


LWD COMPOSITE LOG												
<div>BAKER HUGHES</div> <div>a GE company</div> <div></div>			<div>Gamma Ray</div> <div>Azimuthal Gamma Ray</div>									
Scale:			Company: Bonanza Creek Oil Company									
1:240 MD			Well: North Platte 11-14-28HNC									
Depth Reference:			Field: Weld County									
Driller's Depth			County: Weld Country									
			State: Colorado									
Status:			Surface Location:						Other Services:			
Final Print			Latitude: 040° 22' 54.023" N						Directional			
API No: 05-123-47010-00			Longitude: 104° 26' 43.678" W									
Job ID: 109387961			SEC: 21		TWN: 5N		RGE: 63W		Elev. KB: N/A			
Permanent Datum (P.D.): Mean Sea Level			Elevation: Above P.D.		4570.00 ft		Elev. DF: 4570.00 ft		Elev. GL: 4553.00 ft			
Log Measured From: Rig Floor												
Dates			Interval Drilled						Magnetic Field Reference			
Date From: 2018-09-05			Top: (ft) 17.00		Azi Reference North: True		Dip Angle: (deg) 66.85					
Date To: 2018-09-25			Bottom: (ft) 11690.00		Total Magnetic Field Strength: (nT)		52305					
Spud Date: 2018-09-05					Mag to Reference North Correction: (deg)		8.10					
Borehole Record			Casing Record									
Hole Size (in)			From (ft)		To (ft)		Size (in)		Weight (lb/ft)		From (ft)	
13.500			17.00		1640.00		11.875		36.00		17.00	
8.500			1640.00		11690.00							
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Log Run Summary												
Run No	Bit Run No.	Bit Size	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours
						Top	Bottom	From	To	Start Logging	End Logging	
		(in)				(ft)	(ft)	(ft)	(ft)			(h)
1	1	13.500	PDC	4.00	Steerable	0.00	0.00	17.00	1640.00	N/A	N/A	4.79
2	2	8.500	PDC	2.00	Rotary Steerable	5000.00	6181.00	1640.00	6194.00	2018-09-23 12:49	2018-09-23 16:26	17.96
3	2	8.500	PDC	2.00	Rotary Steerable	6181.00	11677.00	6194.00	11690.00	2018-09-24 04:21	2018-09-25 03:34	21.57

Crew								
Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	
Steve Bueghly		2018-09-04	2018-09-25					

Mud Properties Record											
Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2018-09-04 19:44	1	17.00	Water Based Mud	8.8	1	8.2	0.0	0/97	Active Pit	400	0.00
2018-09-22 16:44	2	1640.00	Diesel-Oil Based Mud	8.9	13	N/A	0.0	88/12	Active Pit	13000	0.00
2018-09-23 20:00	3	6192.00	Diesel-Oil Based Mud	9.1	10	N/A	0.0	75.5/14	Active Pit	14000	0.00
2018-09-24 19:00	3	9305.00	Diesel-Oil Based Mud	9.2	10	N/A	0.0	76/14	Active Pit	18000	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	NaviTrak	13225711	VSS	16.02	52.03	8.000	0.000
1	NaviTrak	13225711	Directional (mag)	16.02	52.03	8.000	0.000
2	ATC_SU	14186737	Near Bit Inclination	5.93	6.93	7.000	4.330
2	ATC_SU	14186737	Near Bit VSS	5.93	6.93	7.000	4.330
2	ATC_MWD	14179564	Gamma (single)	2.75	13.10	7.000	3.250
2	ATC_MWD	14179564	Directional (mag)	12.27	22.62	7.000	3.250
3	ATC_SU	14382369	Near Bit VSS	5.93	6.93	7.000	4.330
3	ATC_SU	14382369	Near Bit Inclination	5.93	6.93	7.000	4.330
3	ATC_MWD	14256850	Gamma (single)	2.75	13.09	7.000	3.250
3	ATC_MWD	14256850	Directional (mag)	12.27	22.61	7.000	3.250

Service and Tool Mnemonics



Mnemonic	Name	Description
NTK	NaviTrak	Probe Based Directional Module, NaviTrak Platform
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments

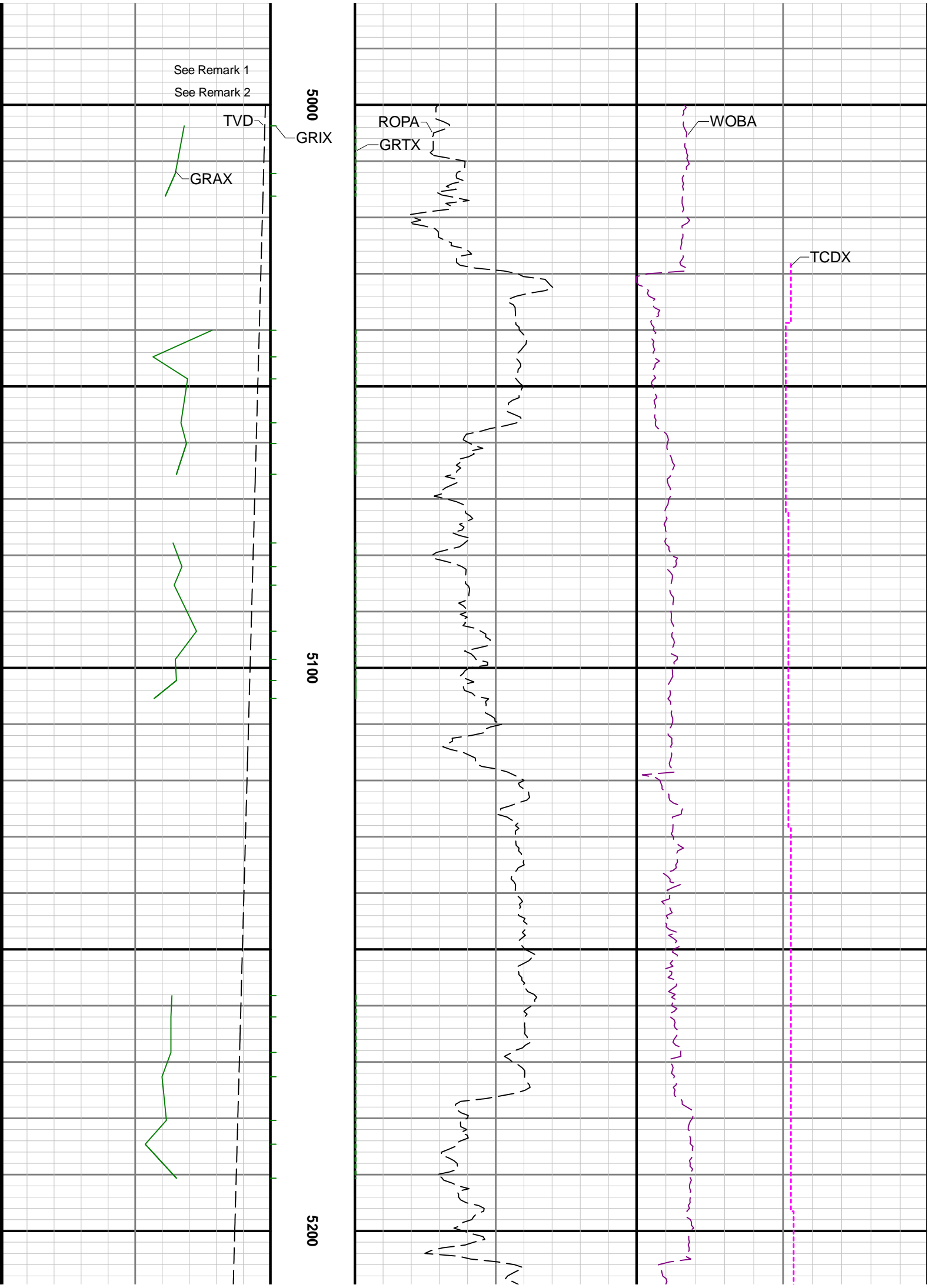
1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD Run 1 used the 8 inch NaviTrak service (Directional) behind a 13 1/2 inch bit and steerable assembly to drill from 17 to 1640 feet MD (17 to 1638 feet TVD).
3	Baker Hughes LWD Run 2 and 3 used the 6 3/4 inch NaviGamma service (Gamma Ray, Azimuthal Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly to drill from 1640 to 11690 feet MD (1638 to 6408 feet TVD).
4	The Gamma Ray Apparent (GRAM) data is presented from 0 to 200 API, per customer's request.

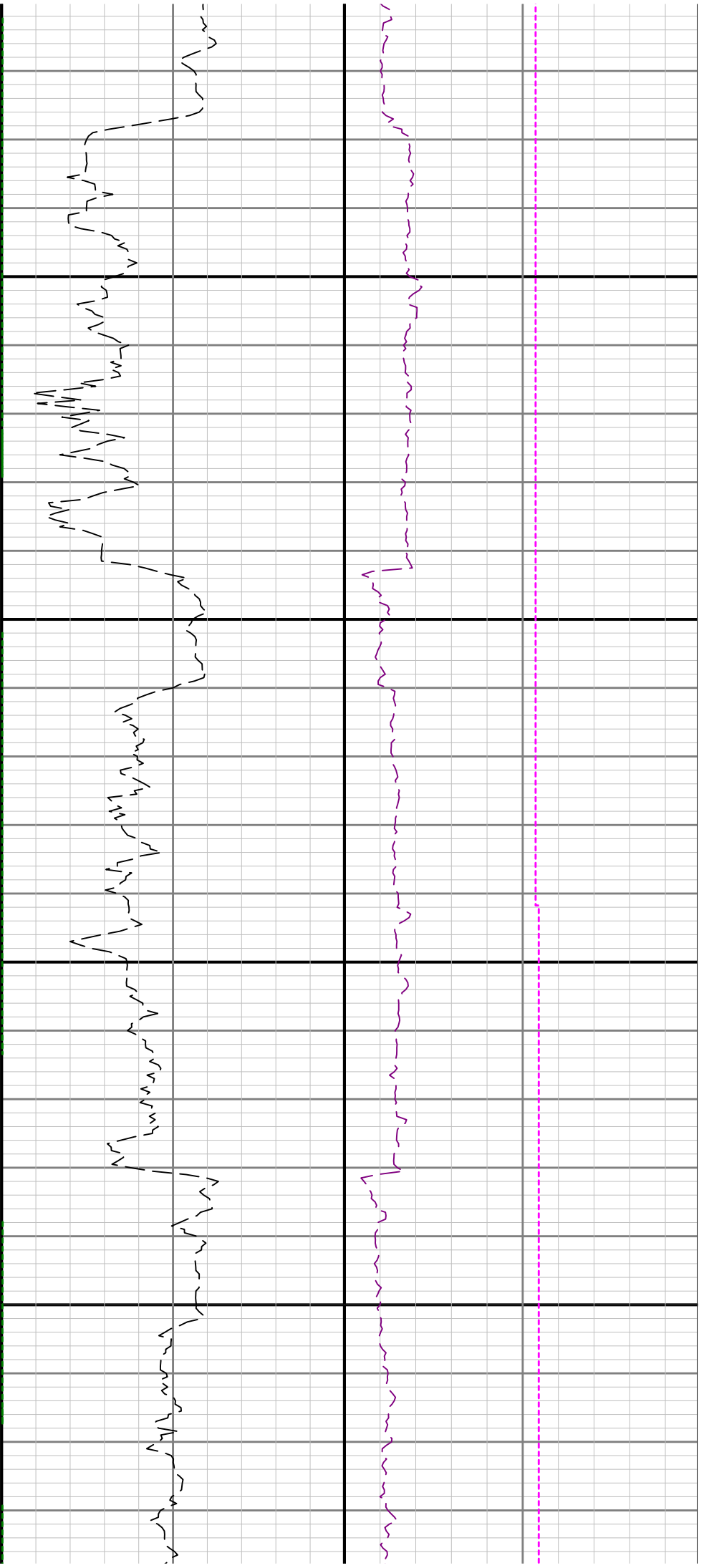
Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	5000.00	8.500	2	Realtime Gamma Ray data is displayed for Run 2 from 5000 to 6194 feet MD (4881 to 6029 feet TVD) due to an error in the AutoTrak curve memory module. Gaps in data throughout this section are due to surveying and downlinking while drilling ahead.
2	5120.00	8.500	2	The Gamma Ray Apparent (GRAM) log starts at 5000 feet, per customer's request.
3	8356.00	8.500	3	Realtime Azimuthal Gamma Ray data is displayed for Run 3 from 8356 to 11677 feet MD (6408 feet TVD) due to an error in the AutoTrak curve memory module. Gaps in data throughout this section are due to surveying and downlinking while drilling ahead.
4	11682.00	8.500	3	The interval from 11677 to 11690 feet MD (6408 feet TVD) was not logged due to sensor to bit offset at well TD.

