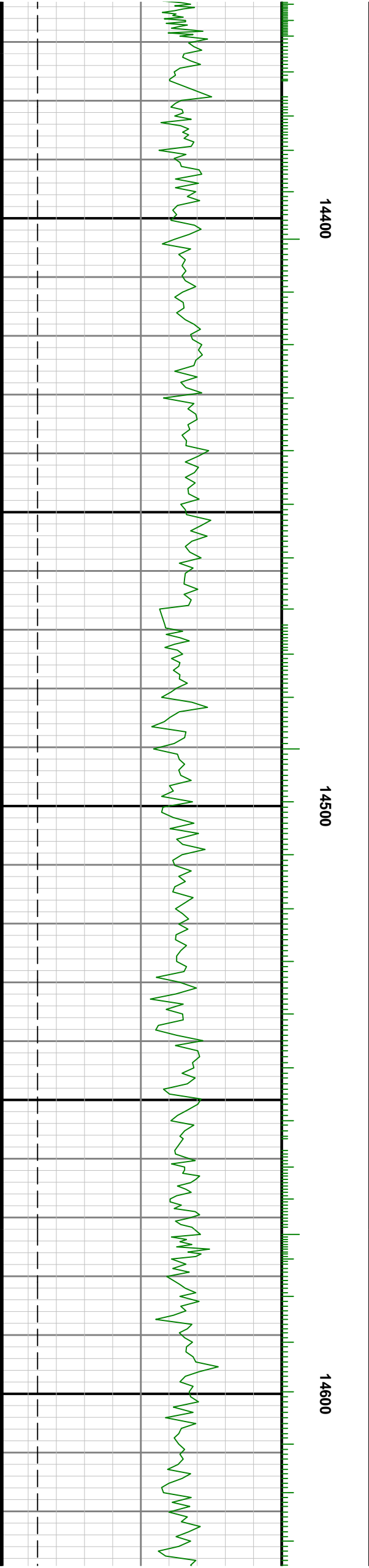
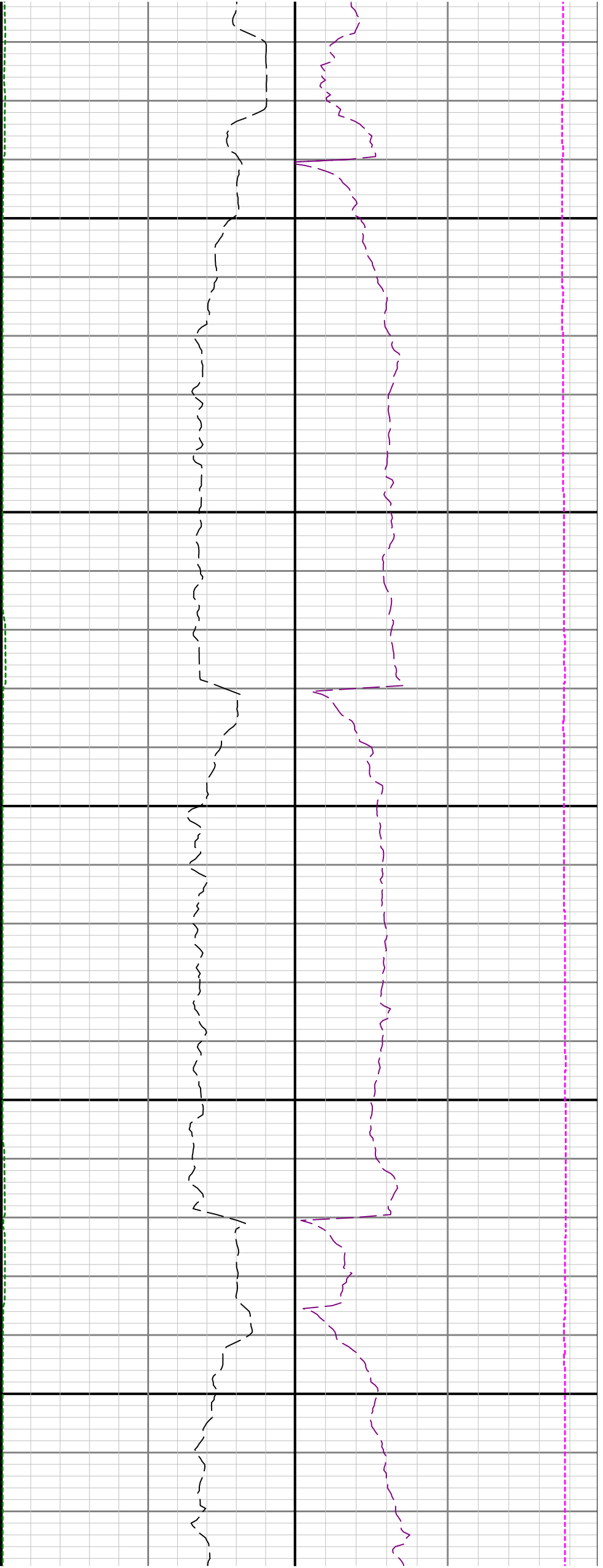


