



**Azimuthal Gamma
Gamma Ray**

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Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	13.500	PDC	4.00	Steerable	0.00	0.00	100.00	1552.00	2017-05-19 10:55	2017-05-19 16:22	5.56
2	2	8.500	PDC	3.00	Rotary Steerable	1552.00	4704.00	1552.00	4717.00	2017-06-20 20:05	2017-06-21 12:28	14.49
3	3	8.500	PDC	3.00	Rotary Steerable	4704.00	11887.27	4717.00	11900.16	2017-06-21 21:09	2017-06-24 04:52	51.11

Crew

Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Enyonam Anyigba		2017-05-19	N/A	Steve Bueghly		2017-05-19	N/A	John Mason		2017-06-20	N/A

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+ (%)
2017-05-19 03:30	1	100.00	Water Based Mud	8.6	1	8.6	N/A	0/100	Active Pit	800	0.00
2017-06-20 13:20	2	1552.00	Water Based Mud	8.4	1	8.4	N/A	0/100	Suction	1100	0.00
2017-06-21 17:19	3	4717.00	Water Based Mud	8.4	1	8.3	N/A	0/100	Suction	900	0.00
2017-06-22 18:24	3	7270.00	Water Based Mud	9.9	10	9.5	N/A	0/100	Suction	1200	0.00
2017-06-23 21:15	3	10709.00	Water Based Mud	10.0	10	9.5	N/A	0/100	Suction	1300	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	12813116	Directional (mag)	14.46	50.33	8.000	3.250
1	NaviTrak	12813116	VSS	14.46	50.33	8.000	3.250
2	ATC_SU	12273683	Near Bit Inclination	5.93	6.69	7.000	4.330
2	ATC_SU	12273683	Near Bit VSS	5.93	6.69	7.000	4.330
2	ATC_MWD	12049472	Gamma (single)	2.77	12.86	7.000	3.250
2	ATC_MWD	12049472	Directional (mag)	12.27	22.36	7.000	3.250
3	ATC_SU	14178991	Near Bit VSS	5.90	6.69	7.560	4.330
3	ATC_SU	14178991	Near Bit Inclination	5.90	6.69	7.560	4.330
3	ATC_MWD	12211066	Gamma (single)	2.73	12.89	7.000	3.250
3	ATC_MWD	12211066	Directional (mag)	12.27	22.43	7.000	3.250


Service and Tool Mnemonics

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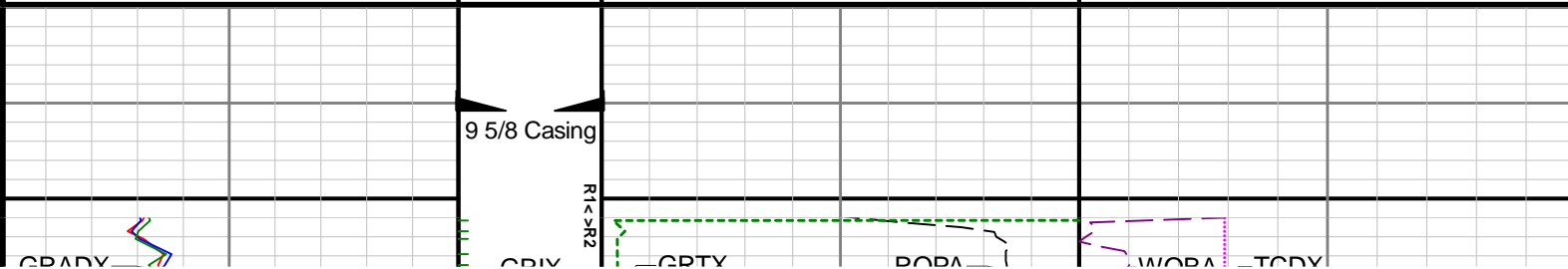
Mnemonic	Name	Description
NTK	NaviTrak	Probe Based Directional Module, NaviTrak Platform
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

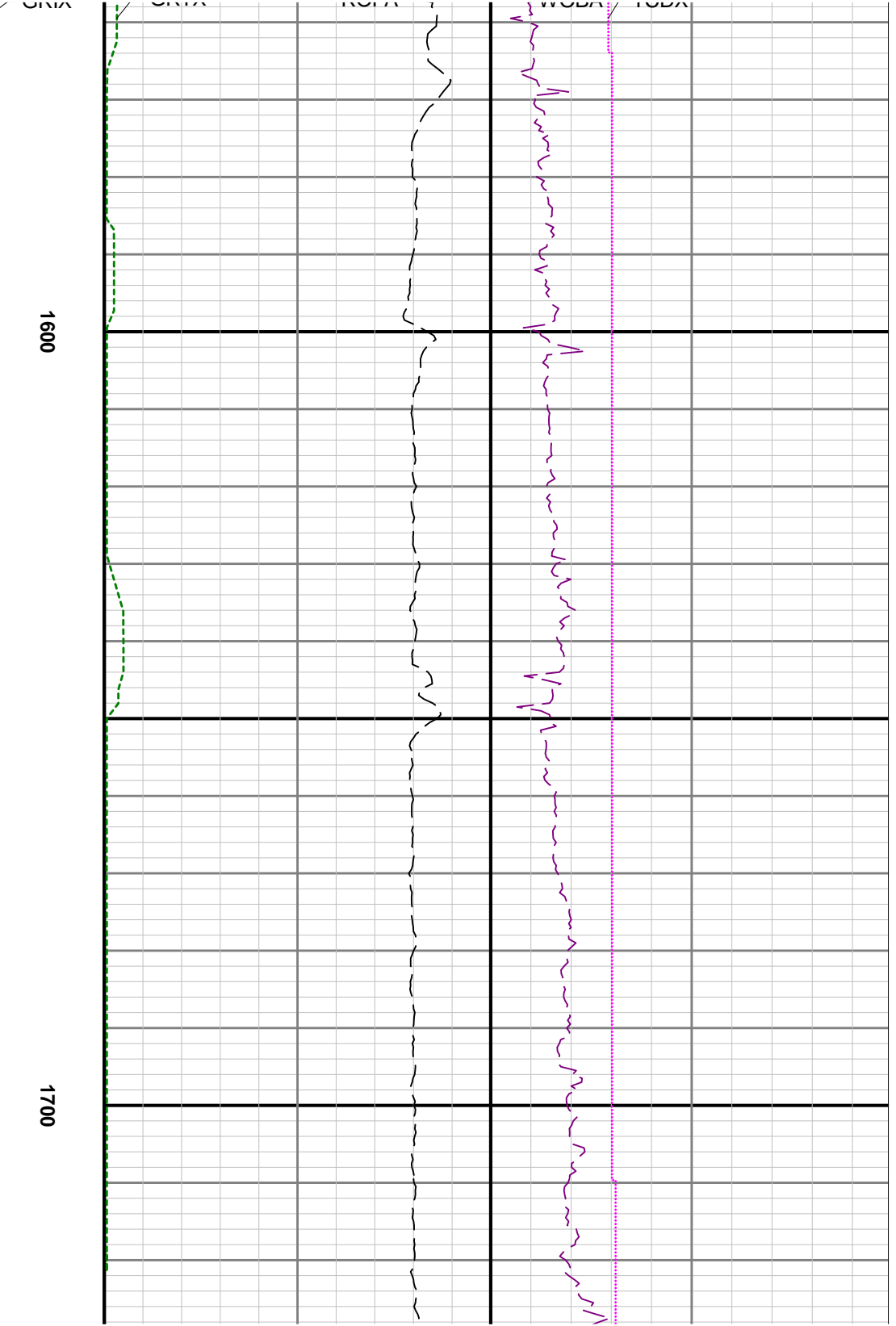
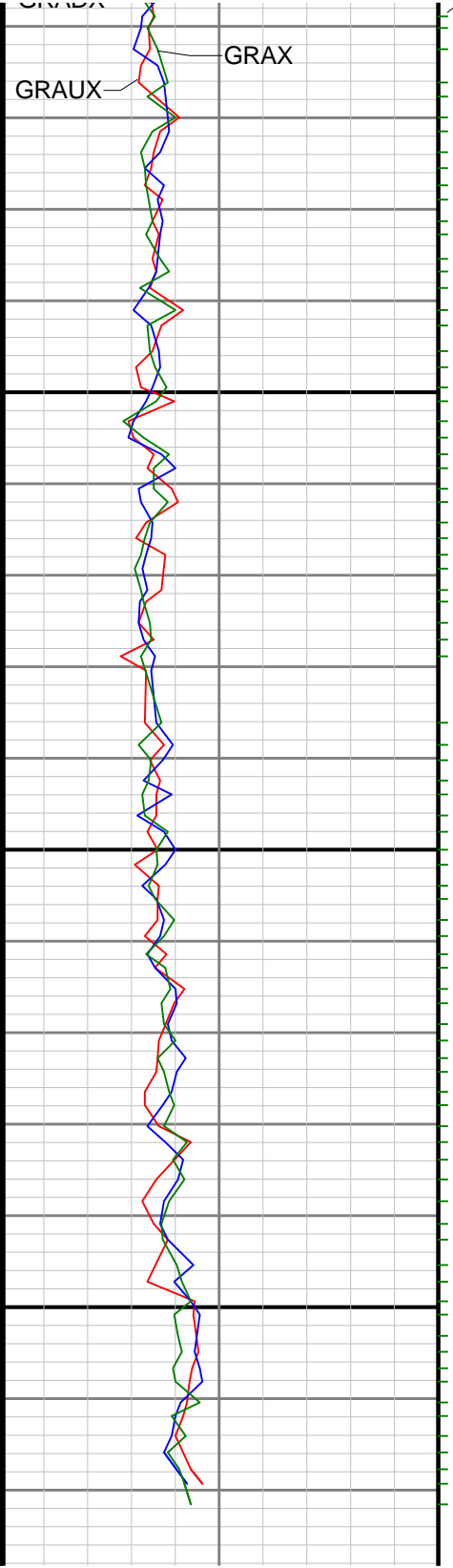
Curve Mnemonics

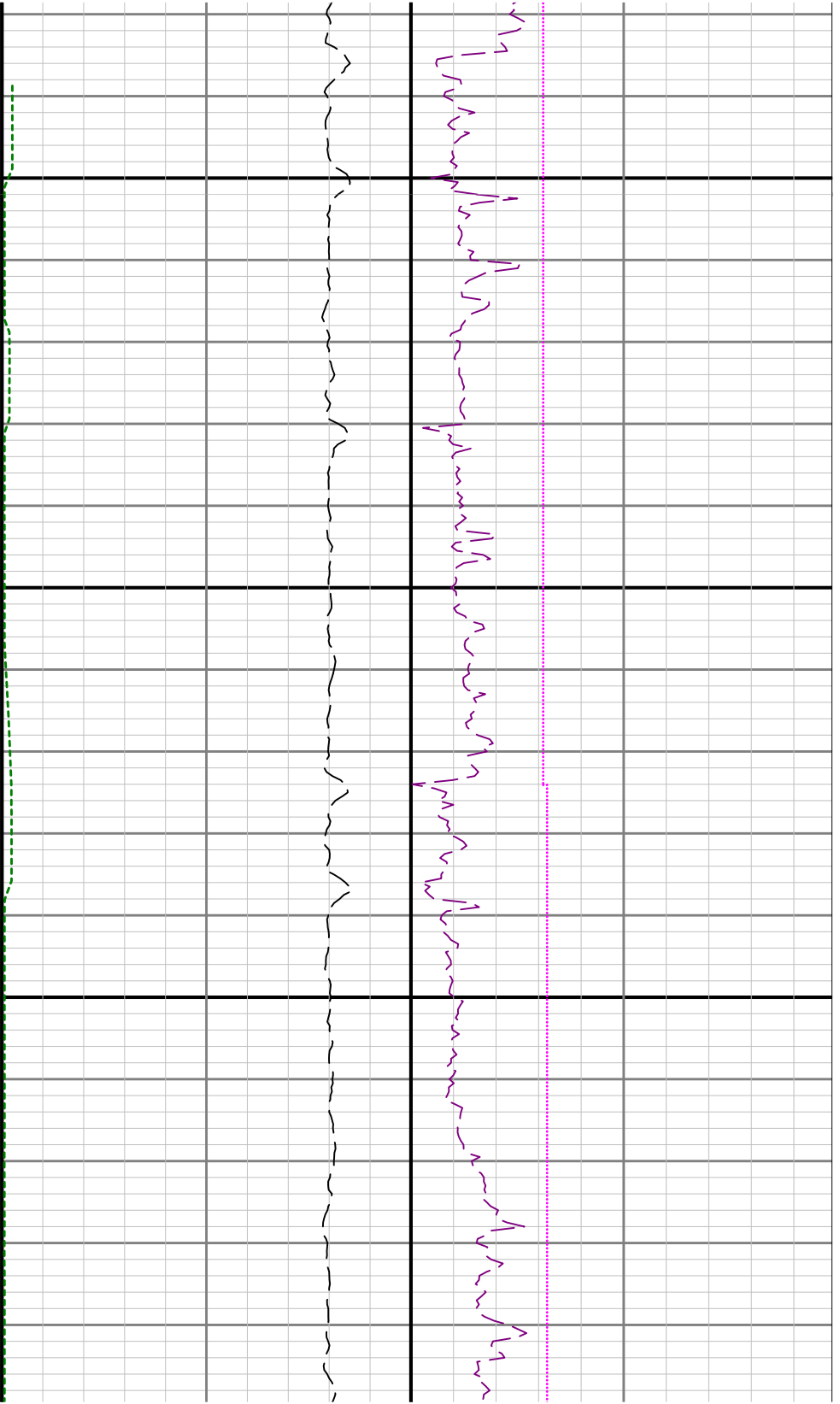
Presented Curves	Description	Units
GRADX	OnTrak - Gamma Ray - Apparent - Down Quadrant - Real-Time 0.5 ft Average	API
GRAUX	OnTrak - Gamma Ray - Apparent - Up Quadrant - Real-Time 0.5 ft Average	API
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	OnTrak - Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	OnTrak - Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	OnTrak - Gamma Ray - Time Since Drilled - Real-Time	min

	Company	Cub Creek Energy, LLC			
	Well	Litzenberger 7			
	Interval	Date From:	2017-05-19 16:22:27	Top:	1552.00
	Created	Date To:	2017-06-24 04:52:01	Bottom:	11900.00
		2017-06-24 04:56:51			

Azimuthal Gamma Ray - Apparent - Up Quadrant 0.5 ft Average GRAUX 0 300 API Azimuthal Gamma Ray - Apparent - Down Quadrant 0.5 ft Average GRADX 0 300 API True Vertical Depth TVD 8000 6000 ft Gamma Ray - Apparent 0.5 ft Average GRAX 0 300 API	MD 1:240 feet	Depth Averaged ROP 3 ft Average ROPA 1000 0 ft/h Gamma Time Since Drilled GRTX 0 600 min	Weight On Bit, Average 1 ft Average WOBA 0 50 klb Downhole Temperature TCDX 0 300 degF

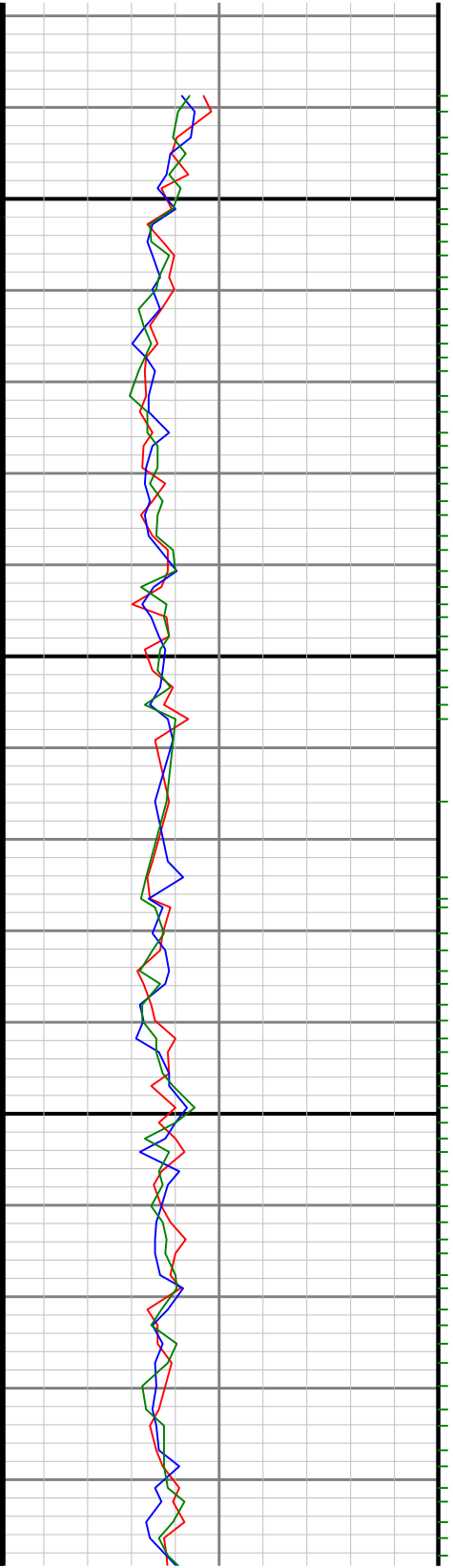
		9 5/8 Casing		R1 < R2	
GRADX		GRAX		GRTX	ROPA
					WOBA
					TCDX

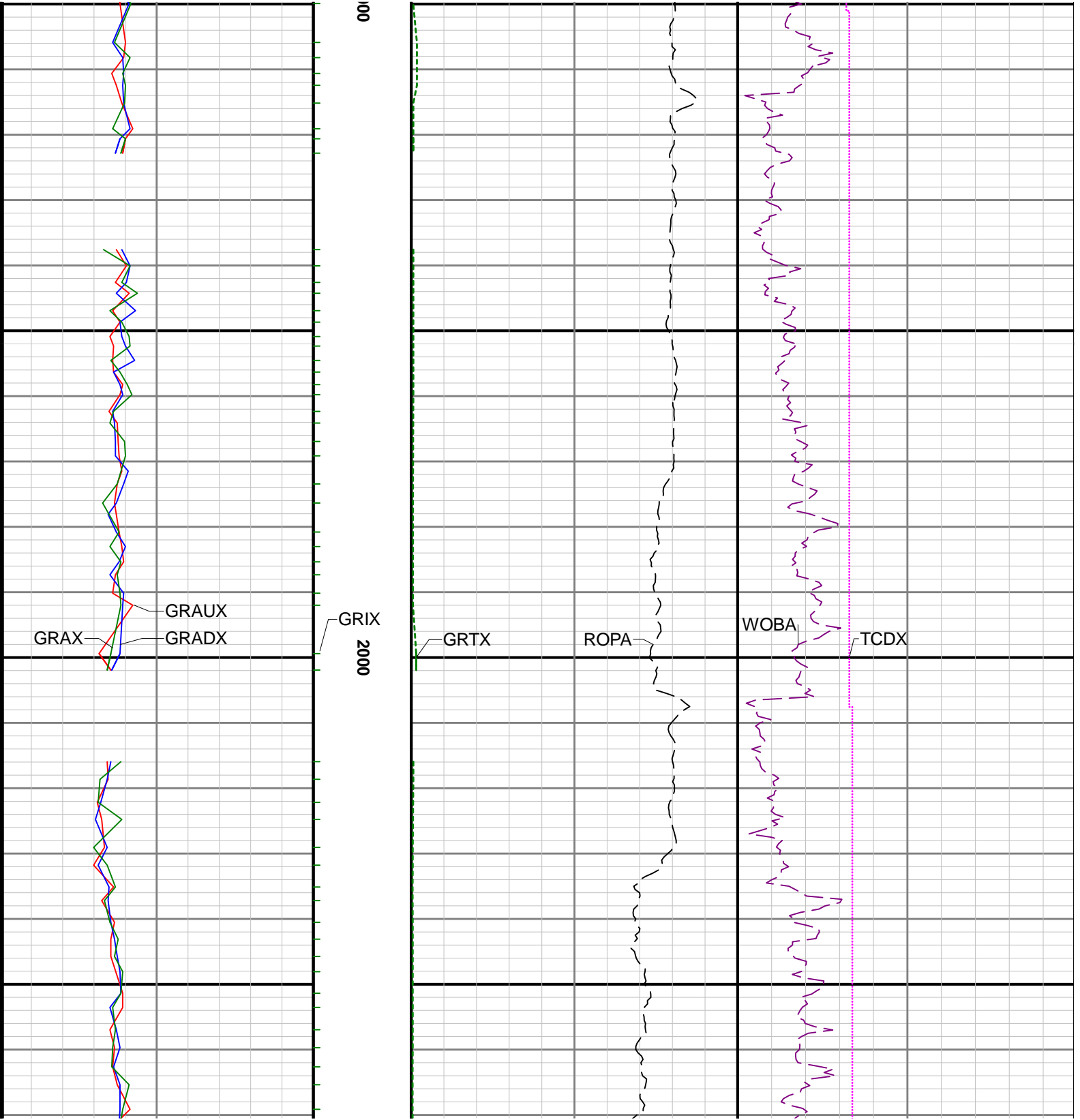


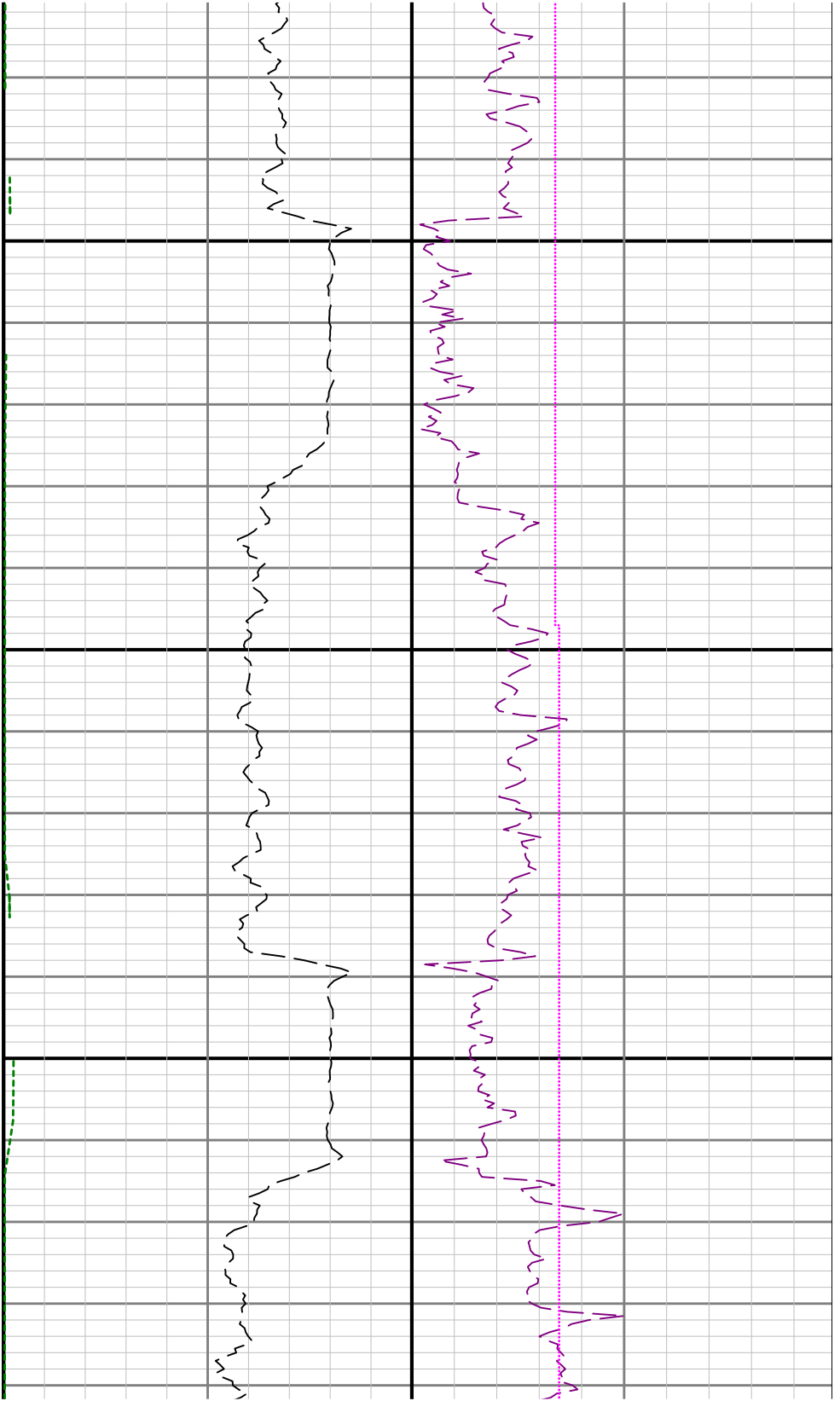


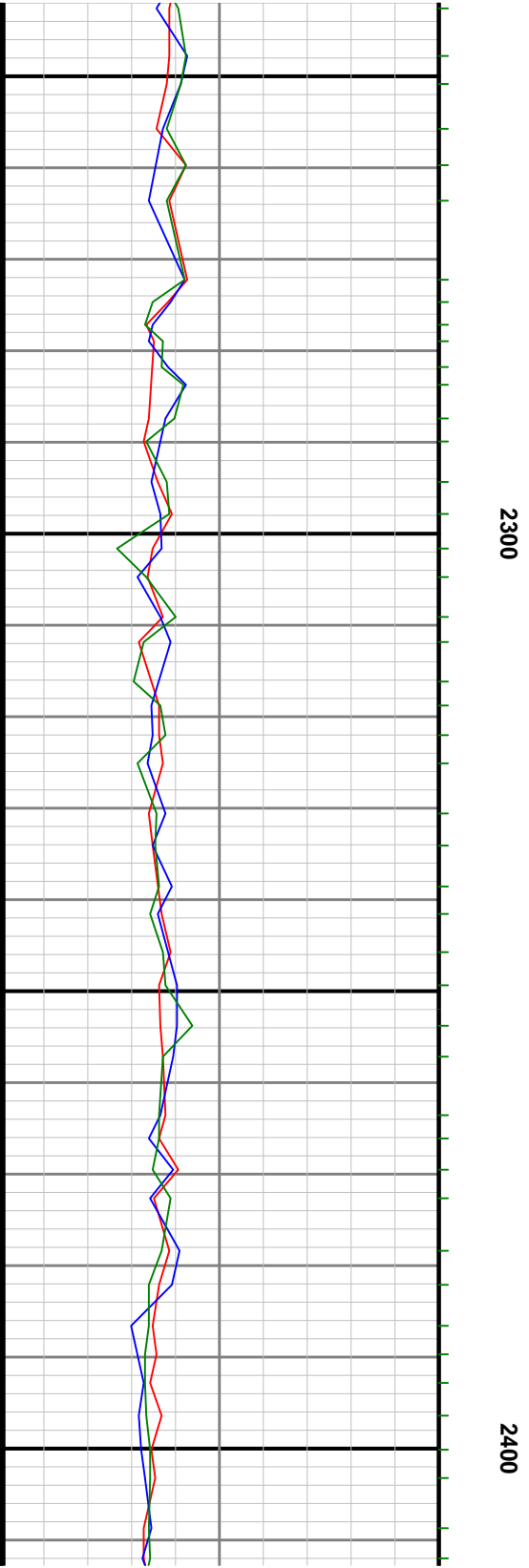
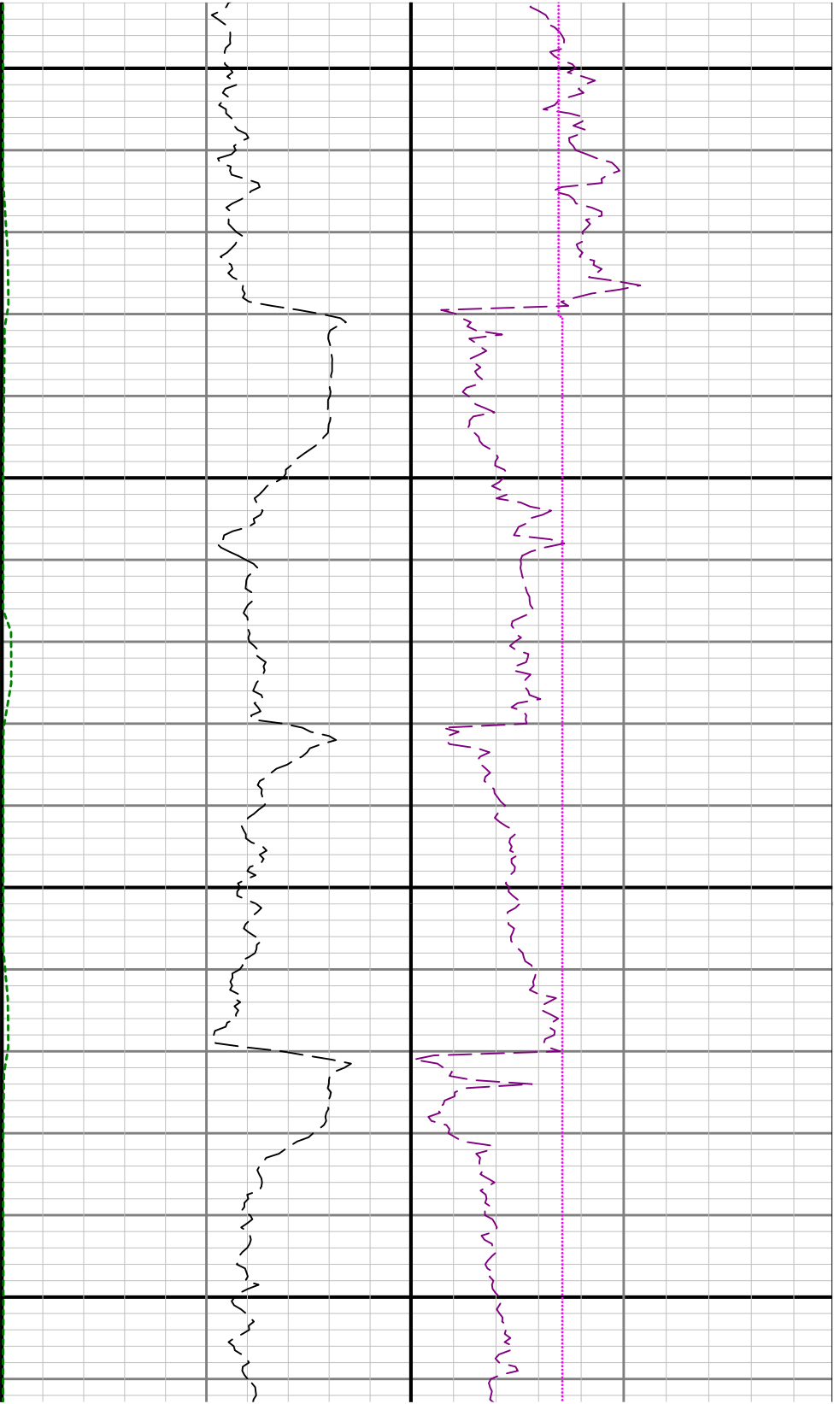
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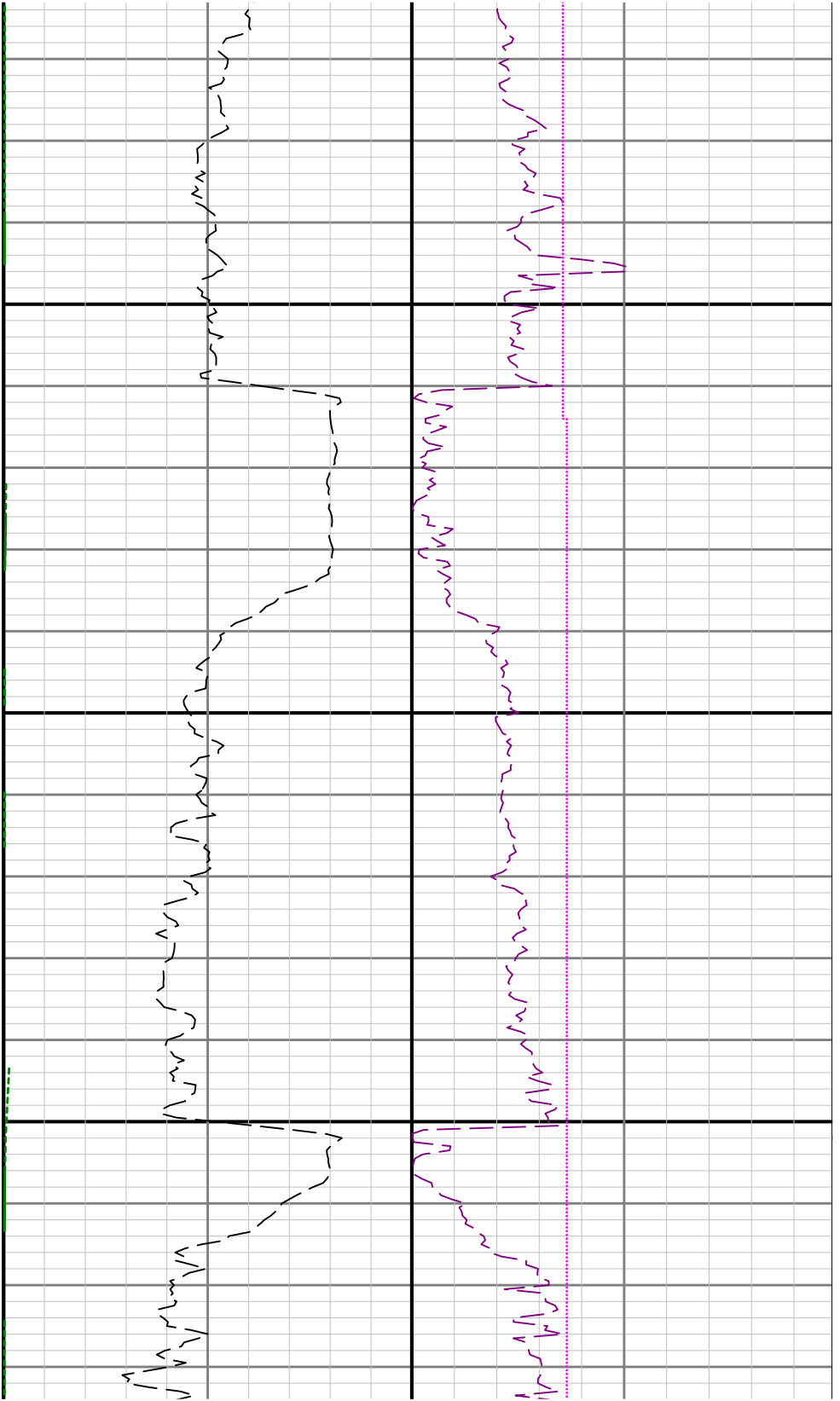
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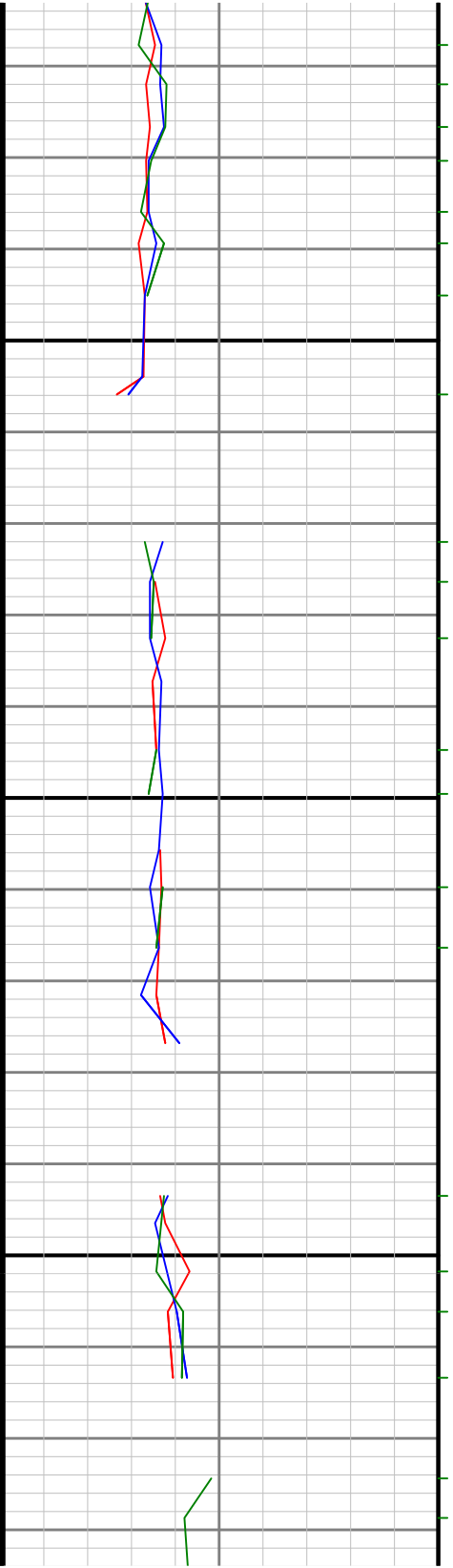