 	Company	Bonanza Creek Oil Company	
	Well	North Platte 11-14-28HNC	
	Interval	Date From: 2018-09-05 12:51	Top: 17.00 ft
	Created	Date To: 2018-09-25 03:34	Bottom: 11690.00 ft
		2018-09-25 17:18:22	

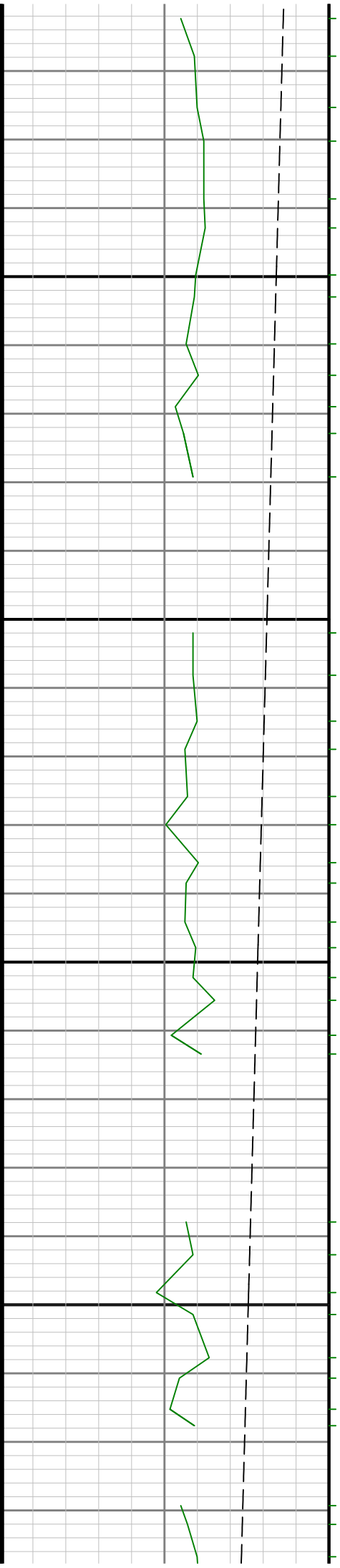
Gamma Ray - Apparent 0.5 ft Average GRAM	MD 1:240 feet	Depth Averaged ROP 3 ft Average ROPA	Weight On Bit, Average 1 ft Average WOBA
0 200		1000 0	0 100
API		ft/h	klb
Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUM		Gamma Time Since Drilled GRTM	Downhole Temperature TCDM
0 200		0 600	0 300
API		min	degF
Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADM		Gamma Time Since Drilled GRTX	Downhole Temperature TCDX
0 200		0 600	0 300
API		min	degF
True Vertical Depth TVD			
6550 4850			
ft			
Gamma Ray - Apparent 0.5 ft Average GRAX			
0 200			
API			
Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUX			
0 200			
API			
Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADX			
0 200			
API			

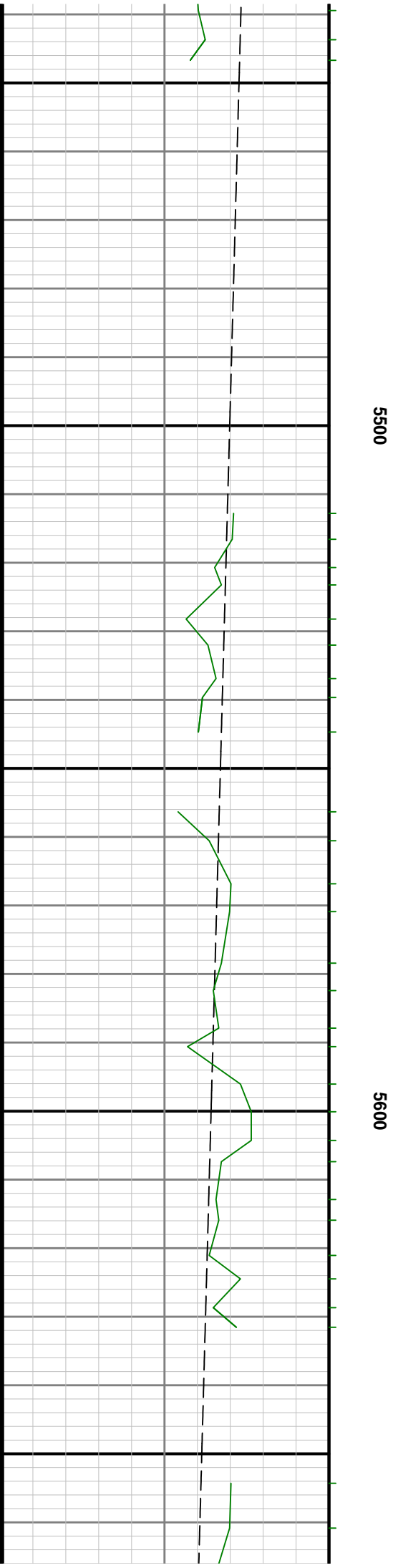
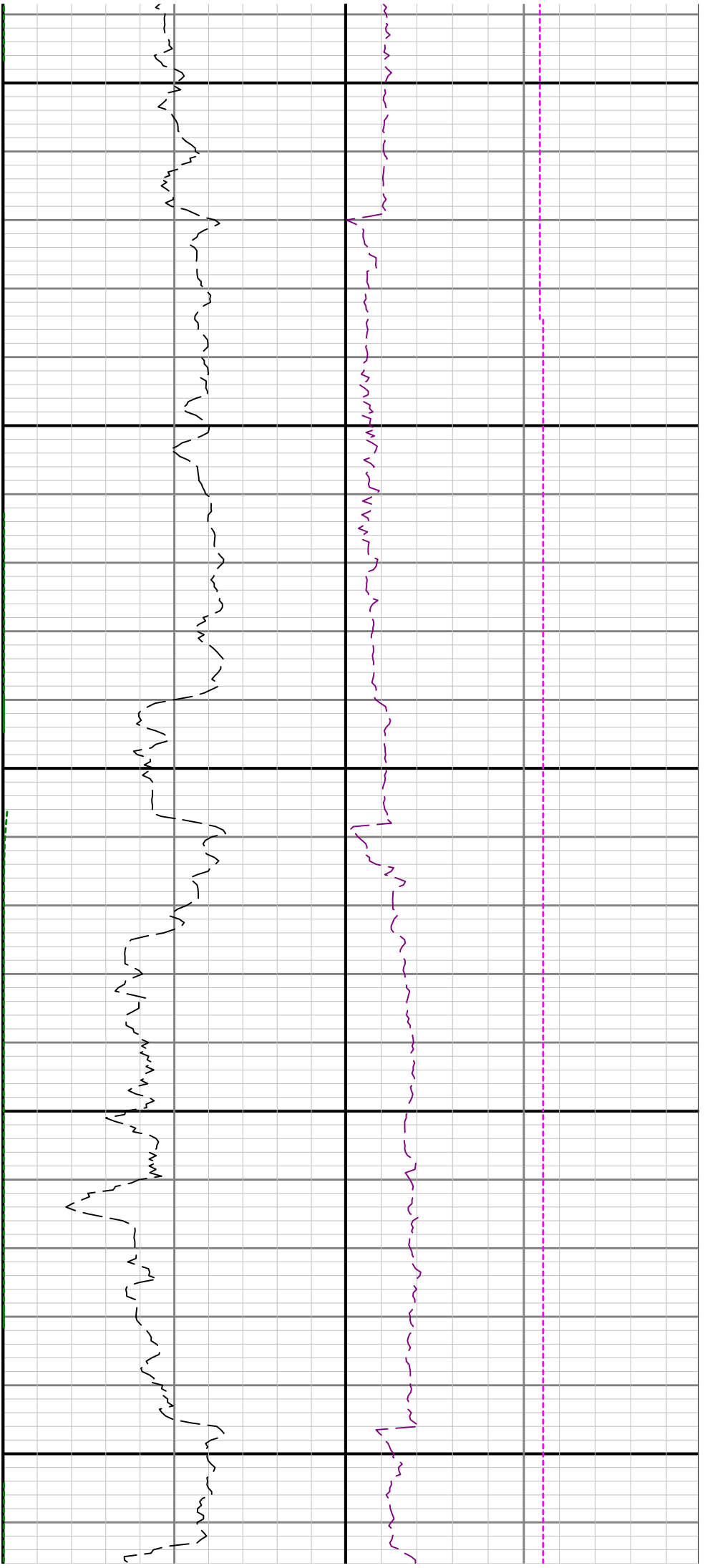


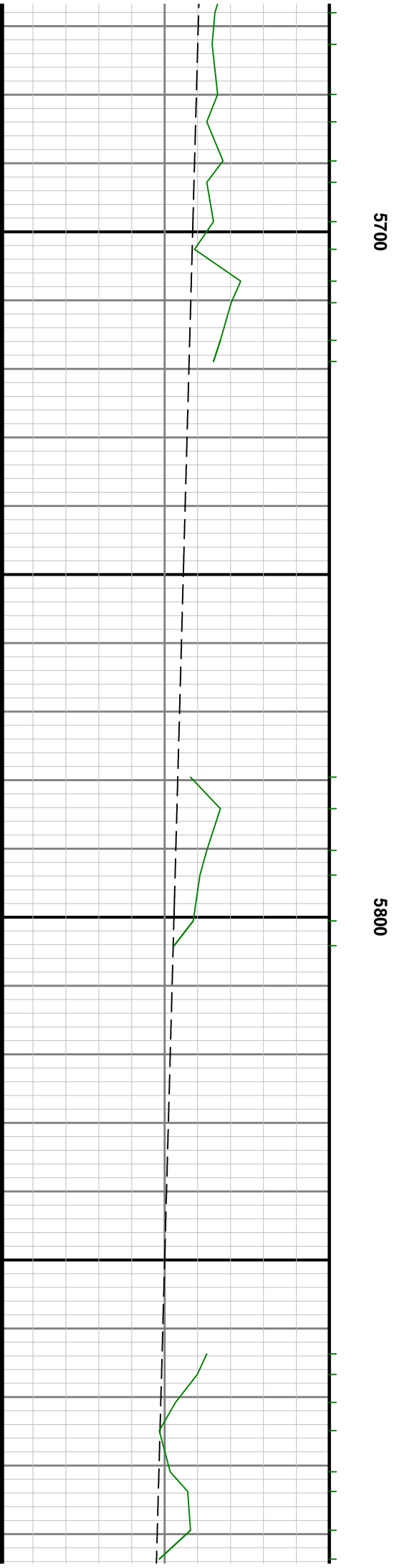
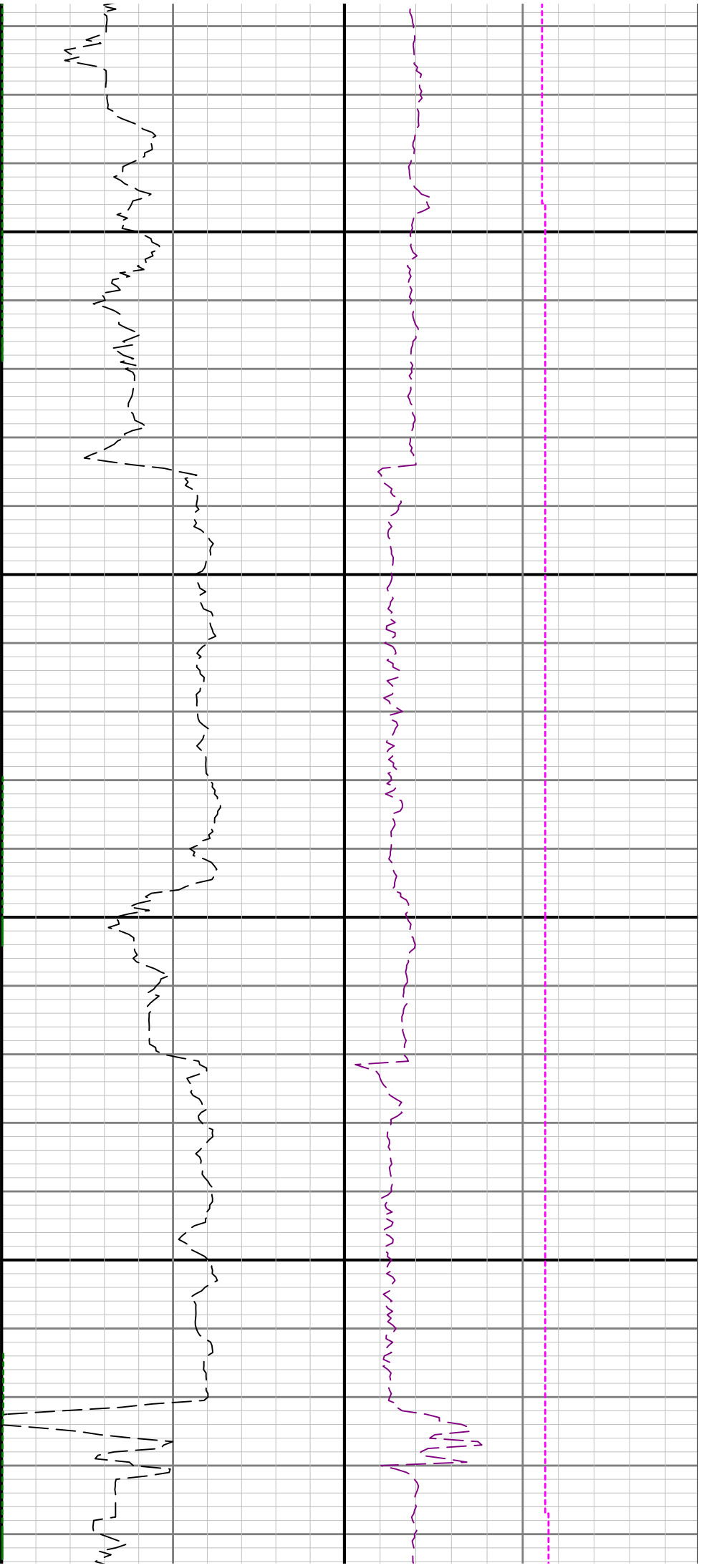