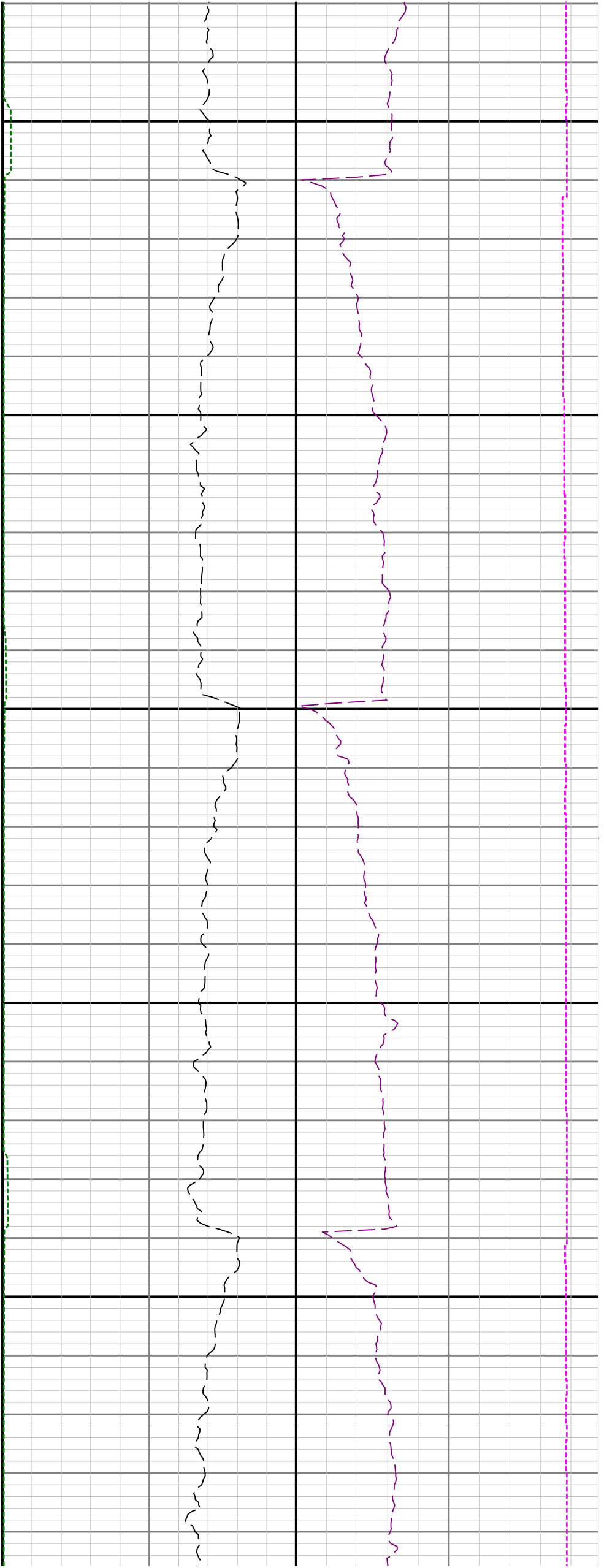


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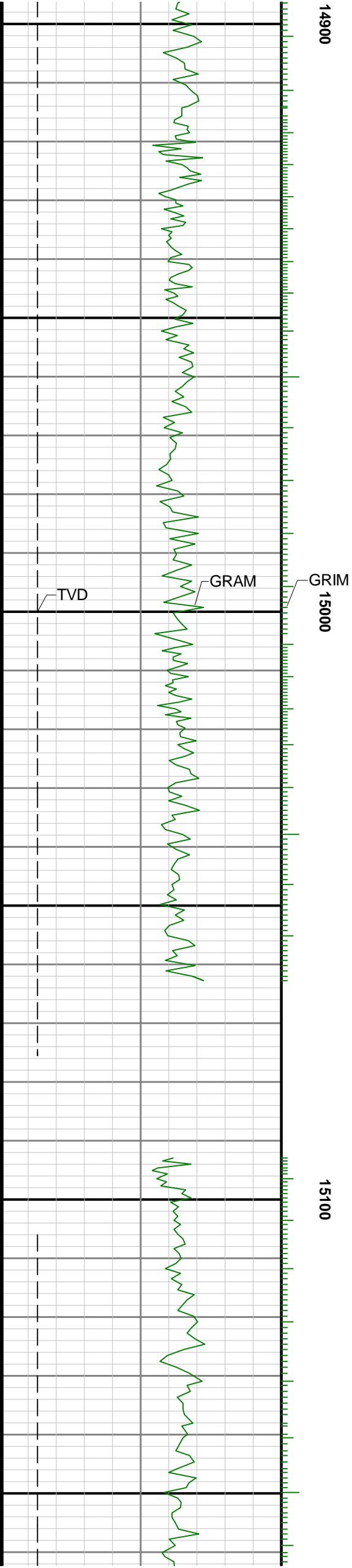