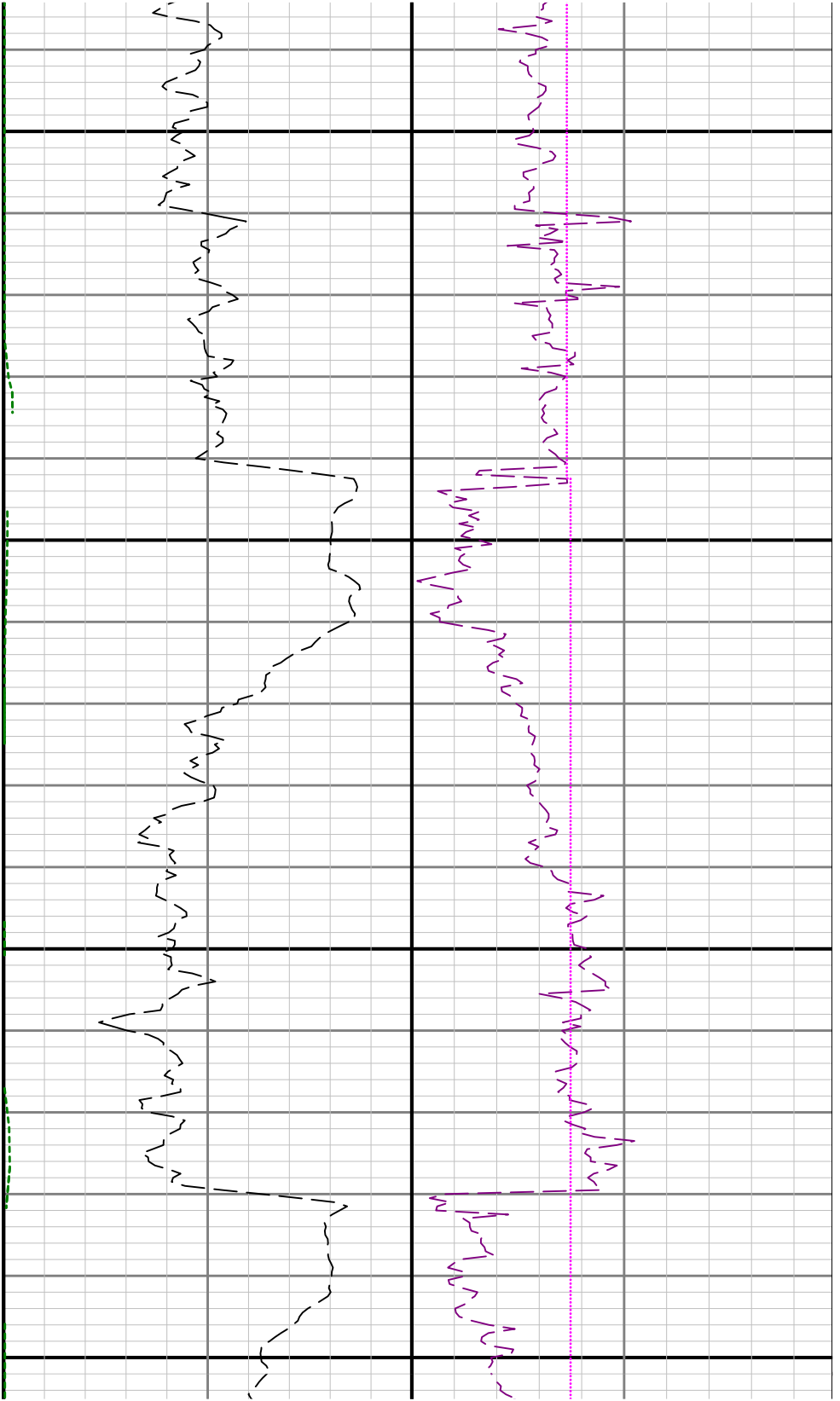




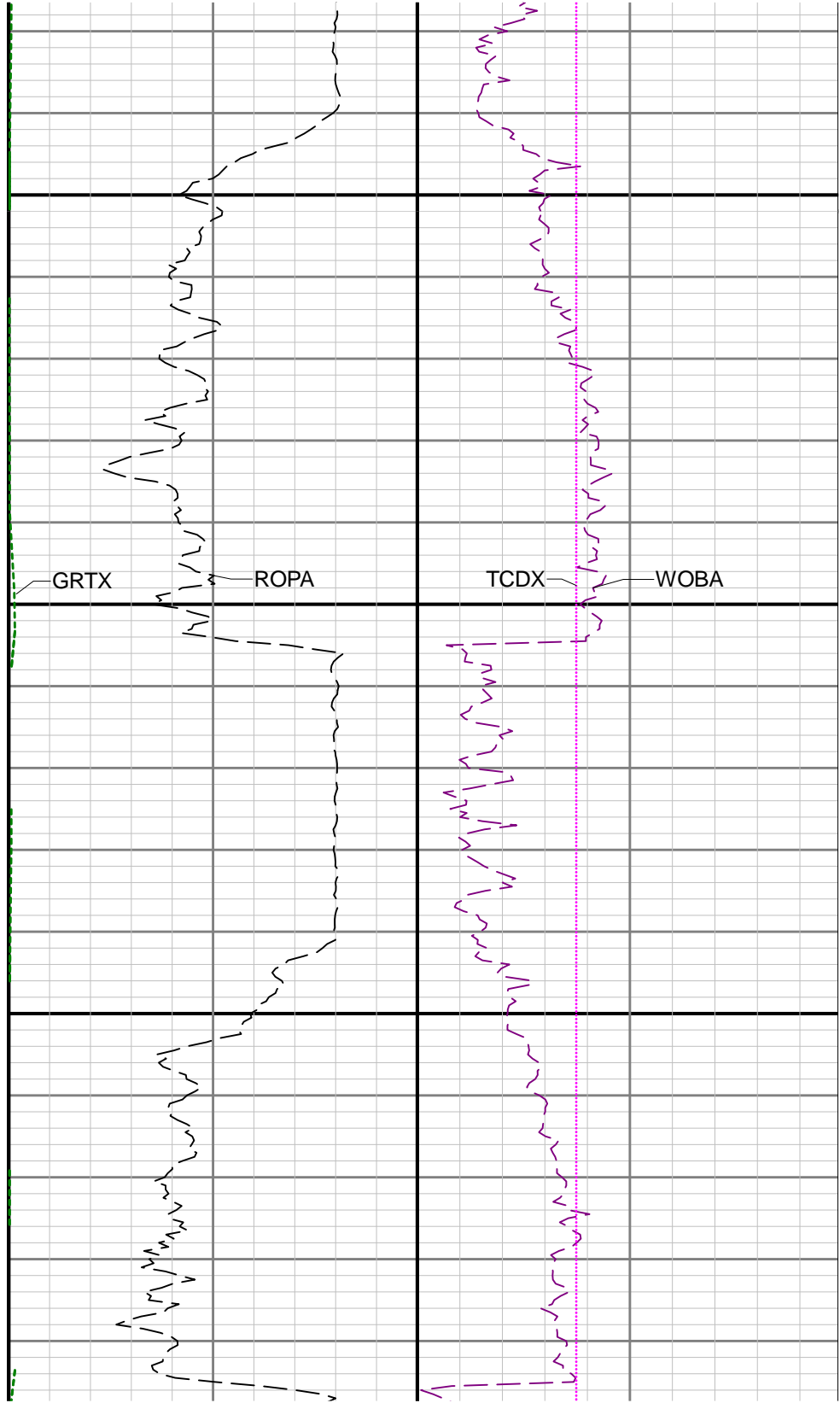
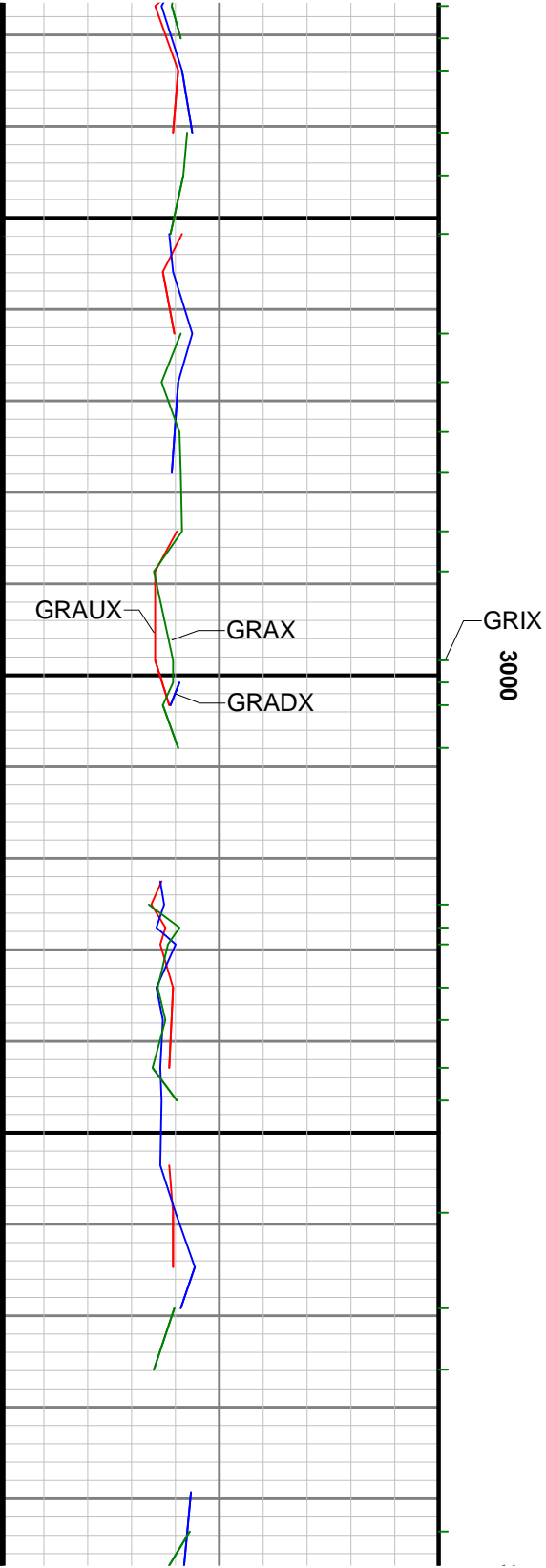


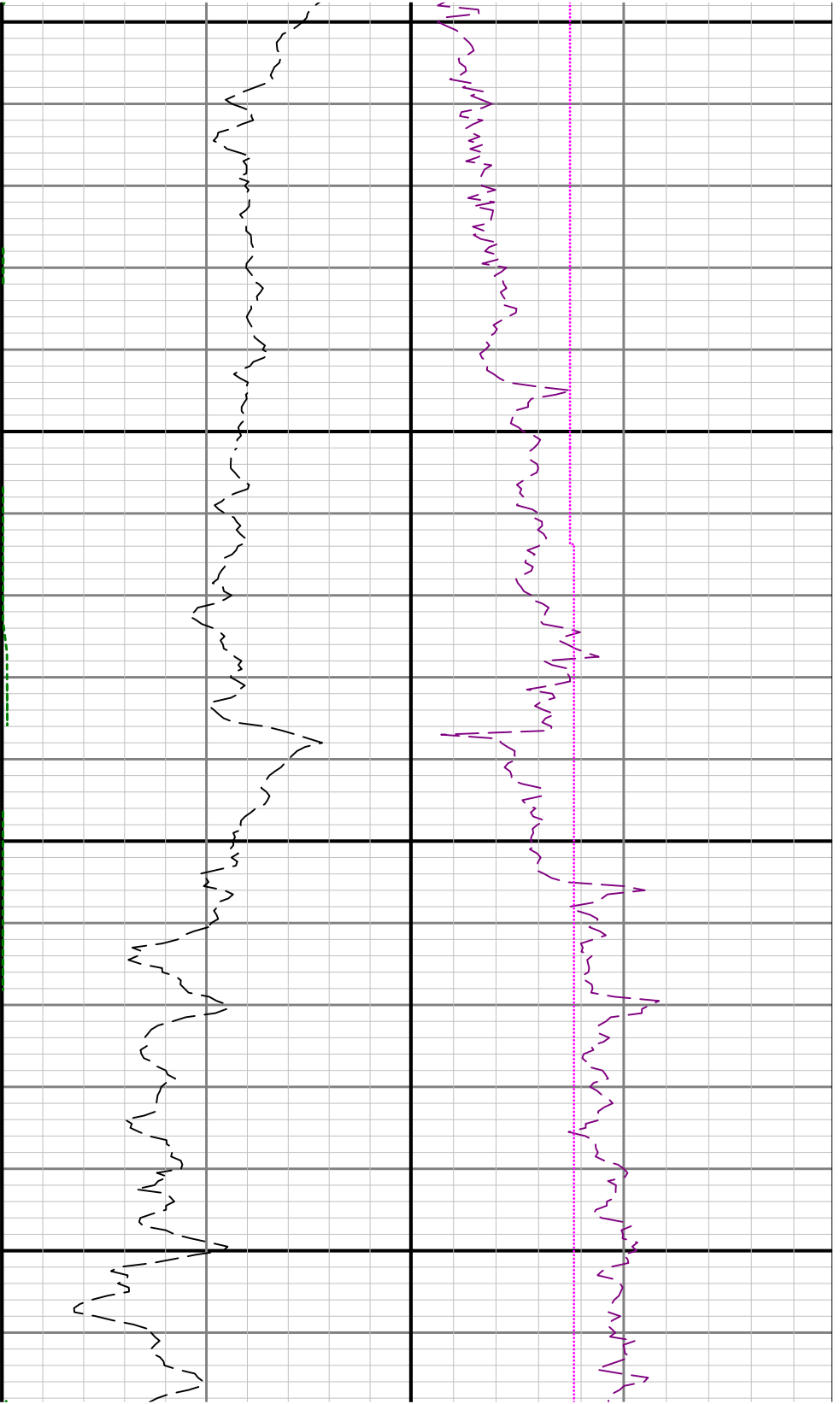
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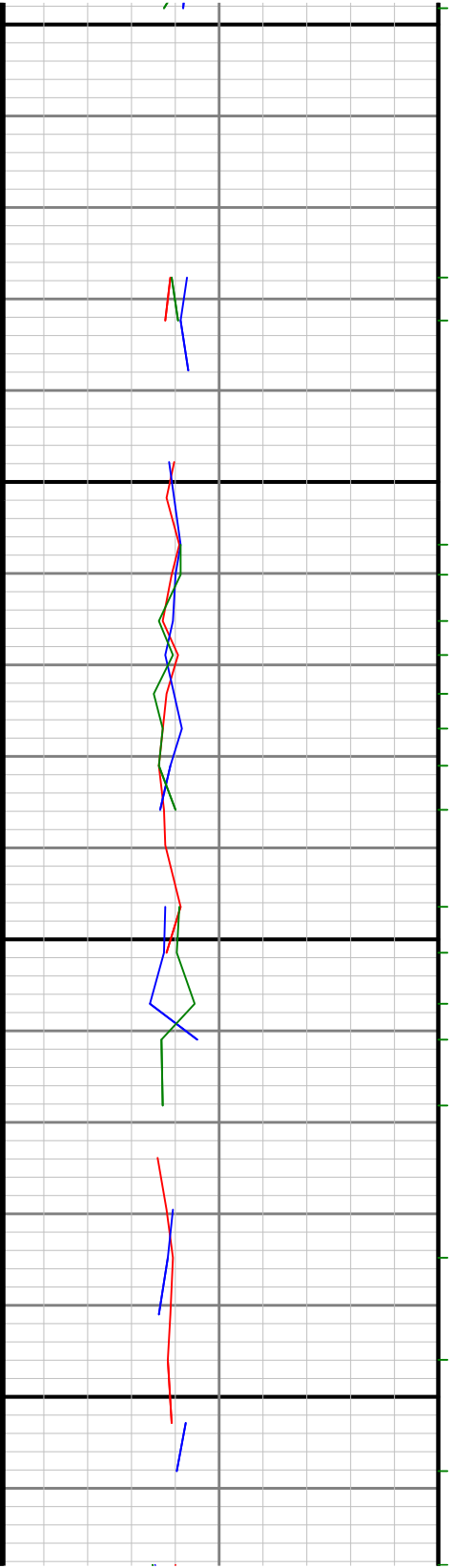


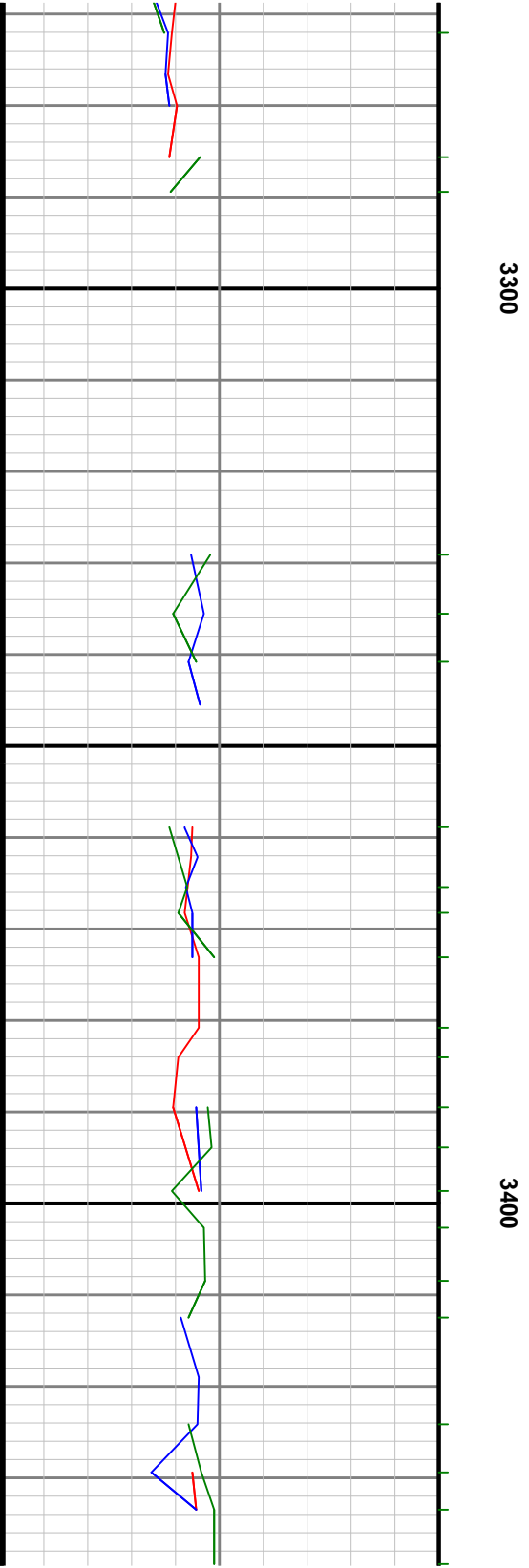
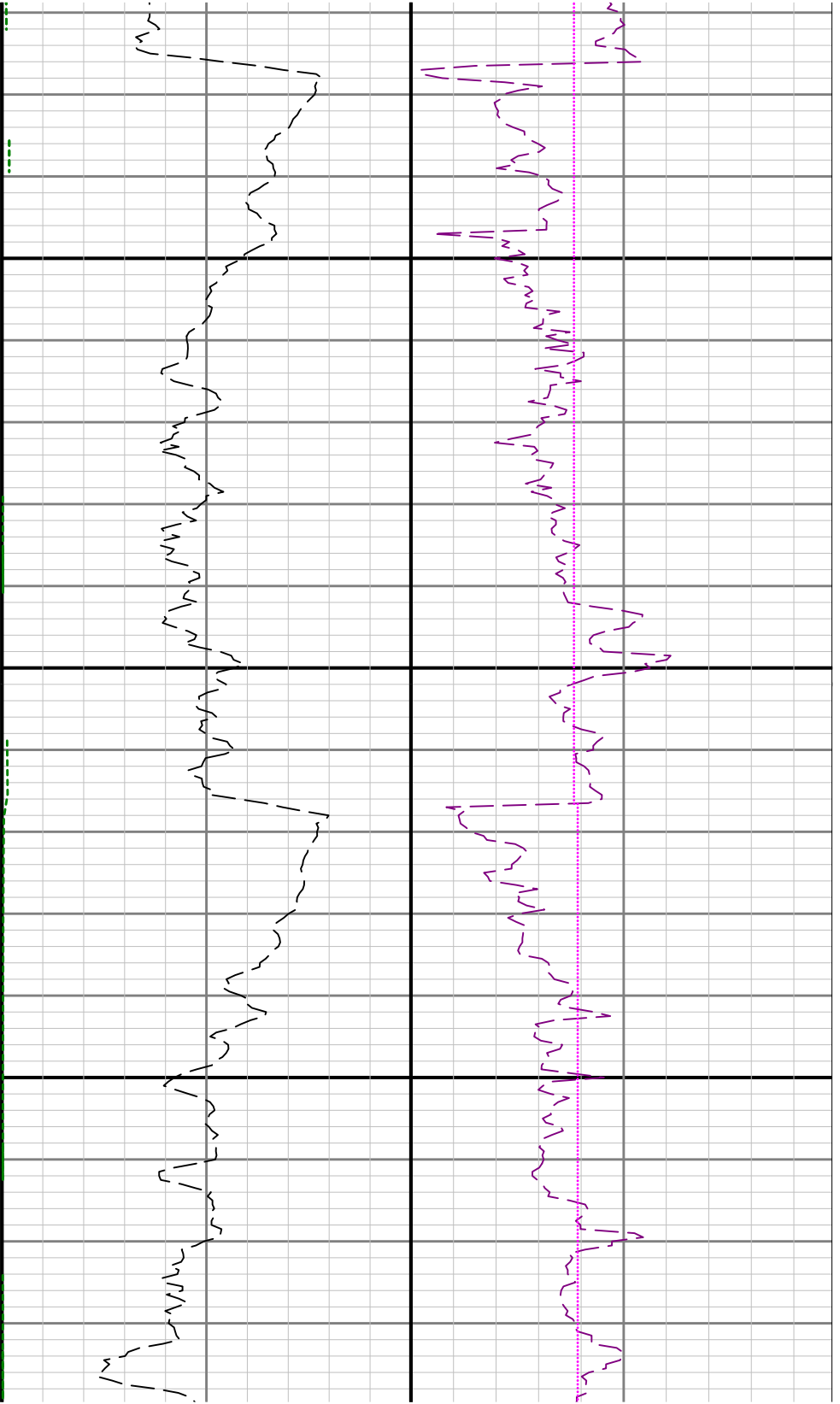


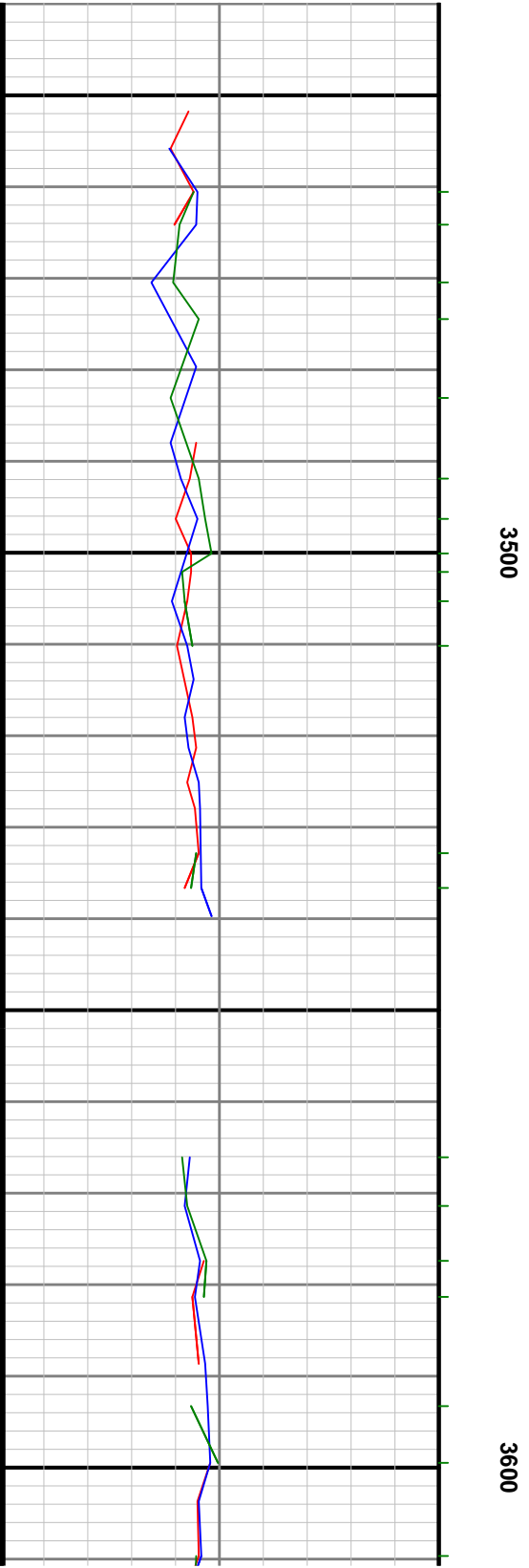
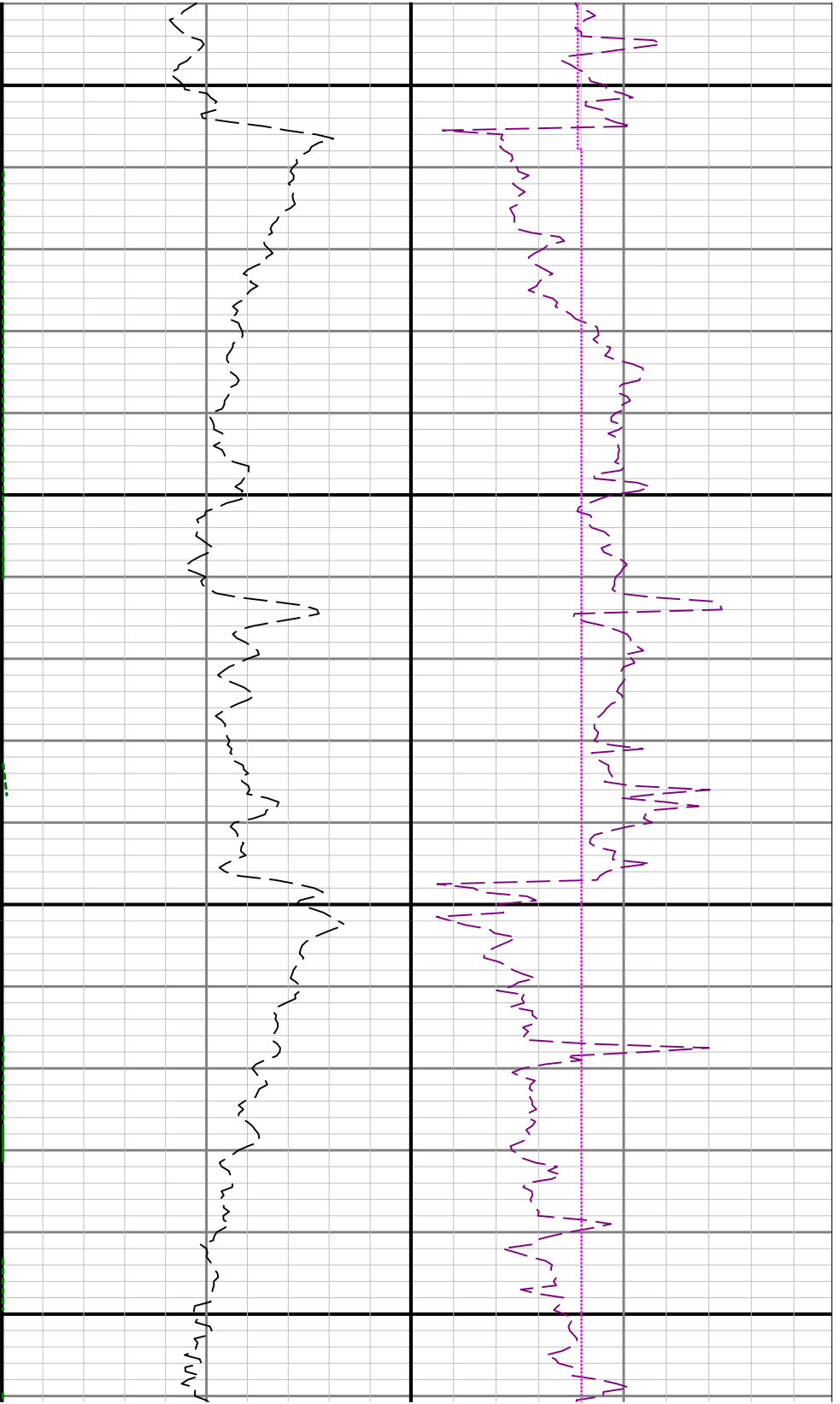


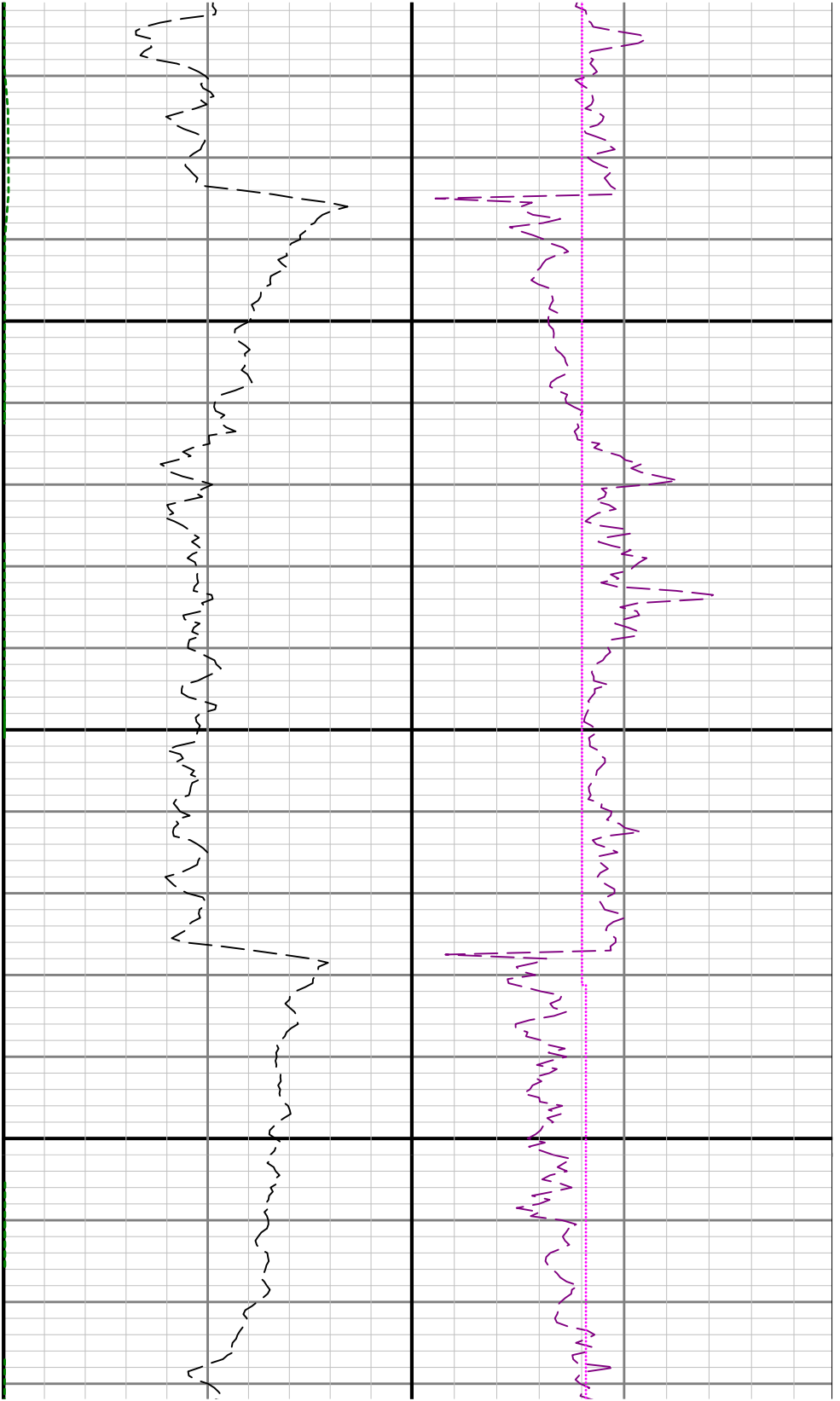
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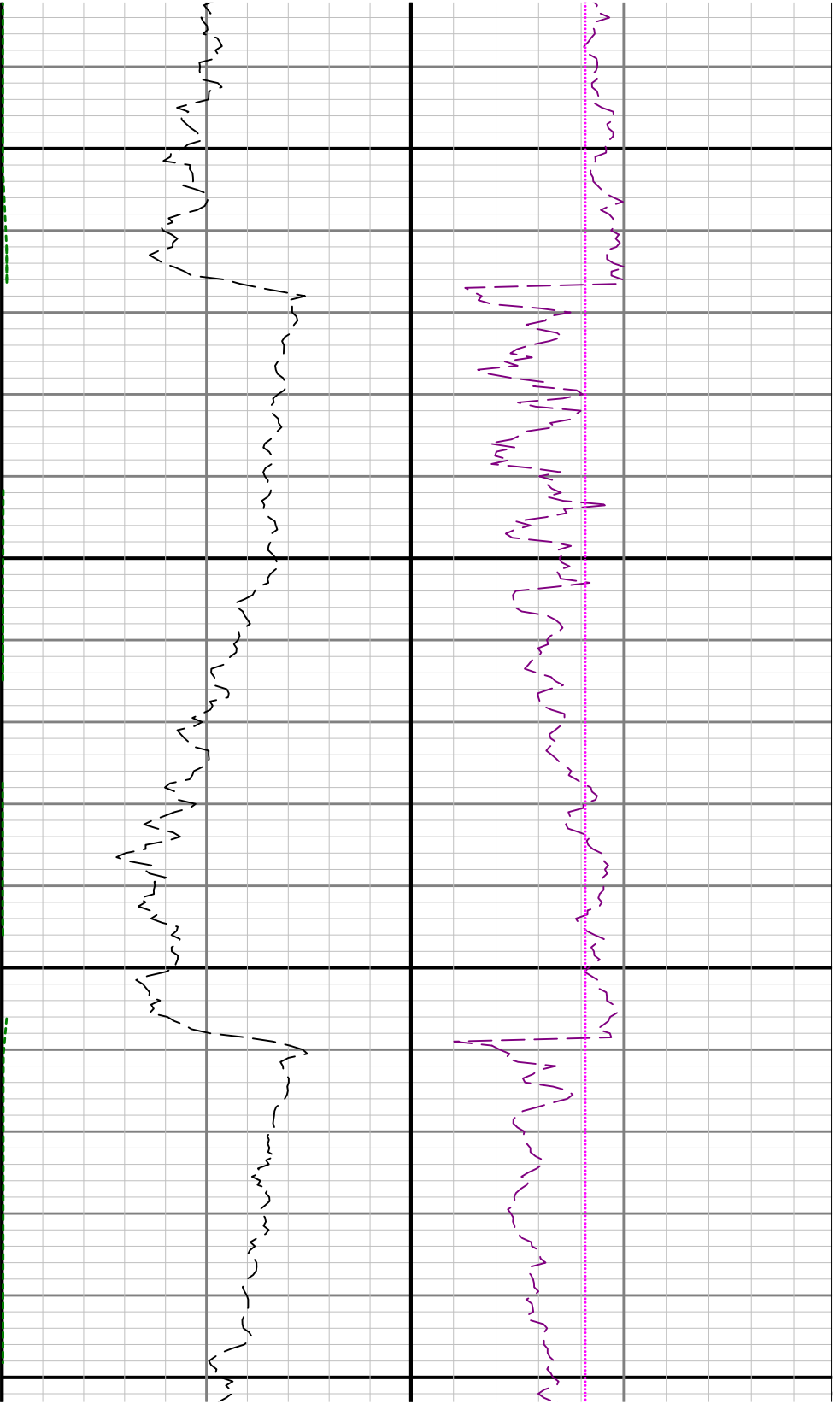
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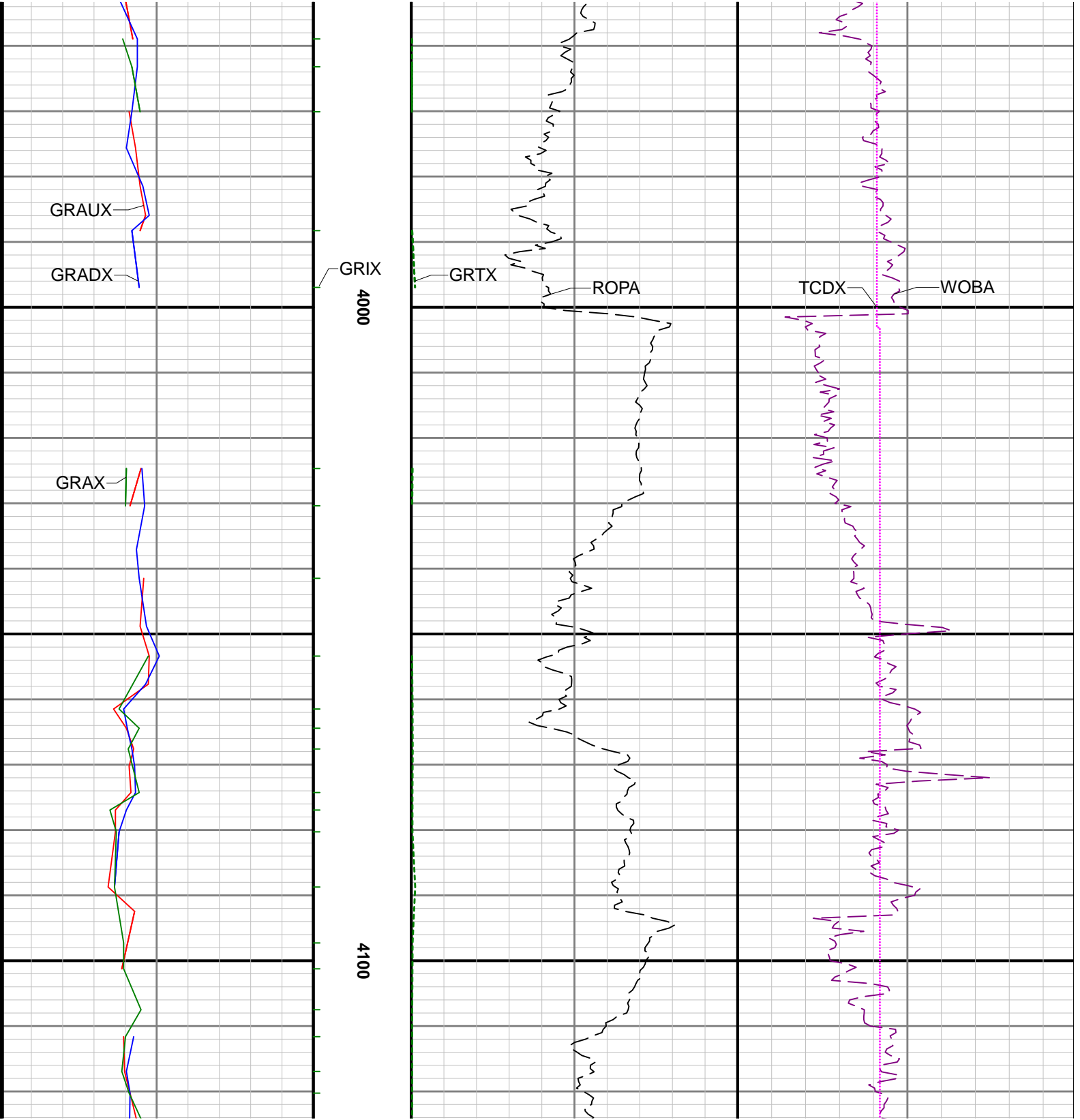