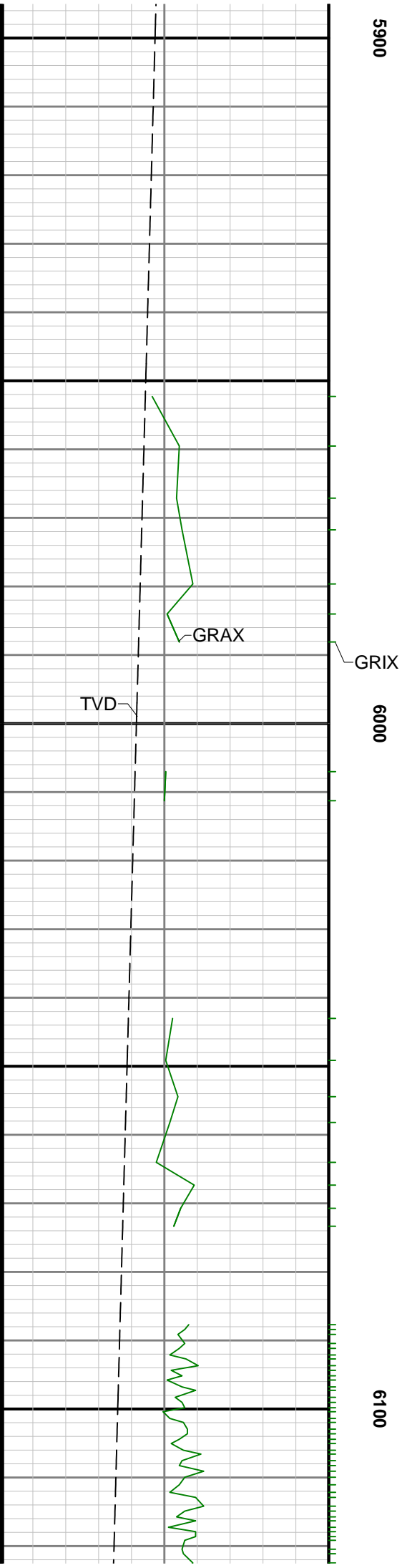
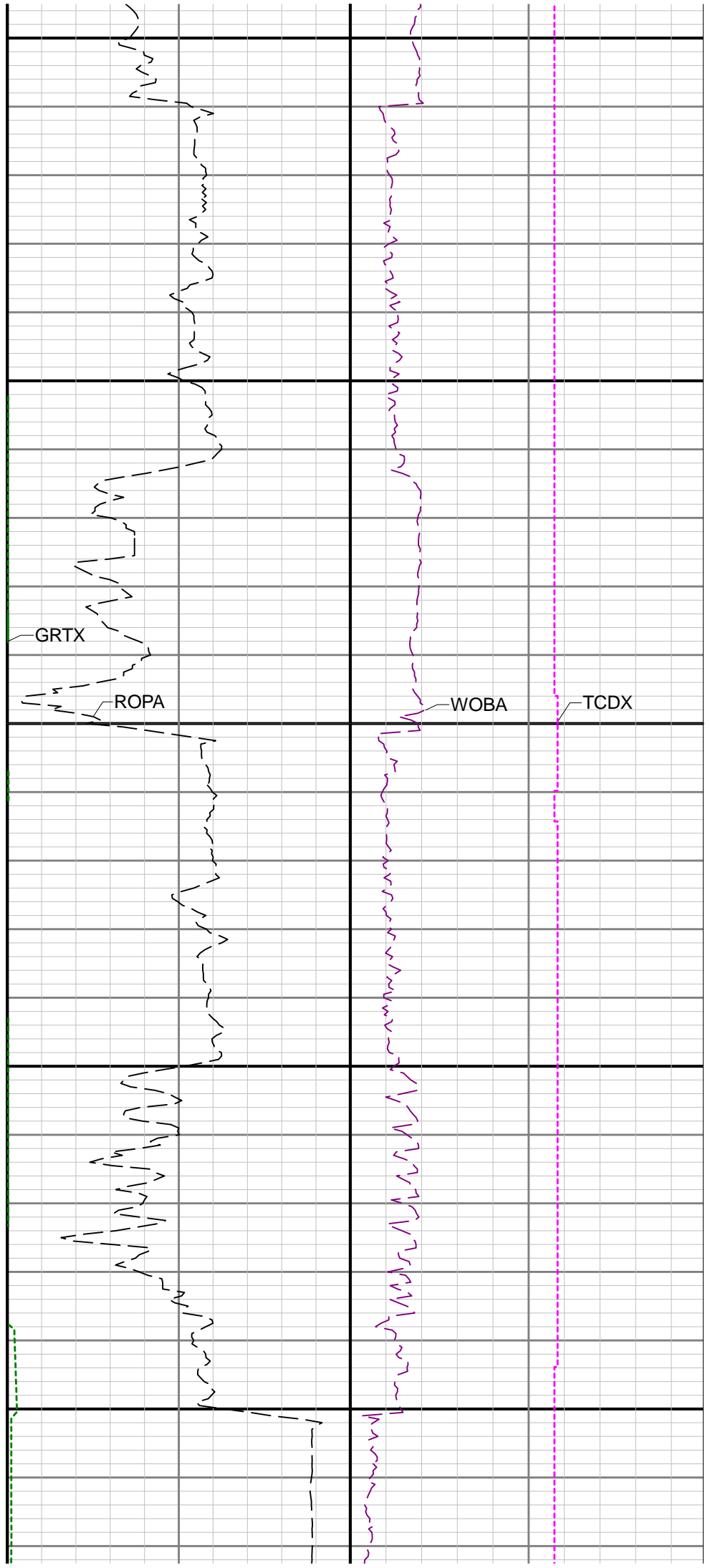
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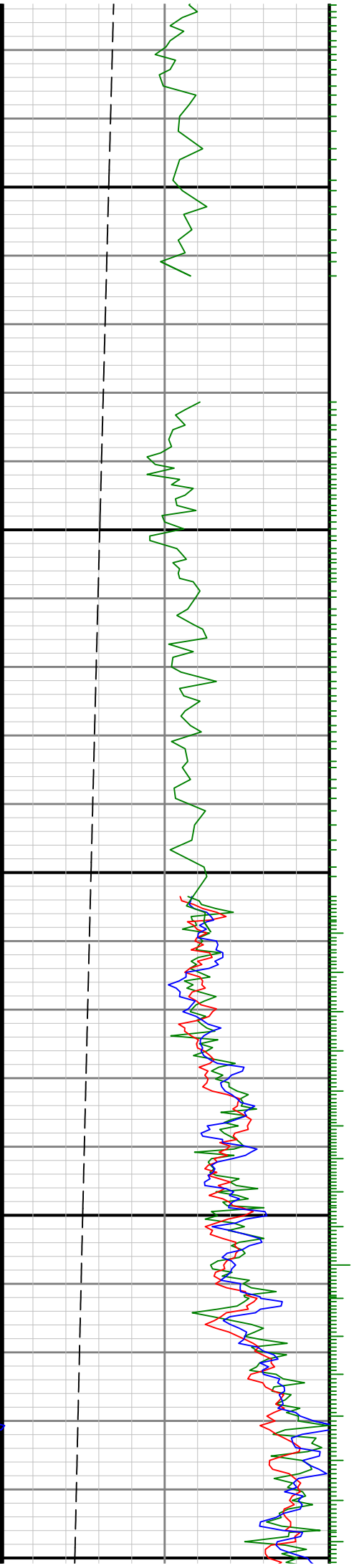
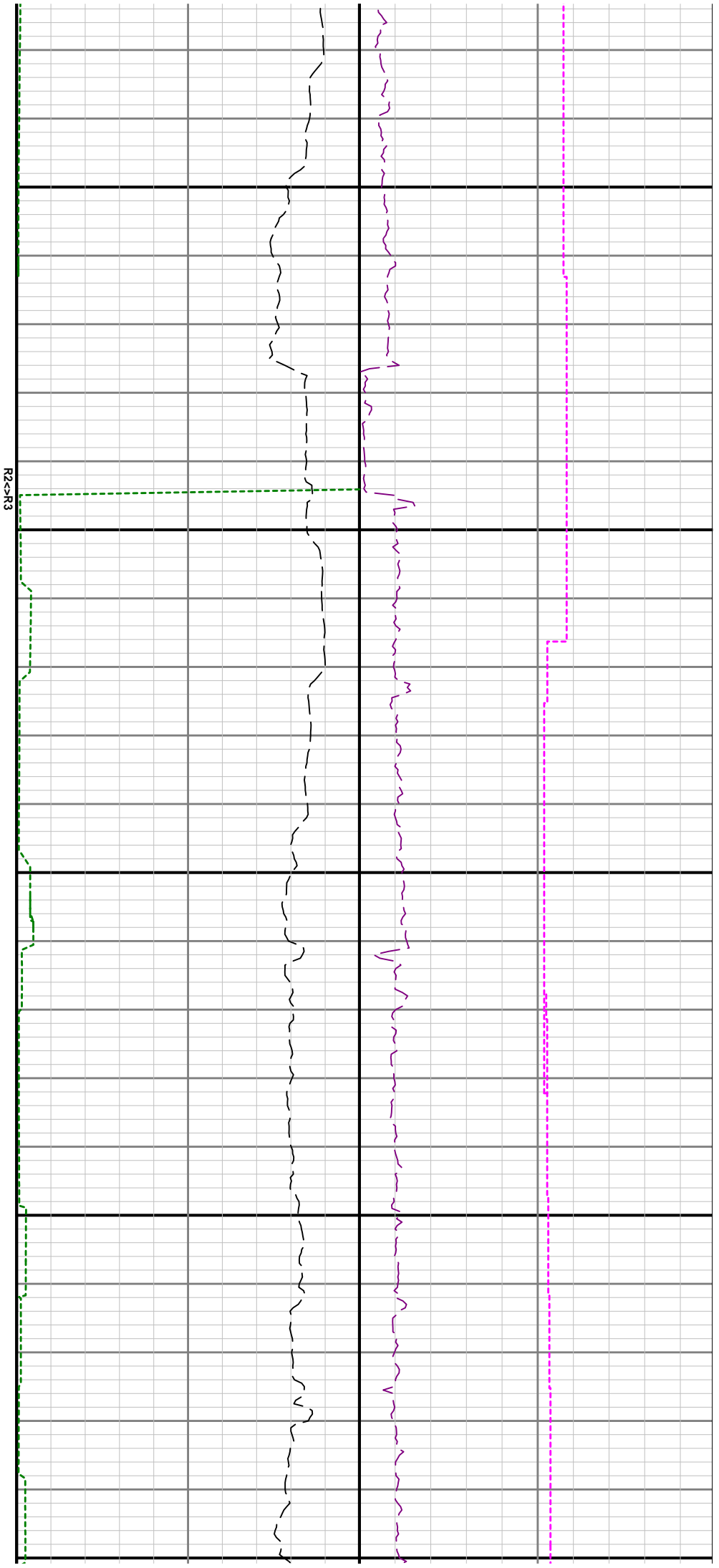
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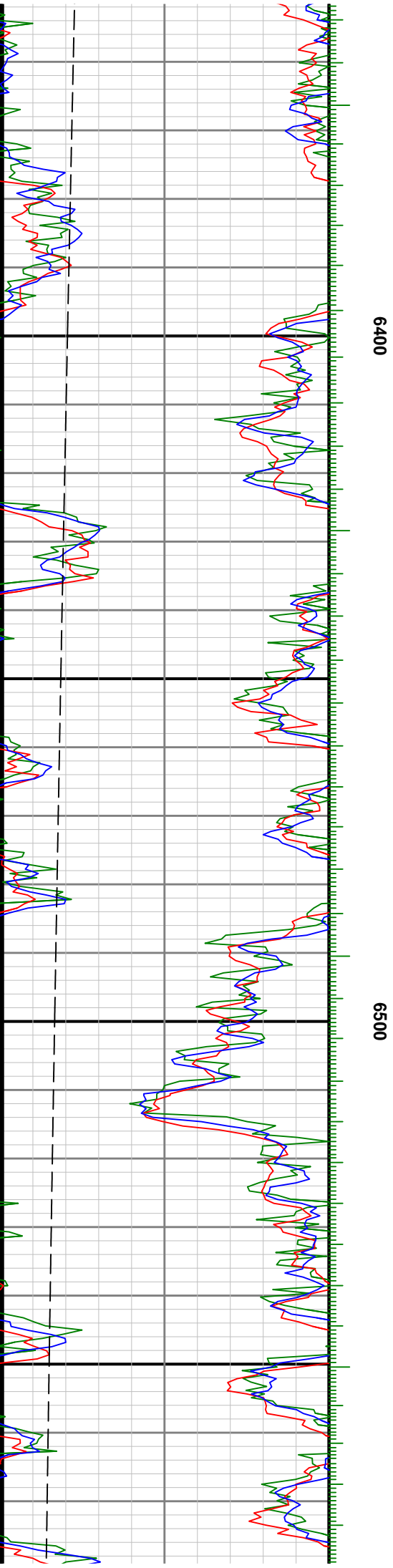
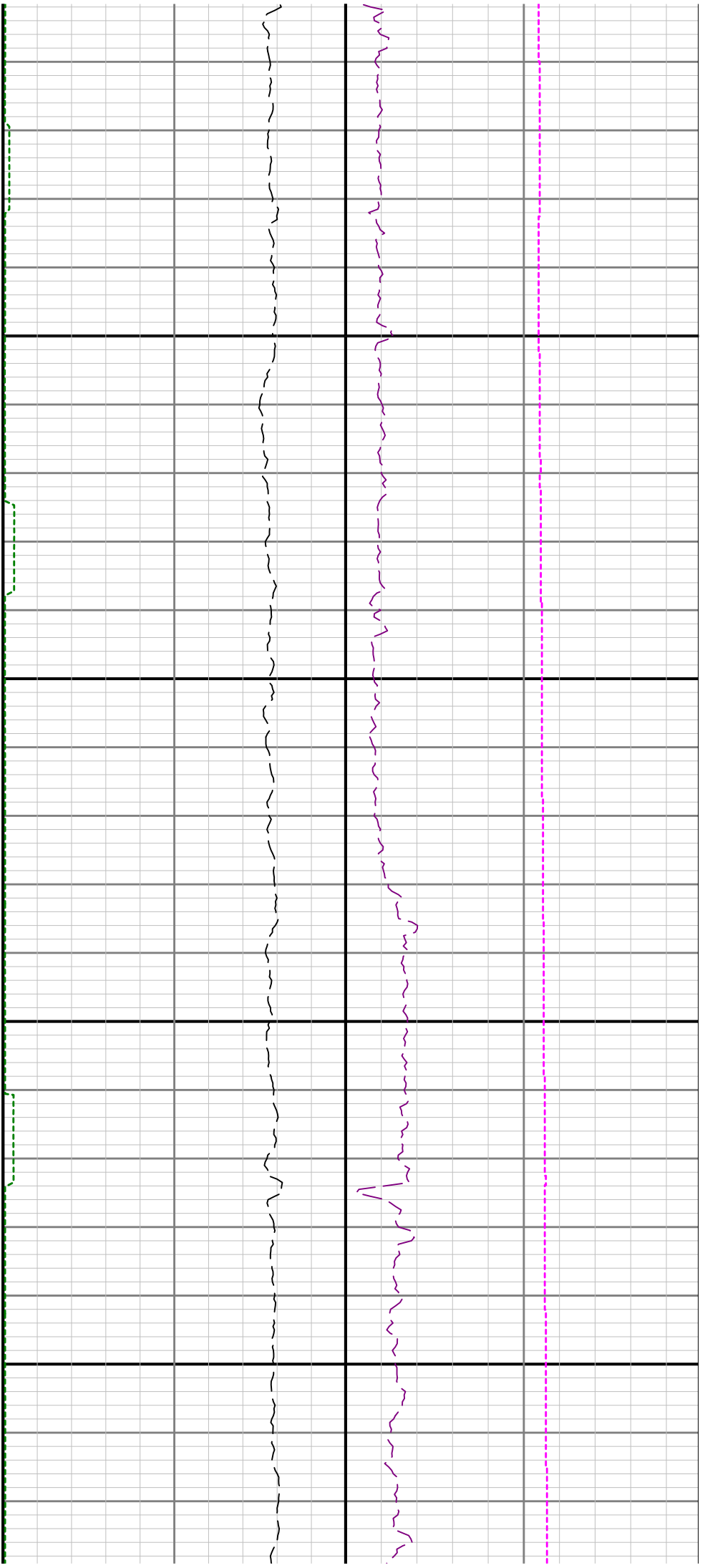