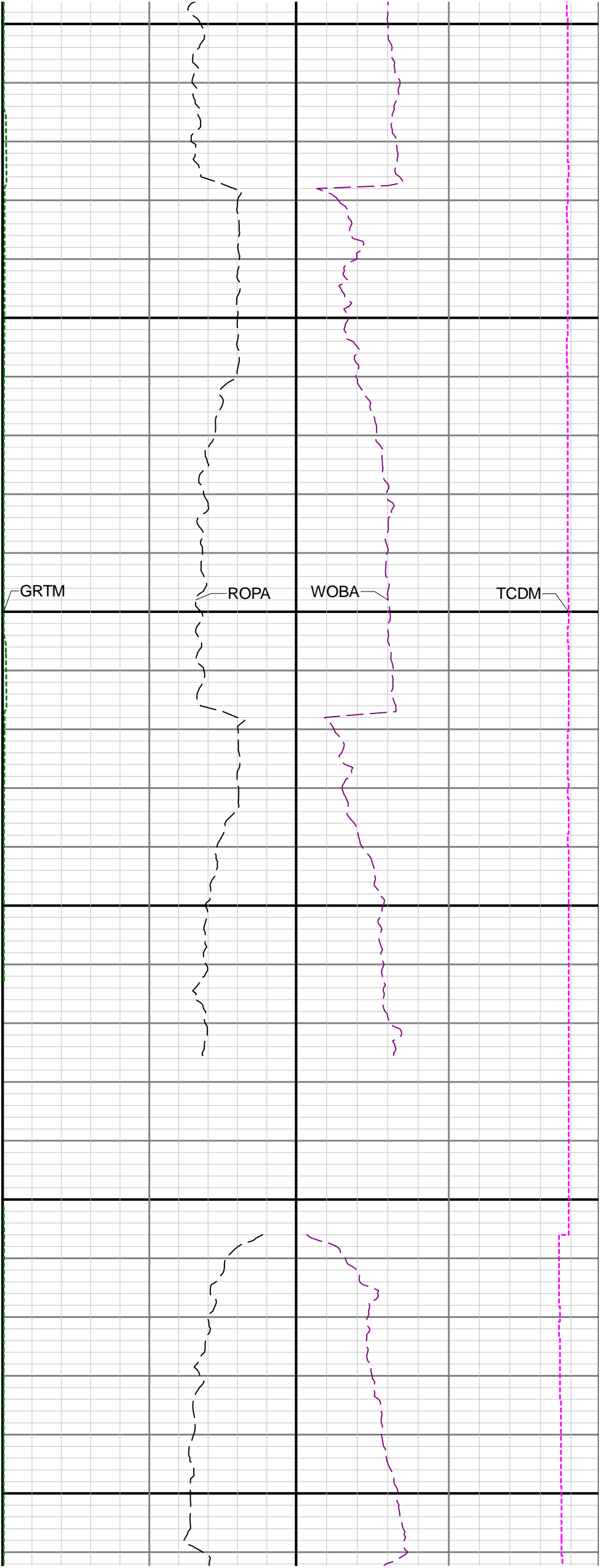
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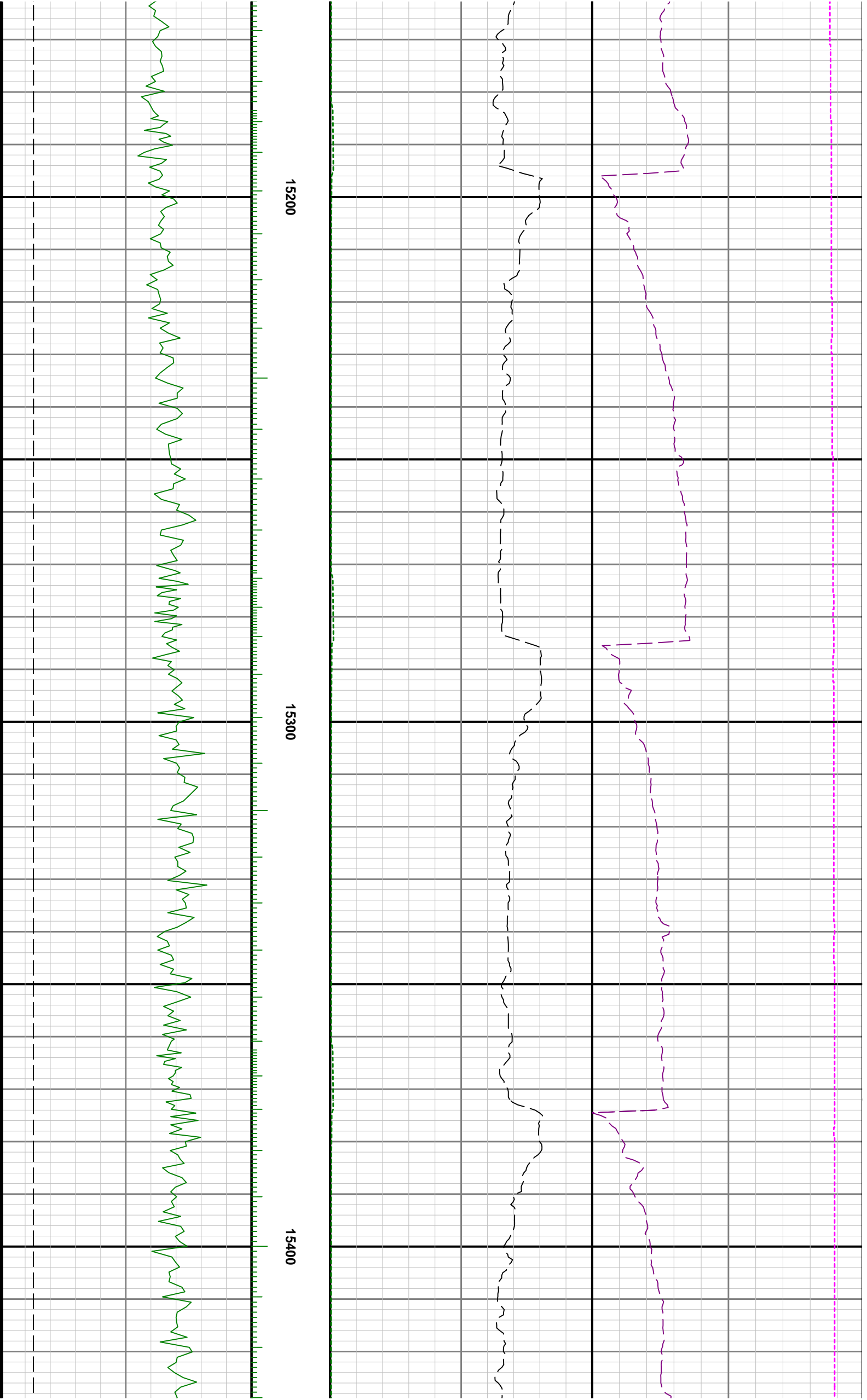