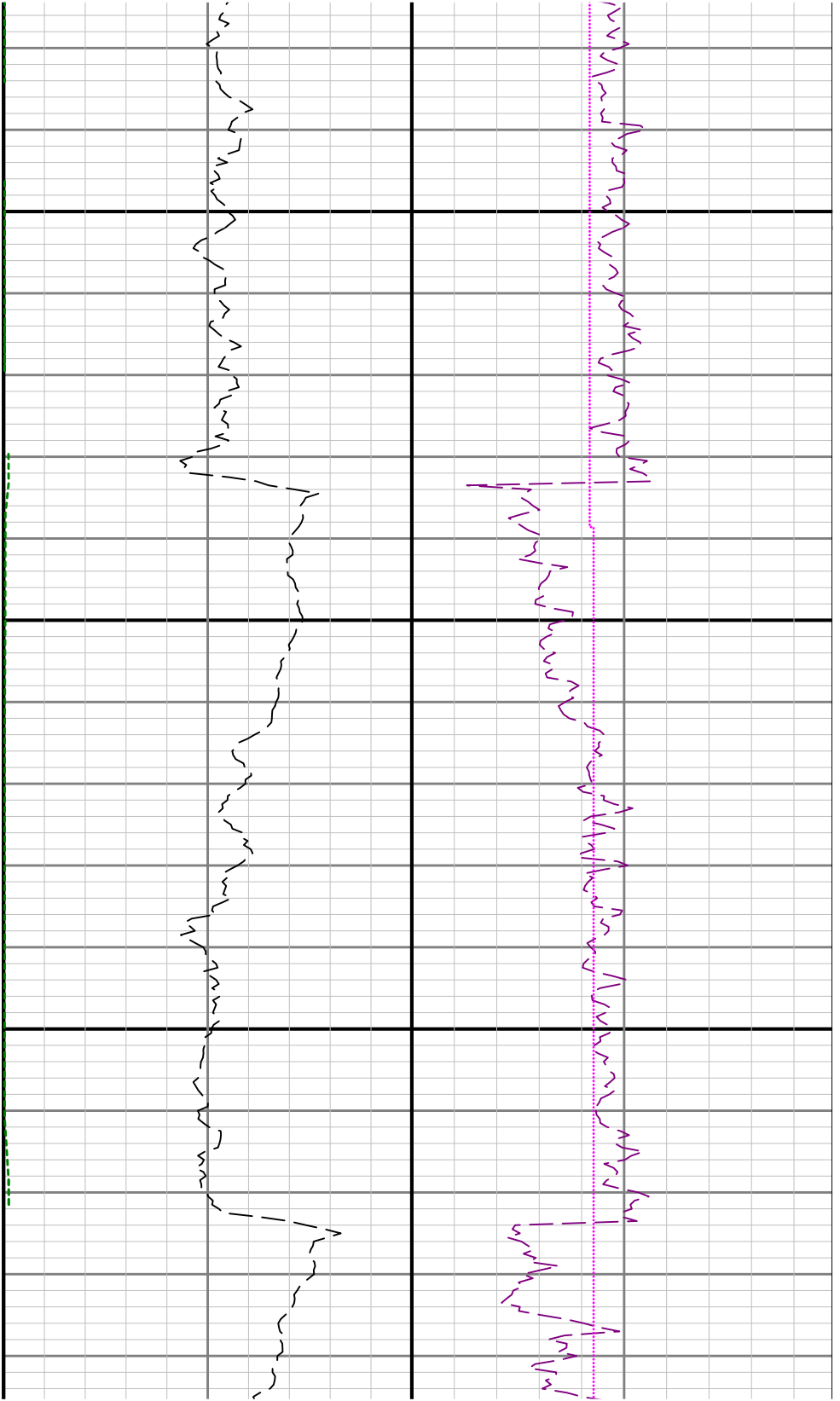




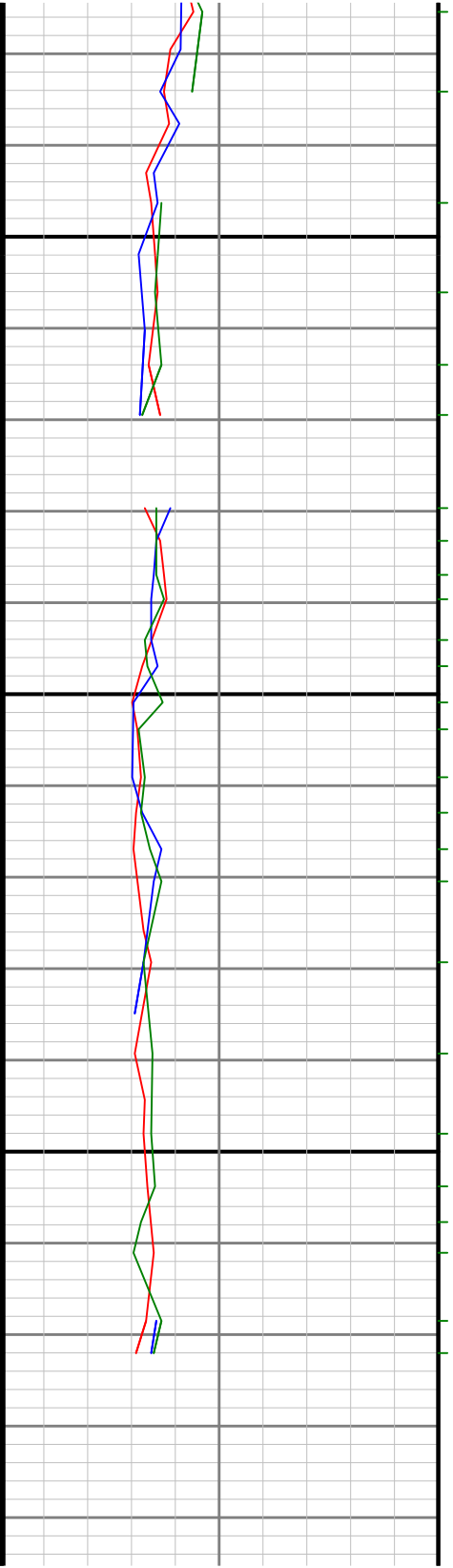


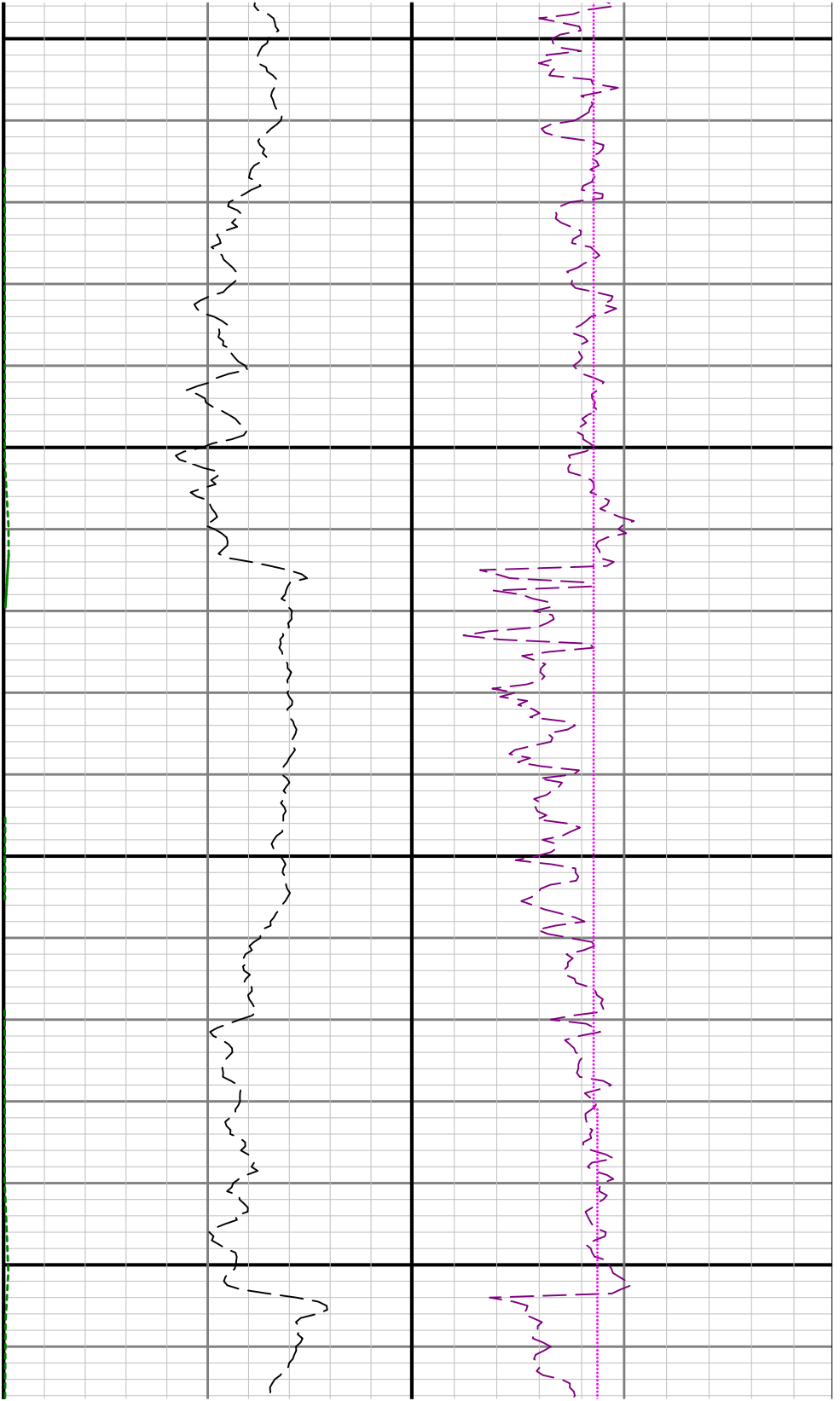


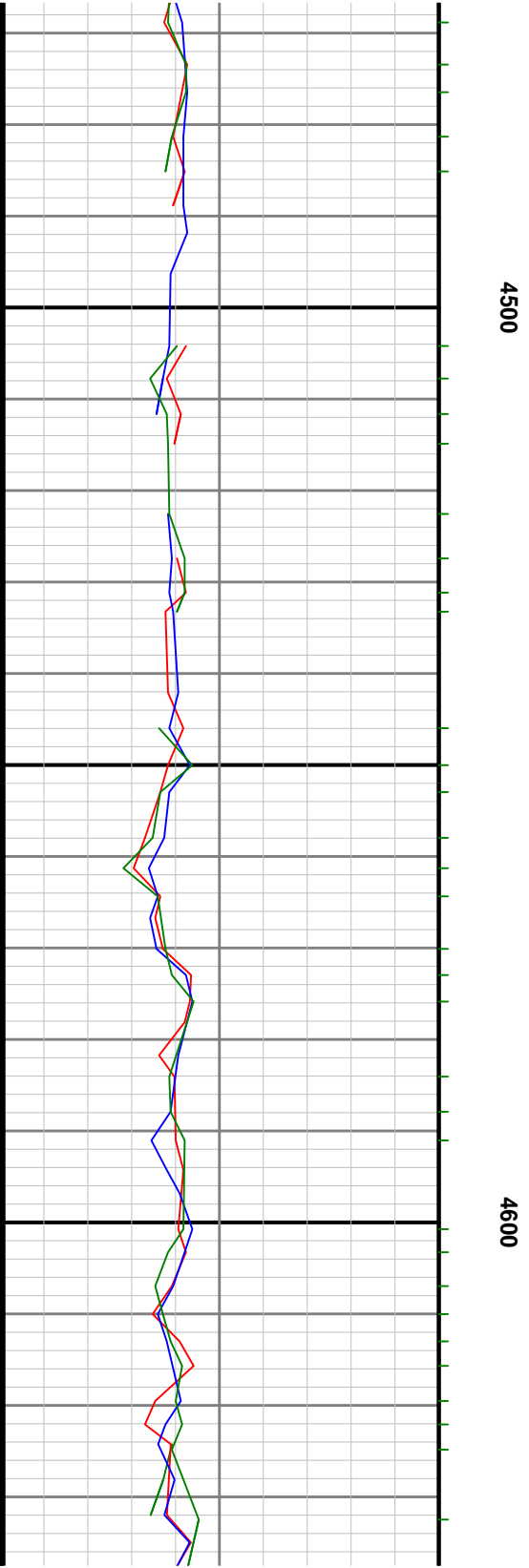
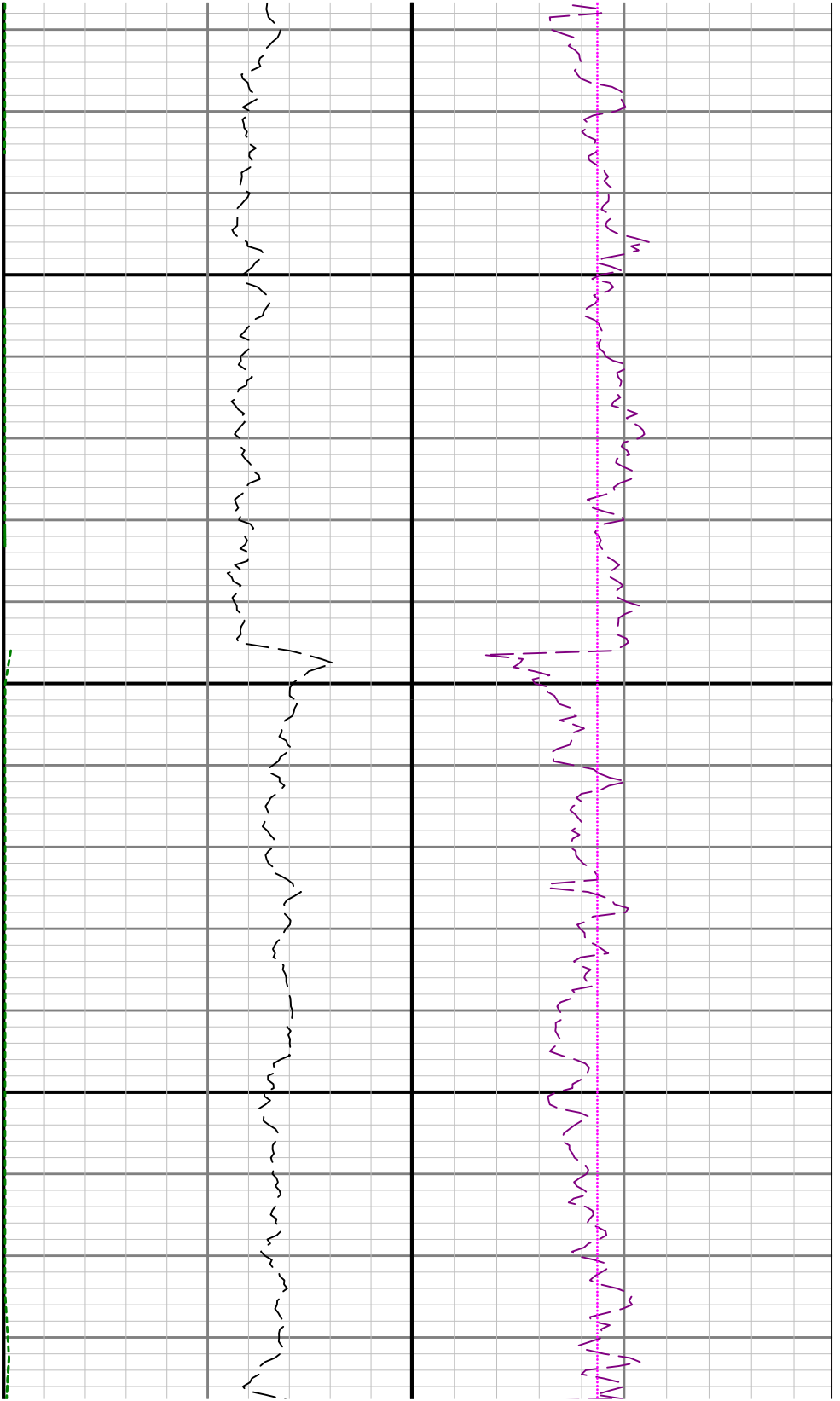


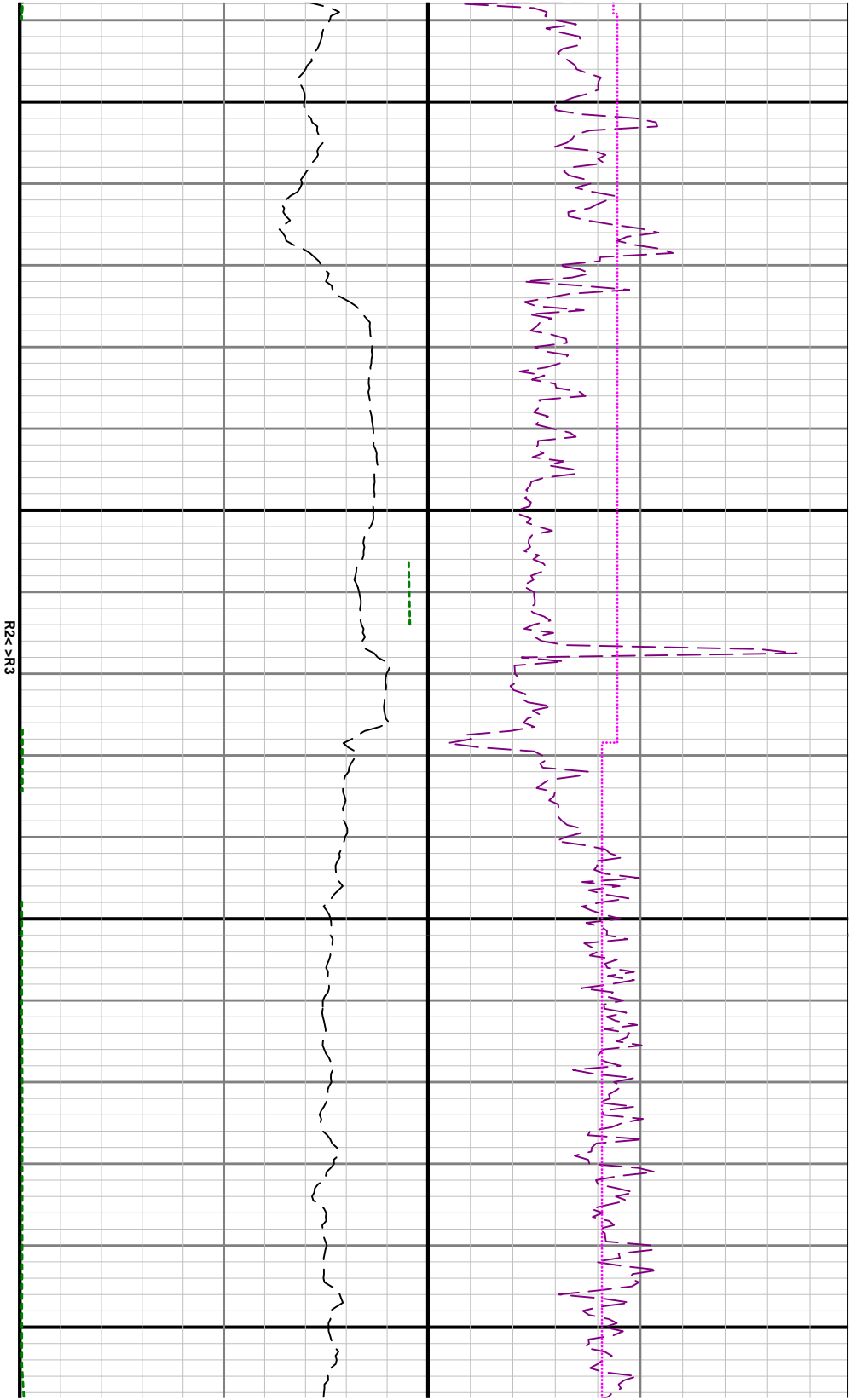


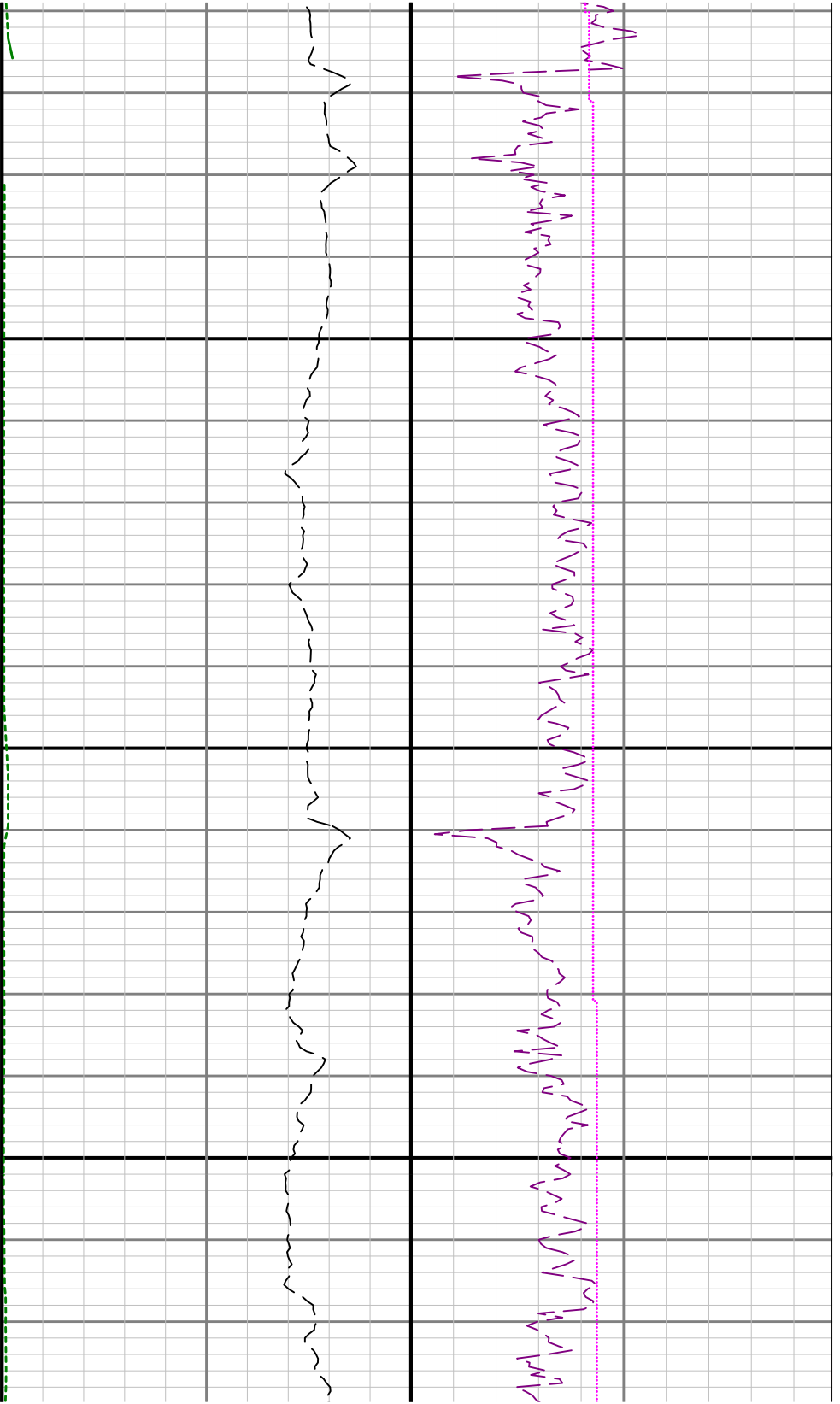
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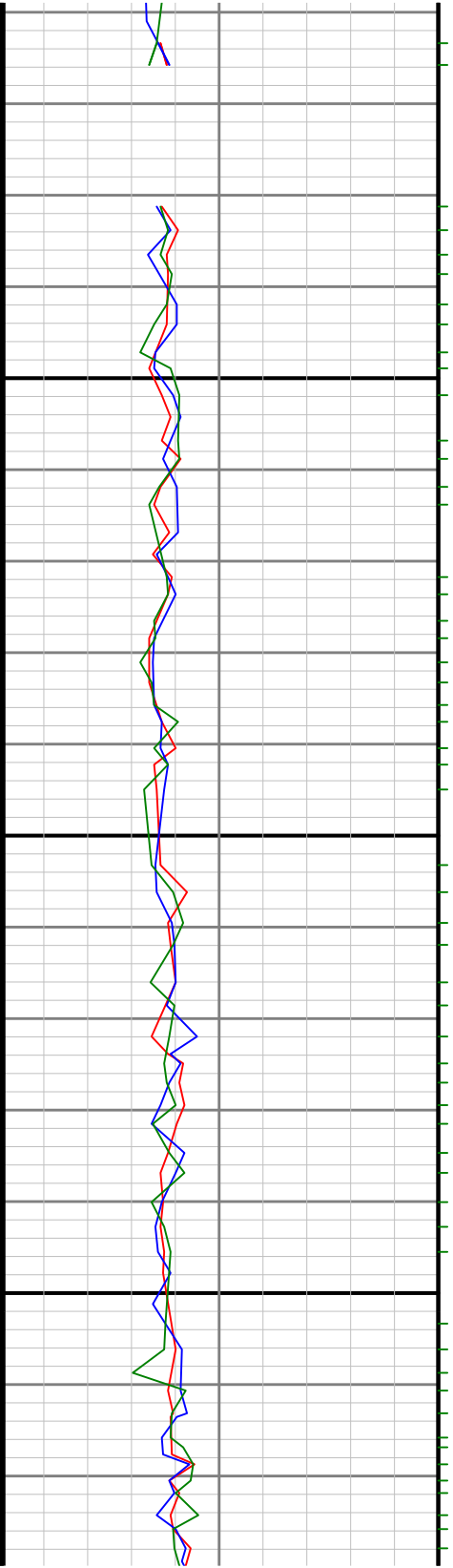


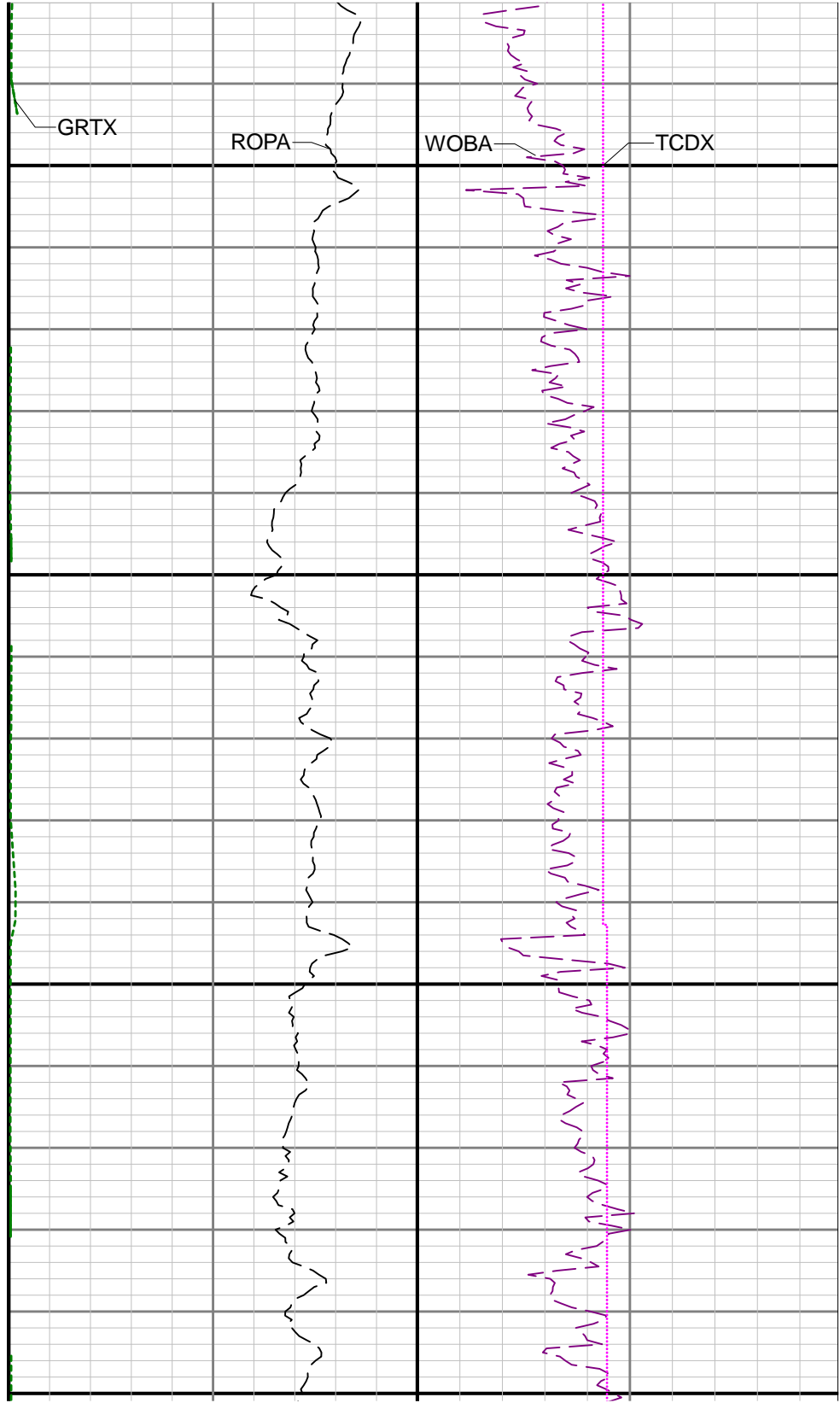
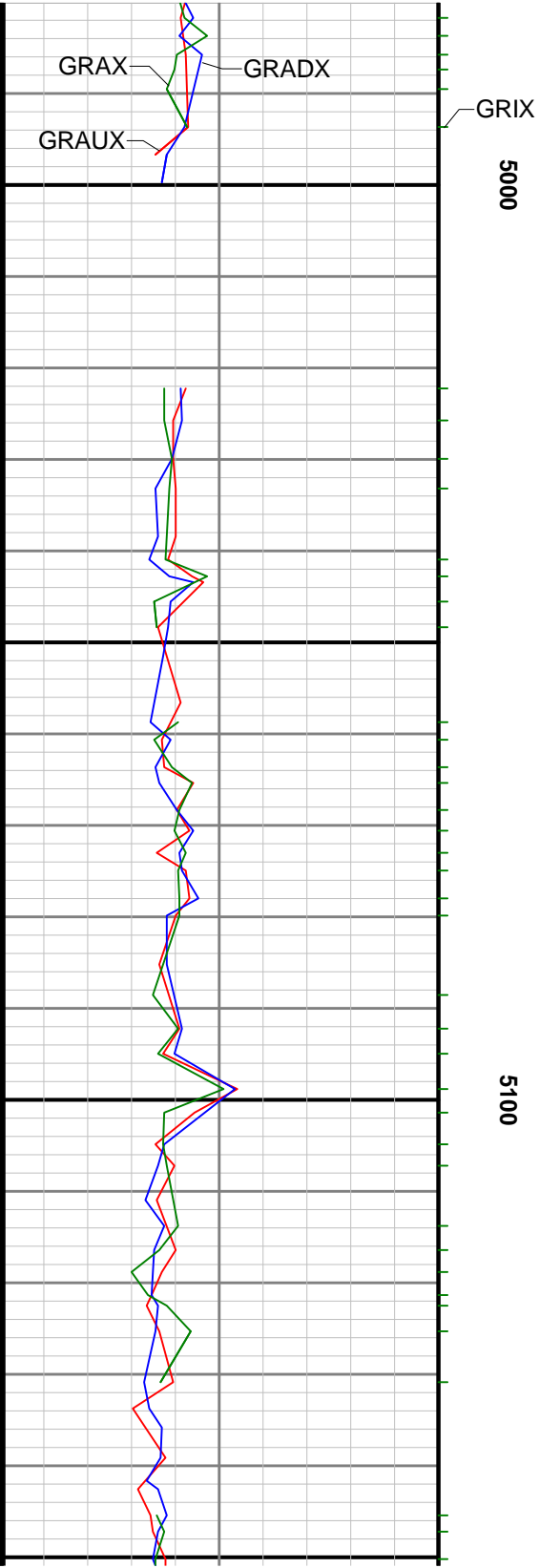


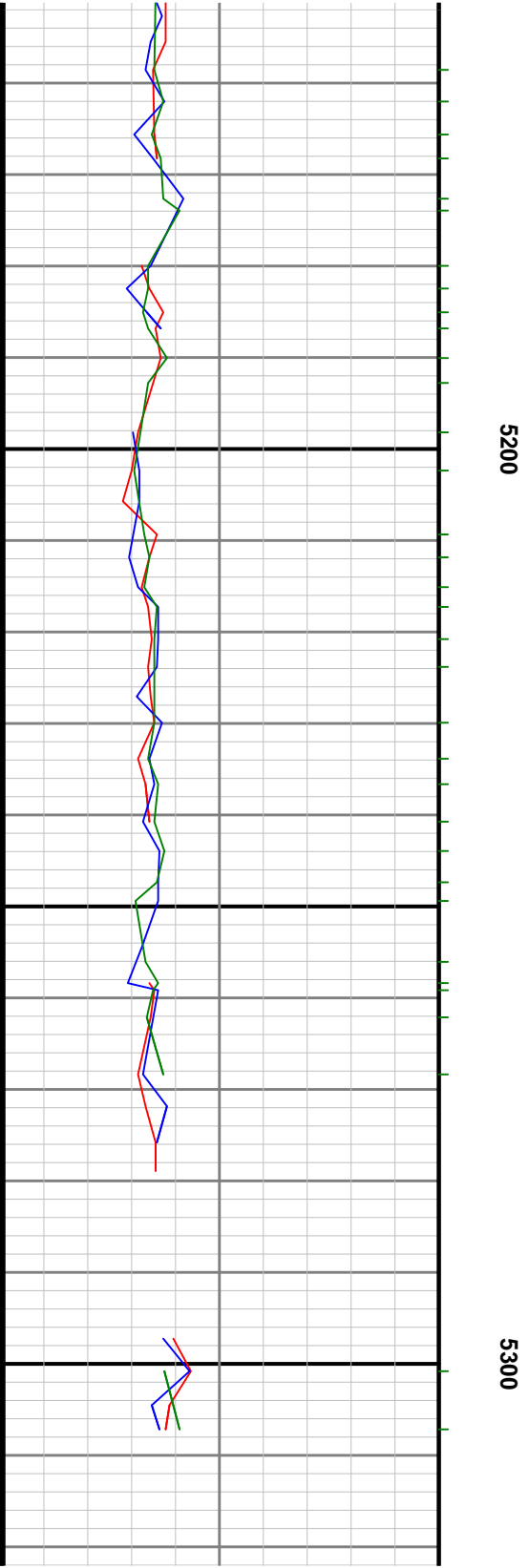
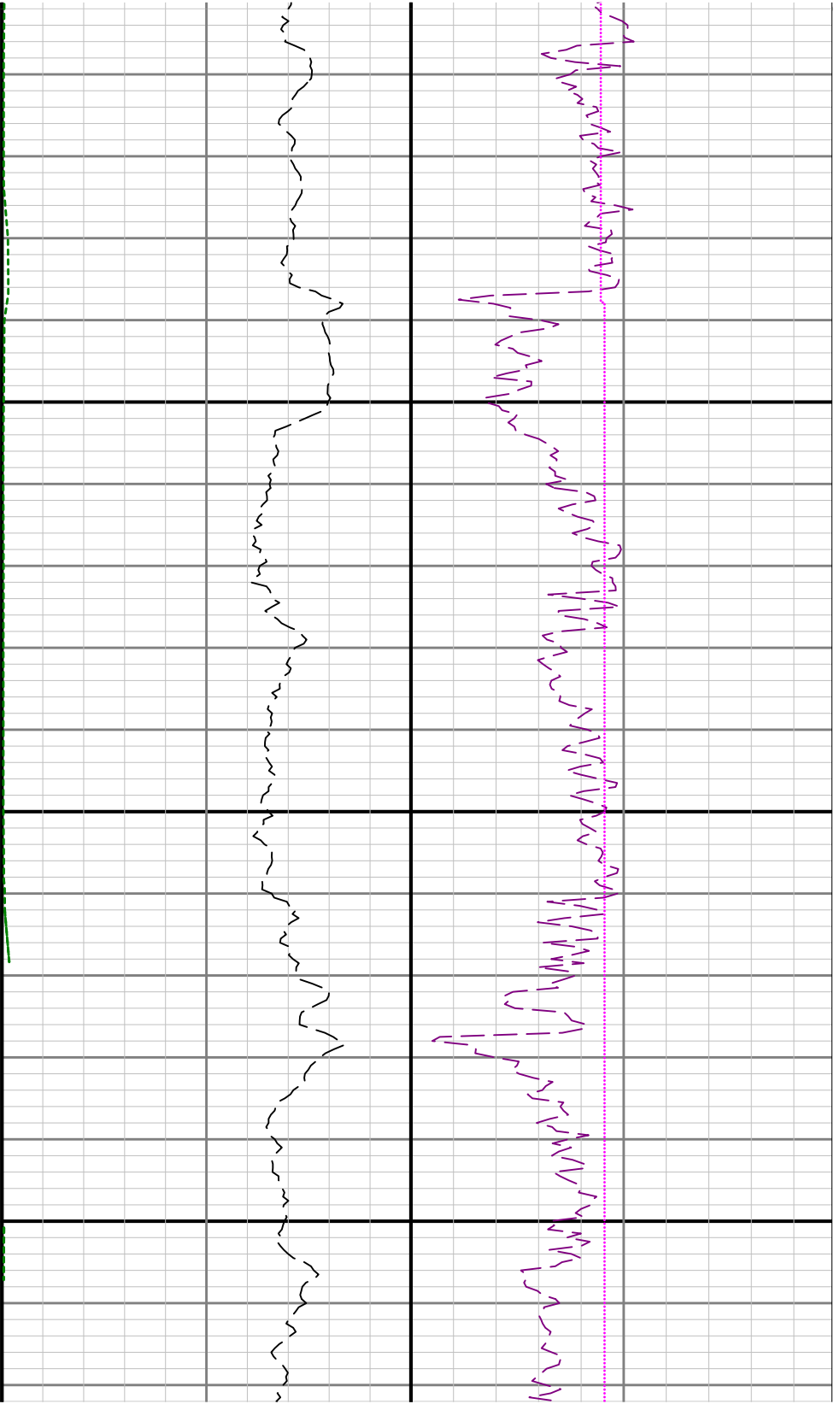