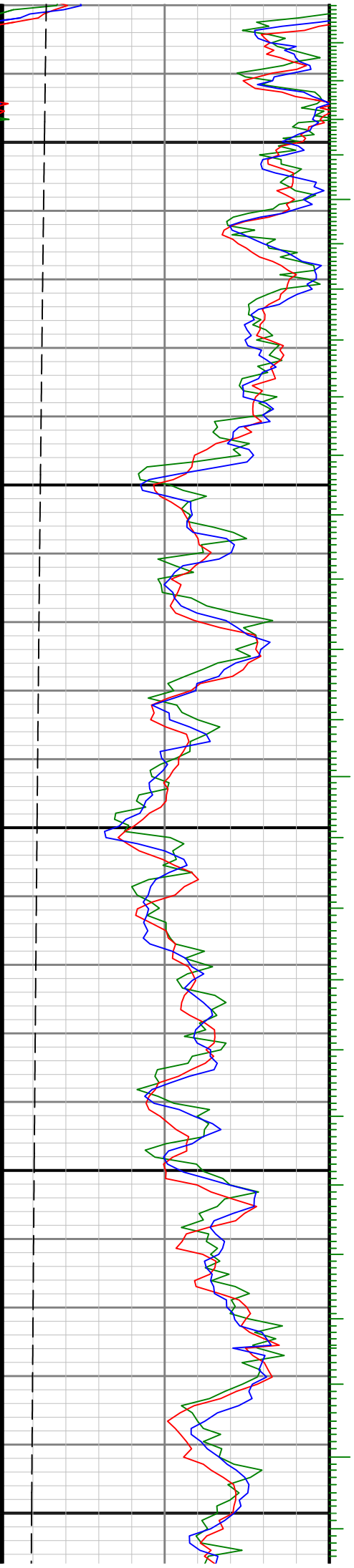








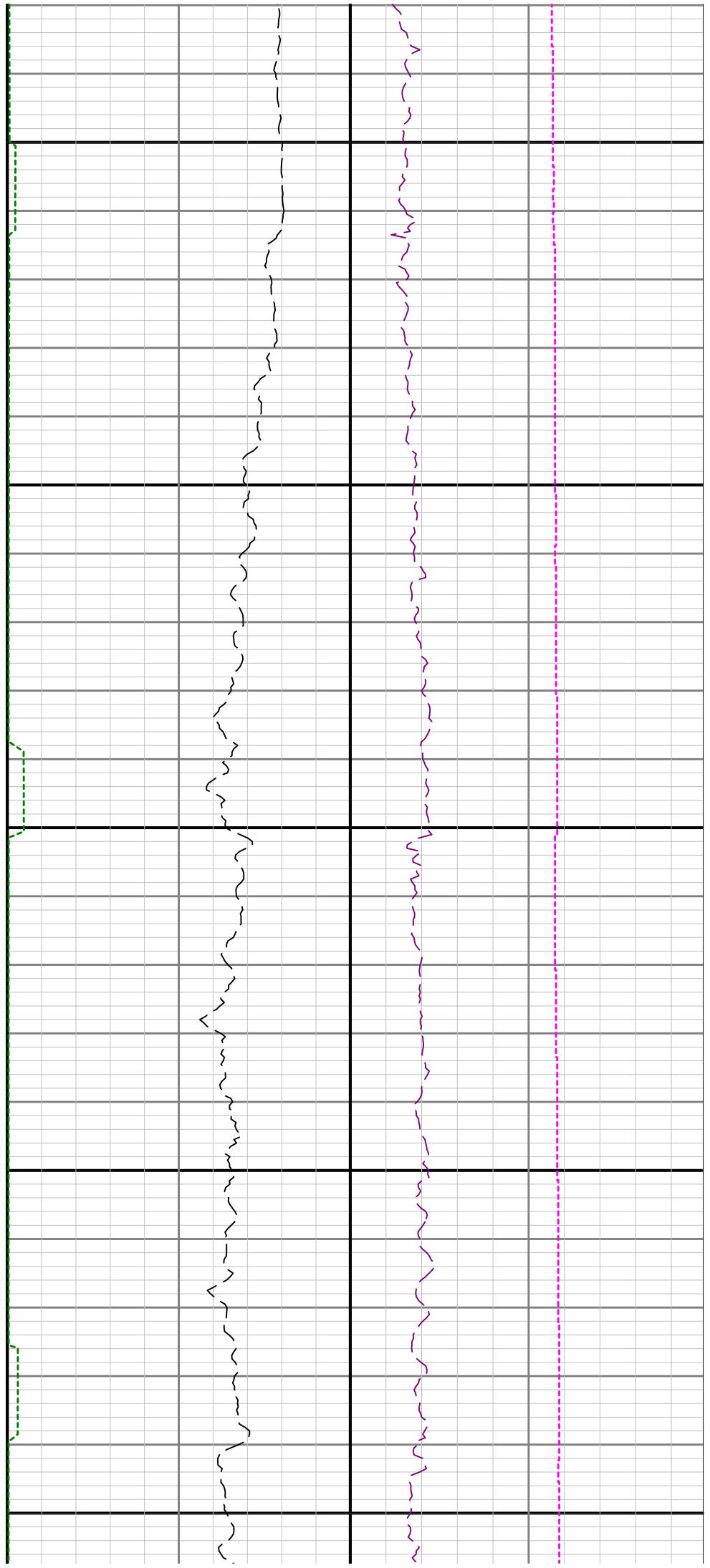


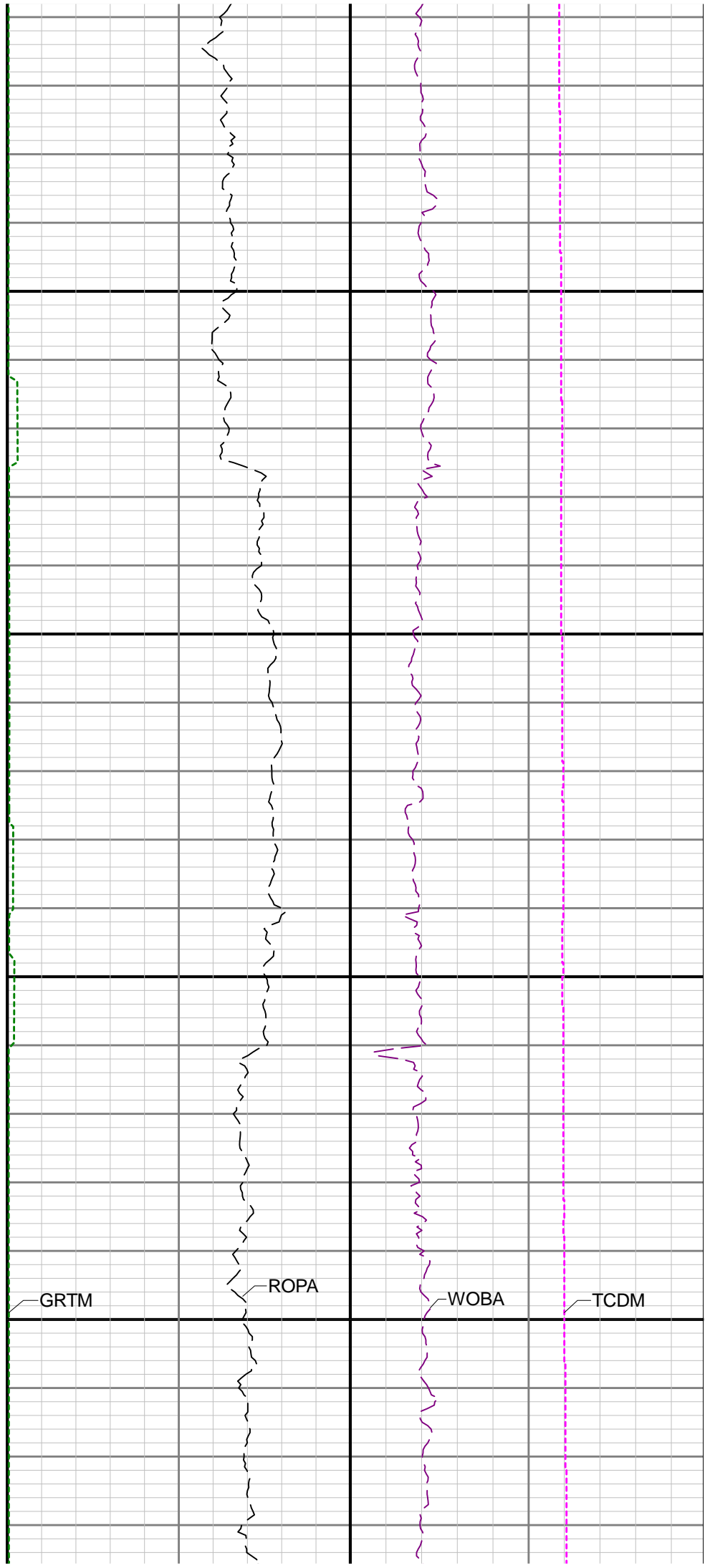
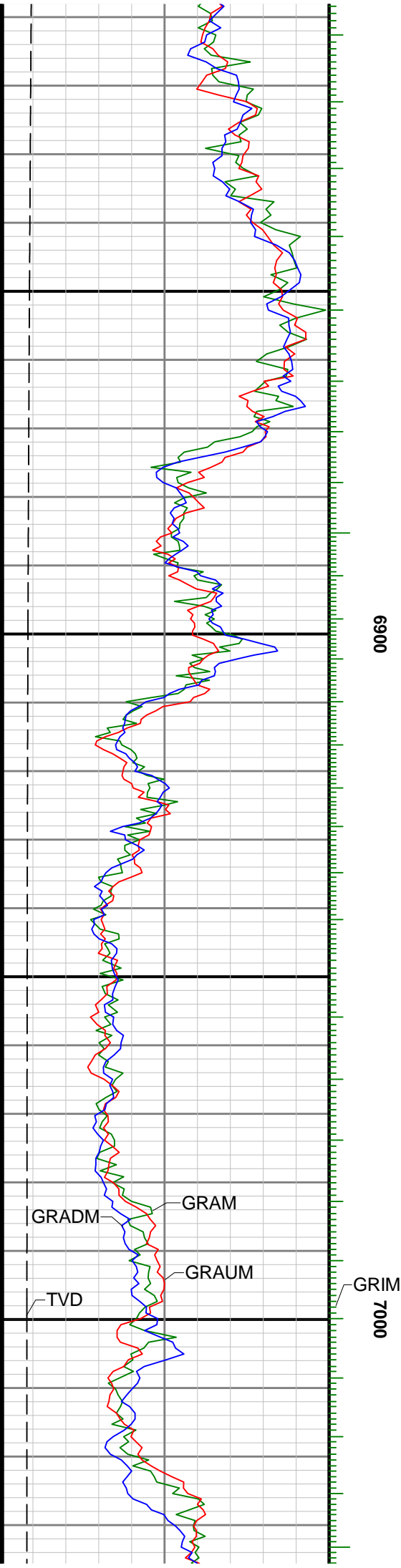