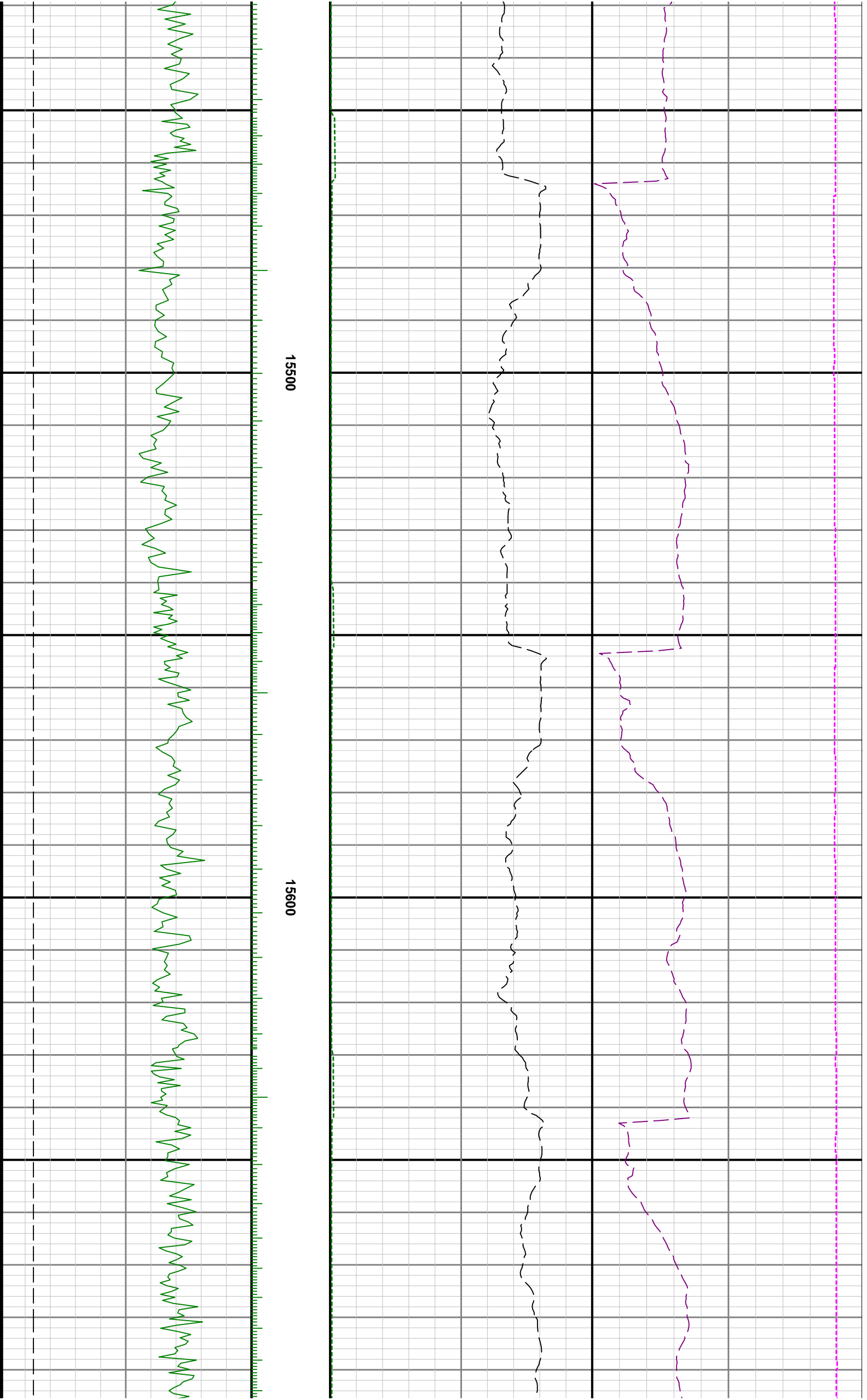


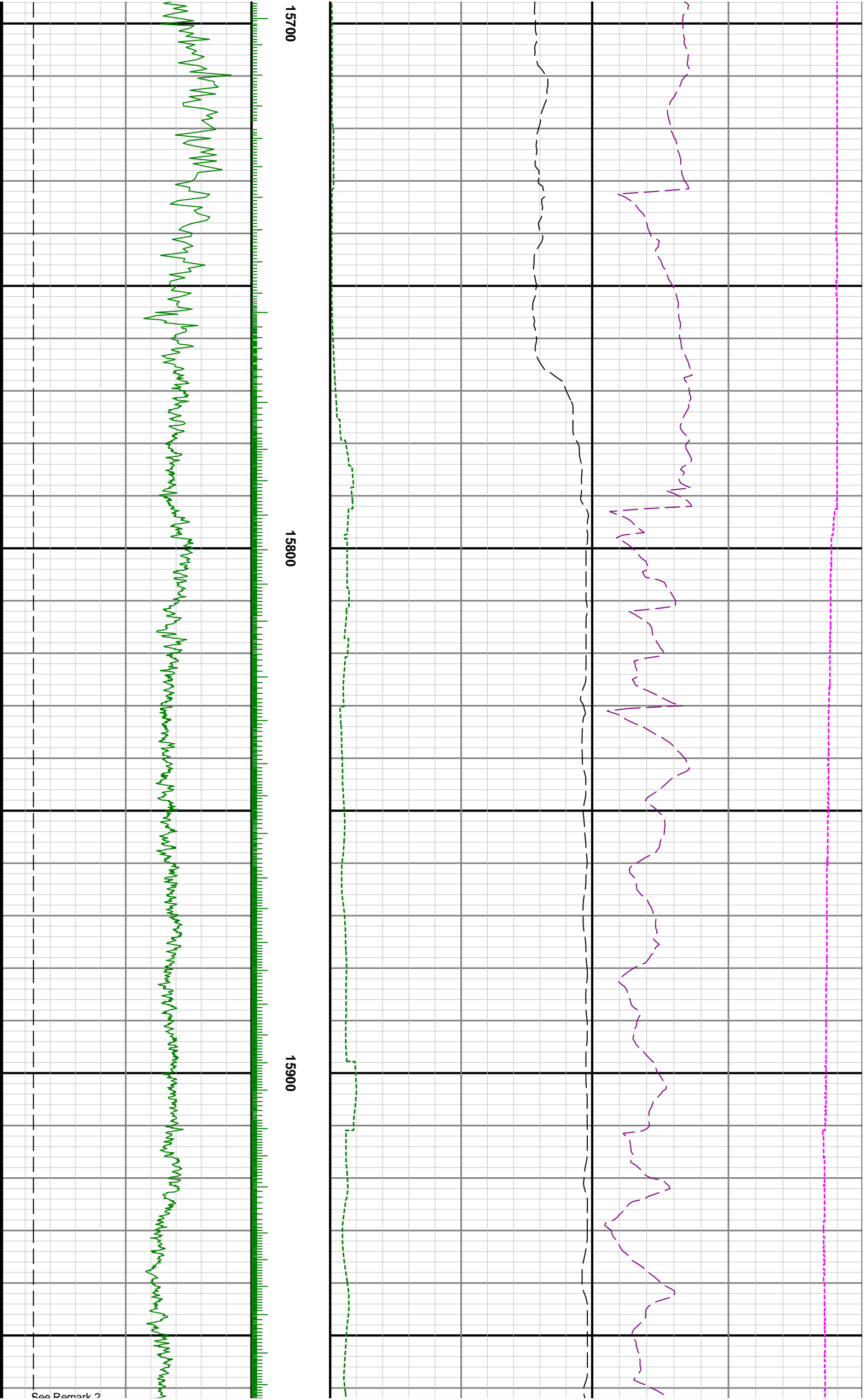
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14800