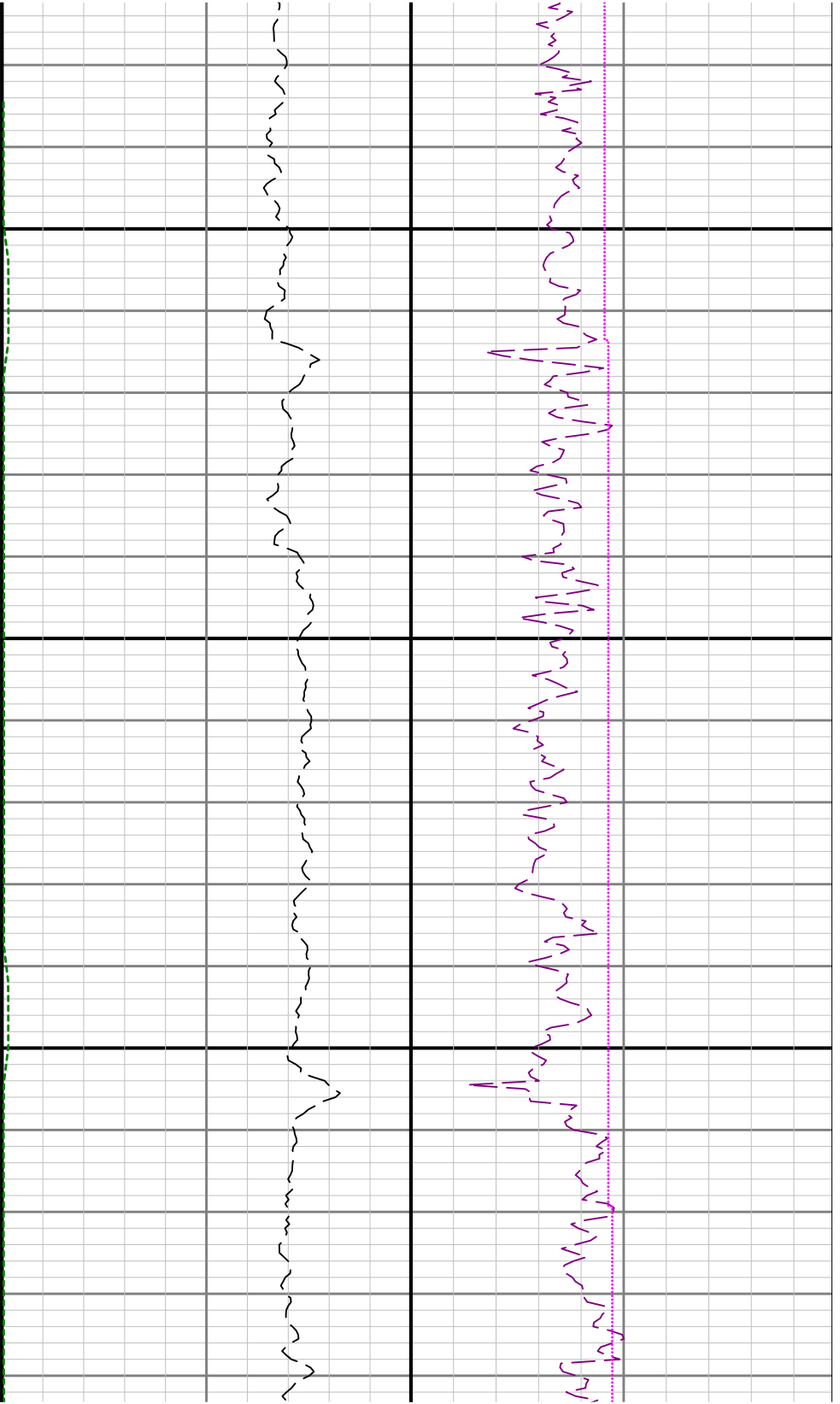


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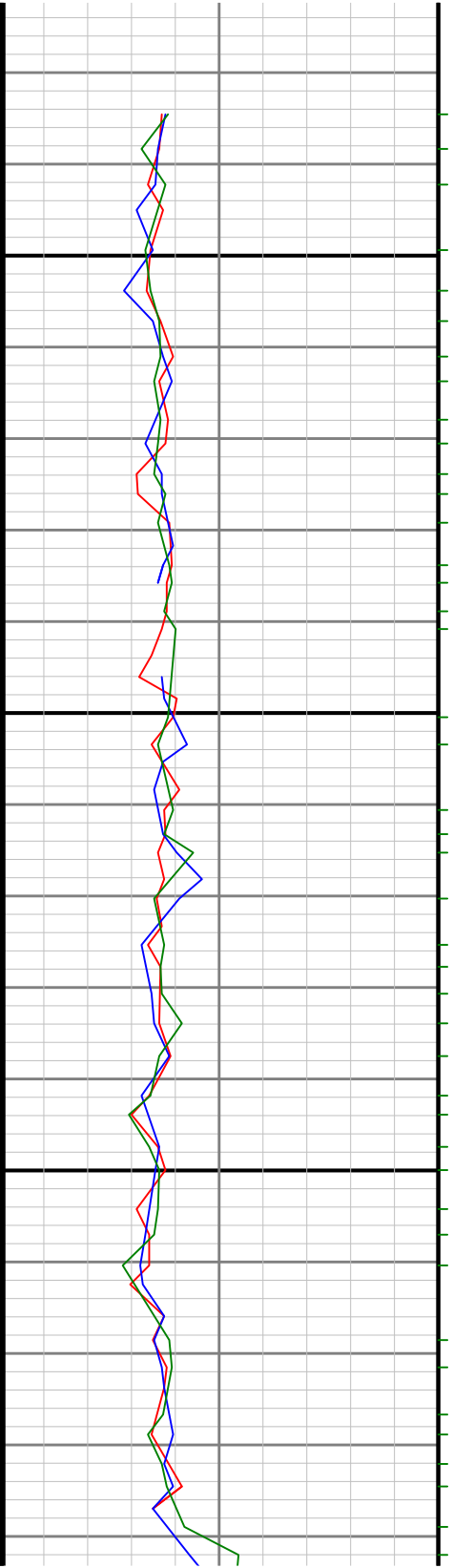


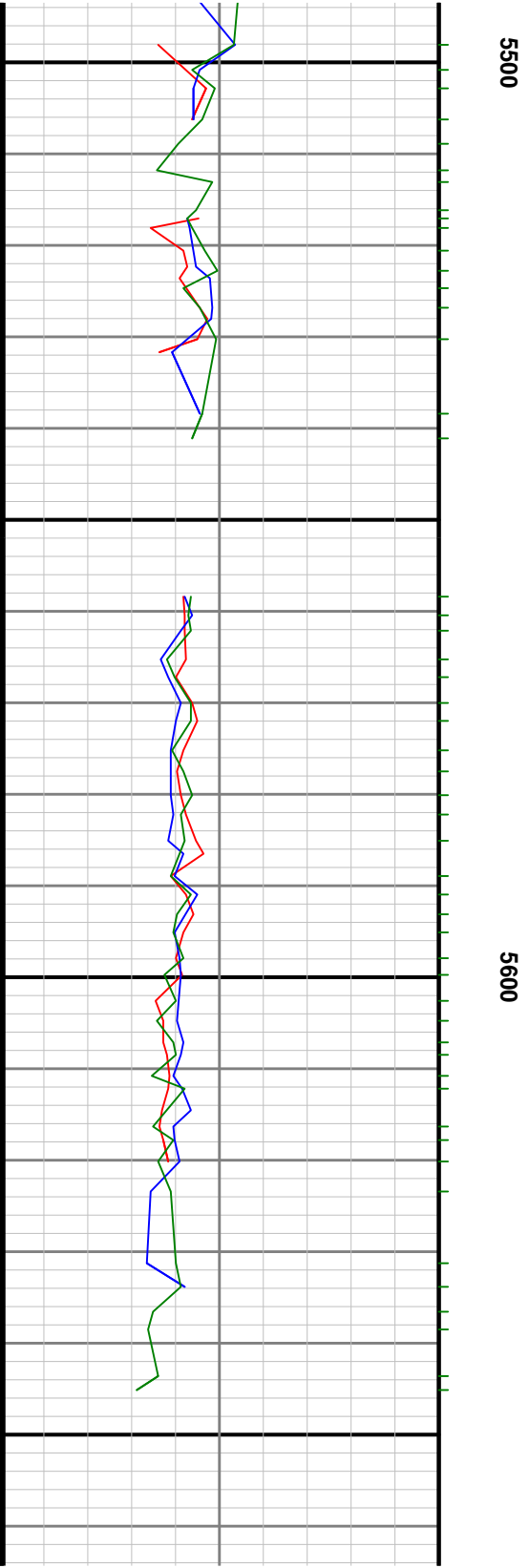
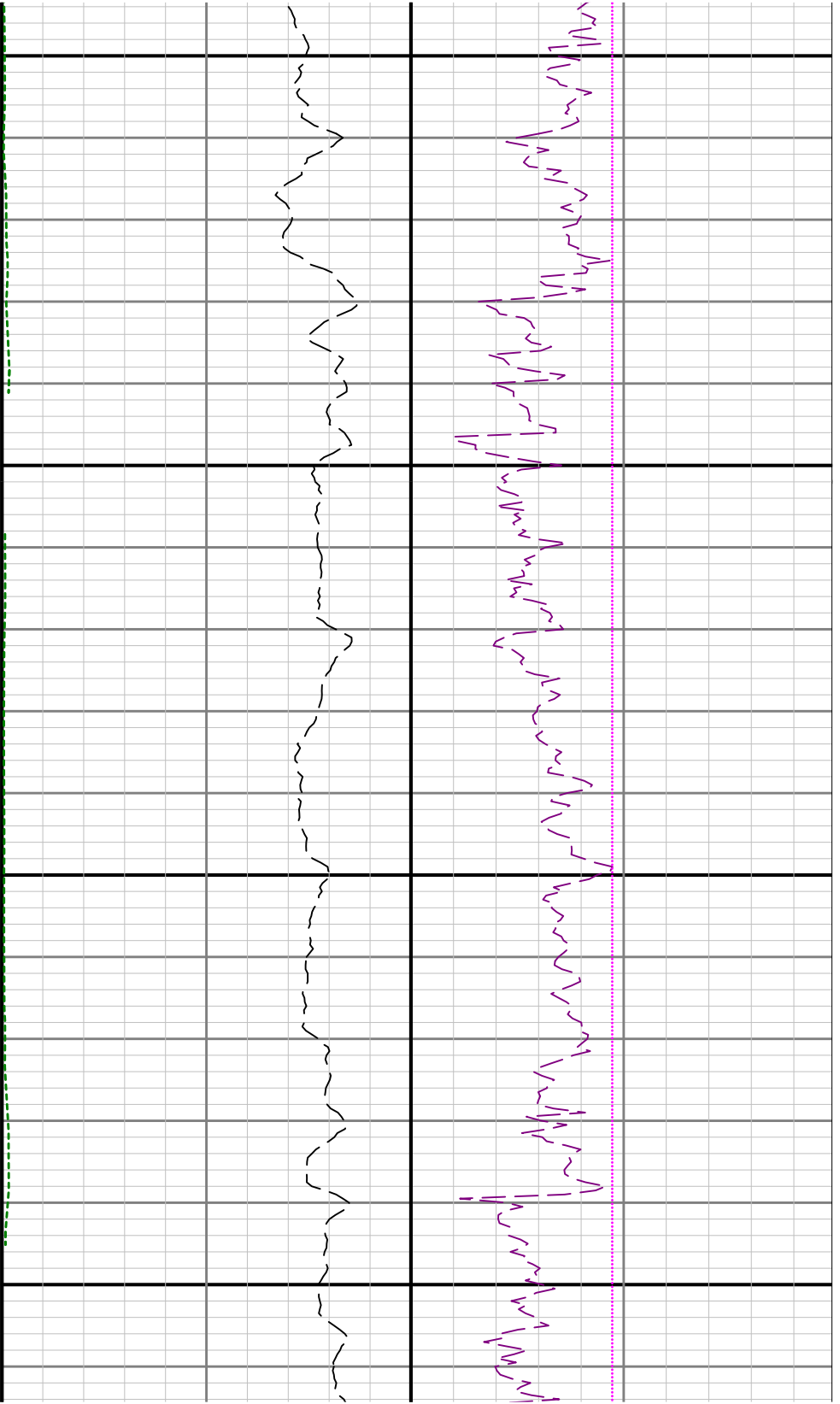


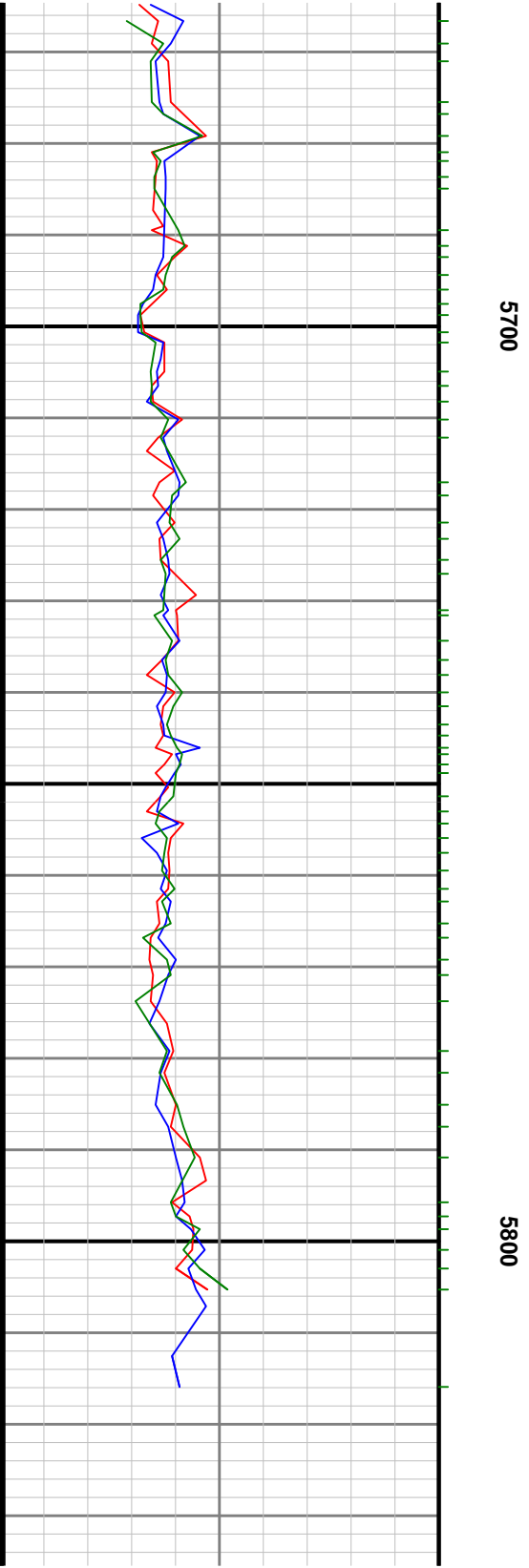
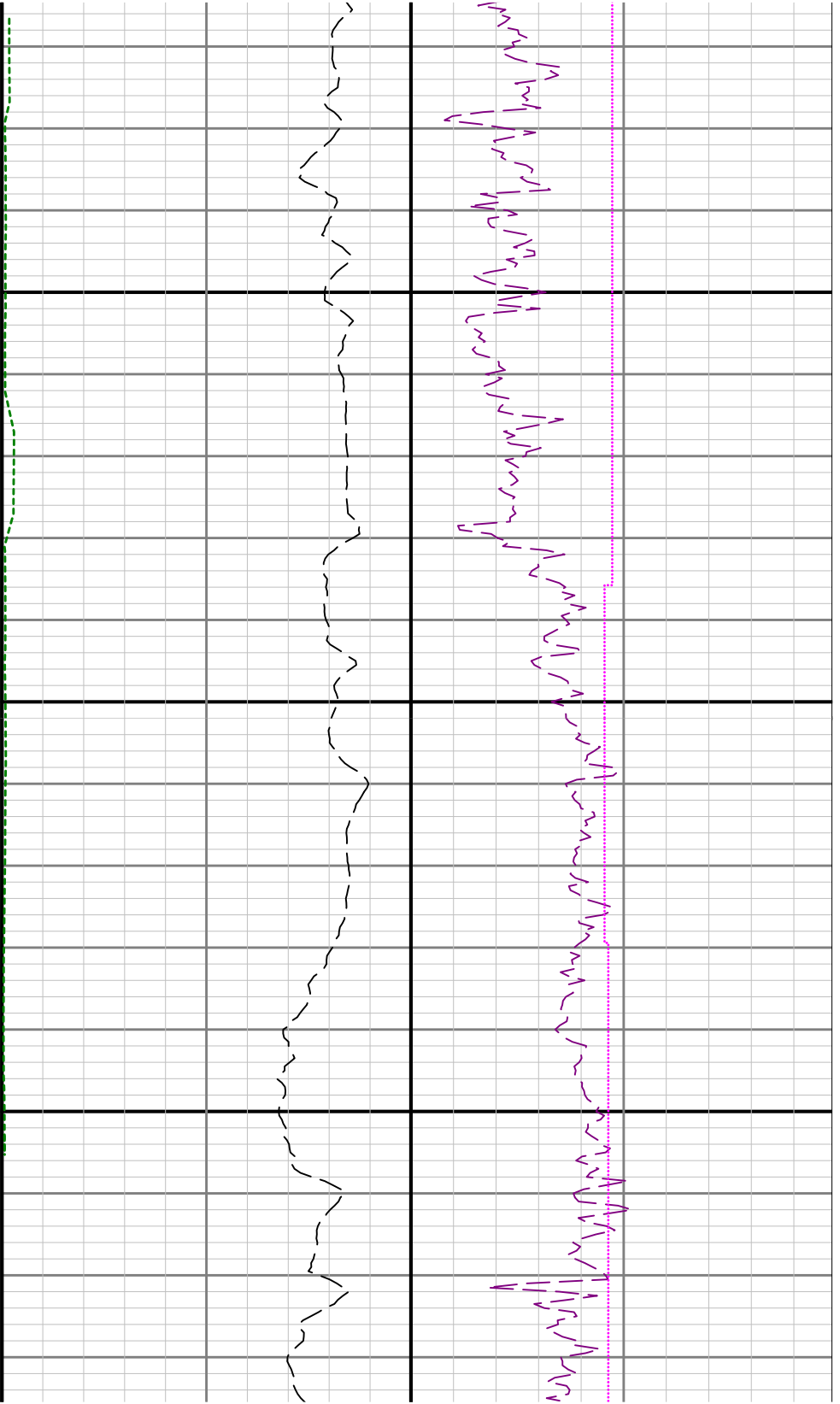


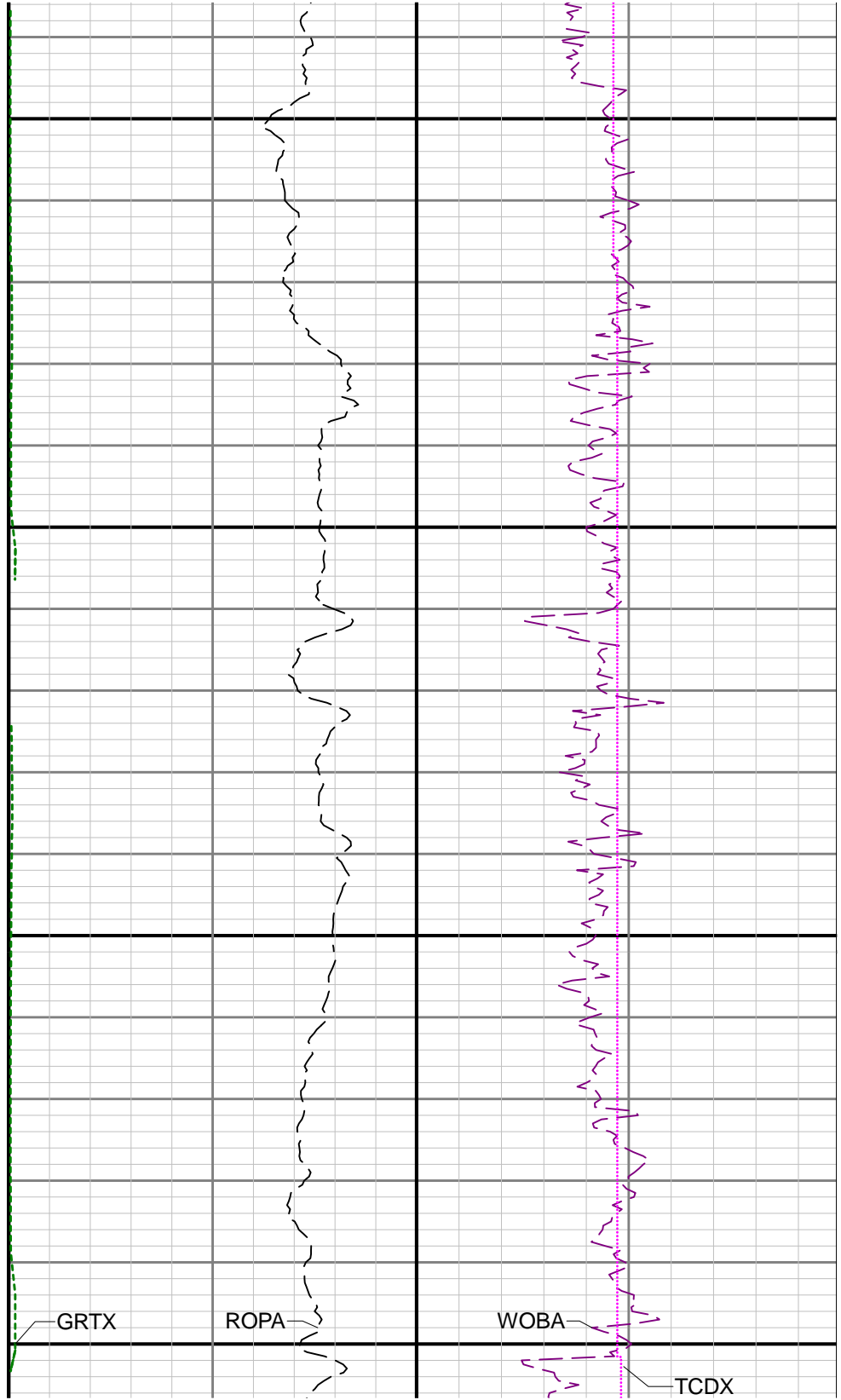


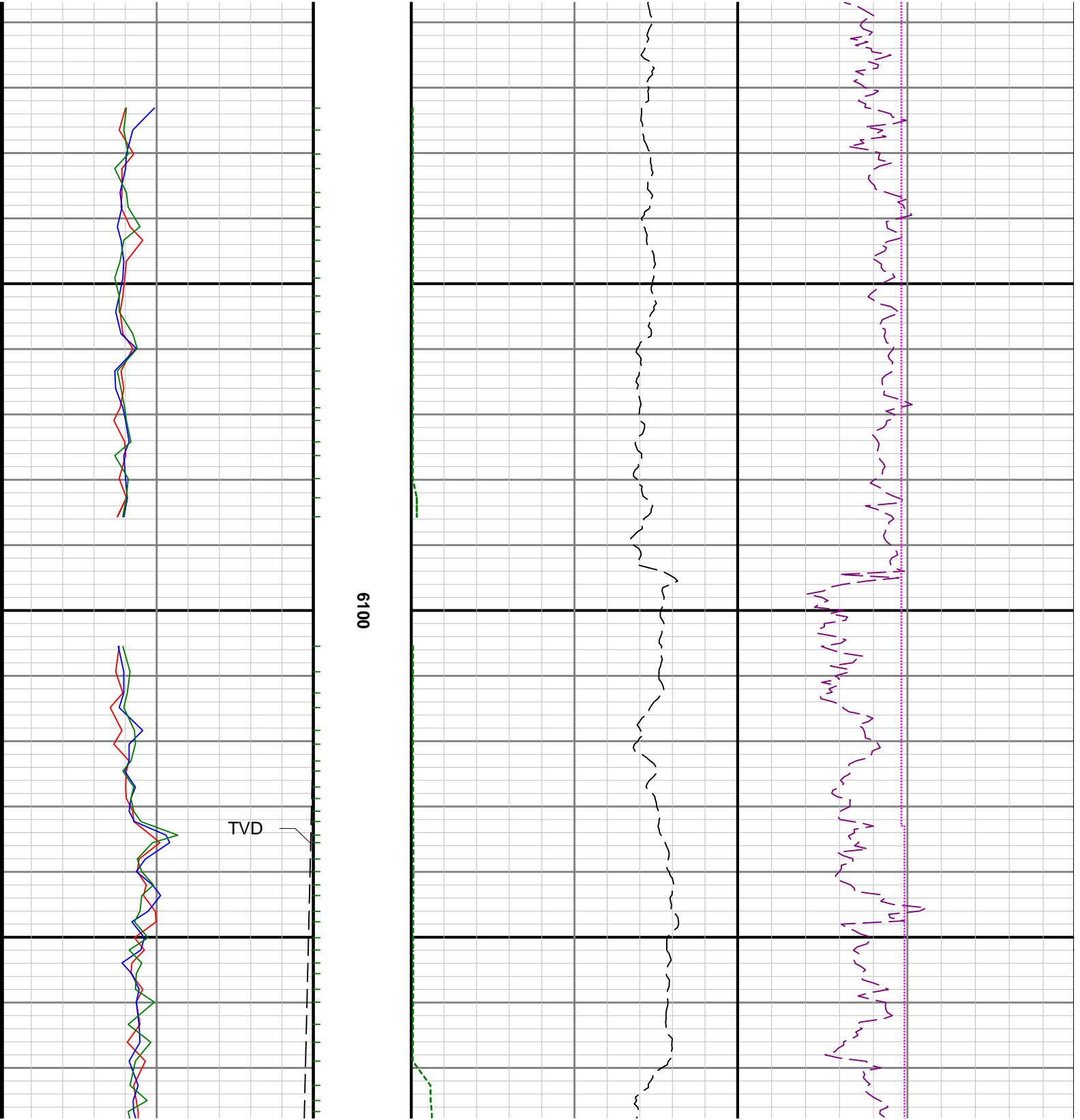
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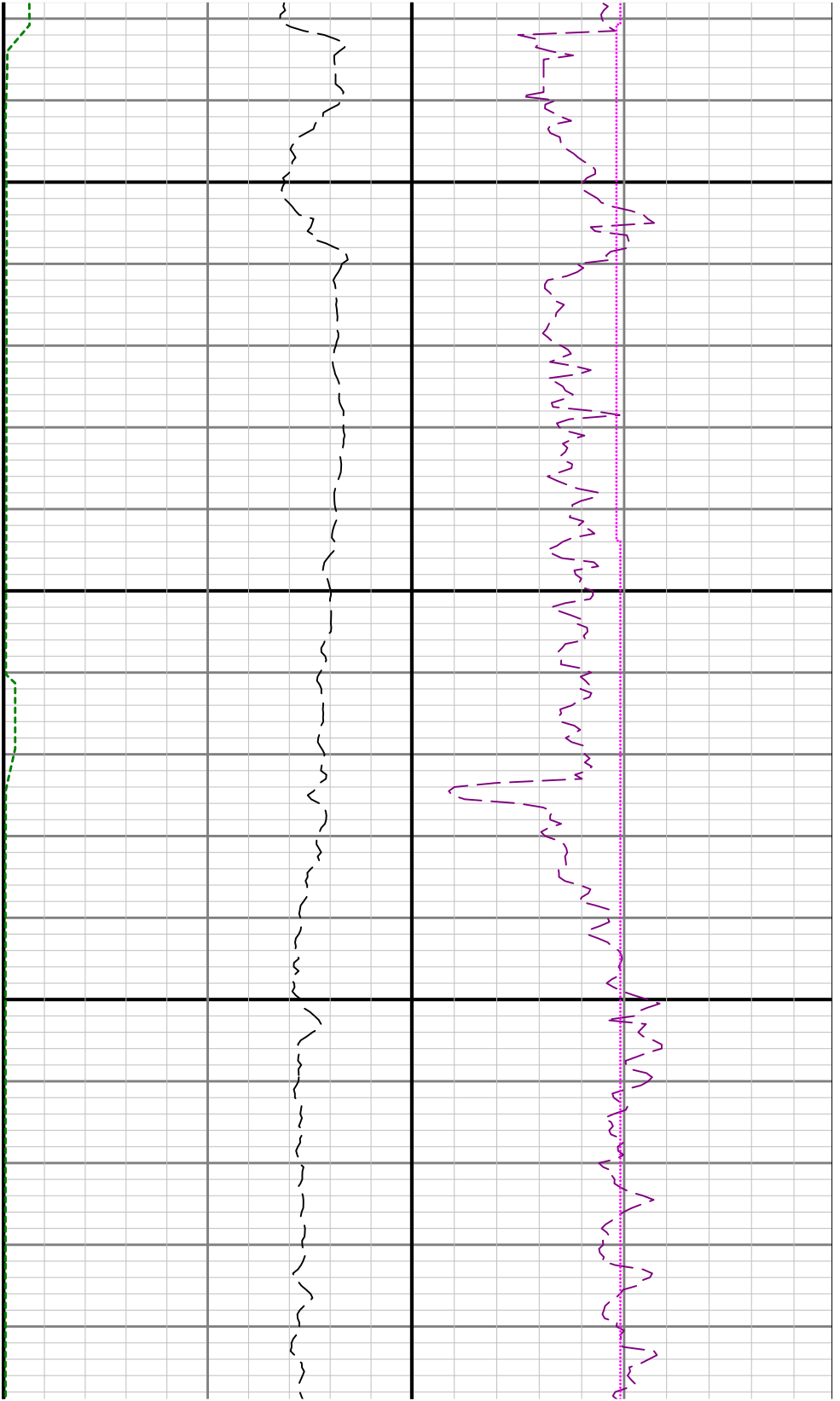






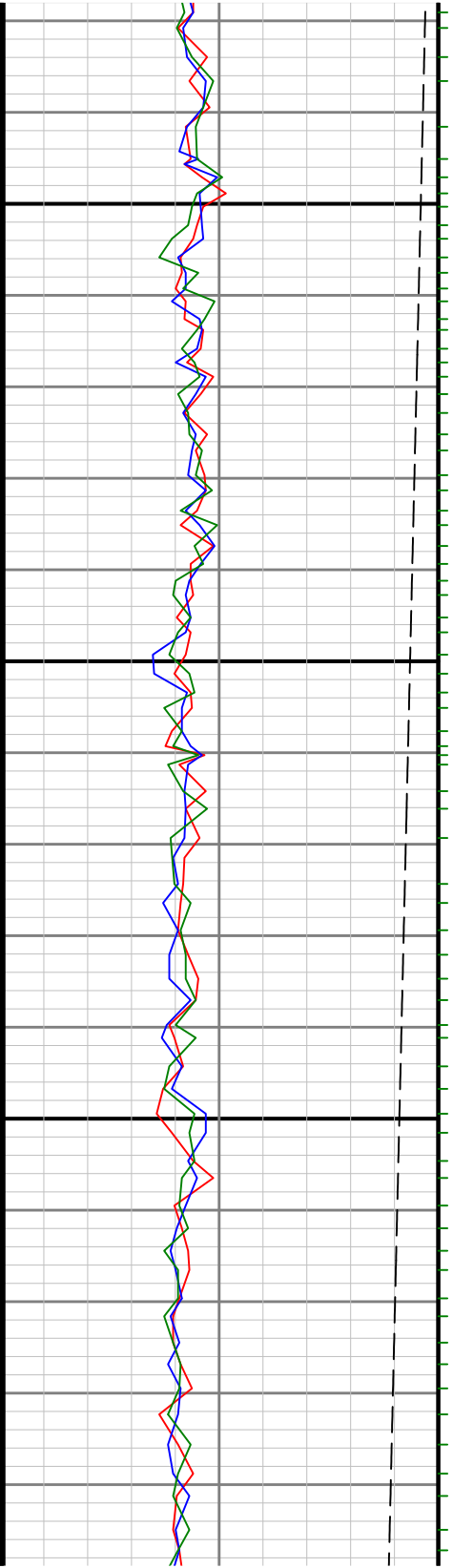


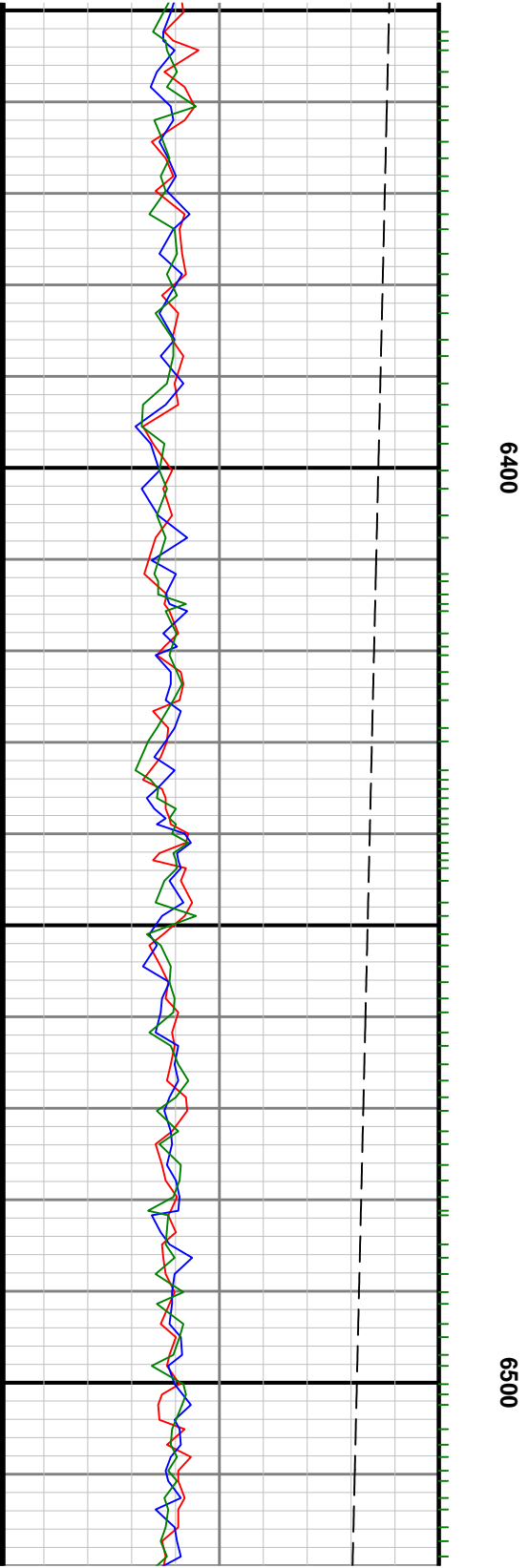
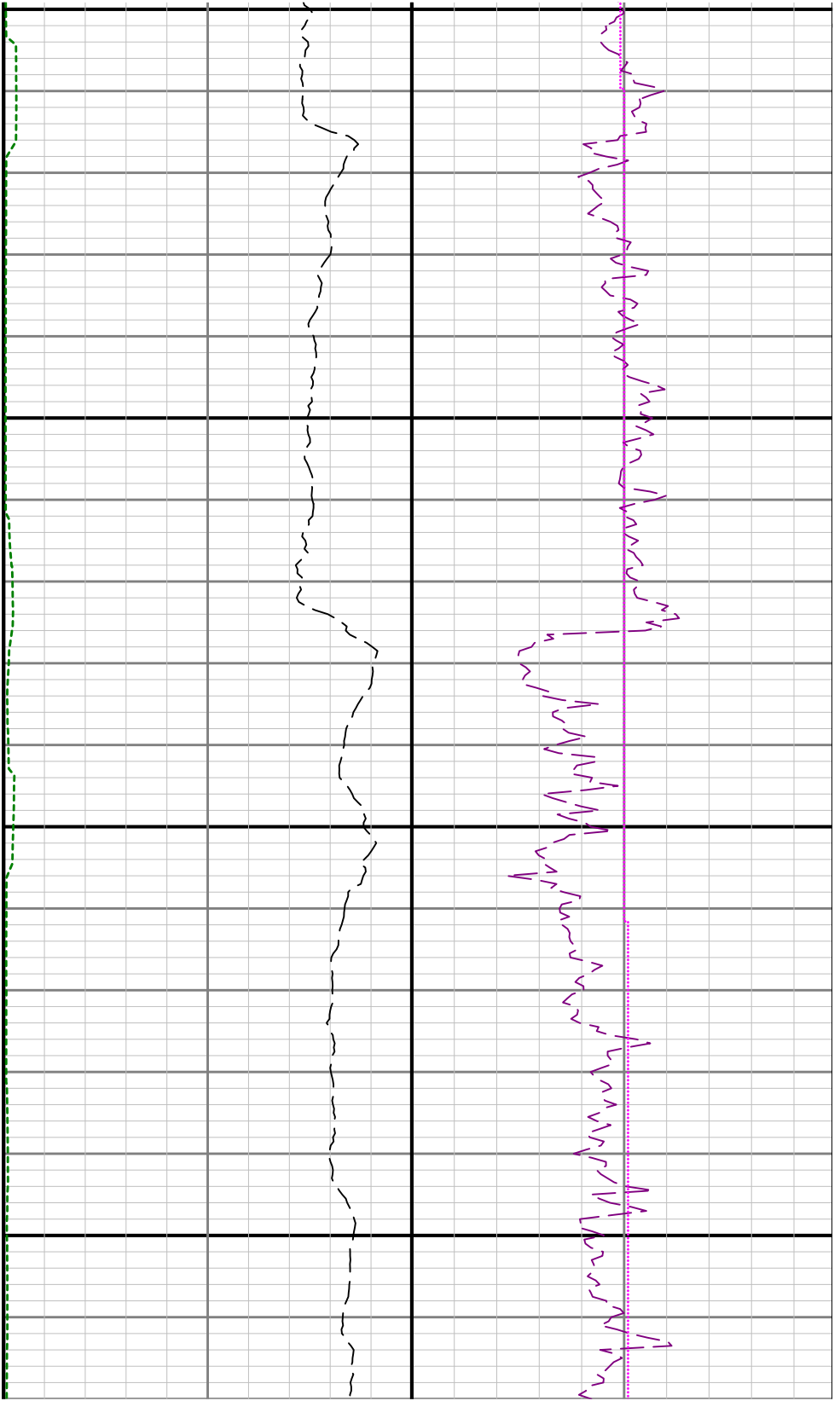