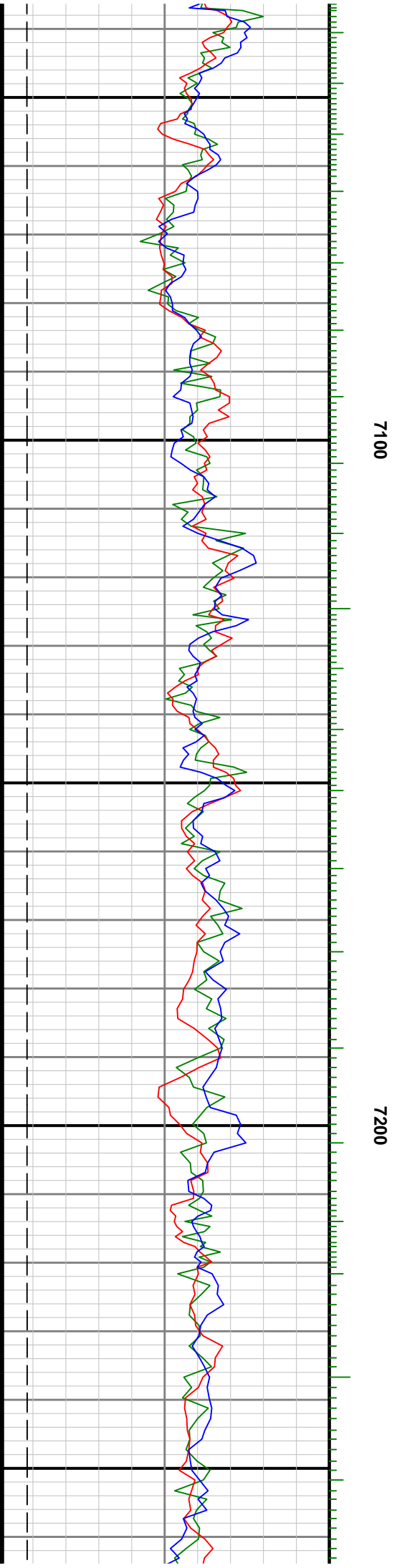
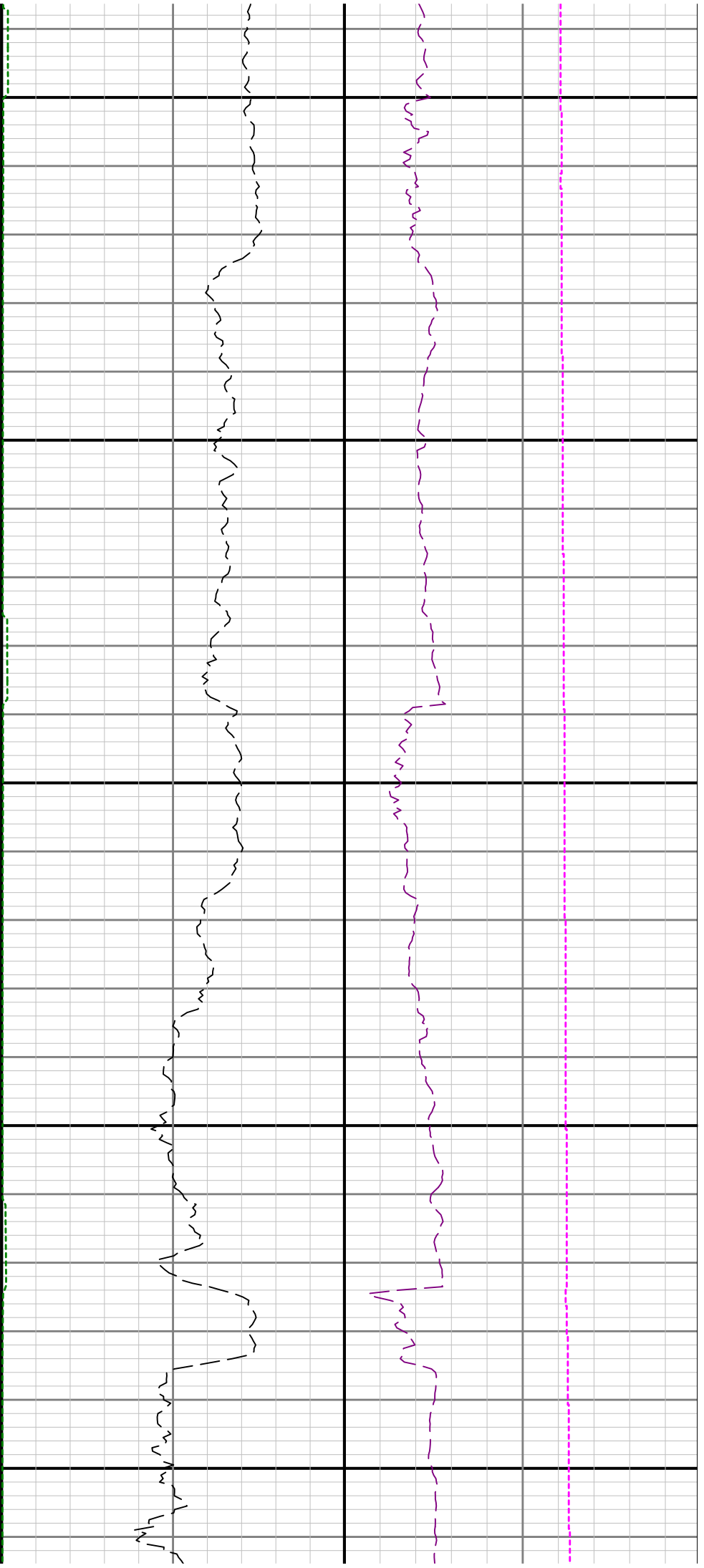
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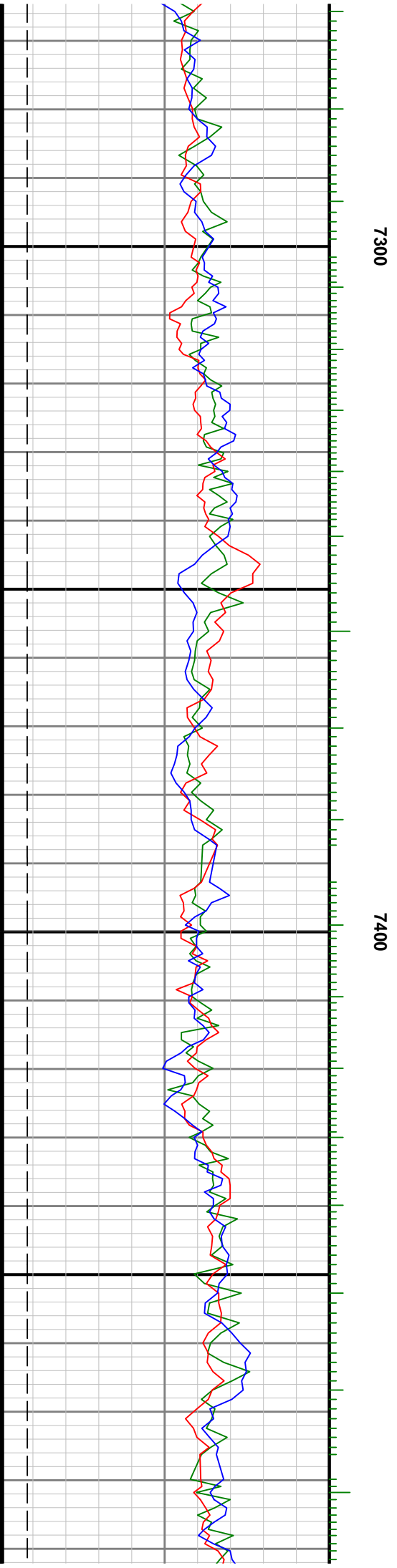
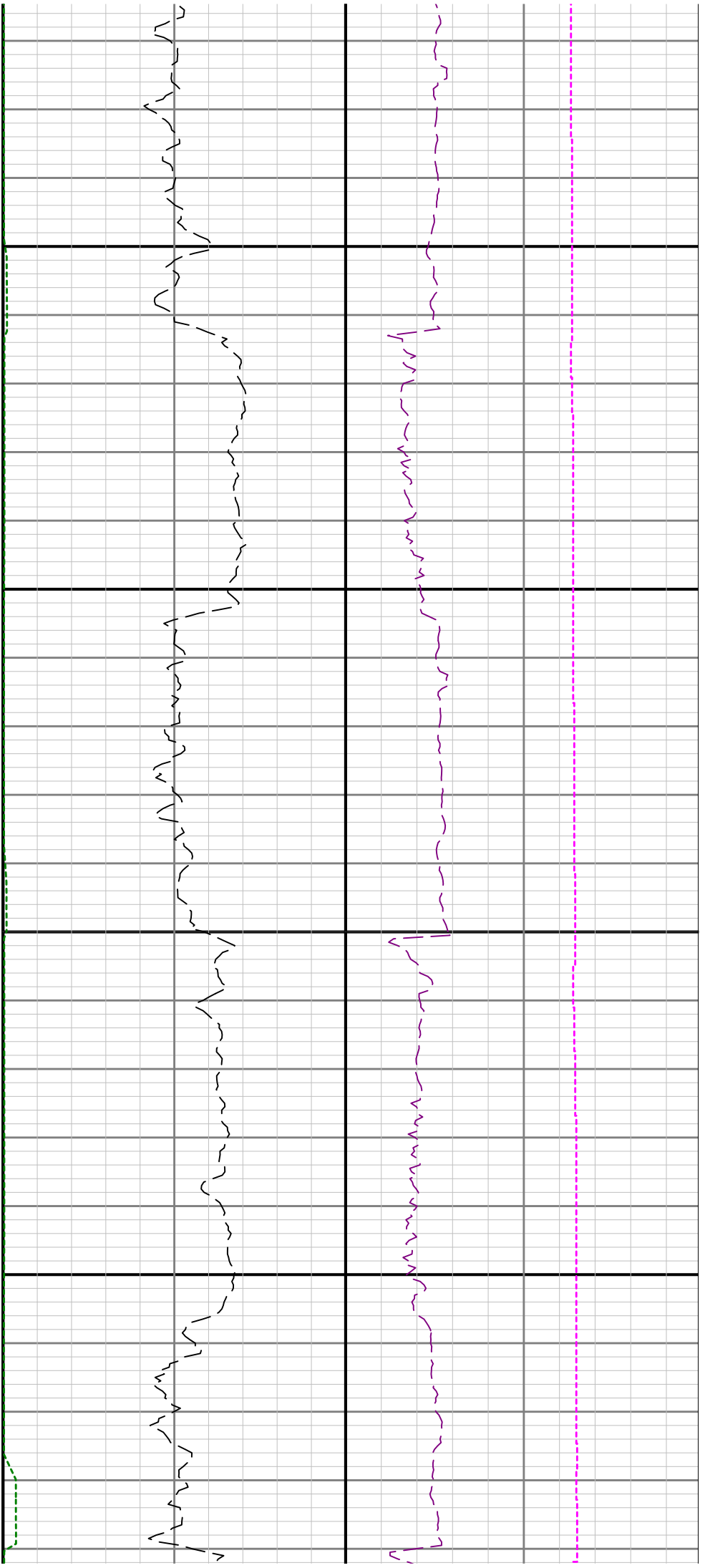
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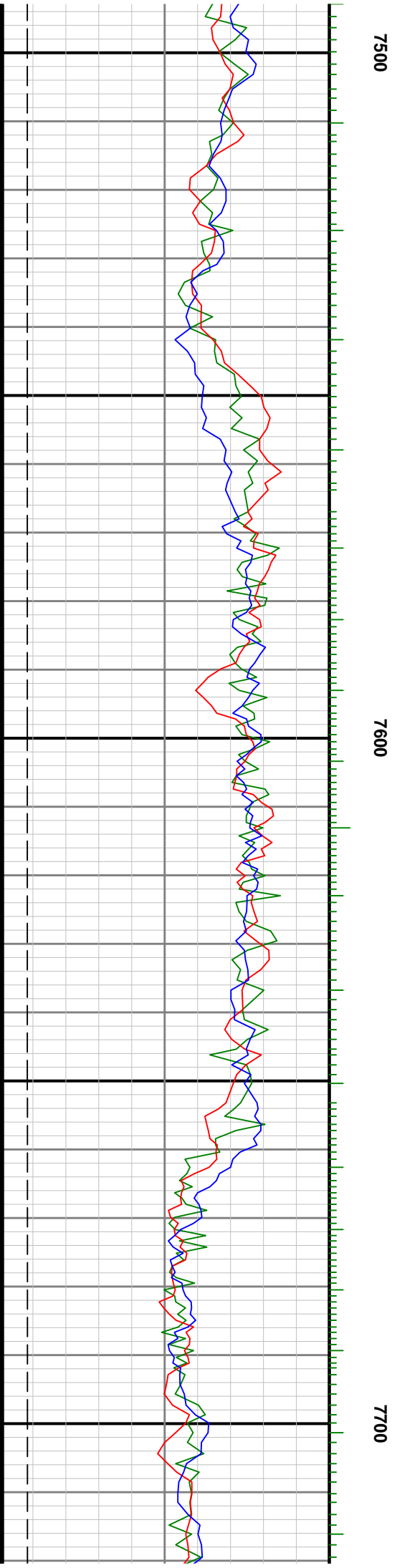
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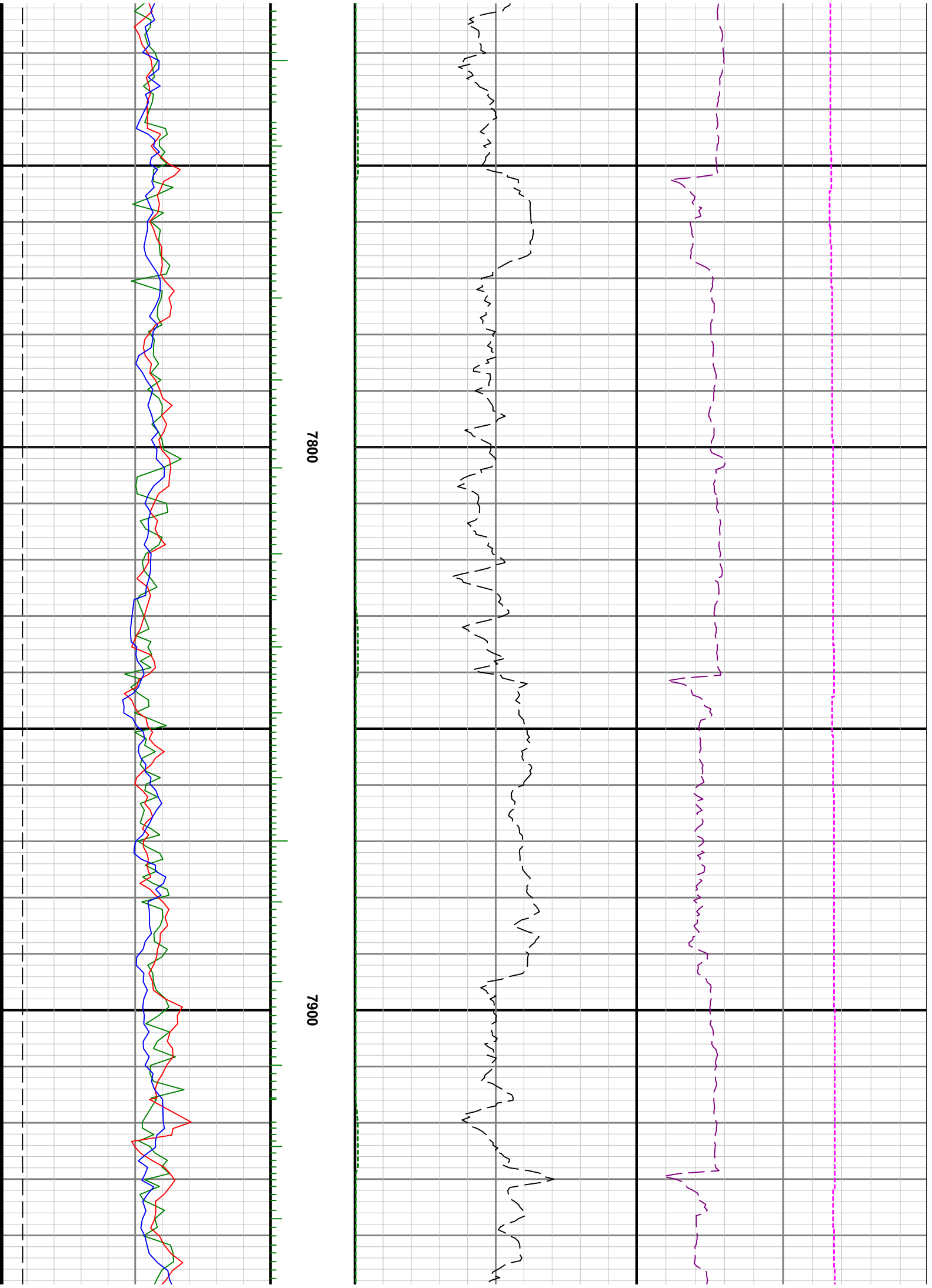