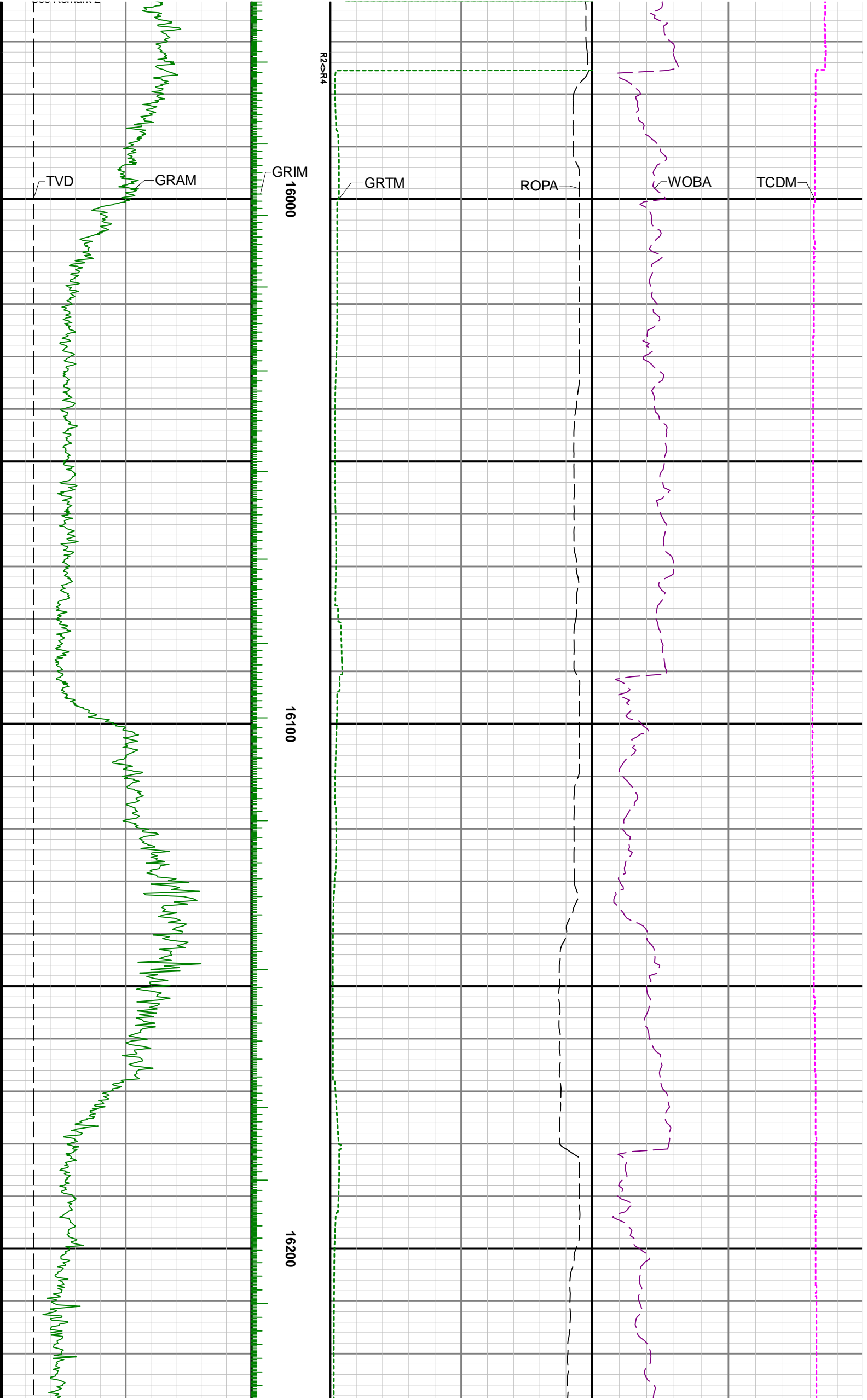




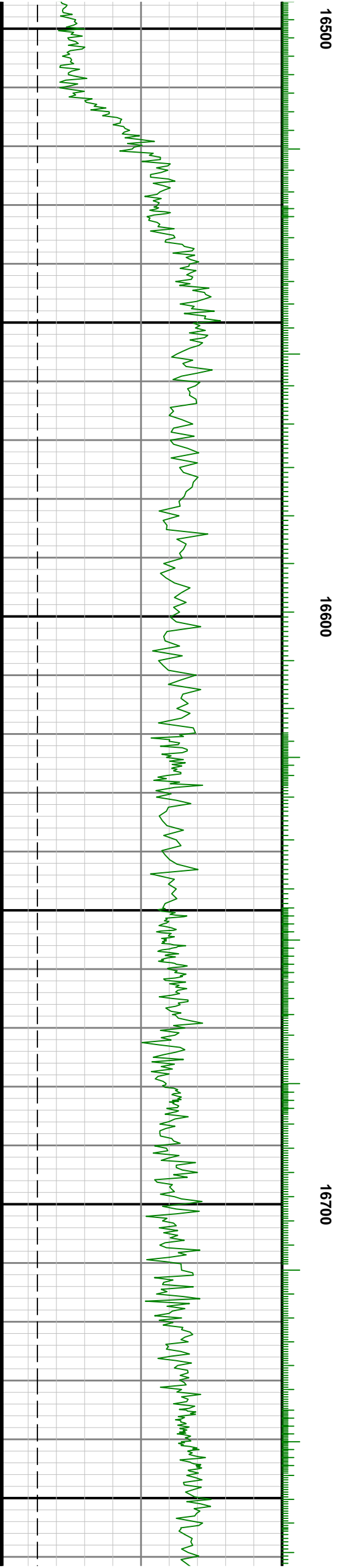