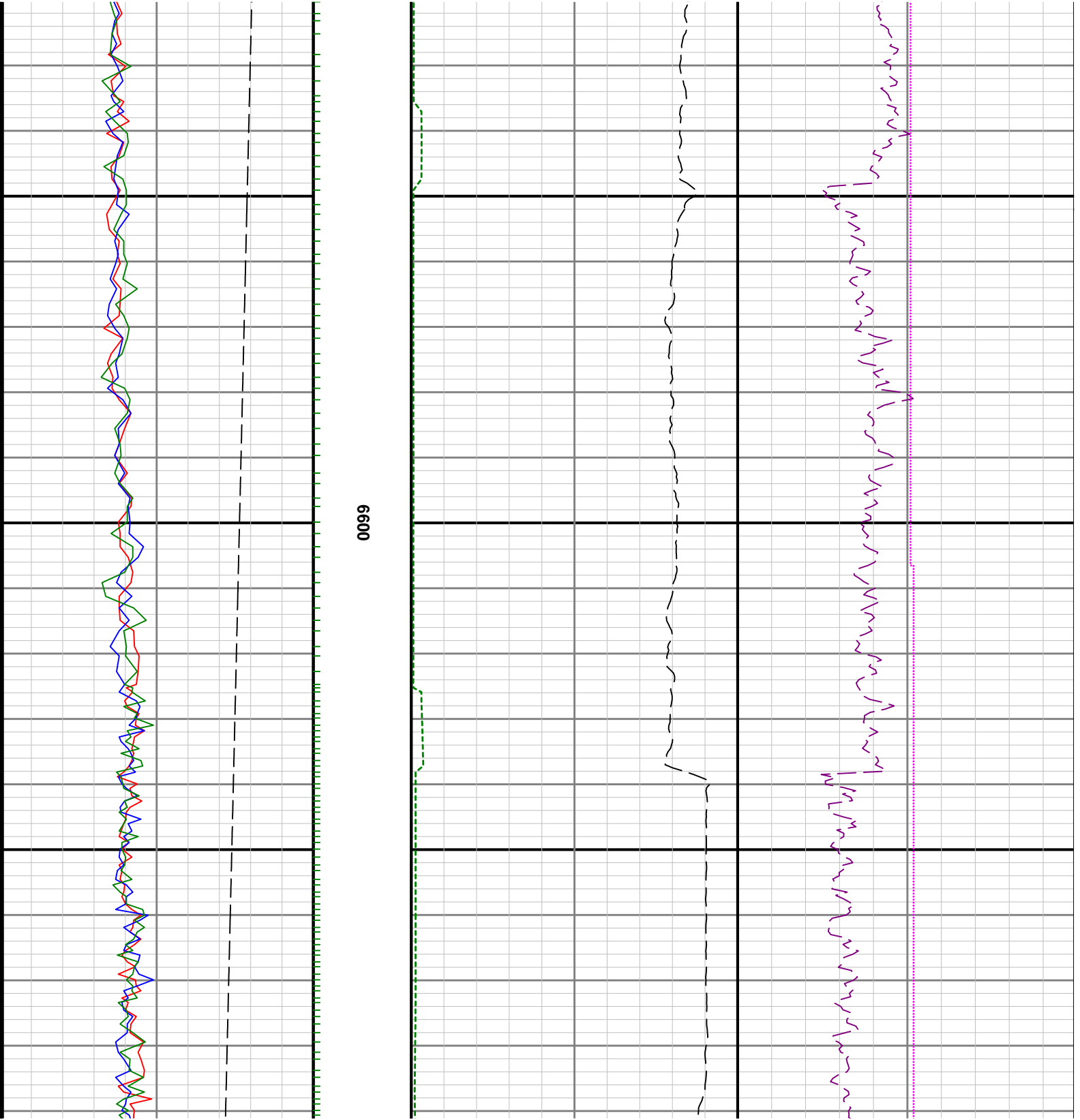


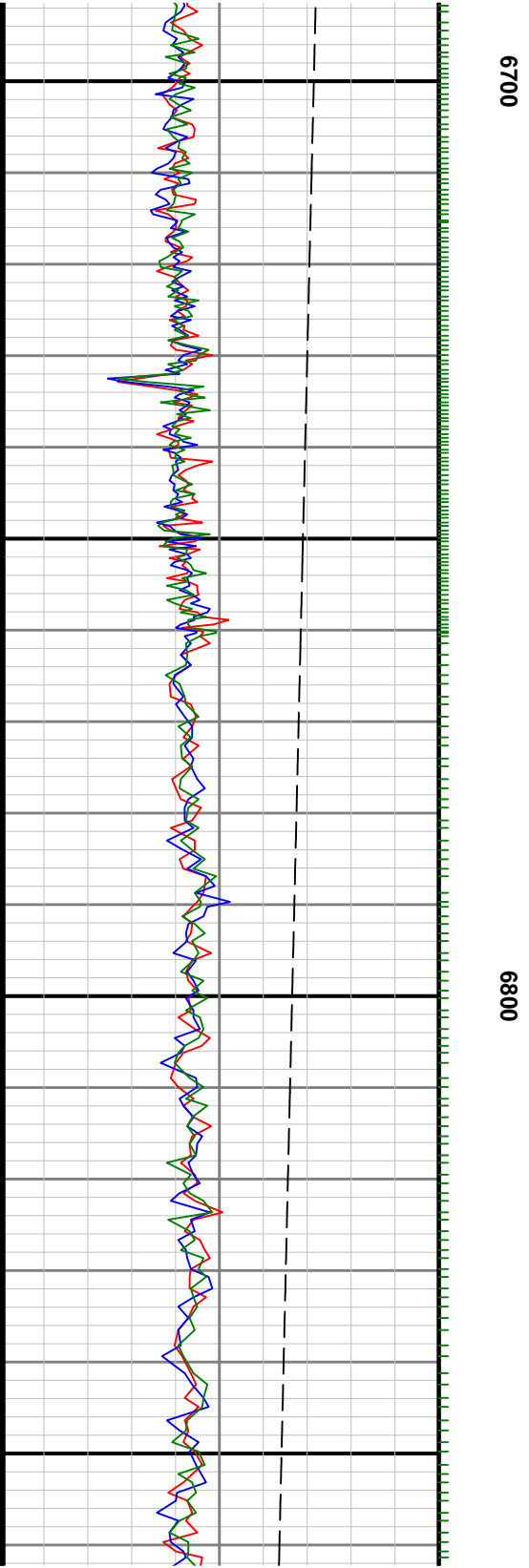
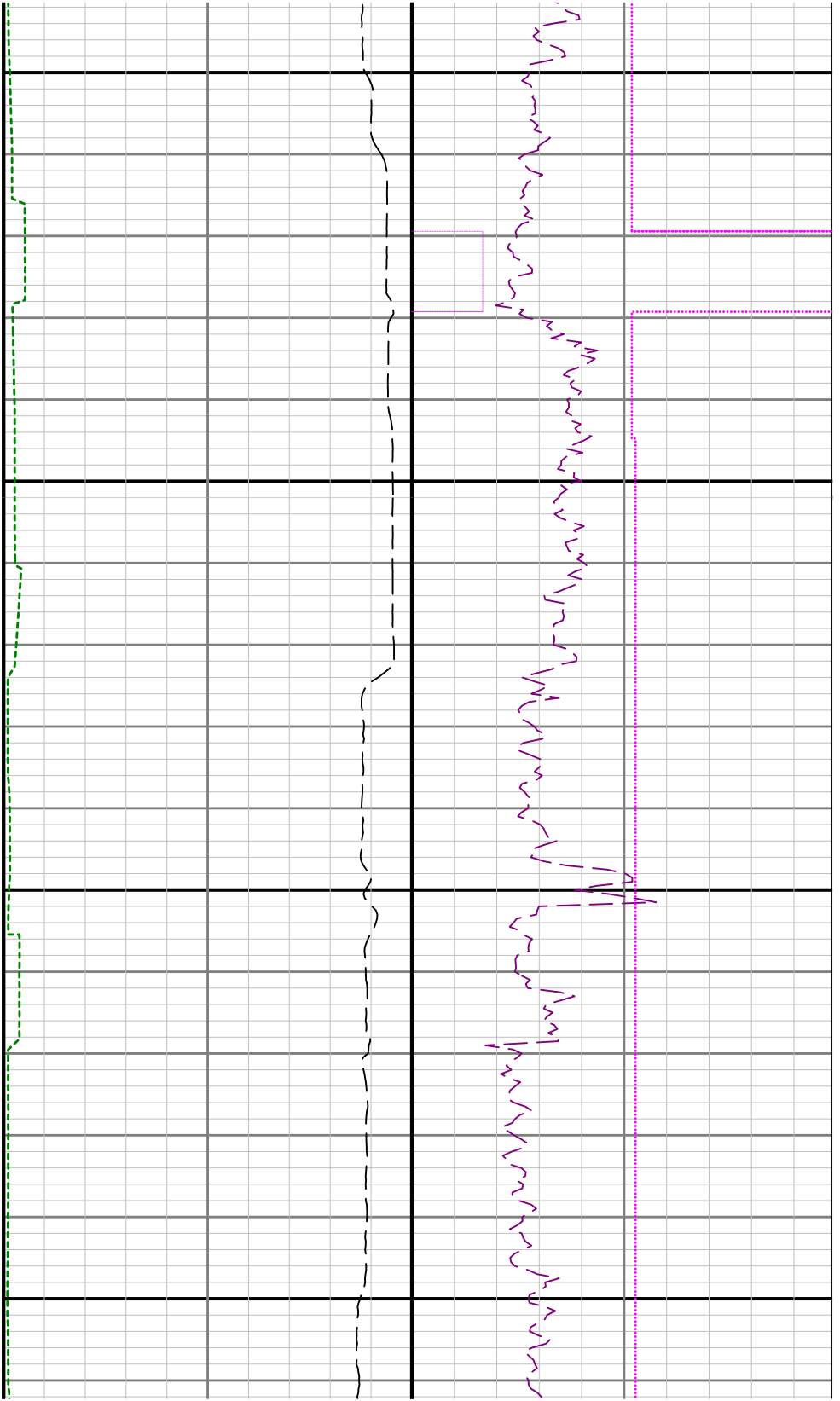
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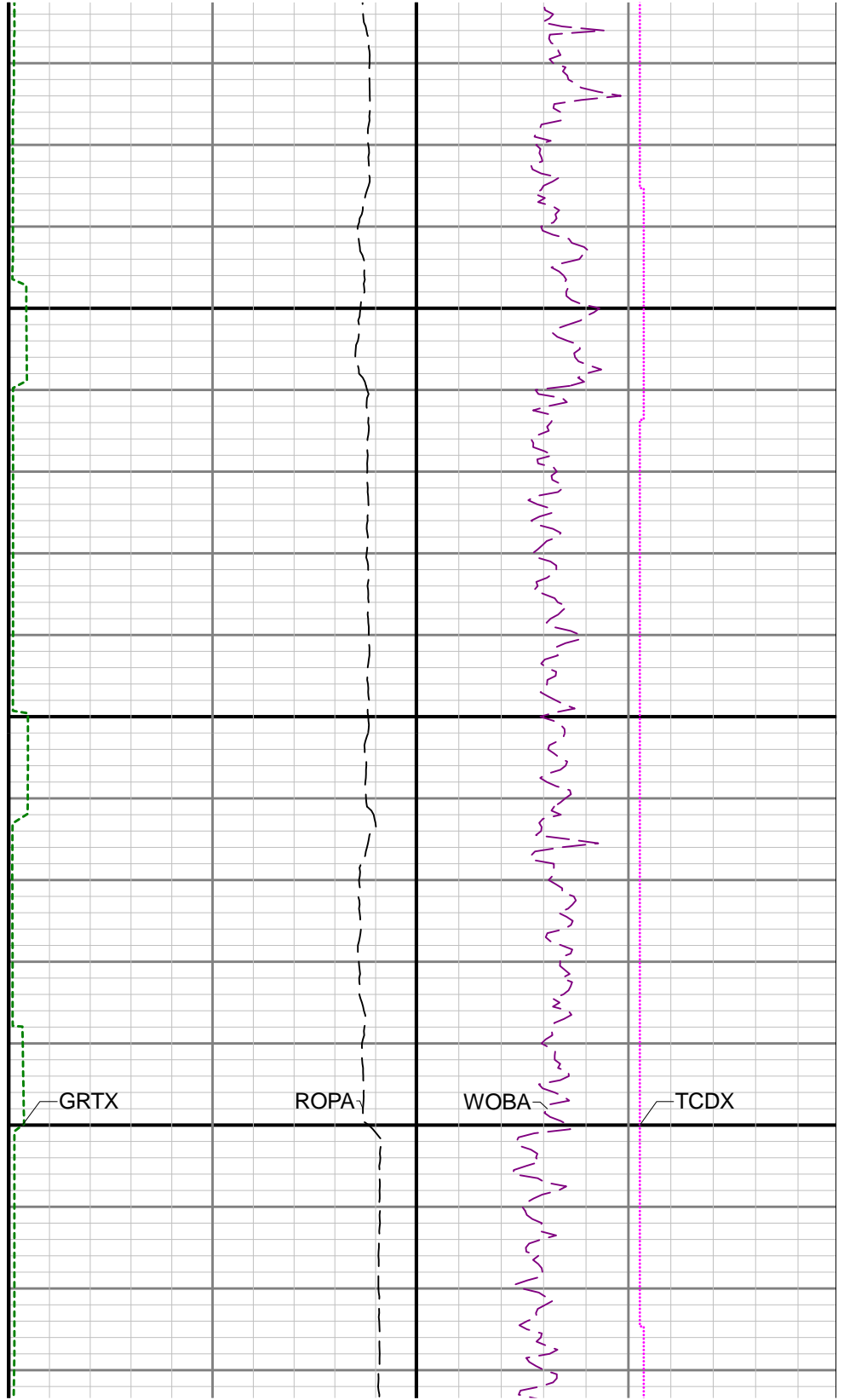
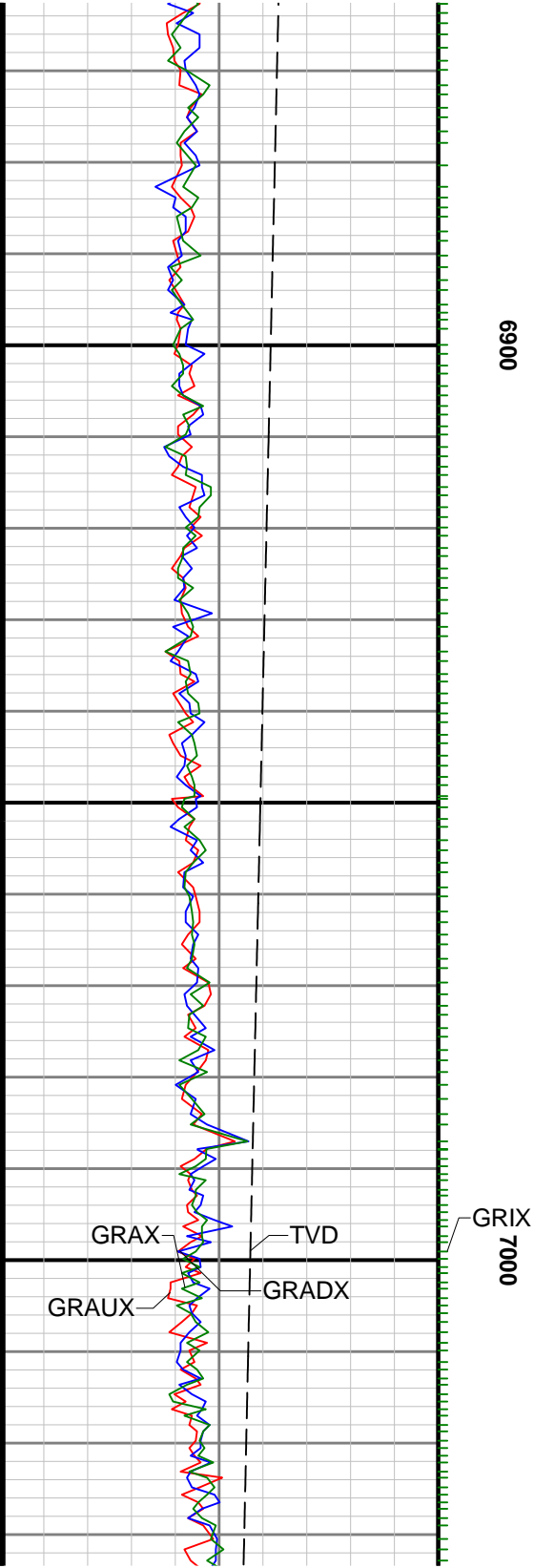
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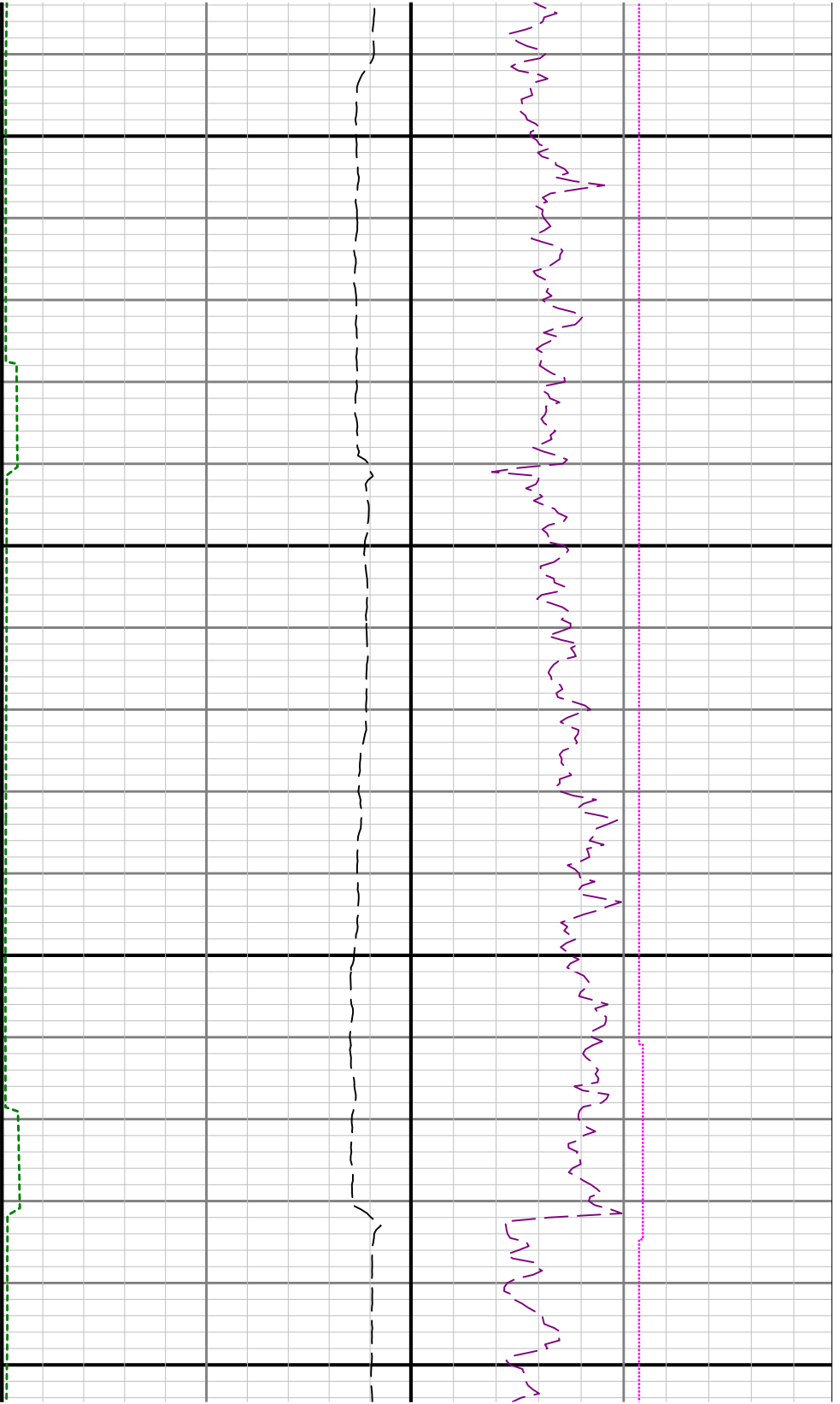






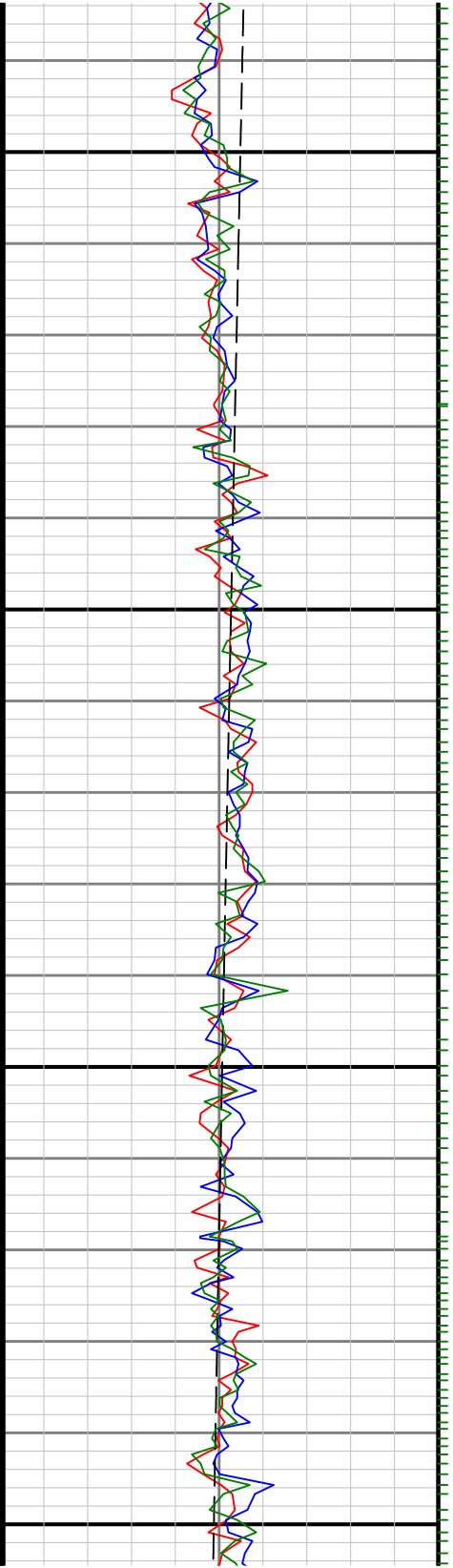


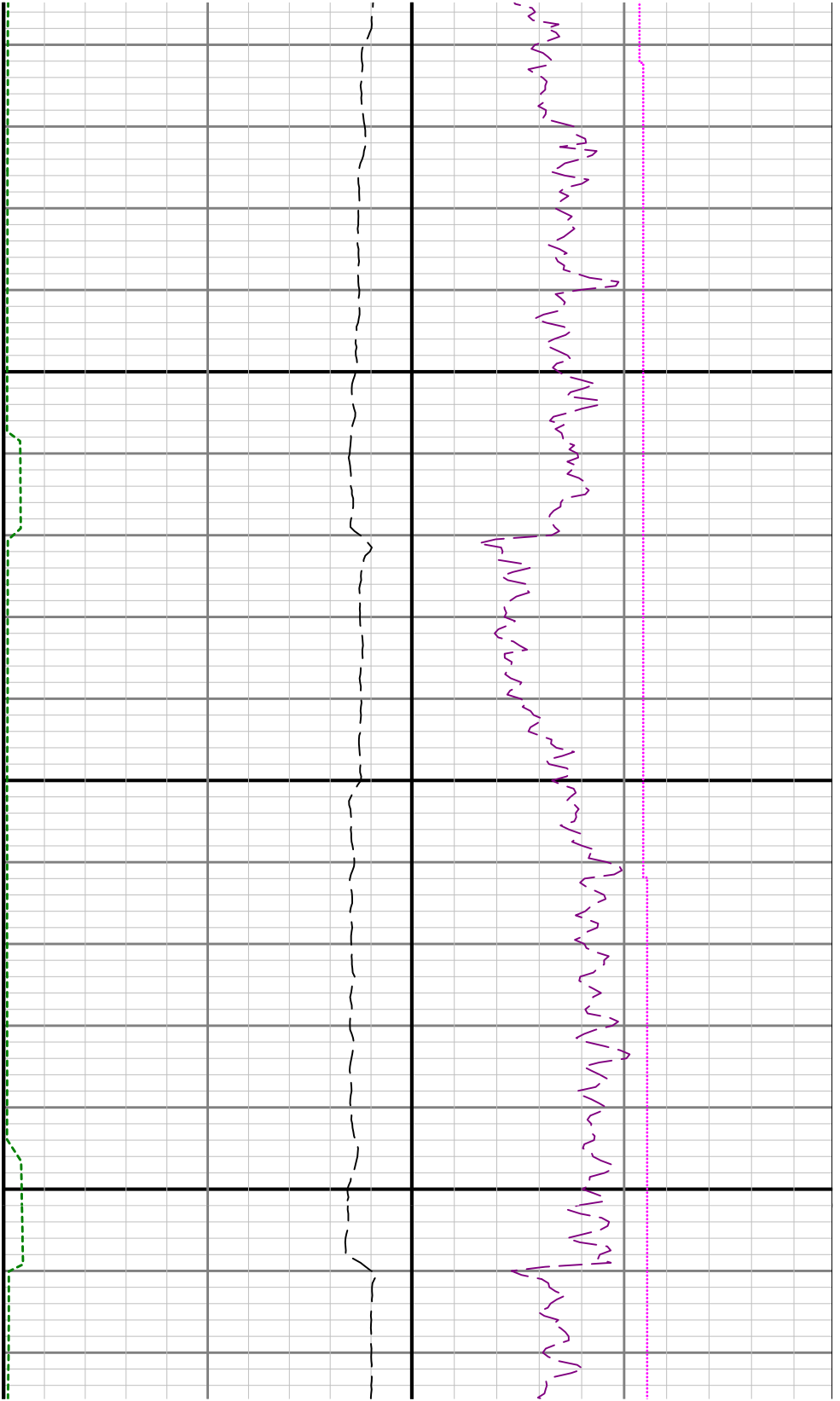




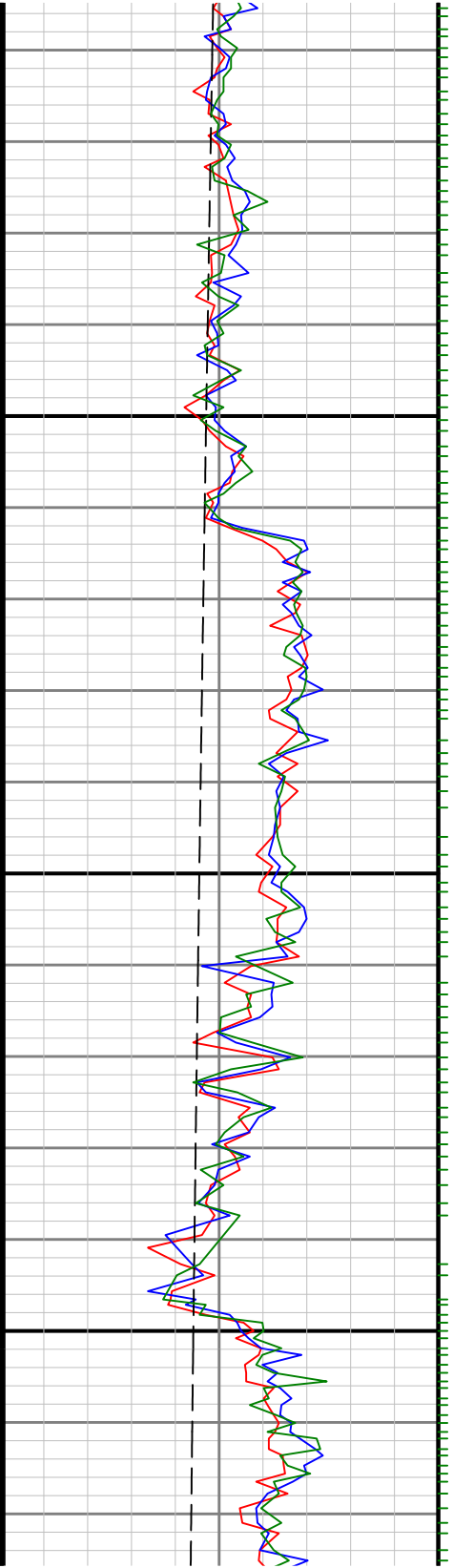
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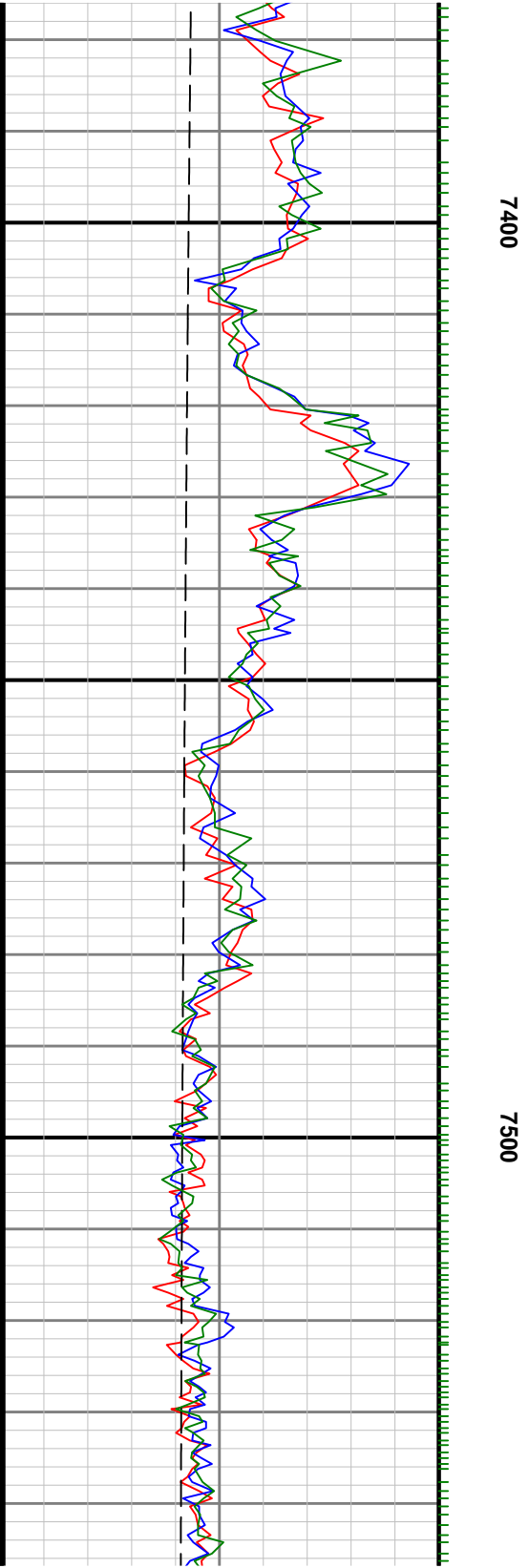
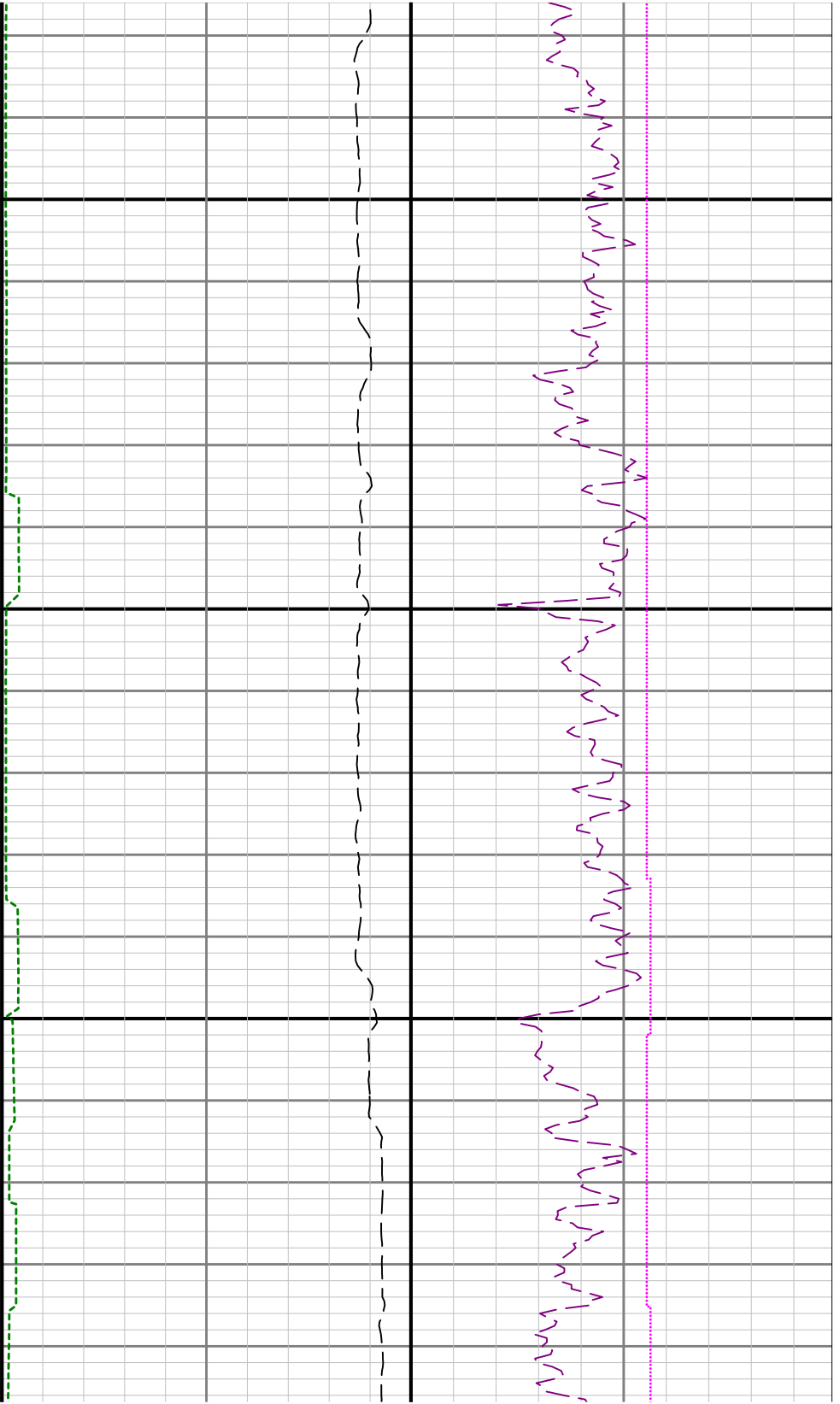
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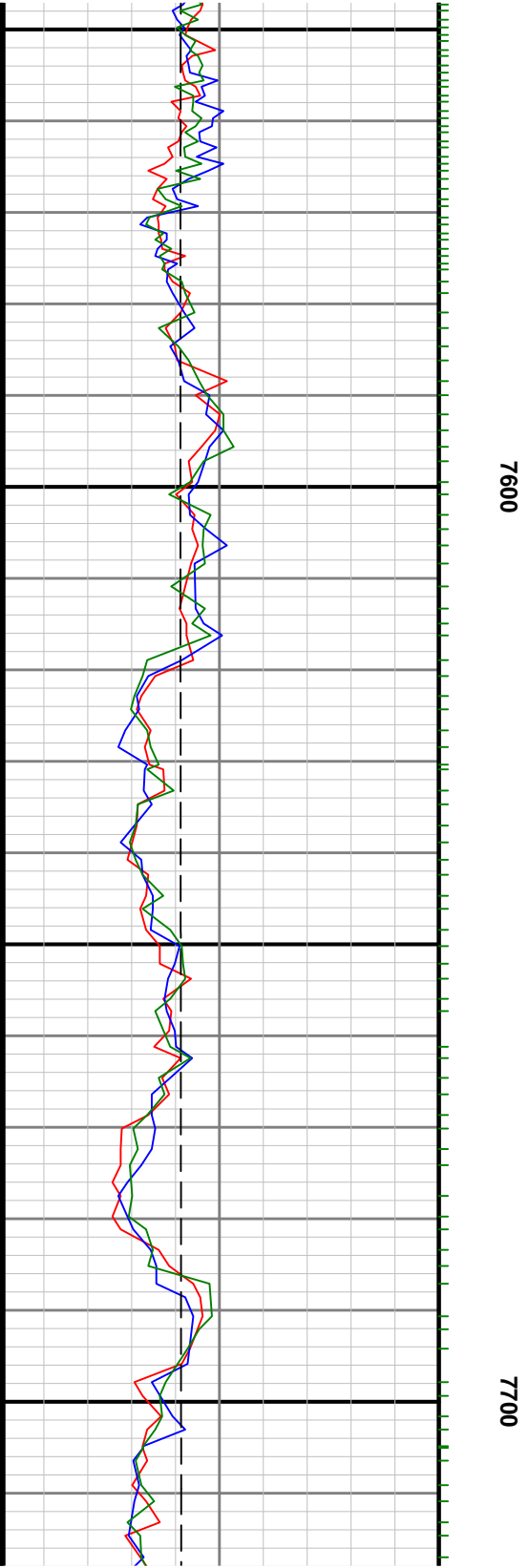
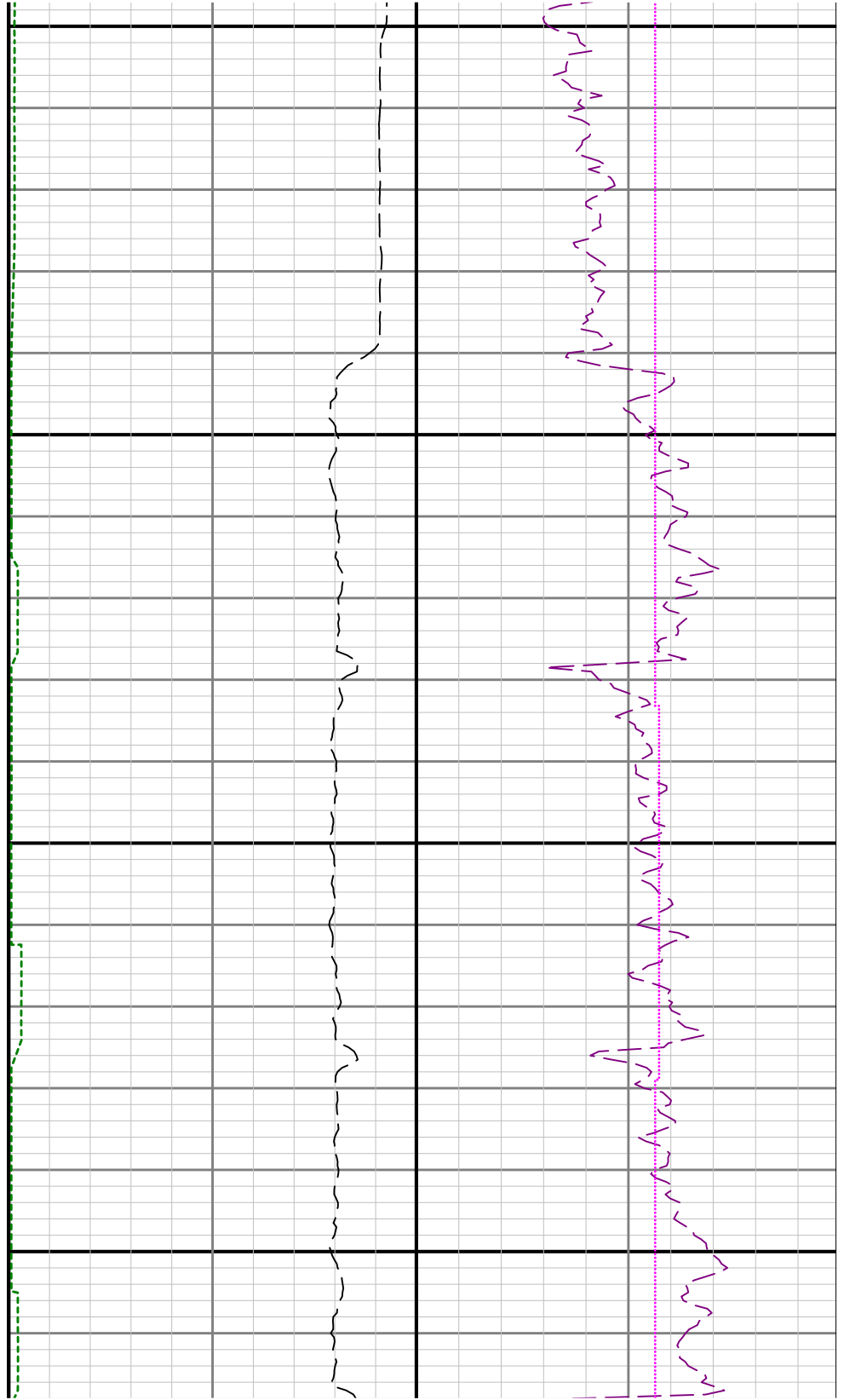