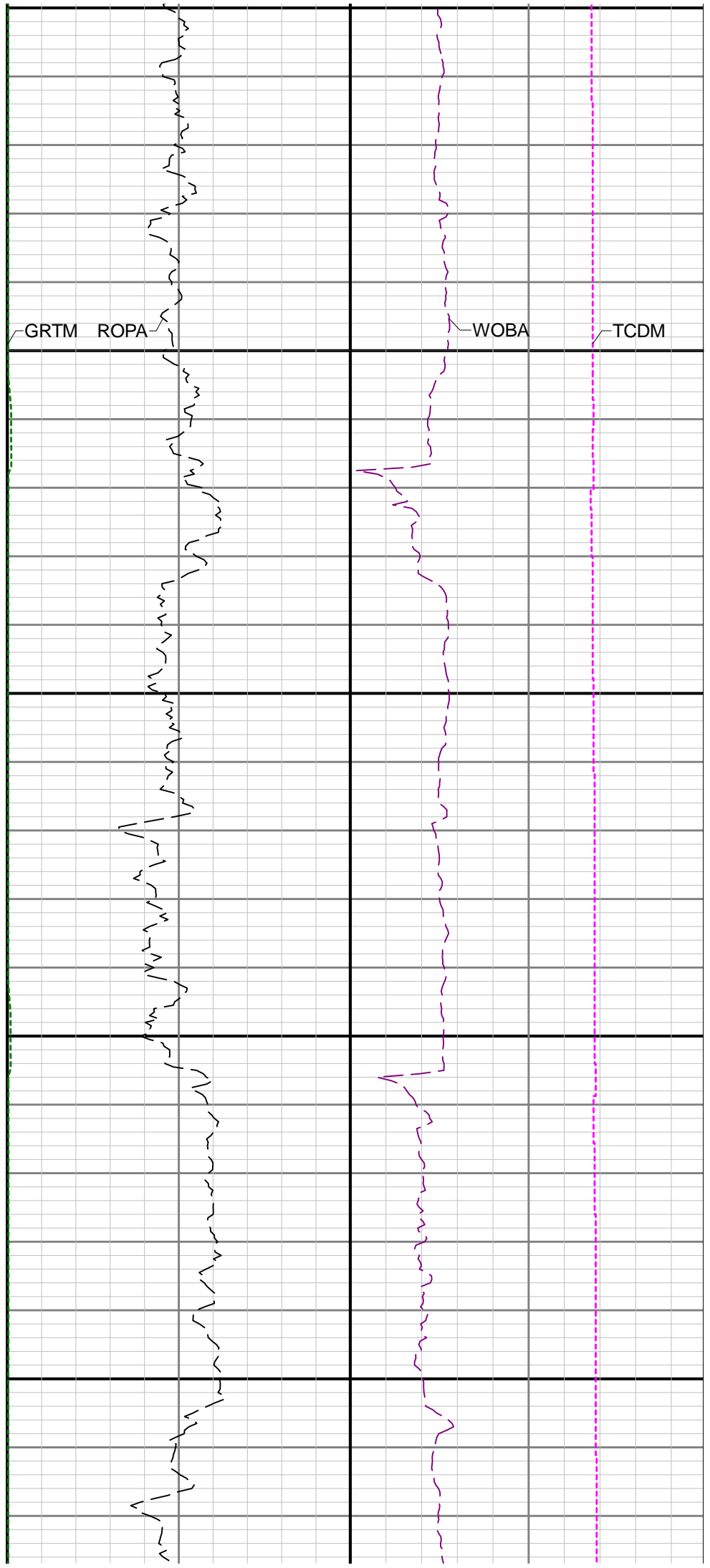
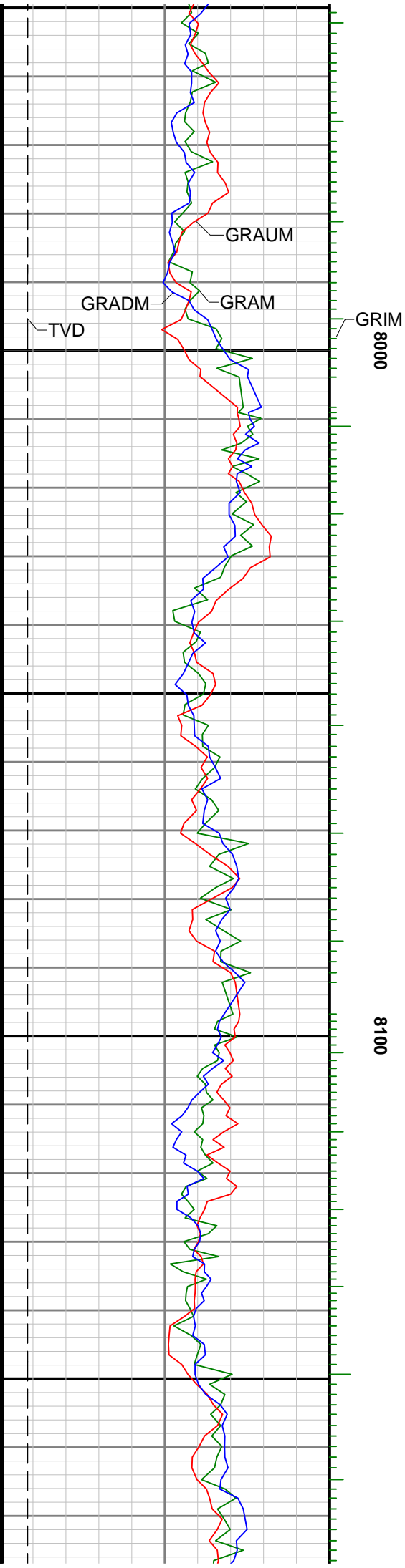


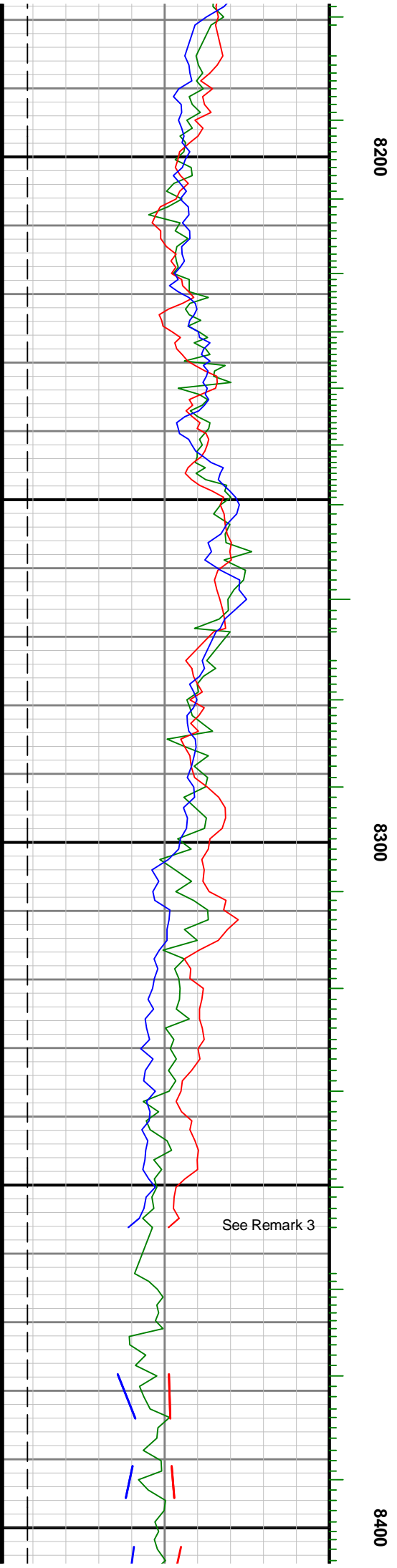
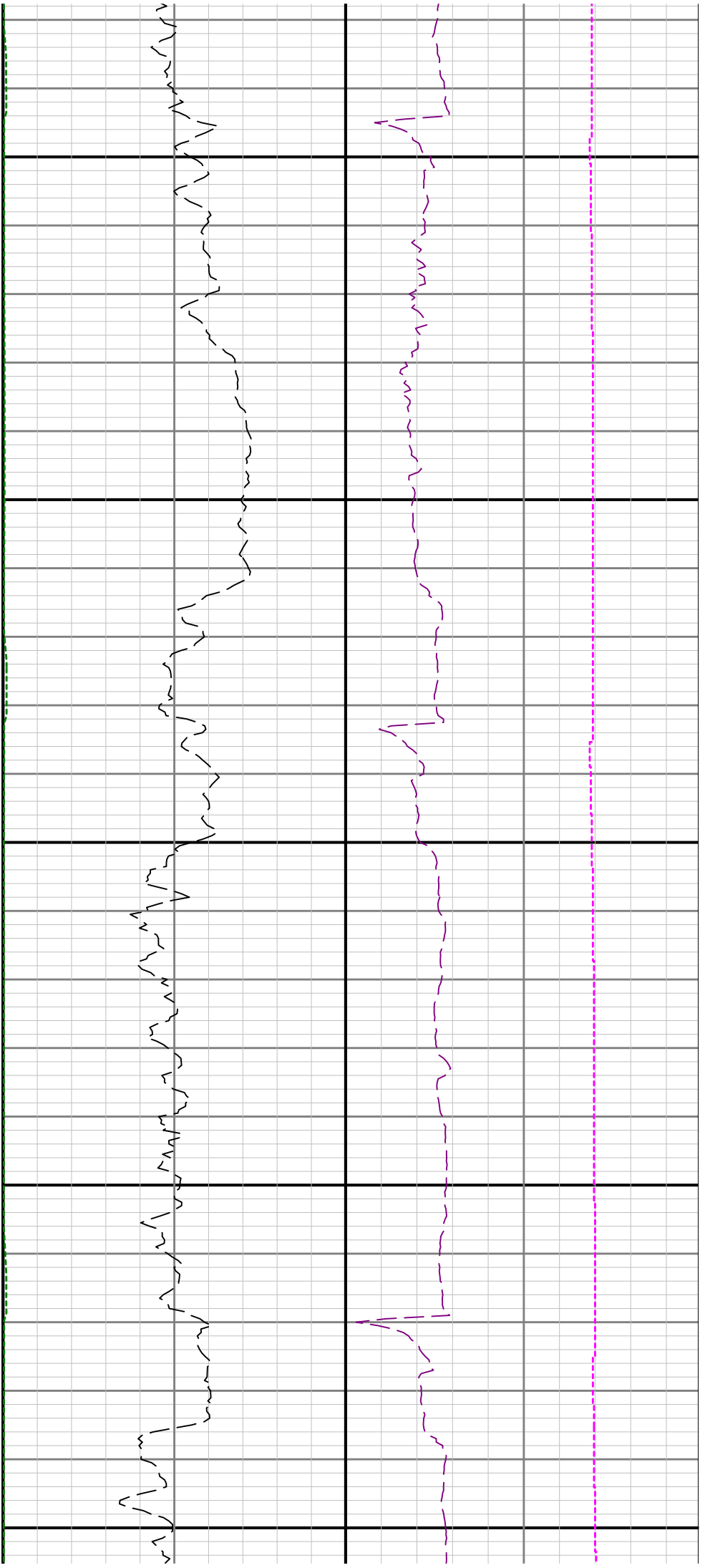