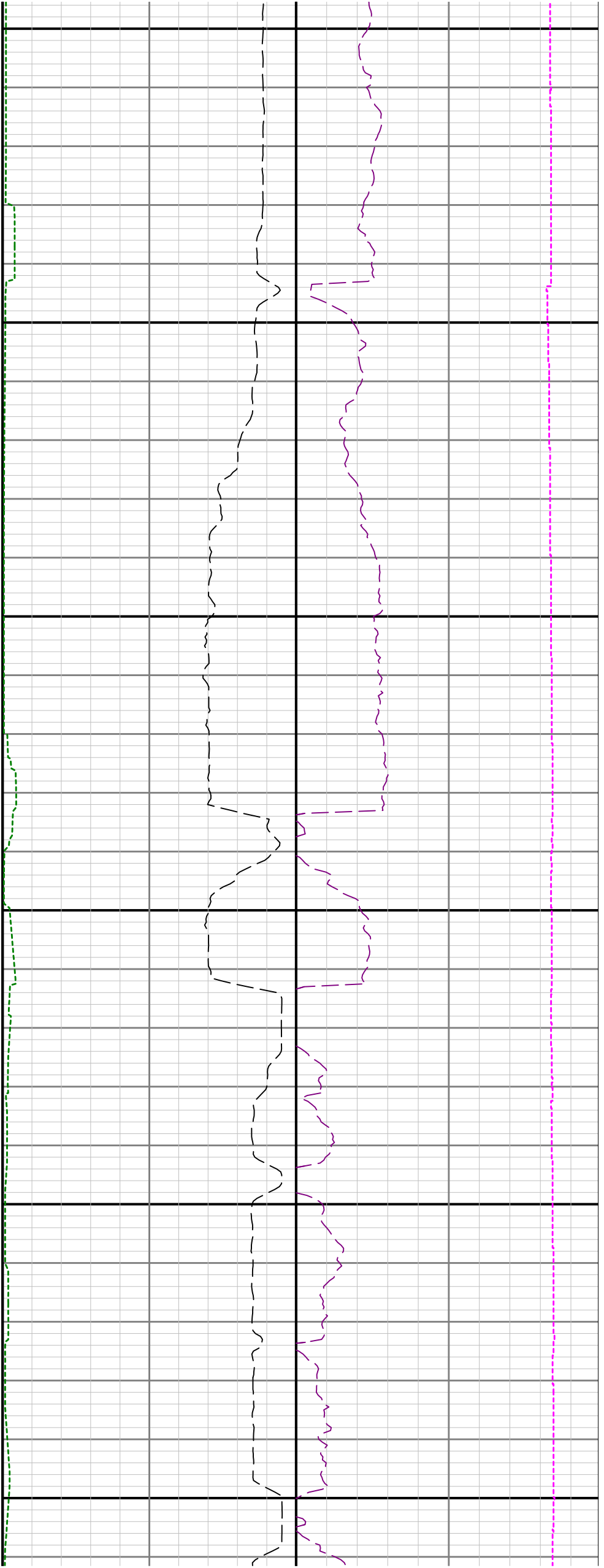
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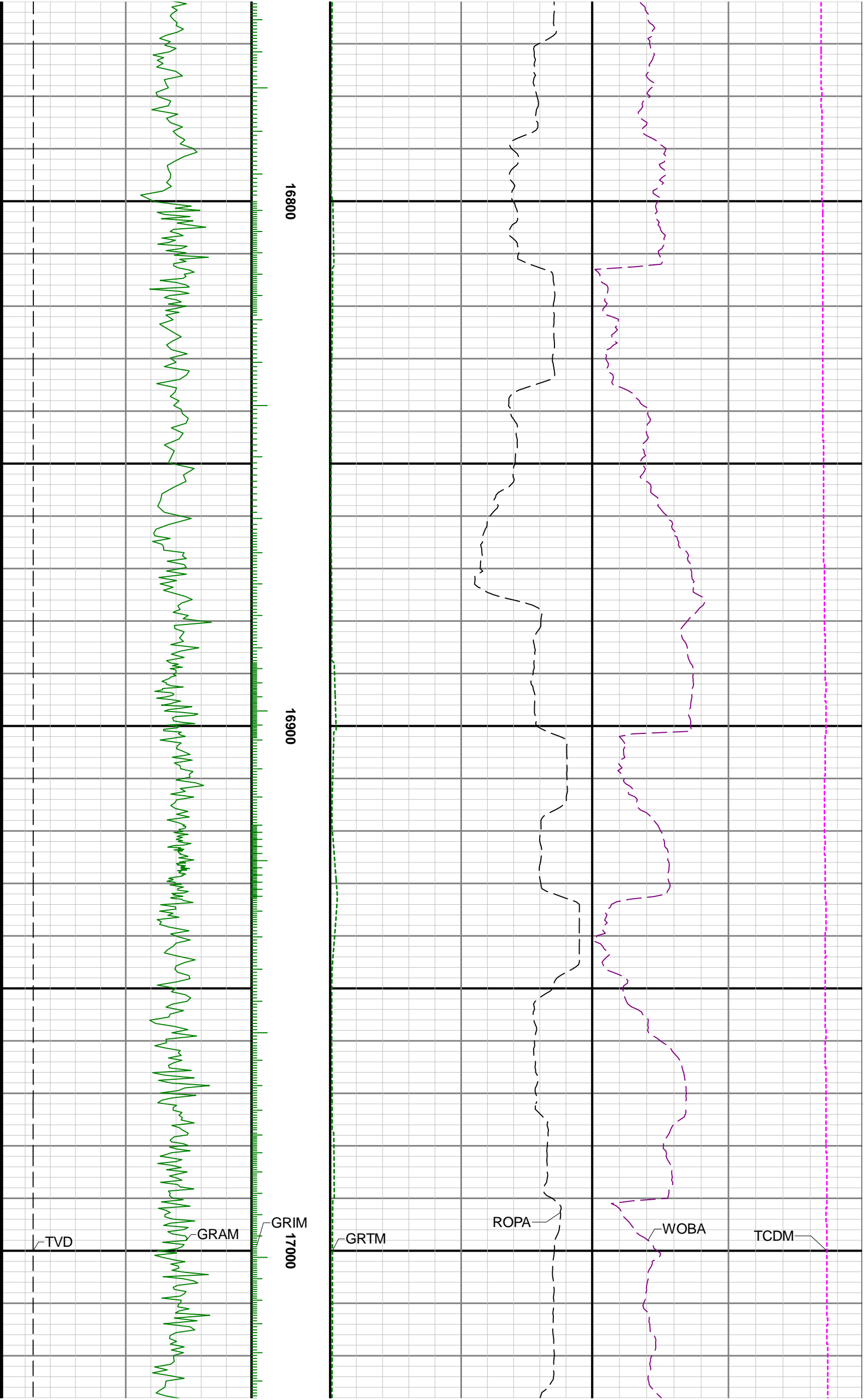
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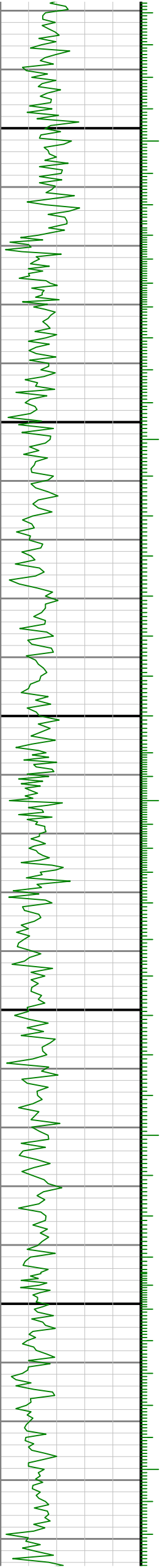