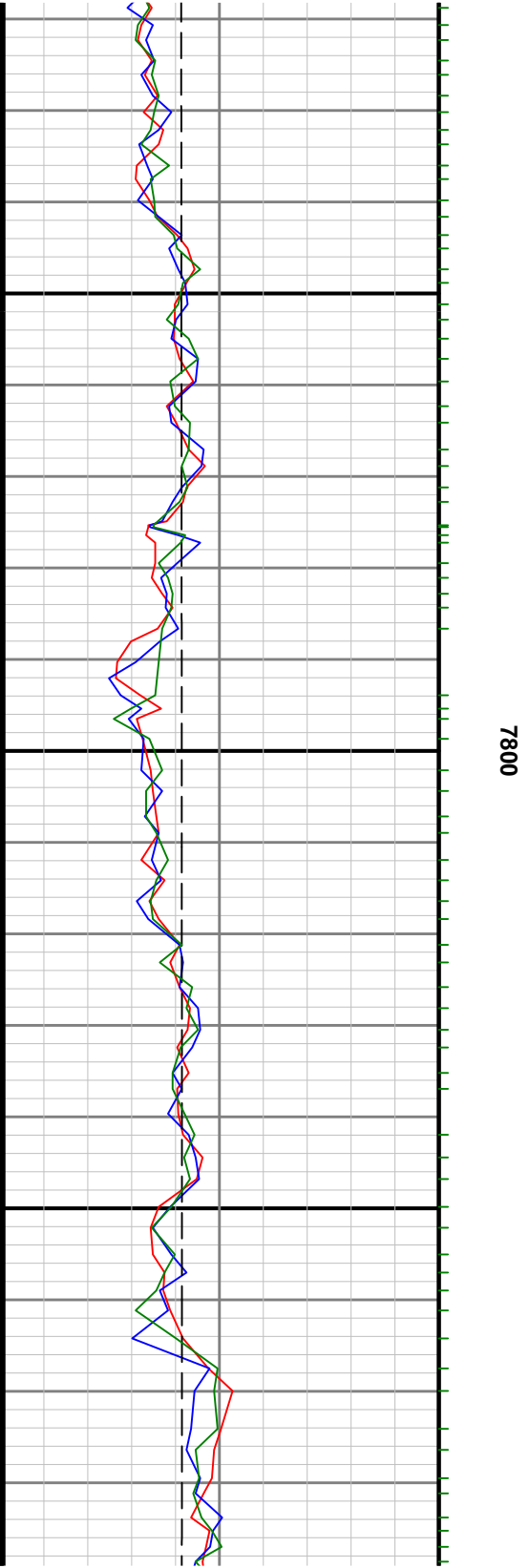
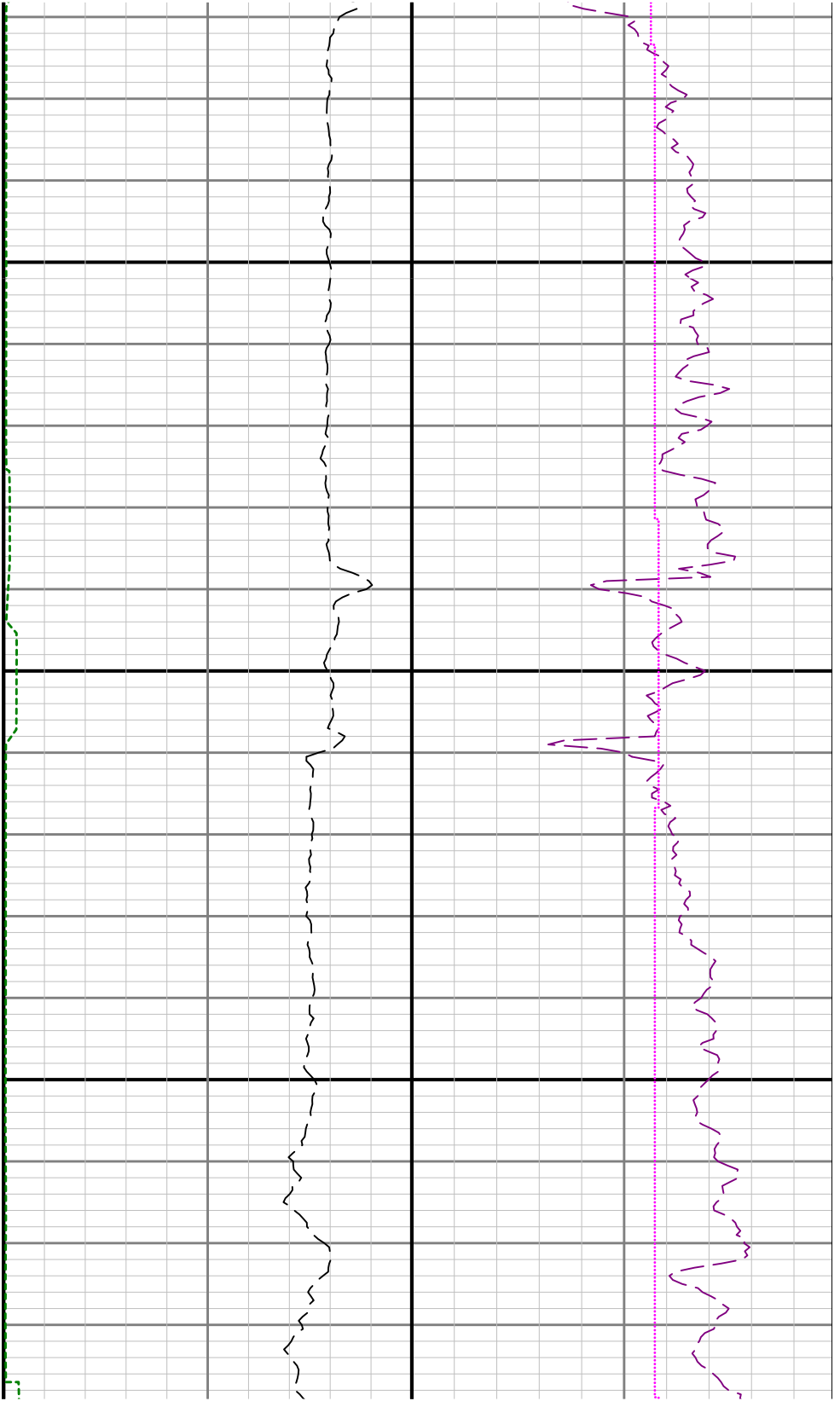


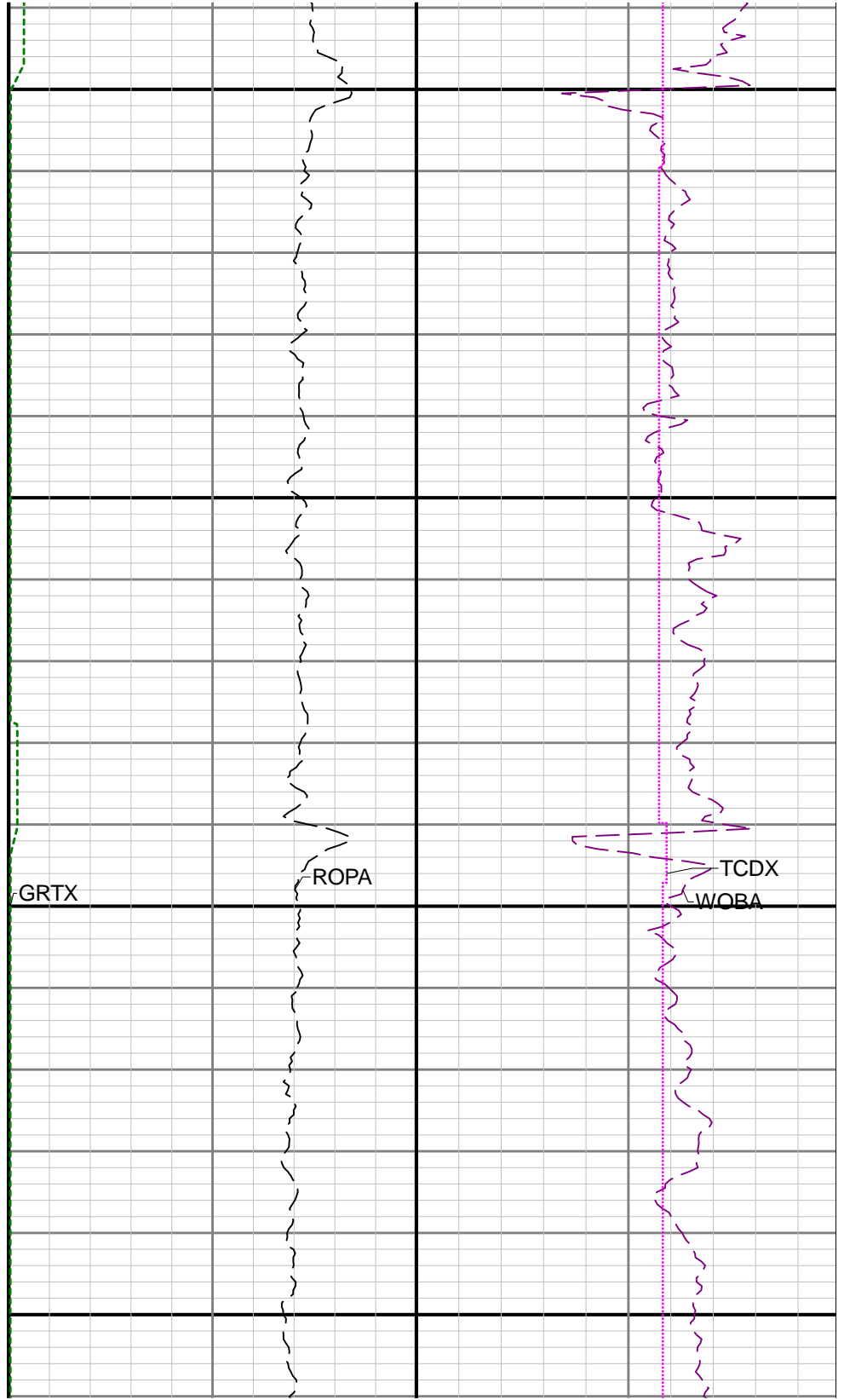
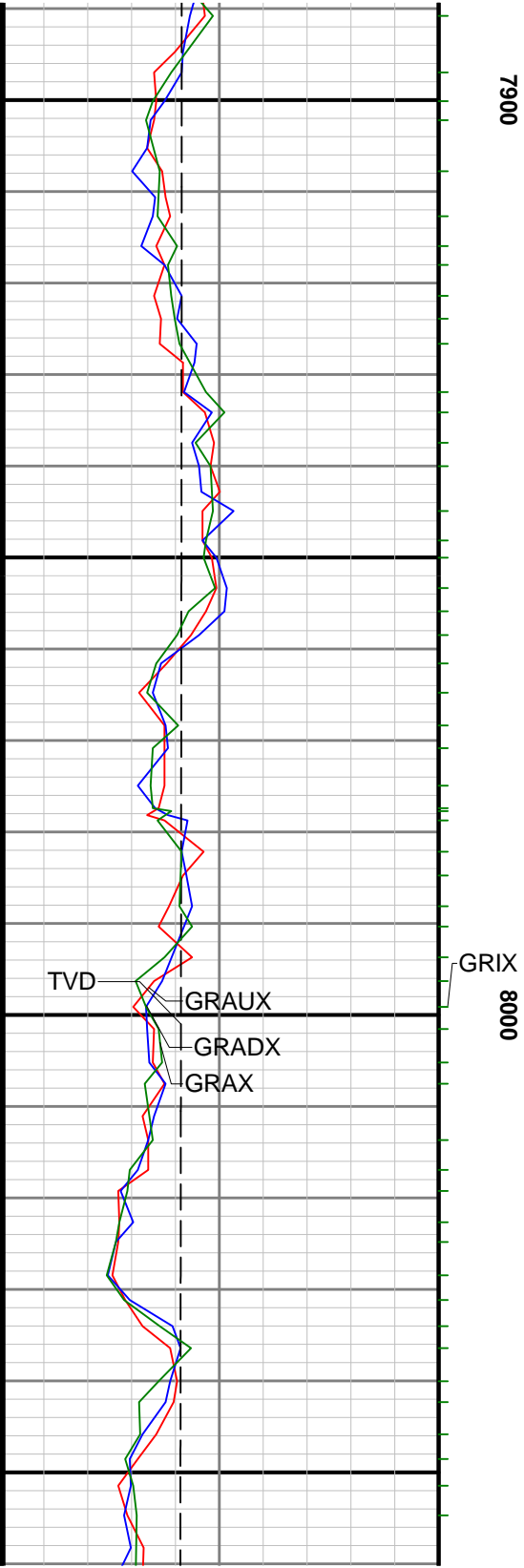
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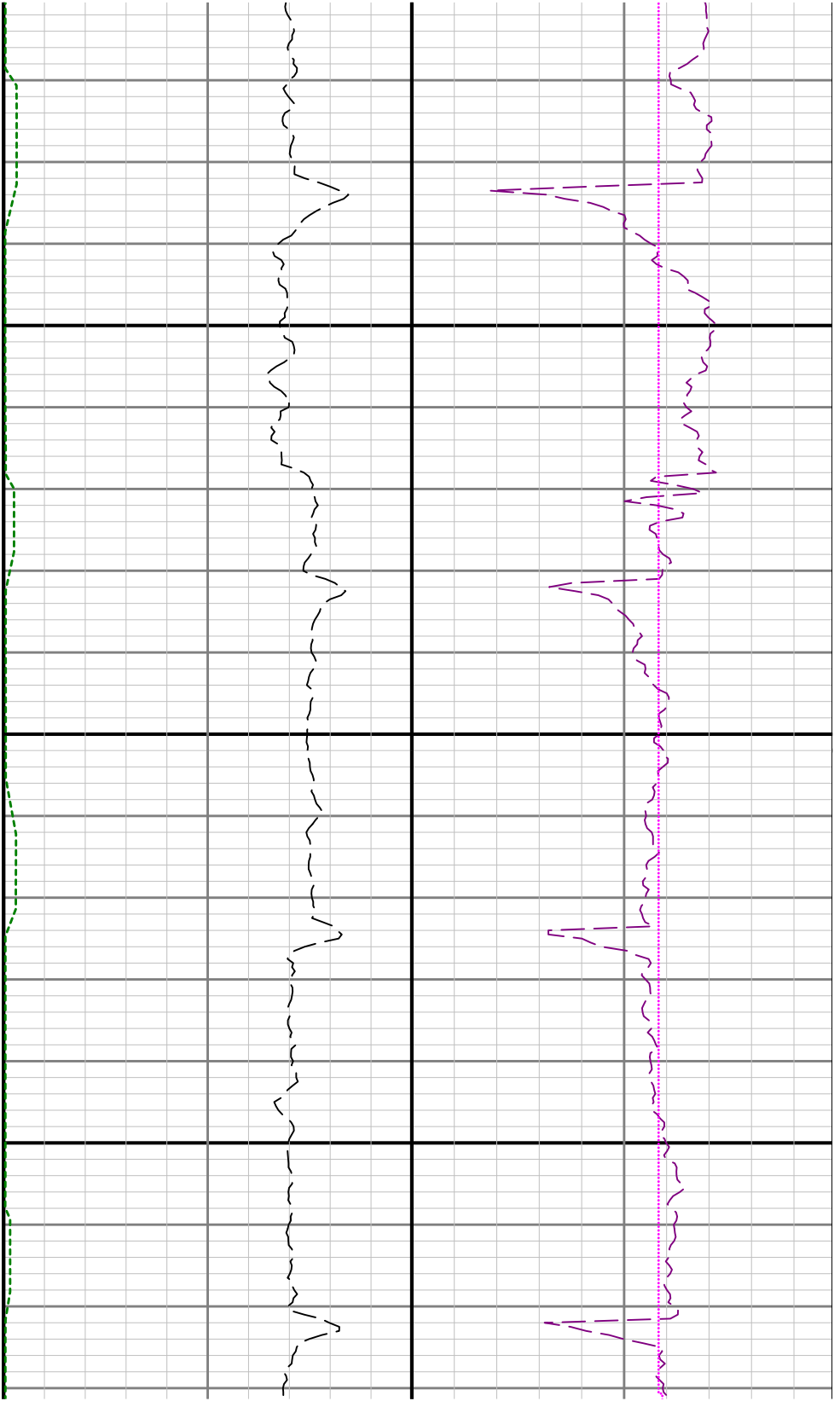






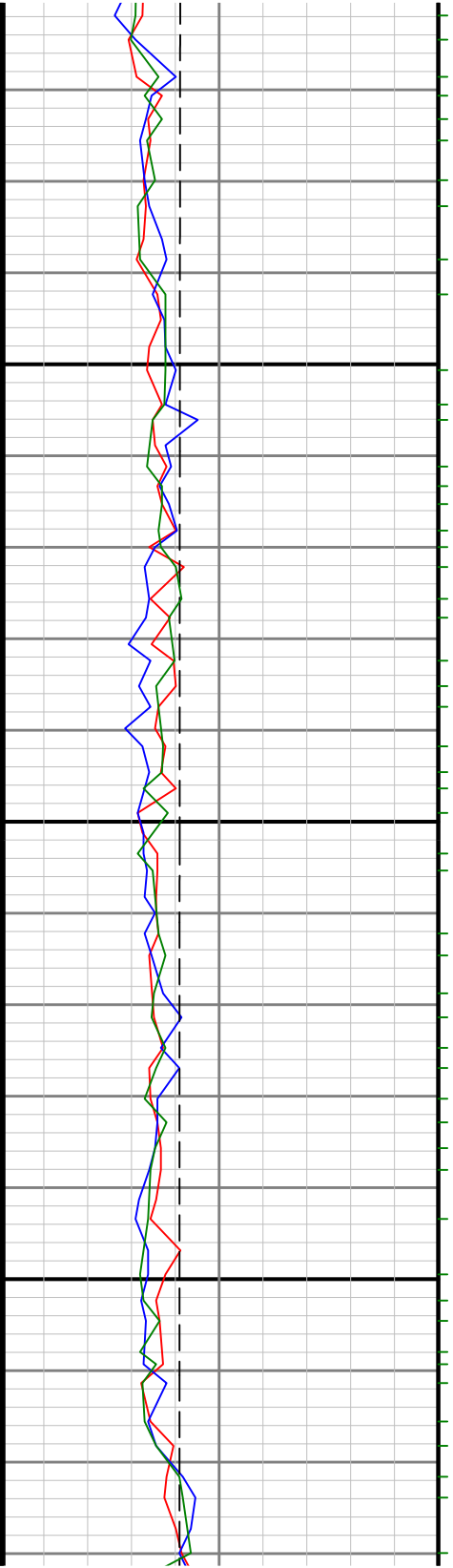


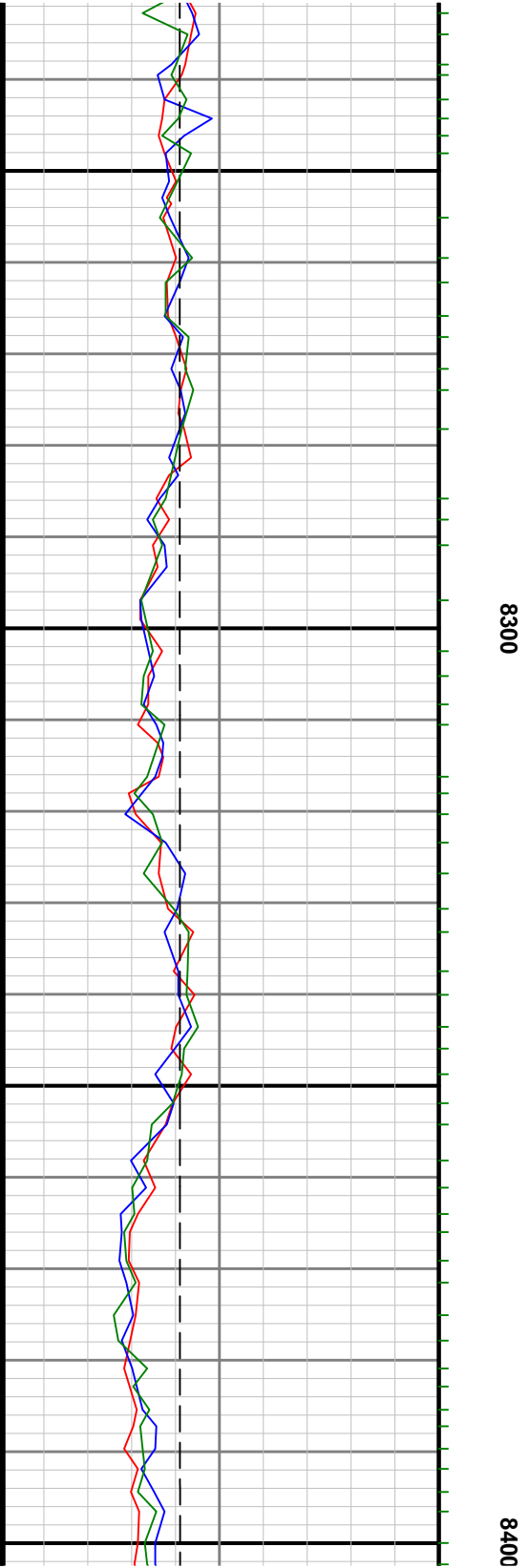
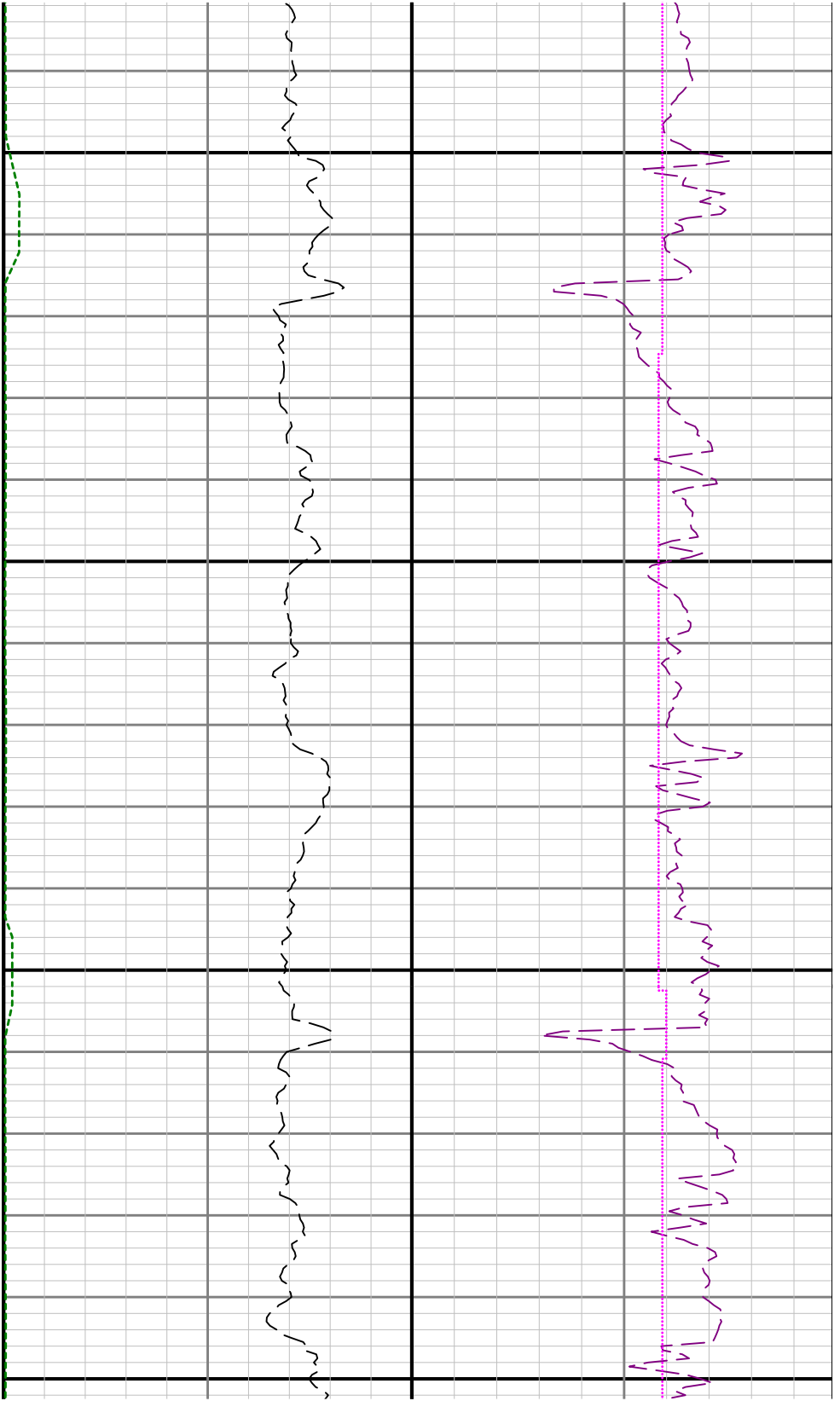


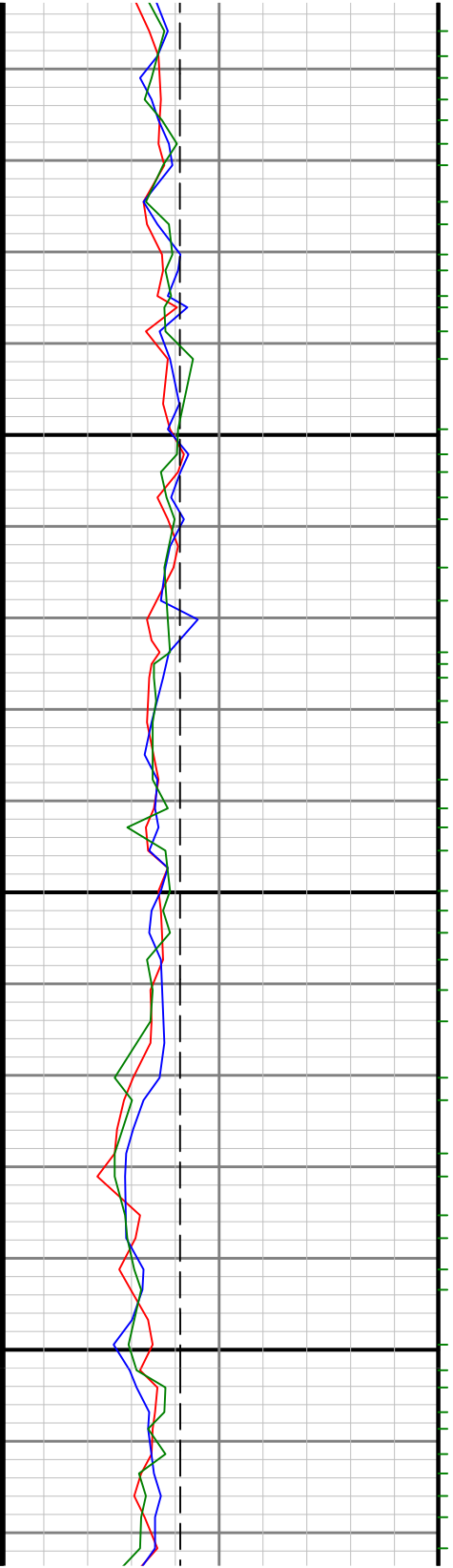


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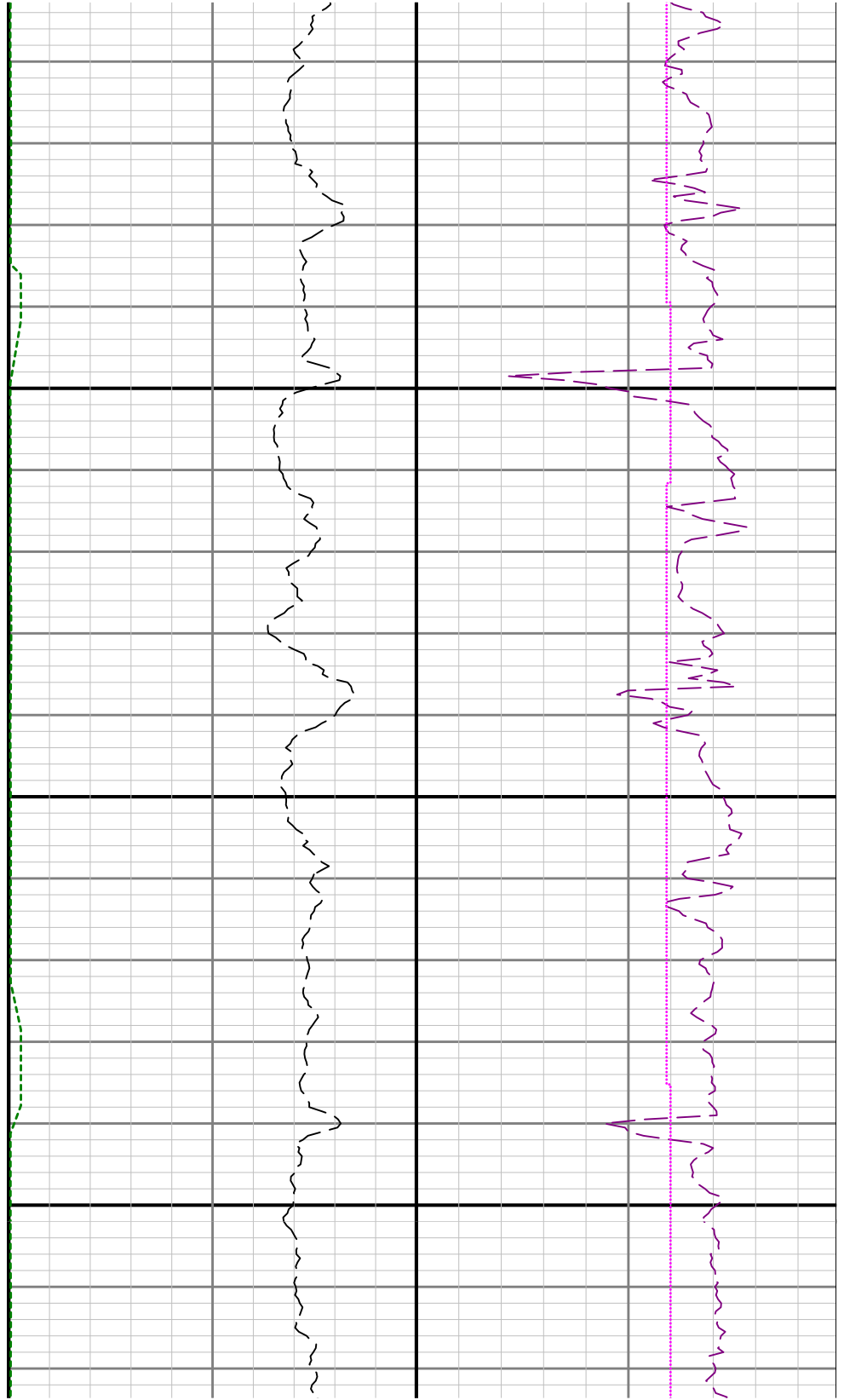
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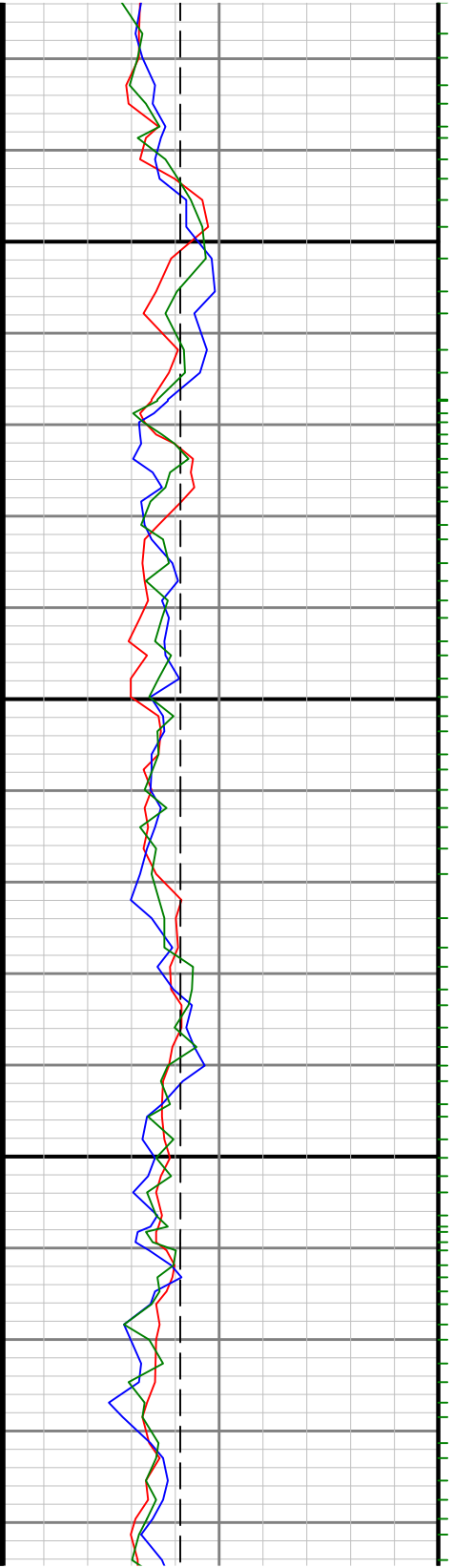






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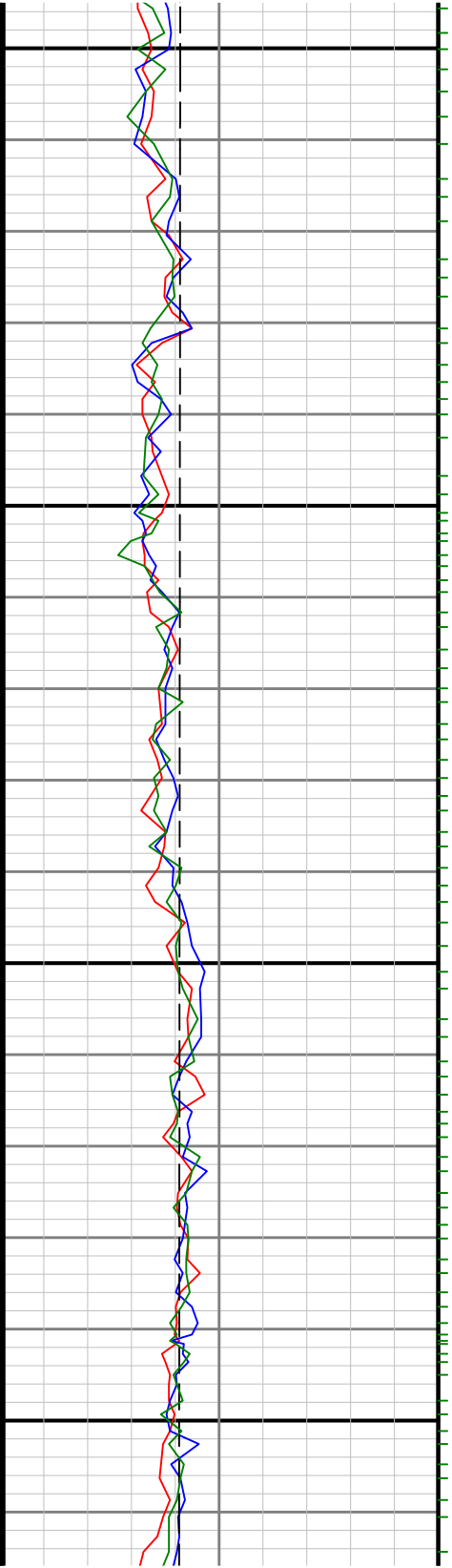