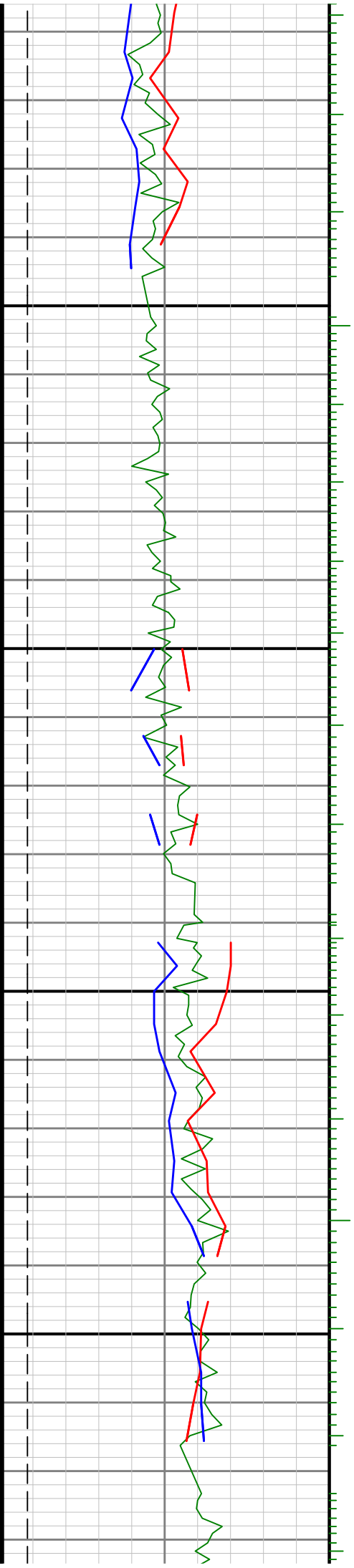






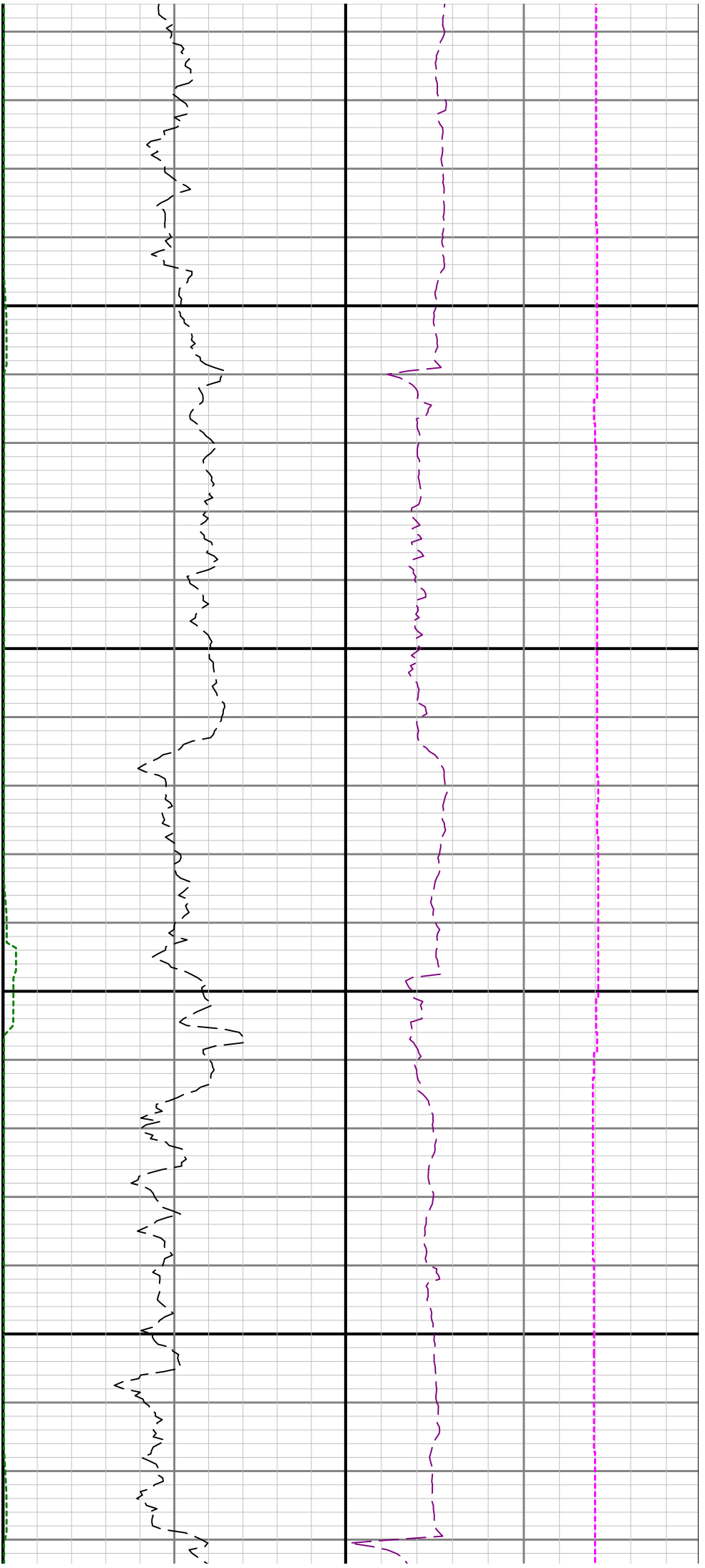


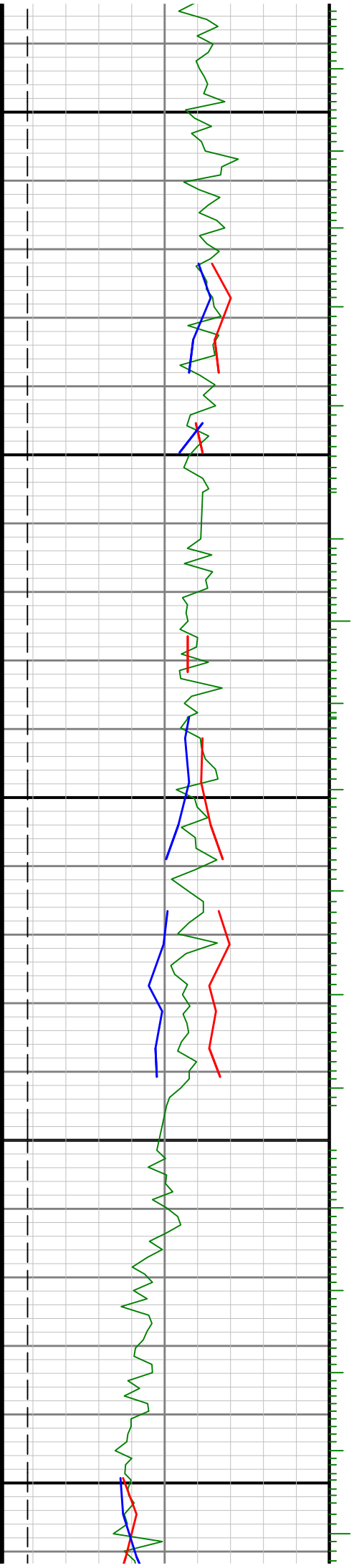




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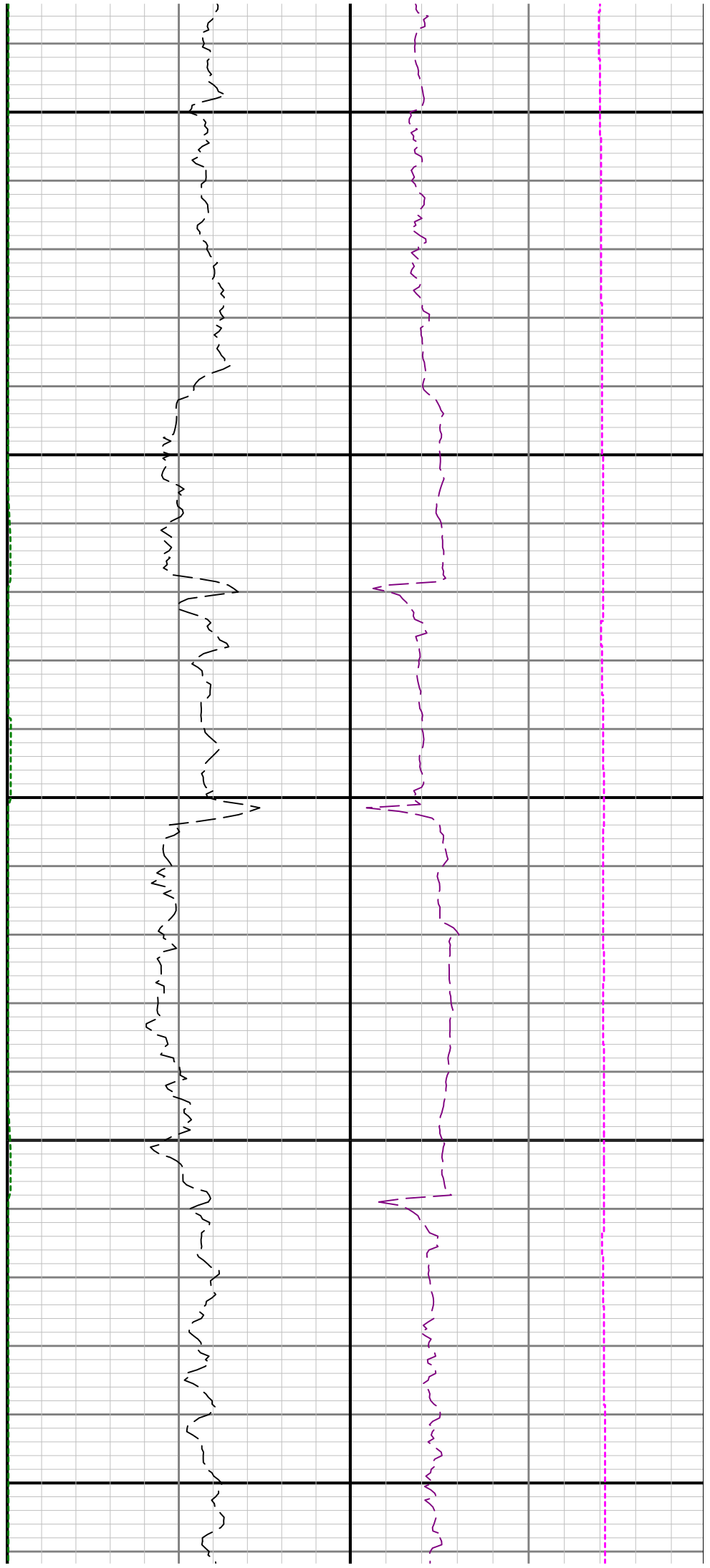
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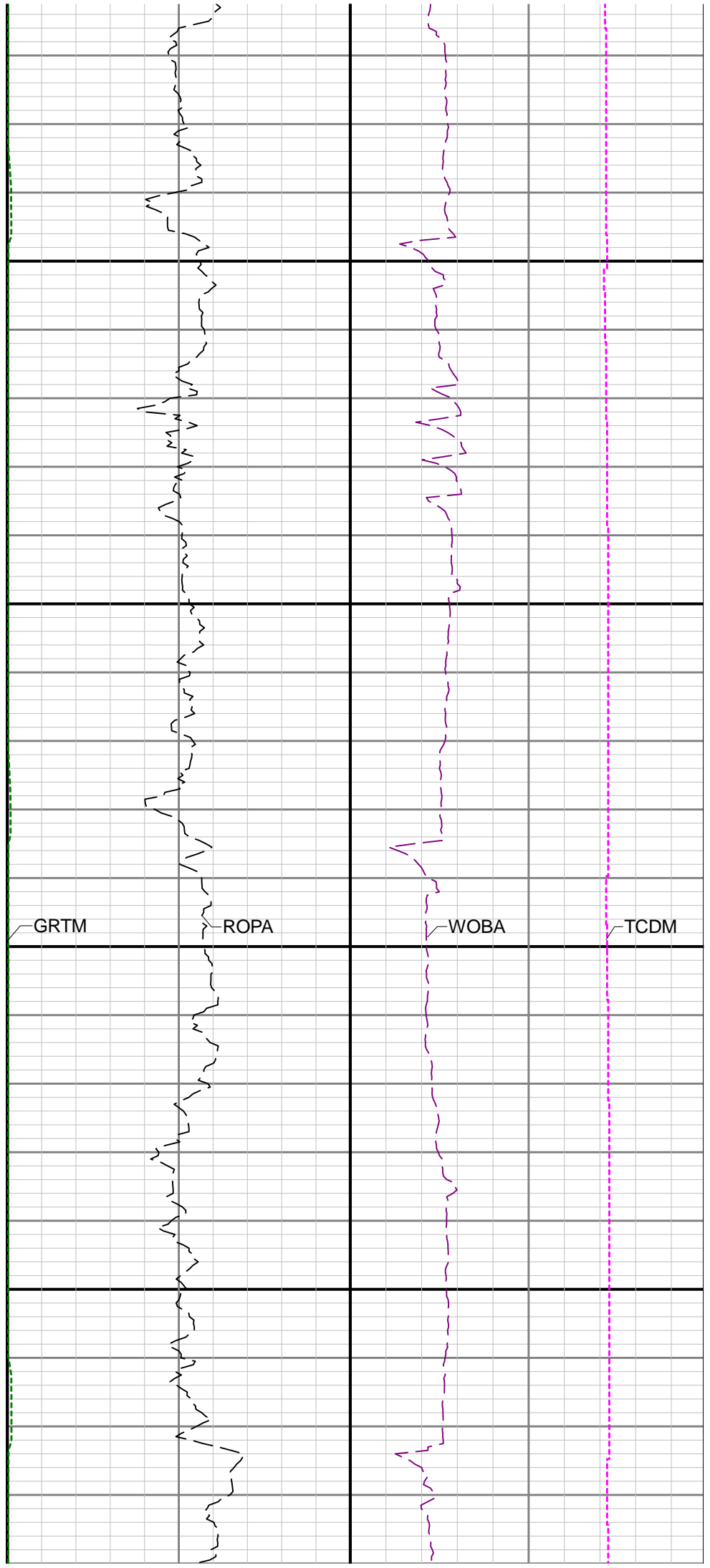
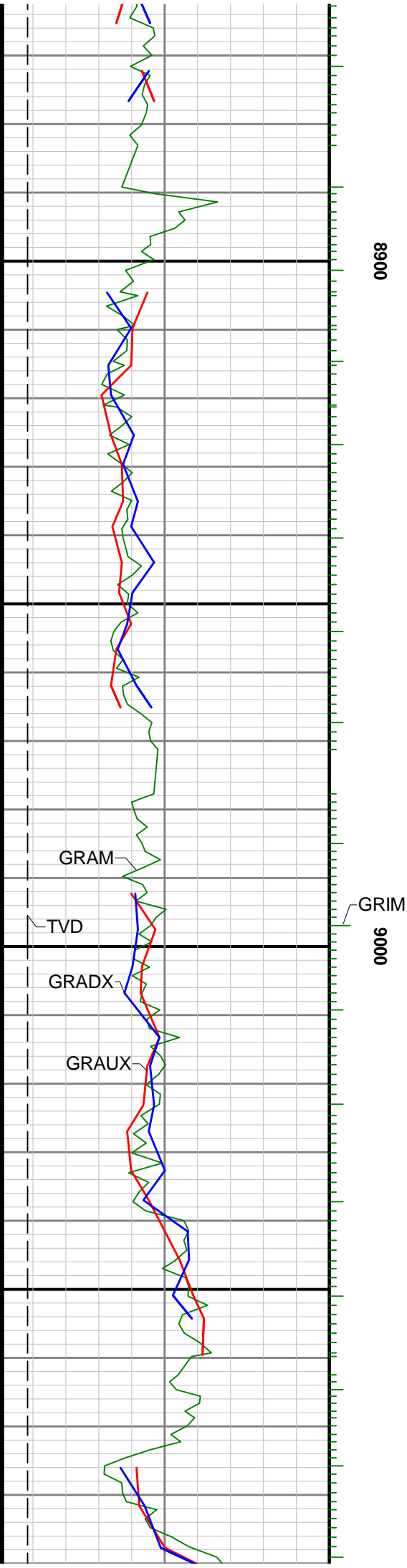