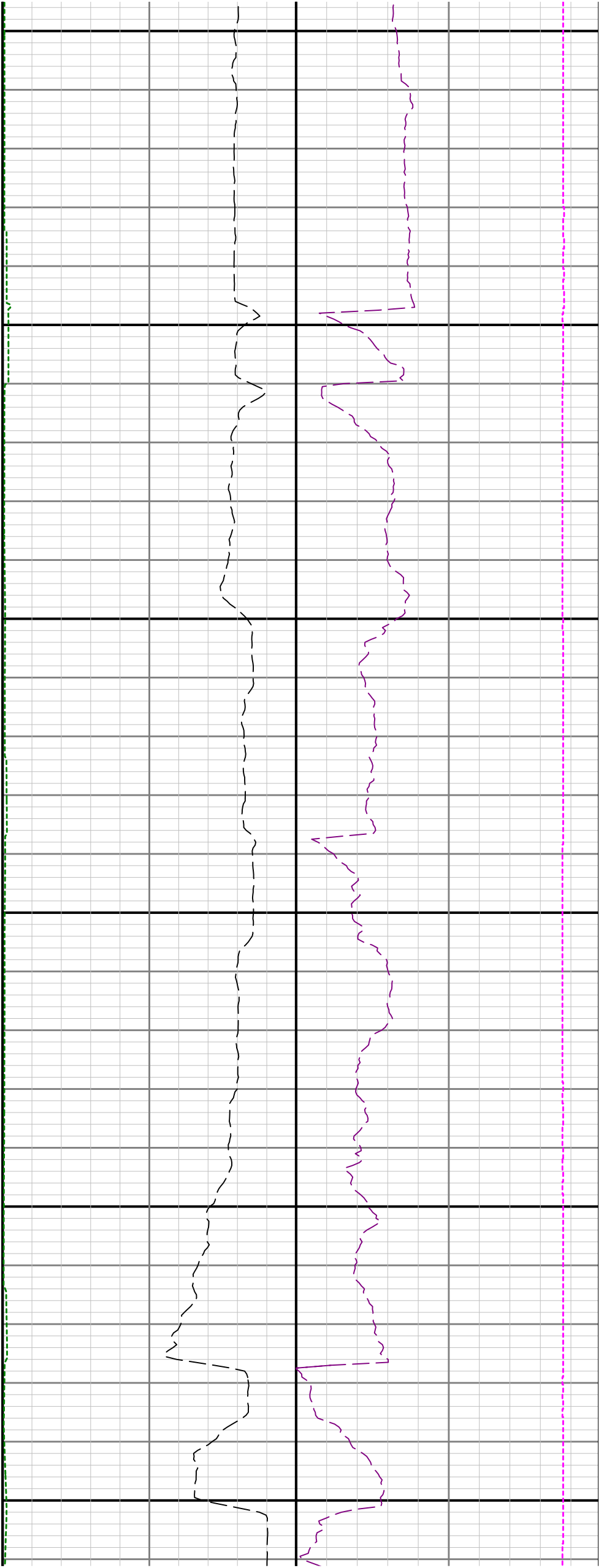




17100

17200

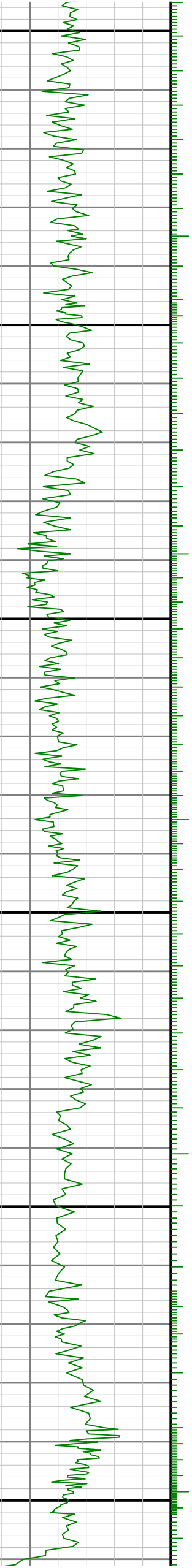


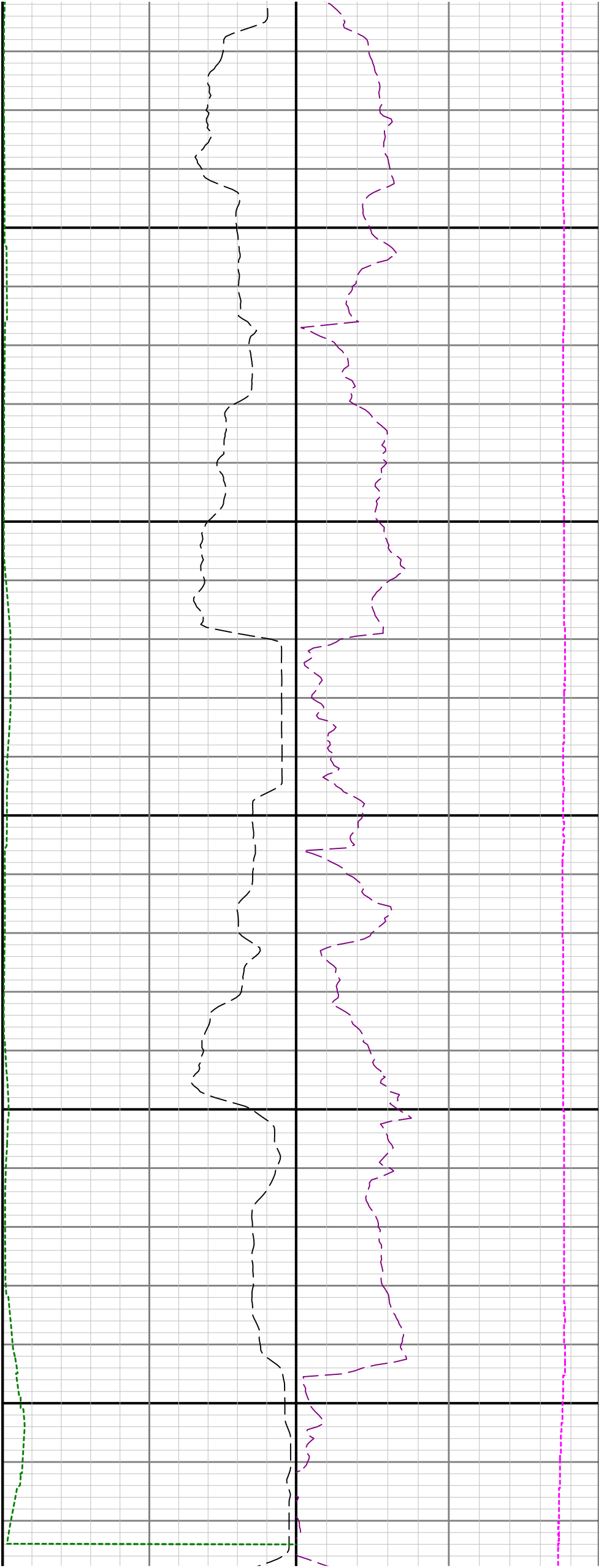


17300

17400

17500





17600

17700

17800