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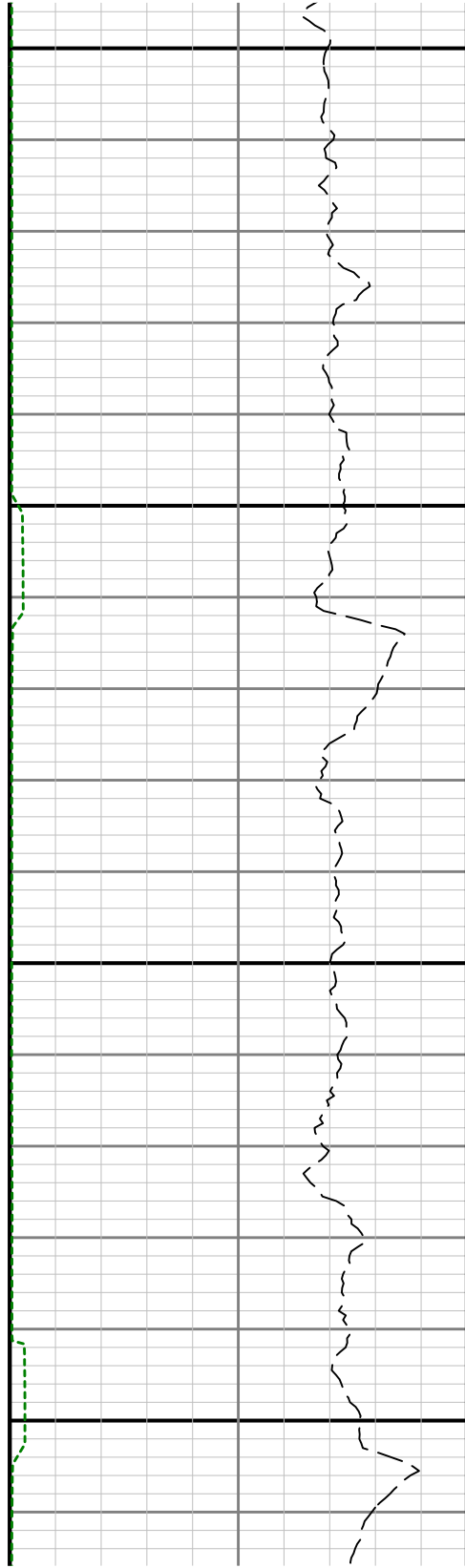
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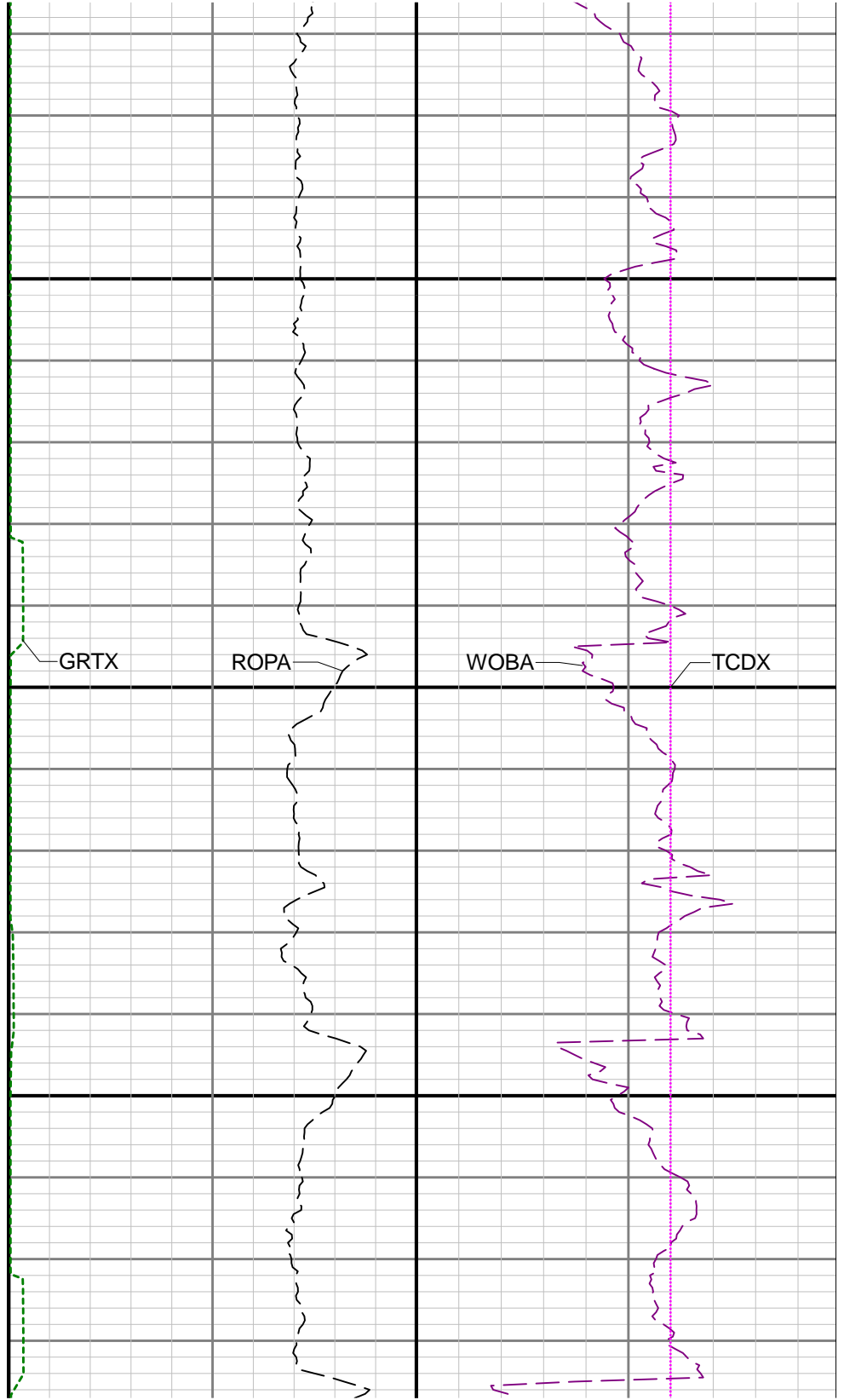
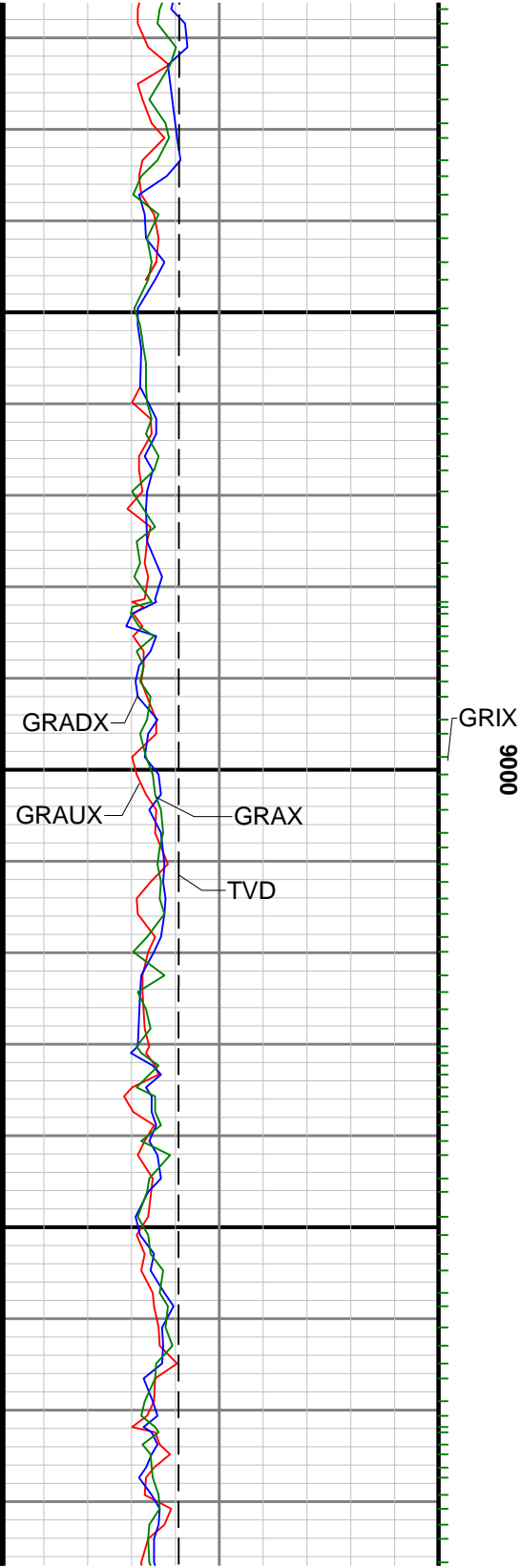


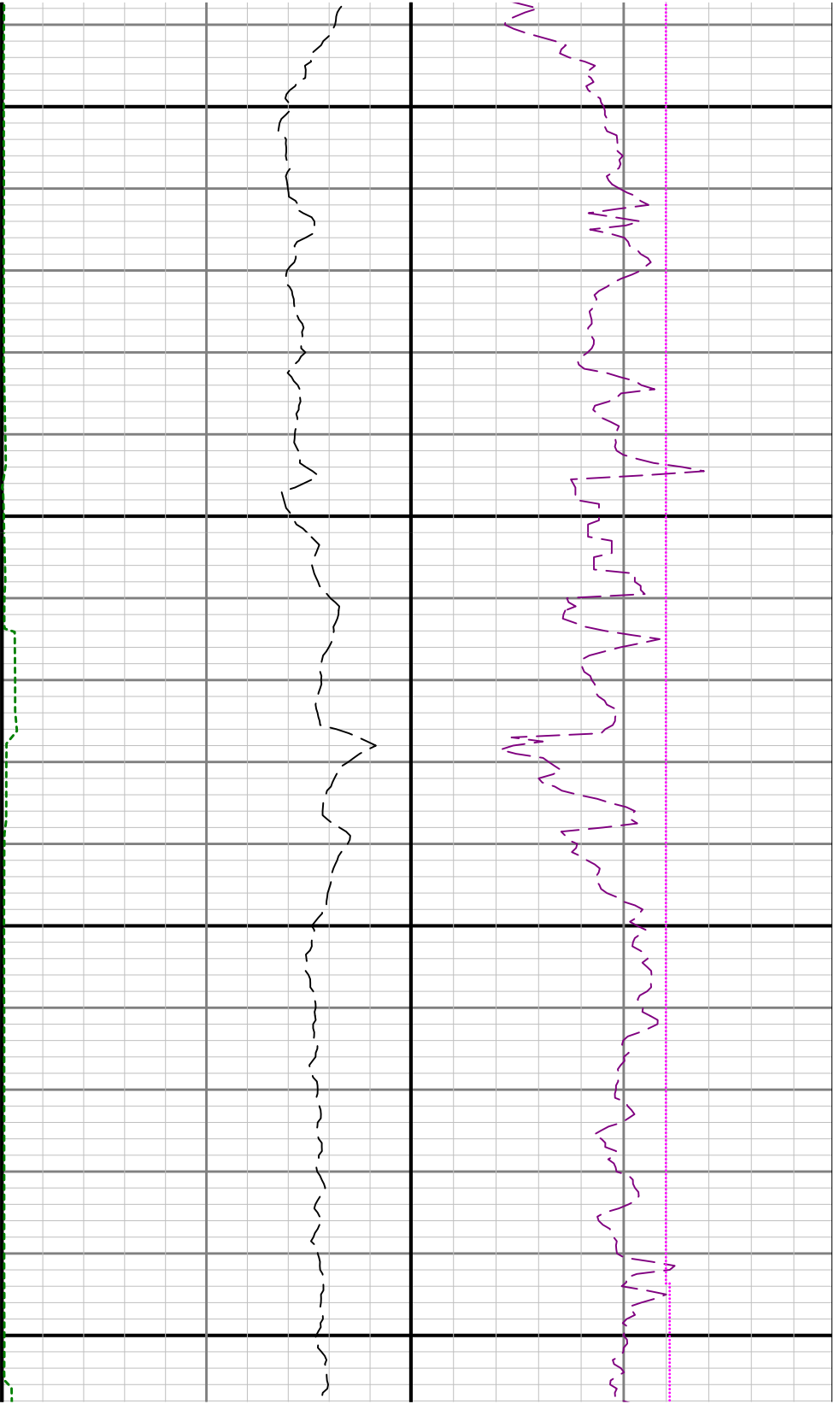


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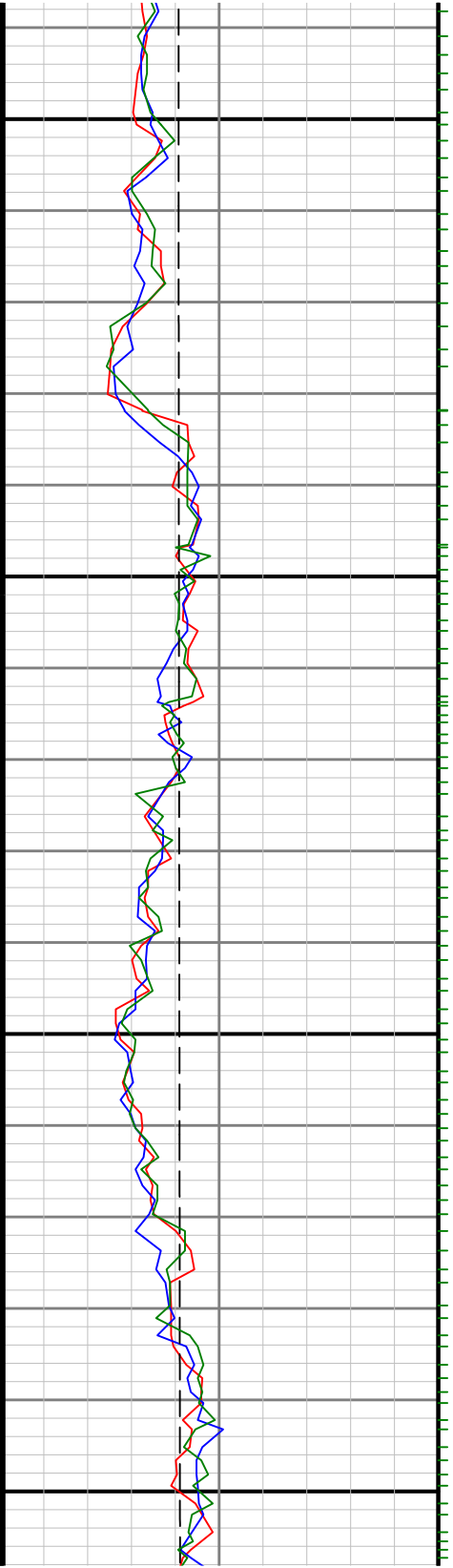


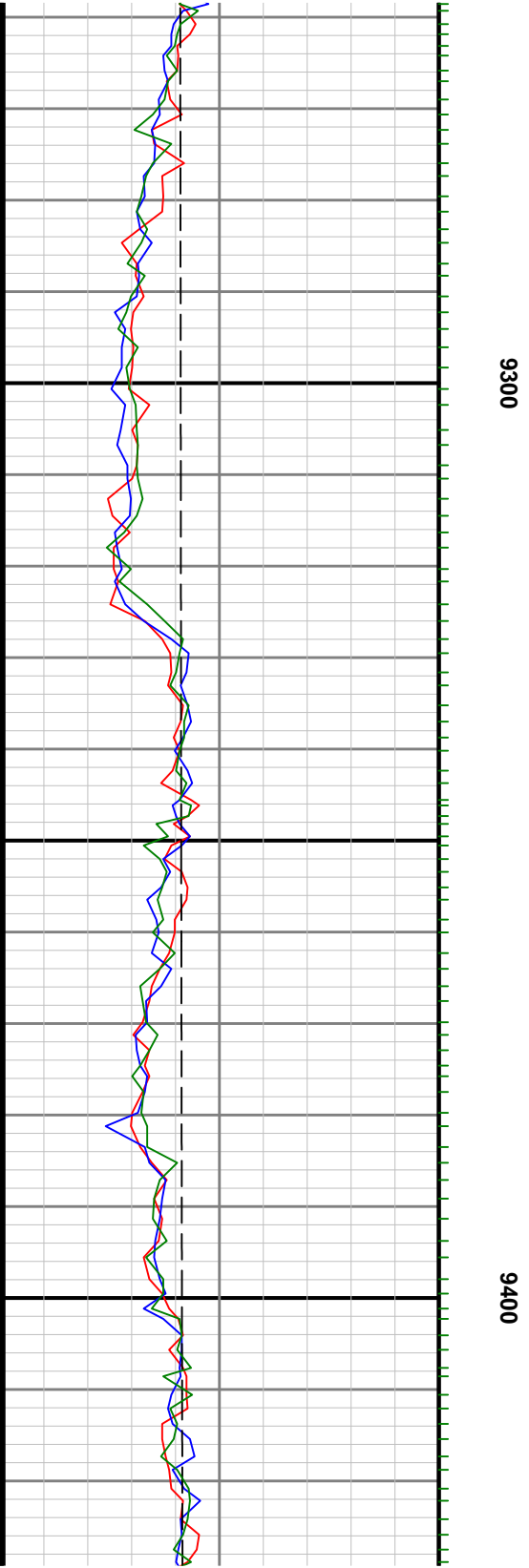
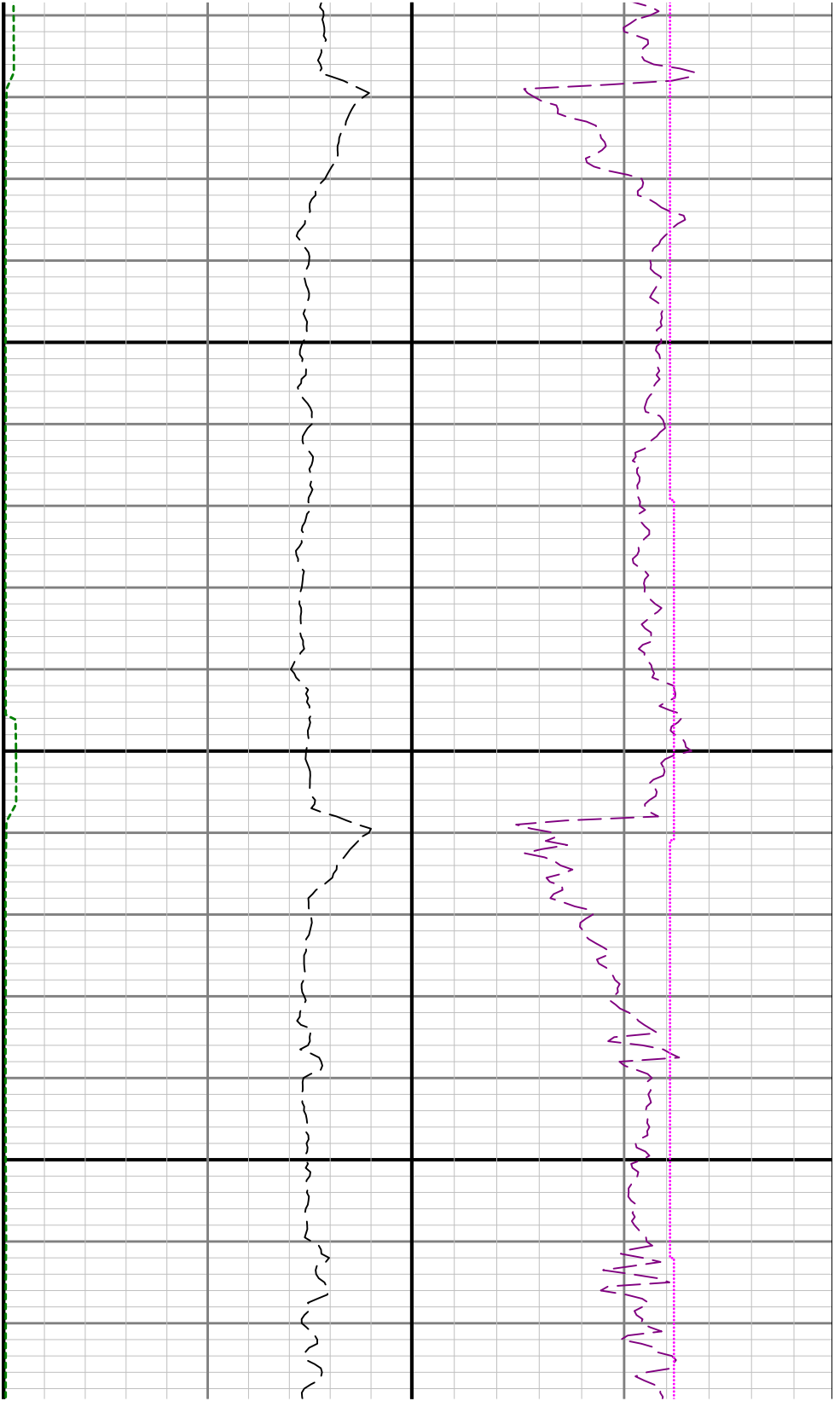


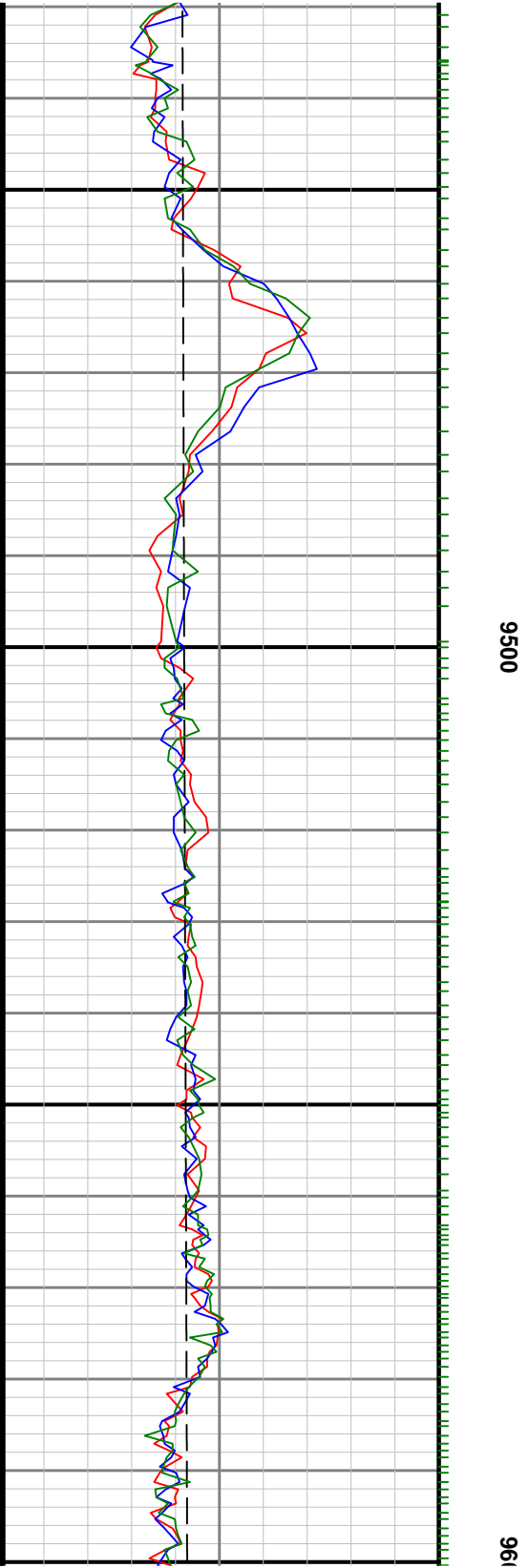
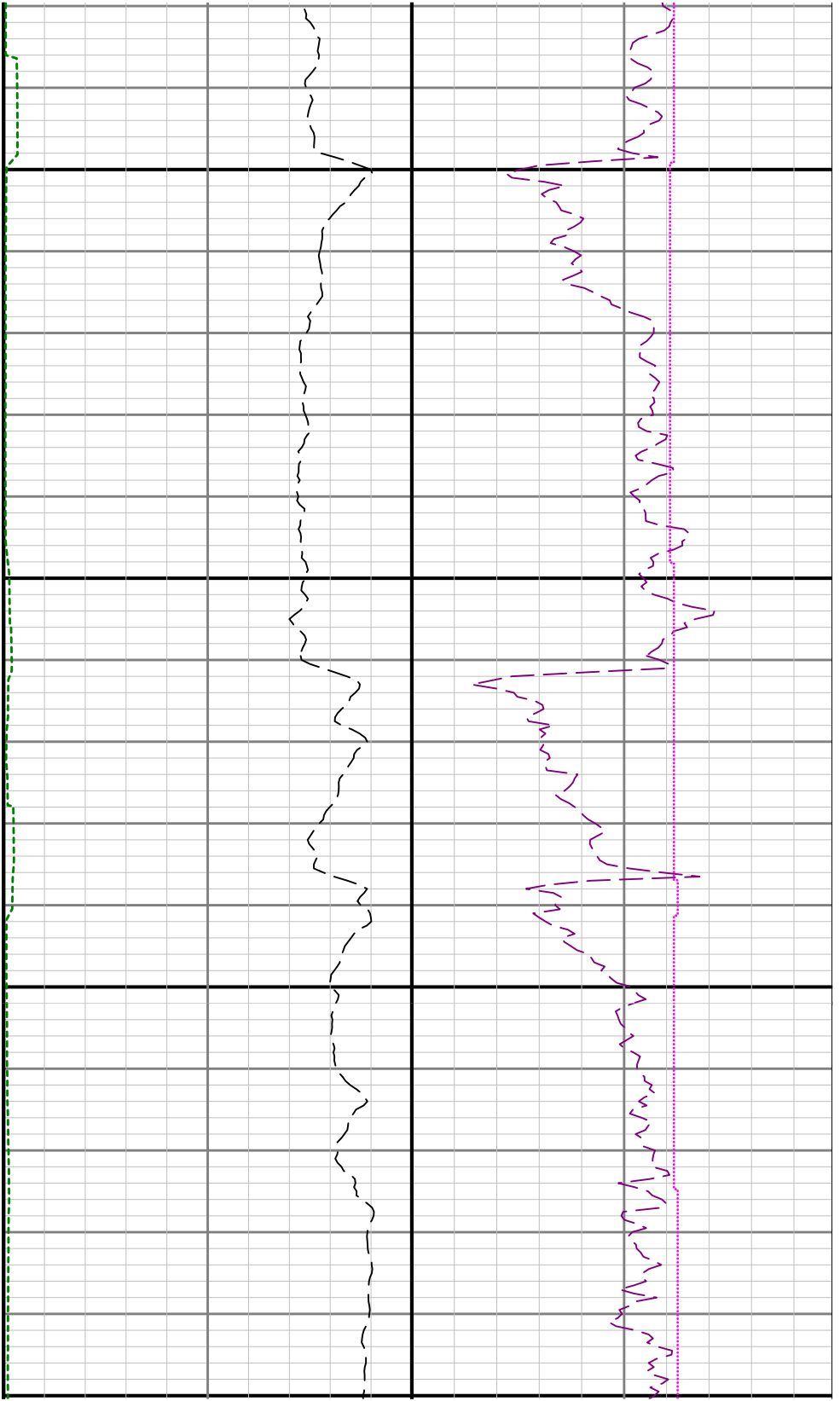


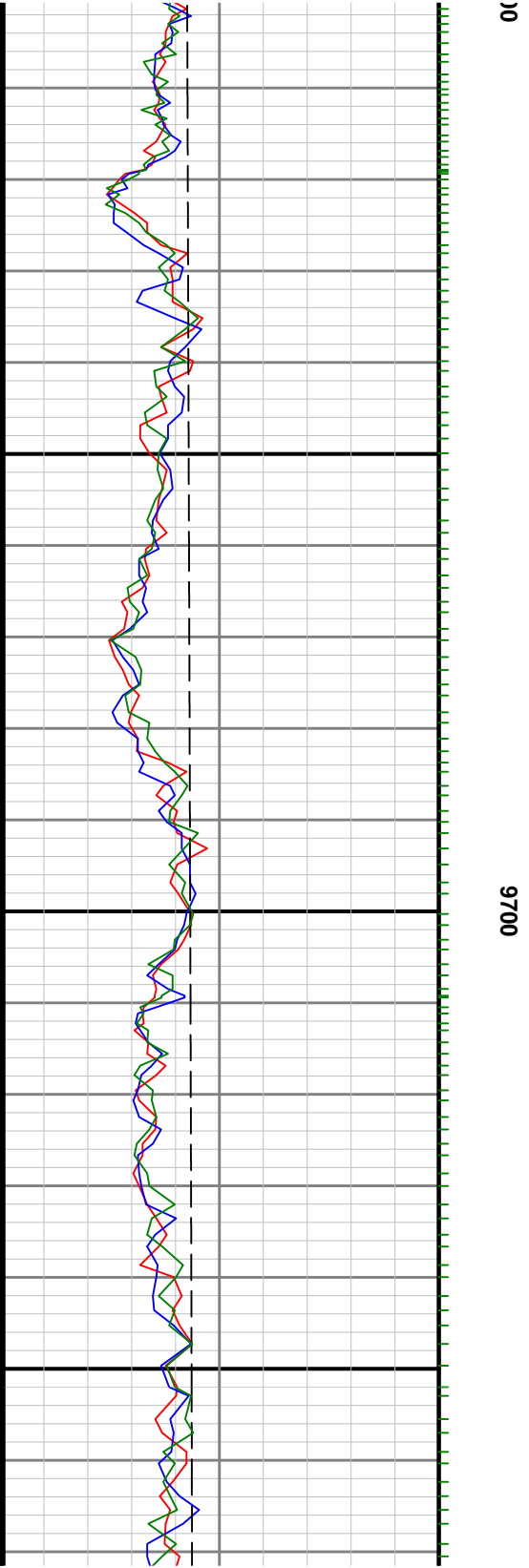
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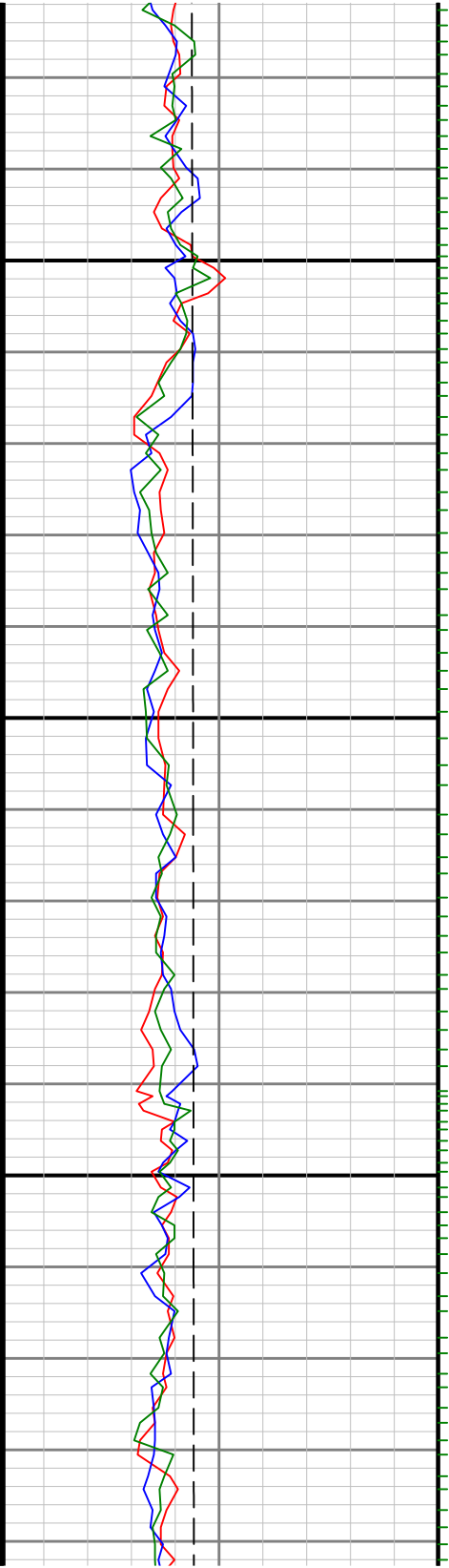
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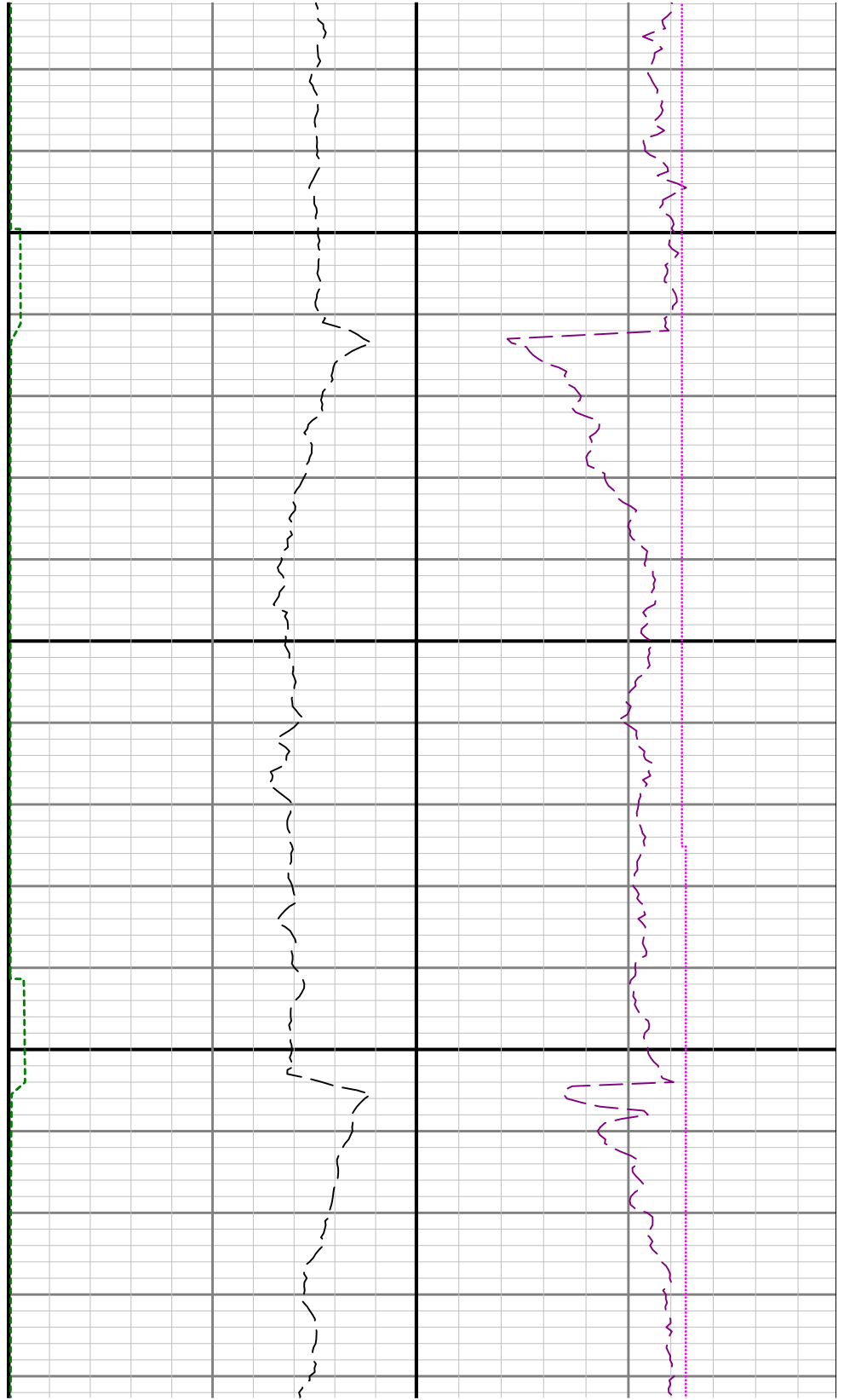


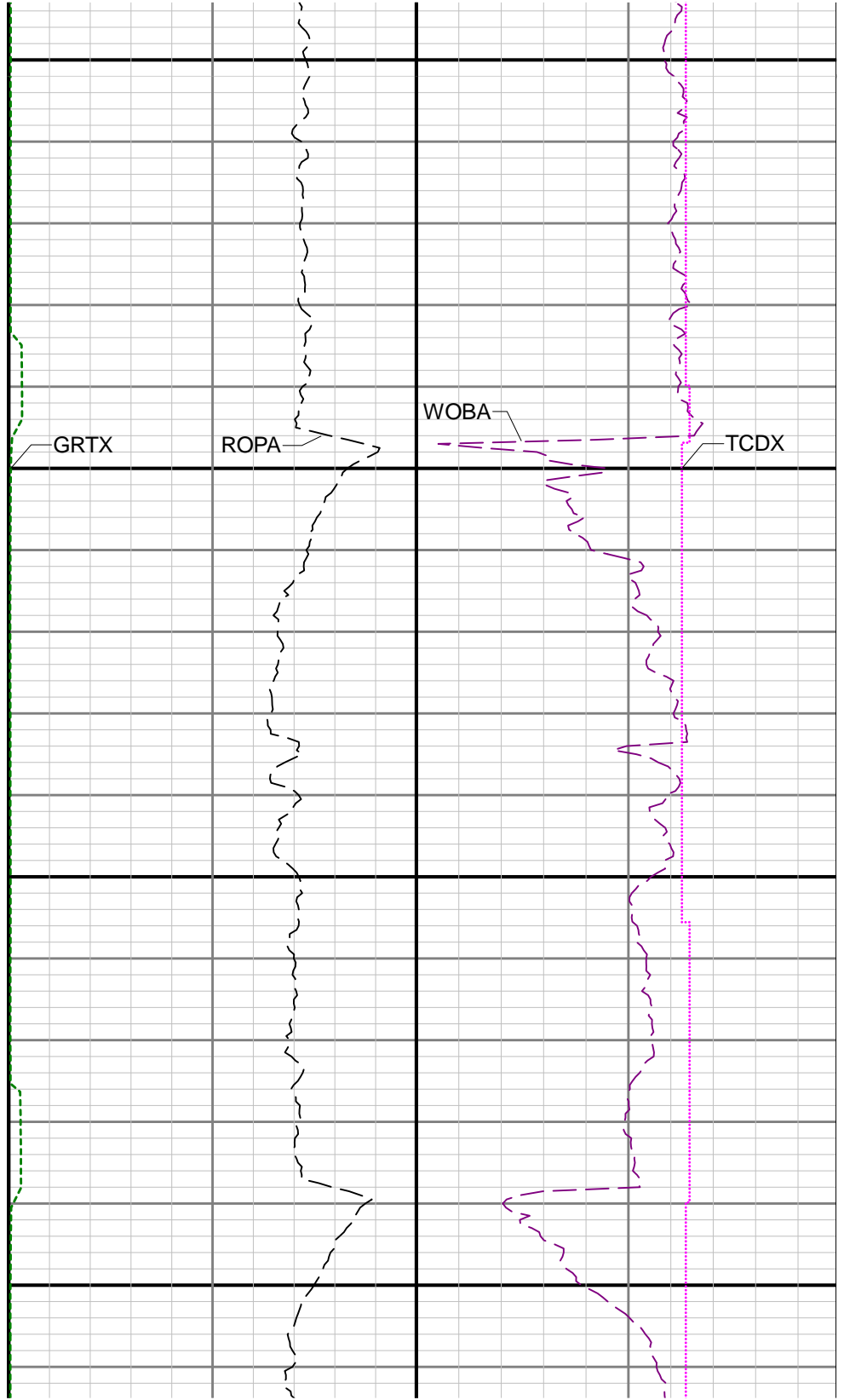
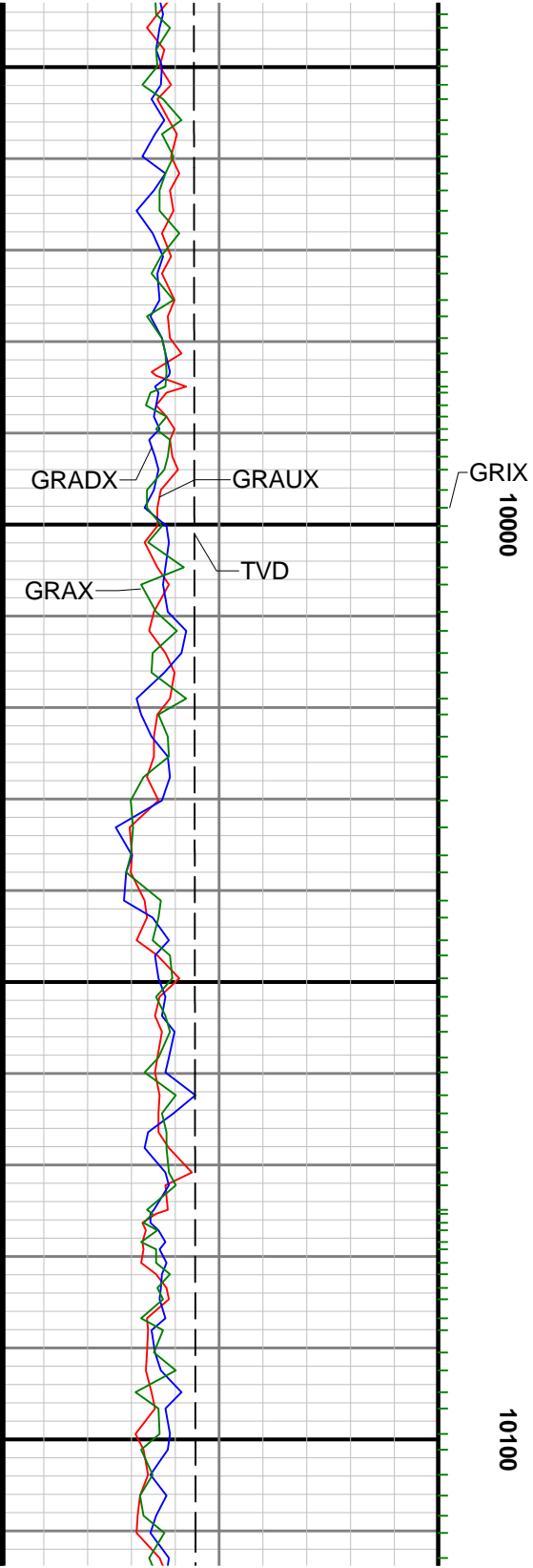