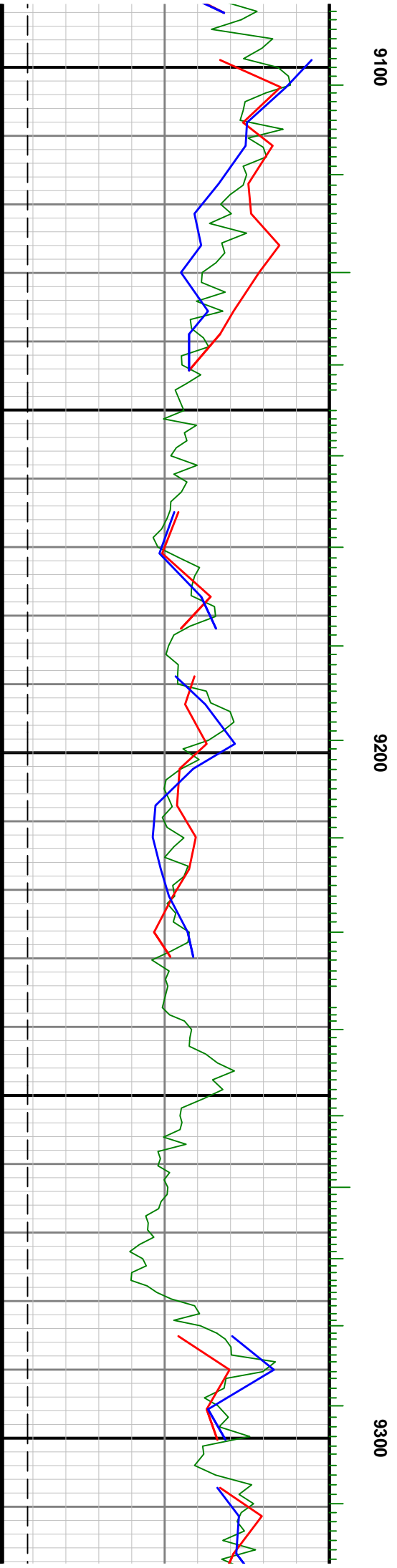
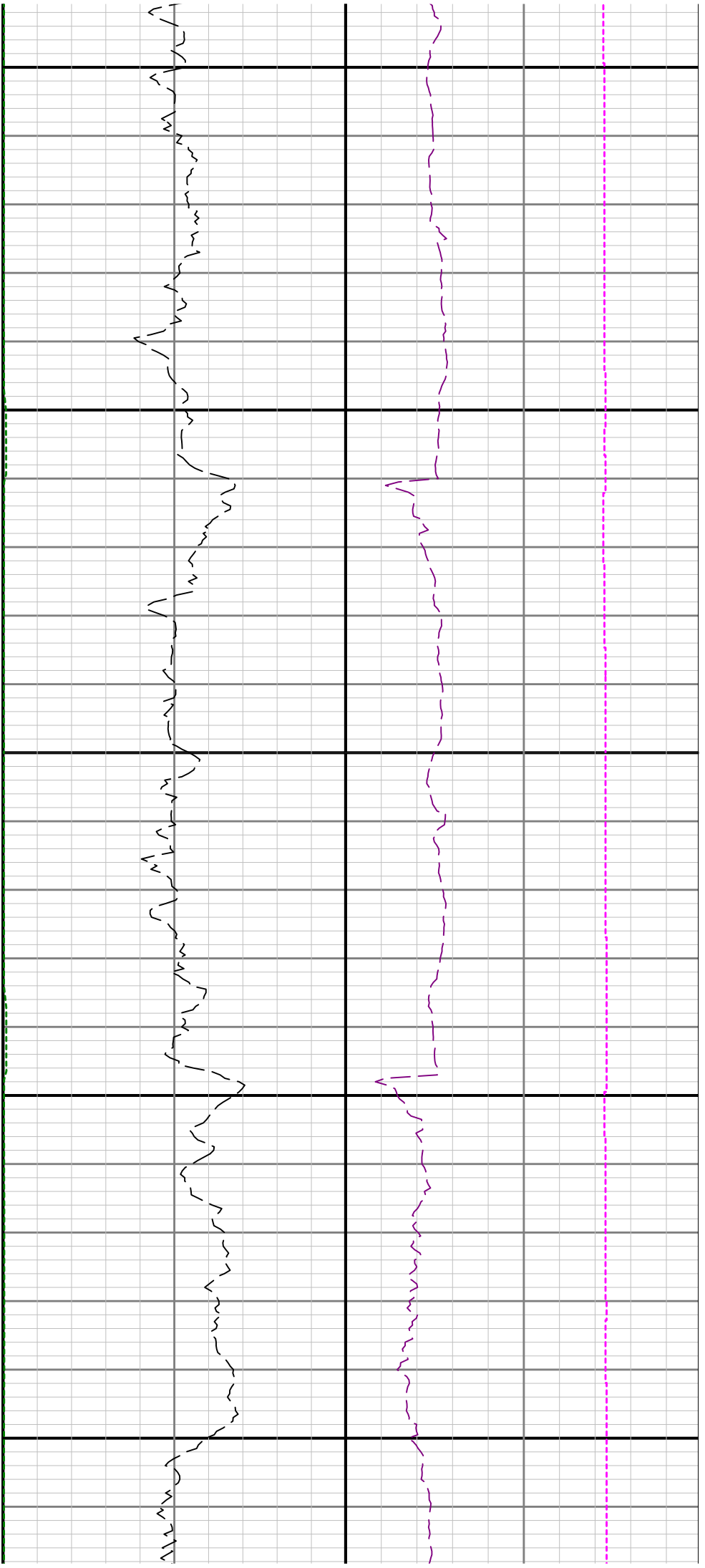


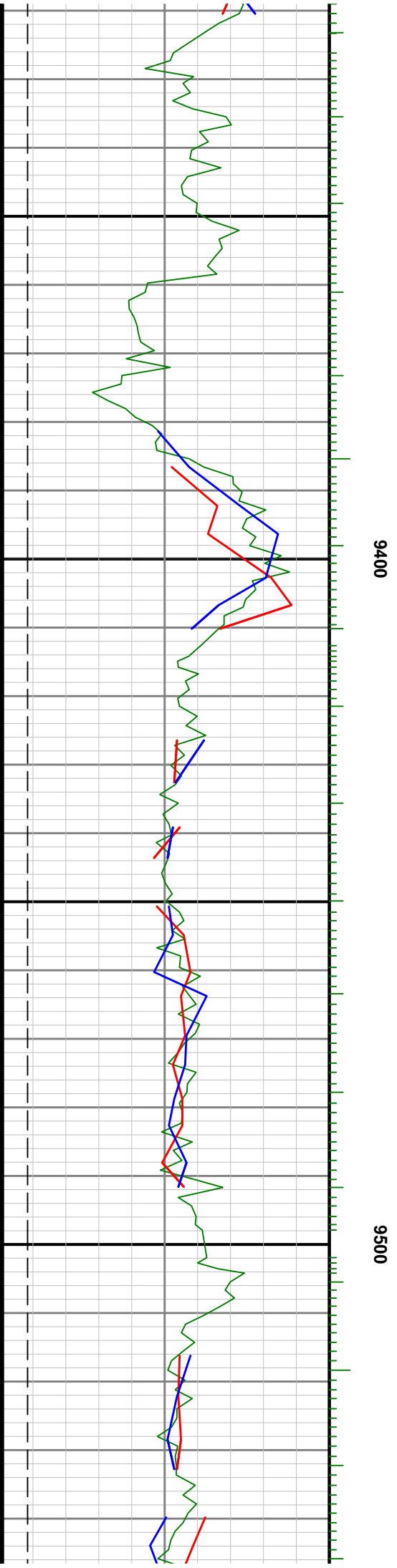
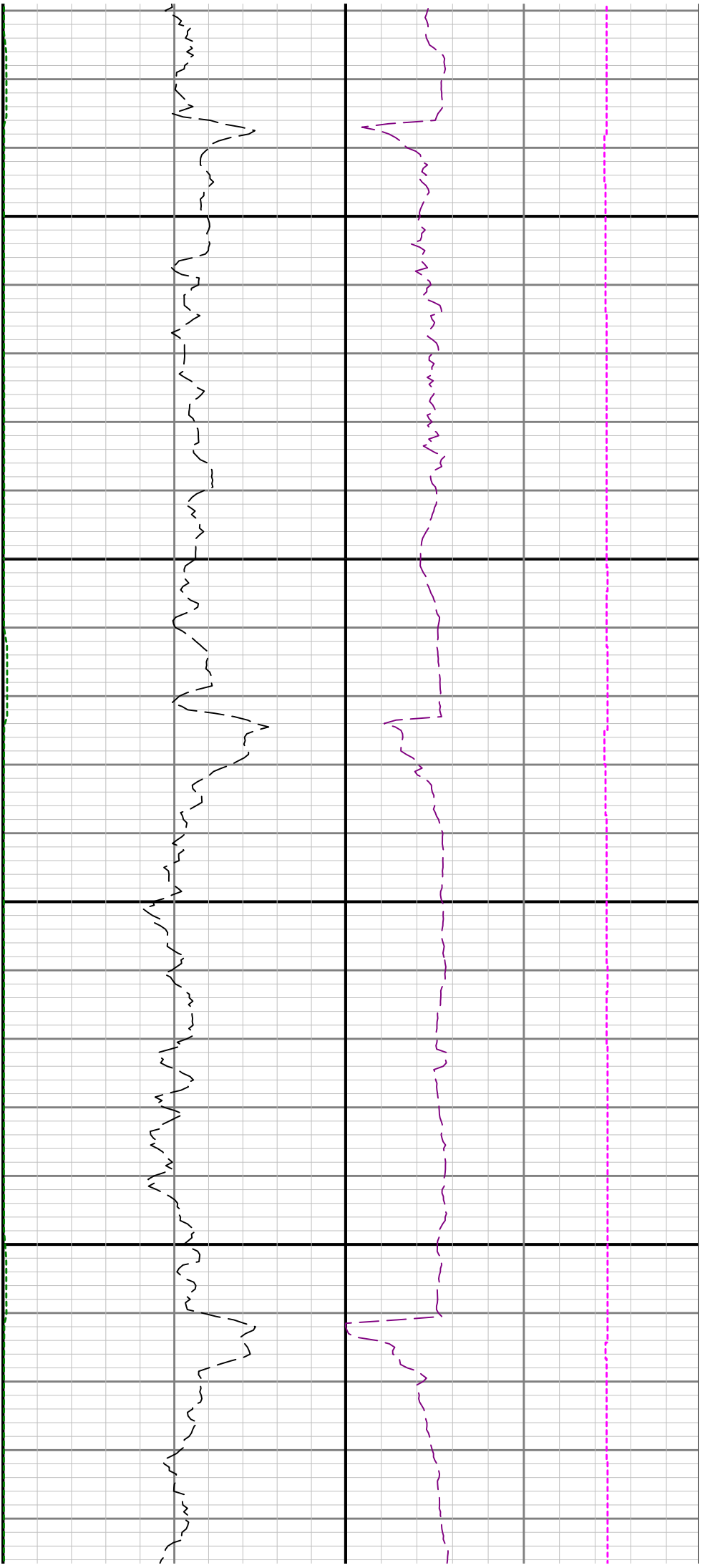
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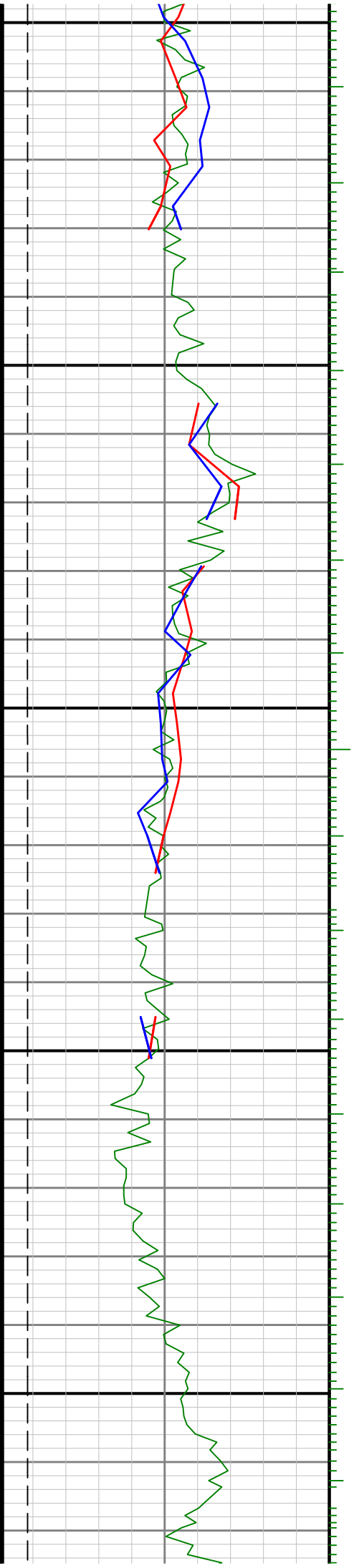
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