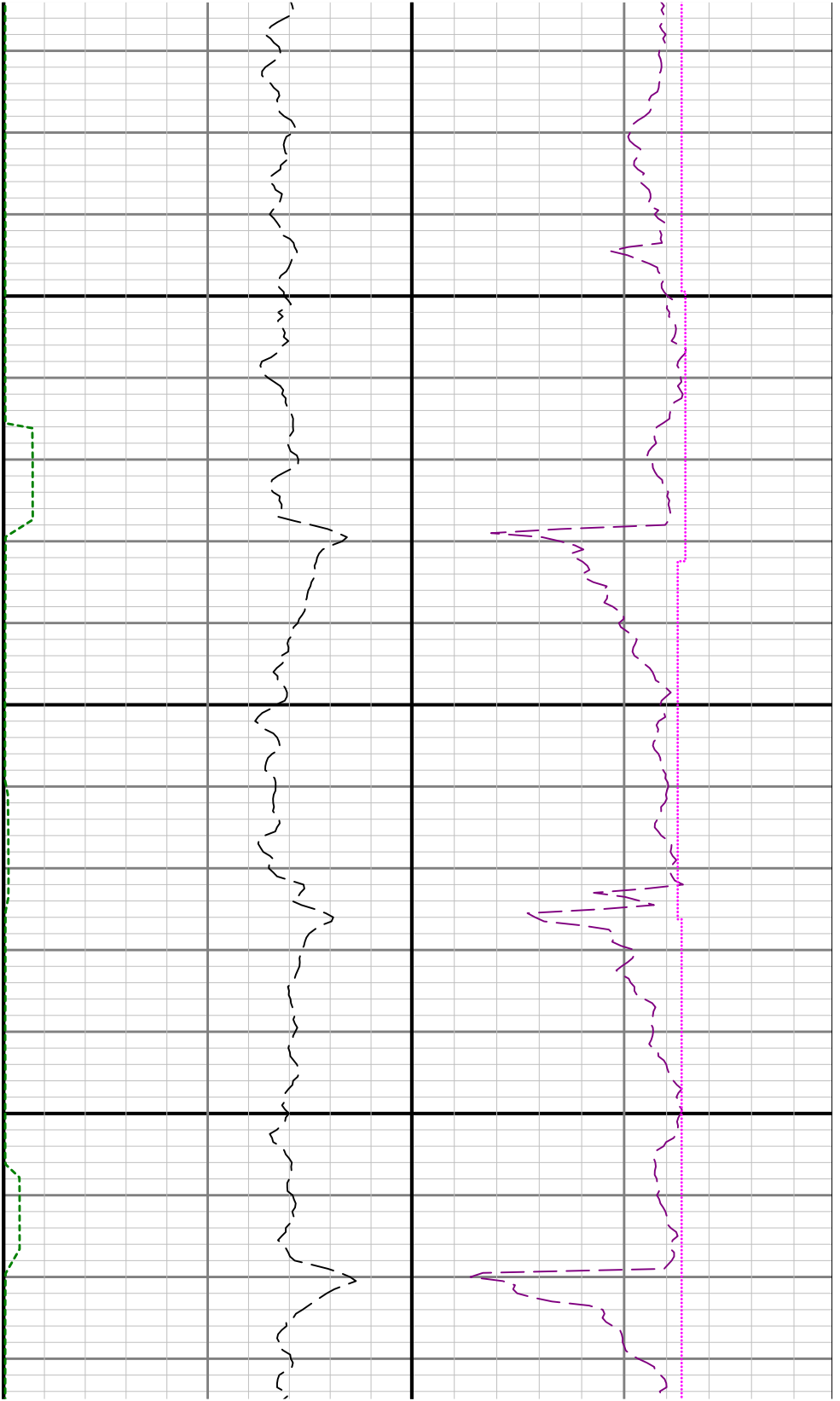


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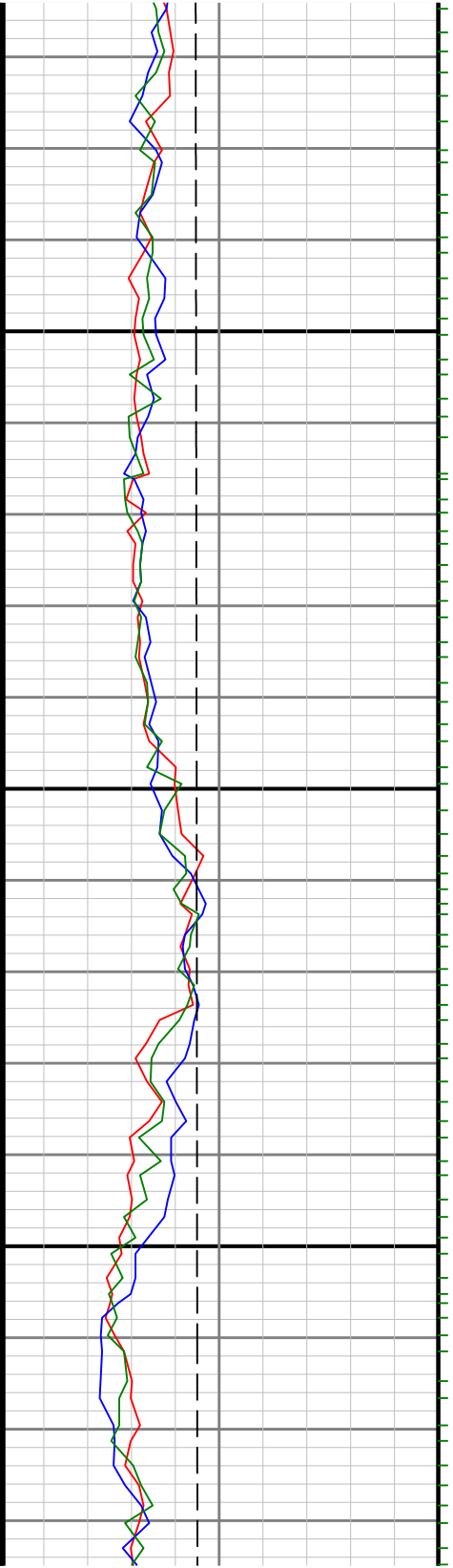
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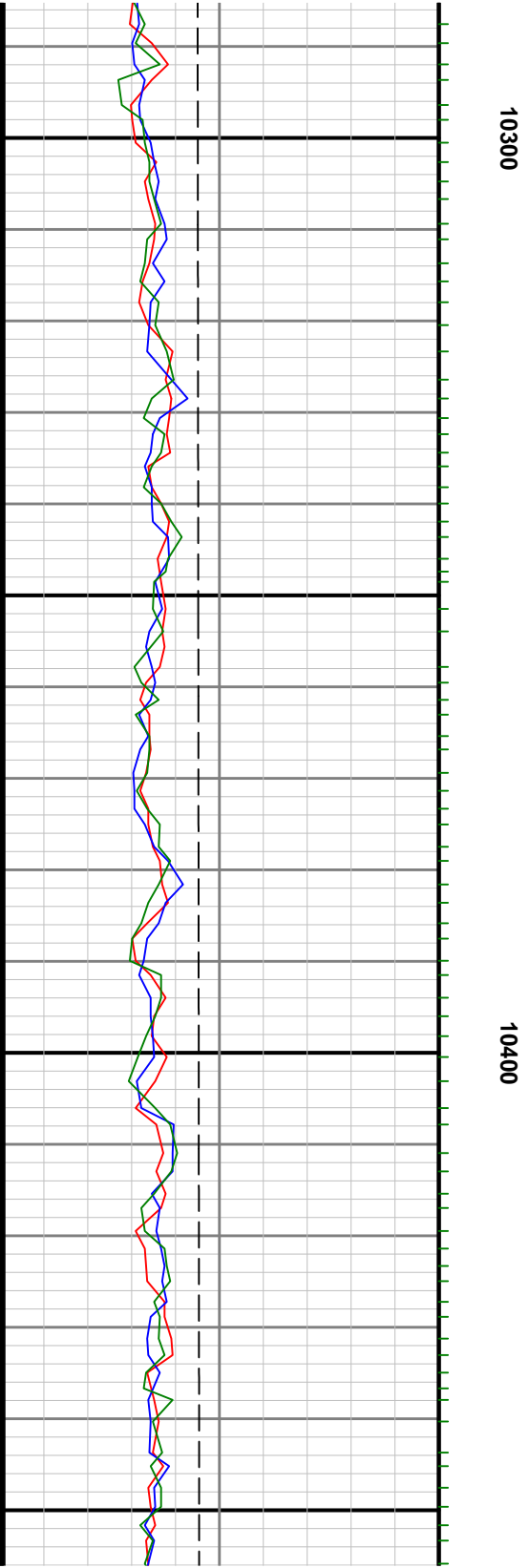


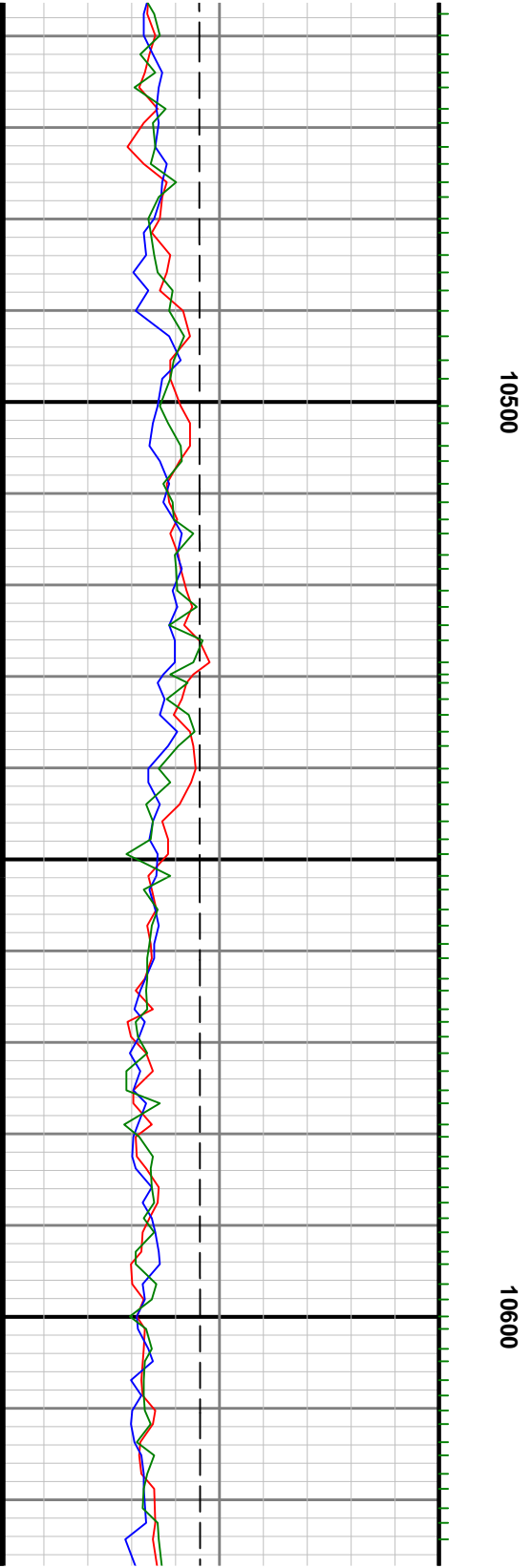


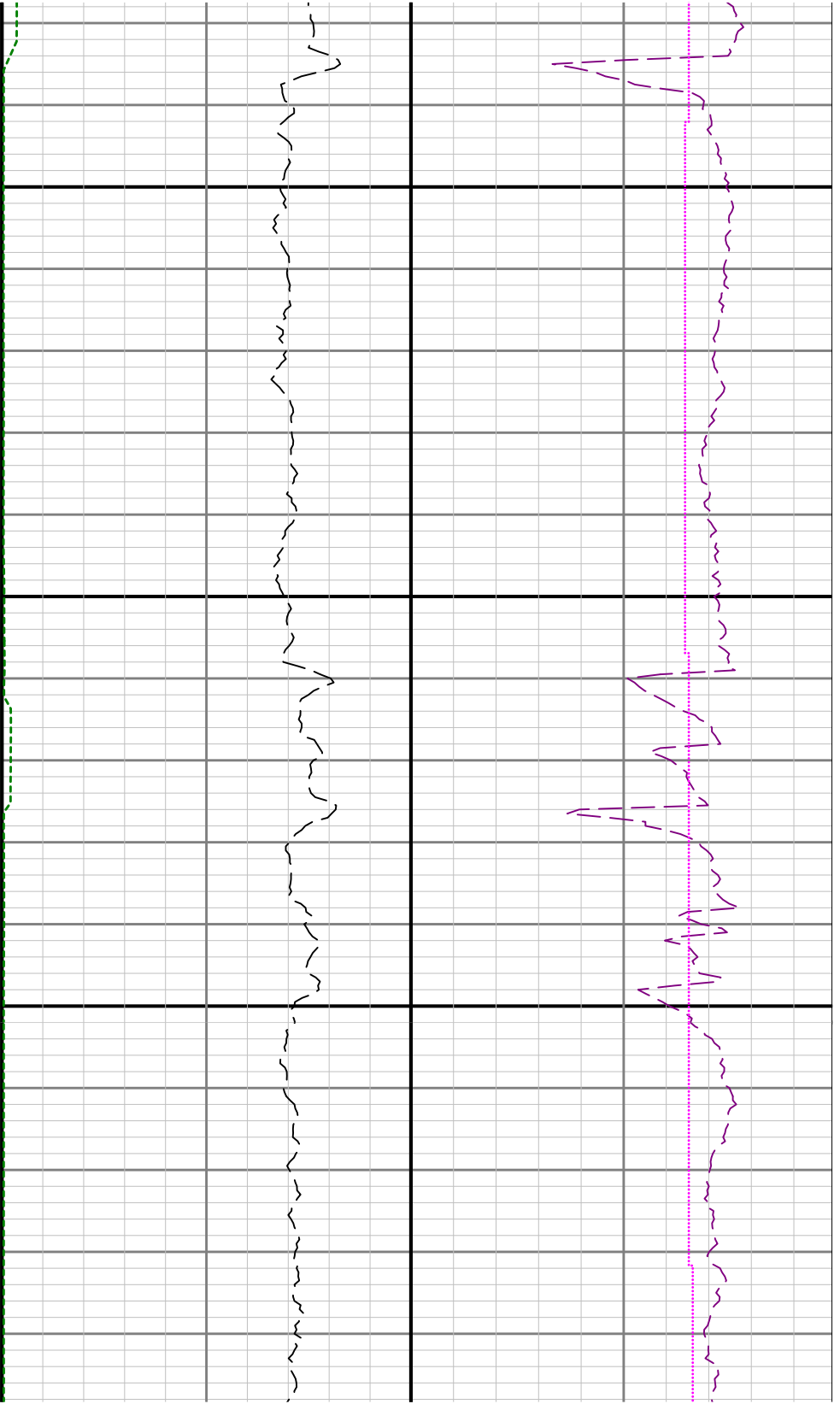


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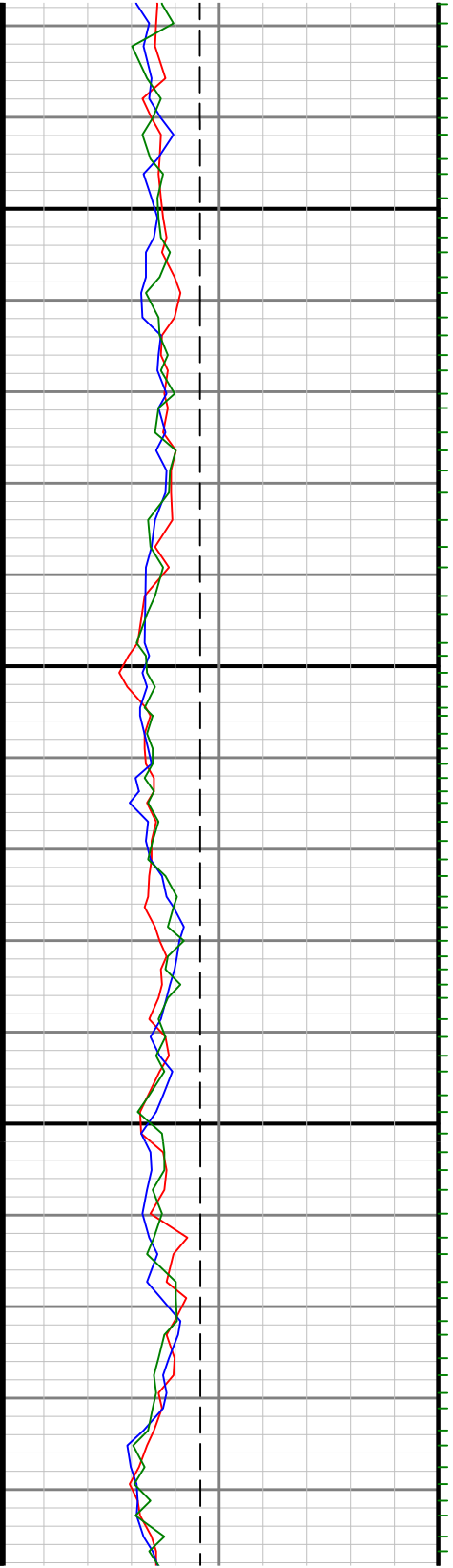


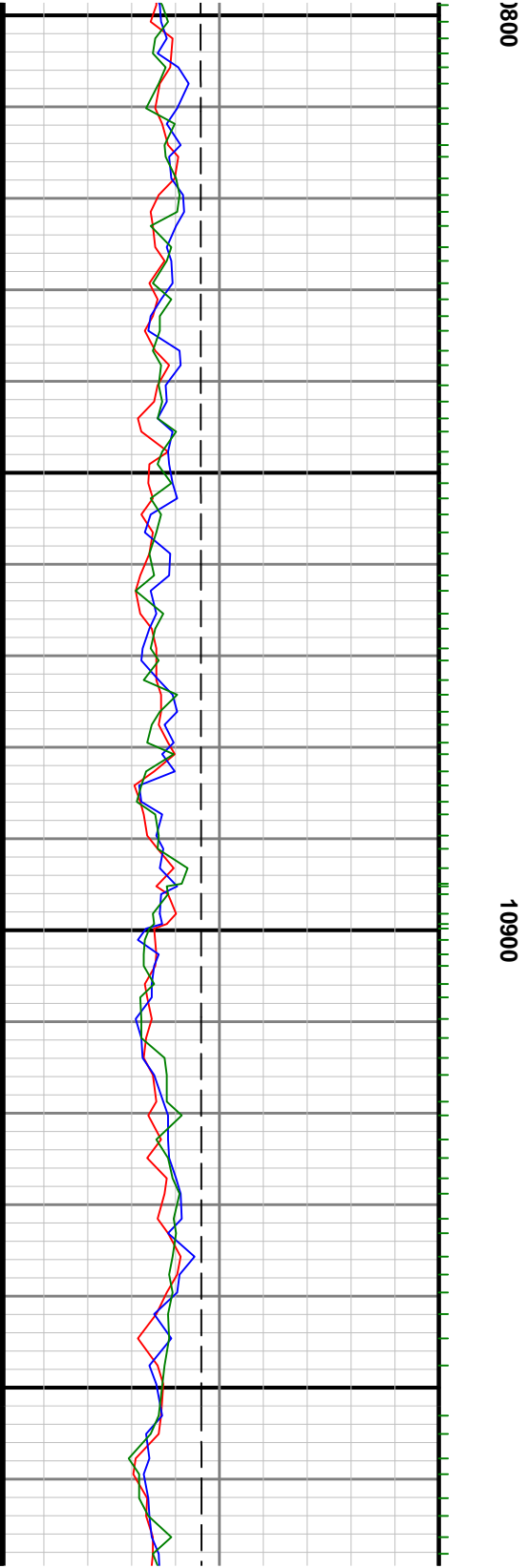
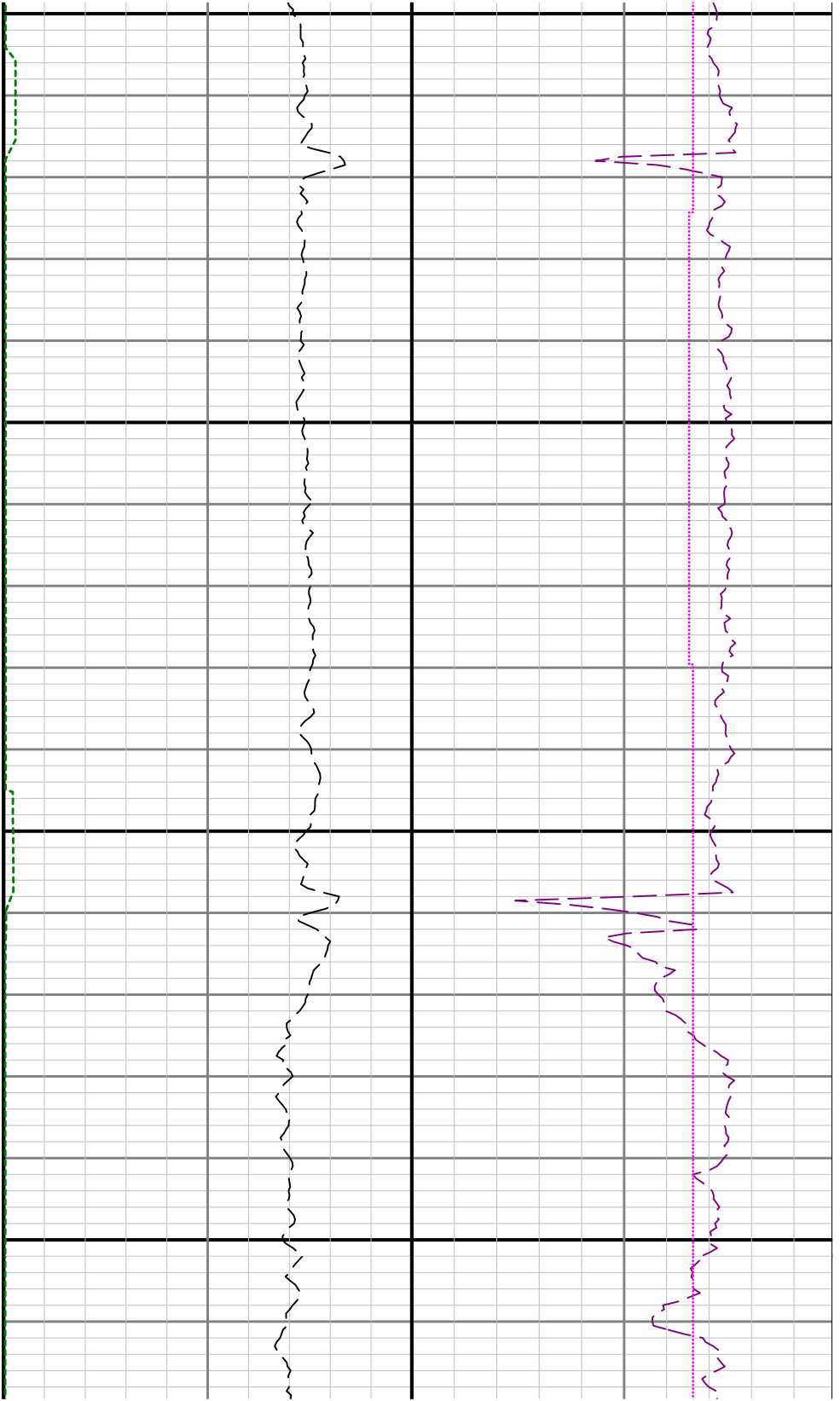


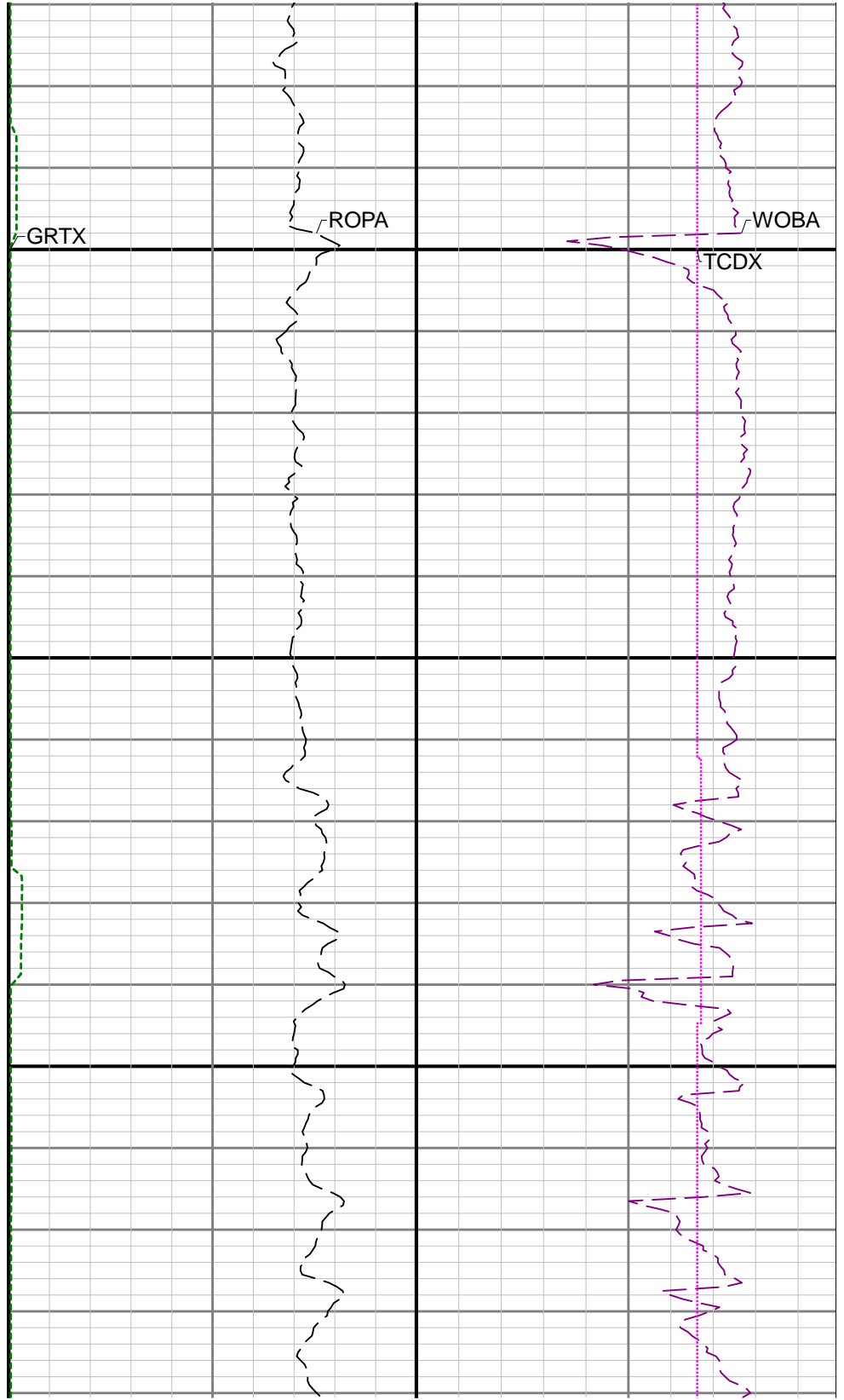
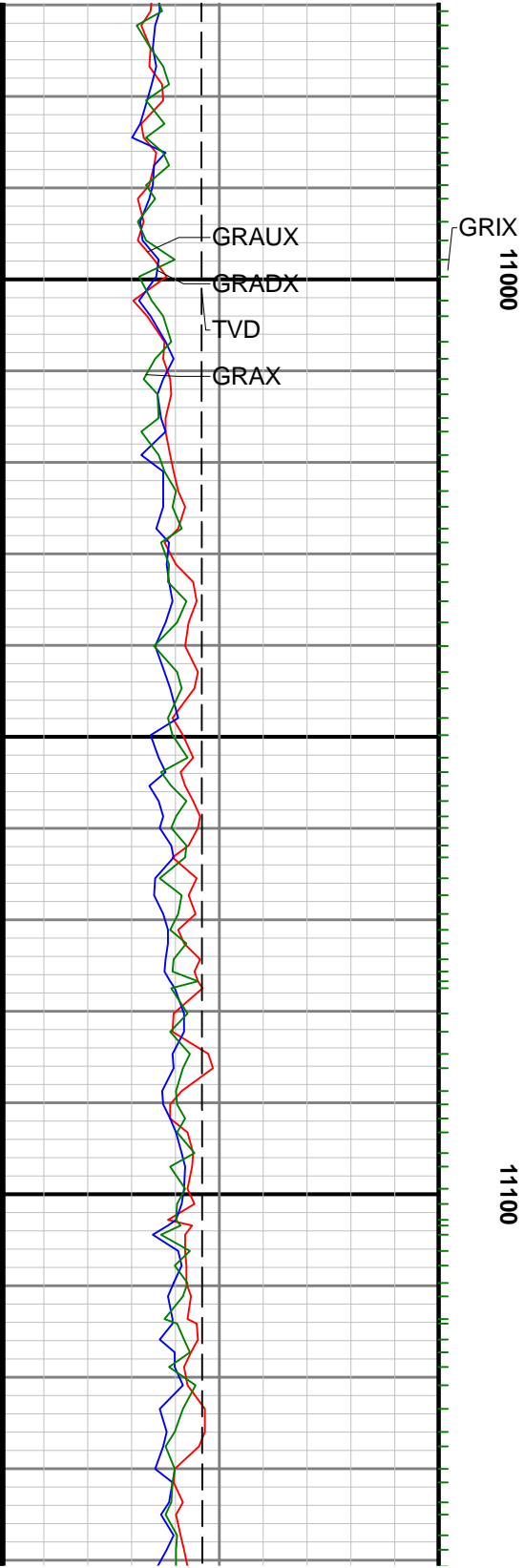


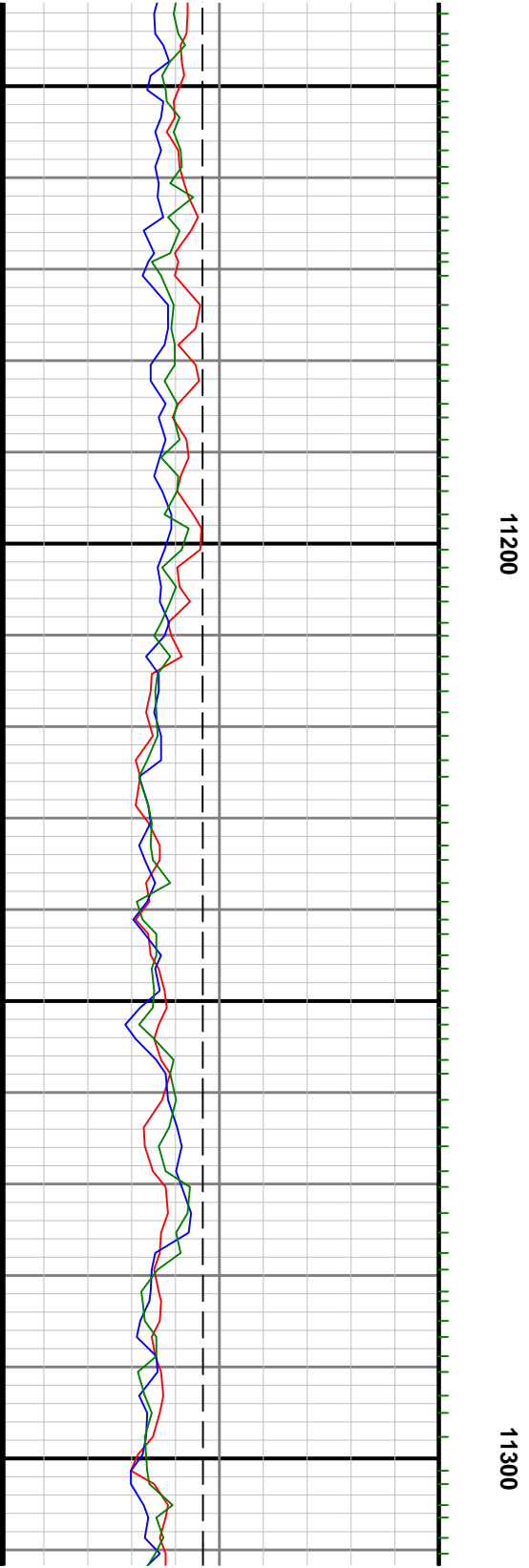
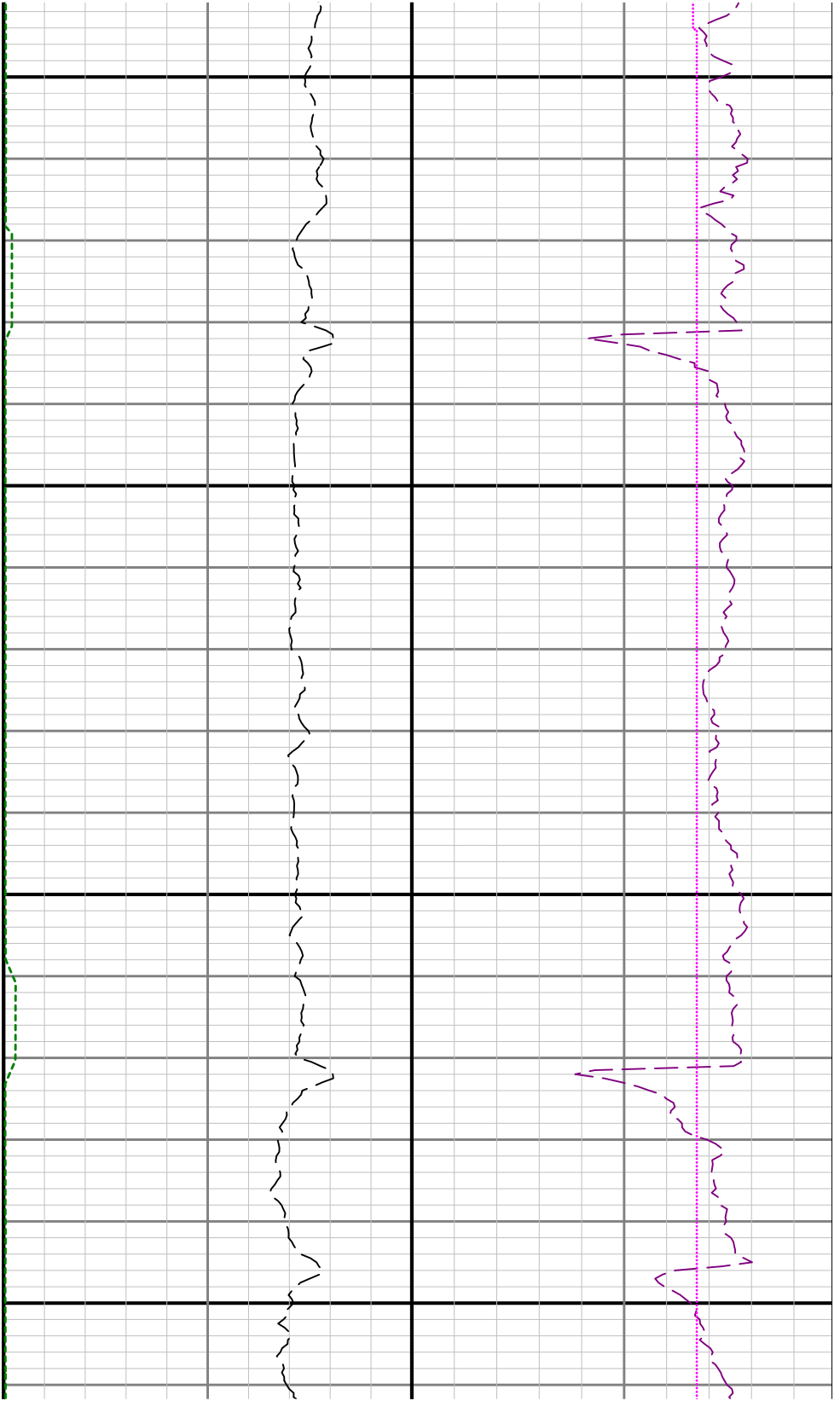
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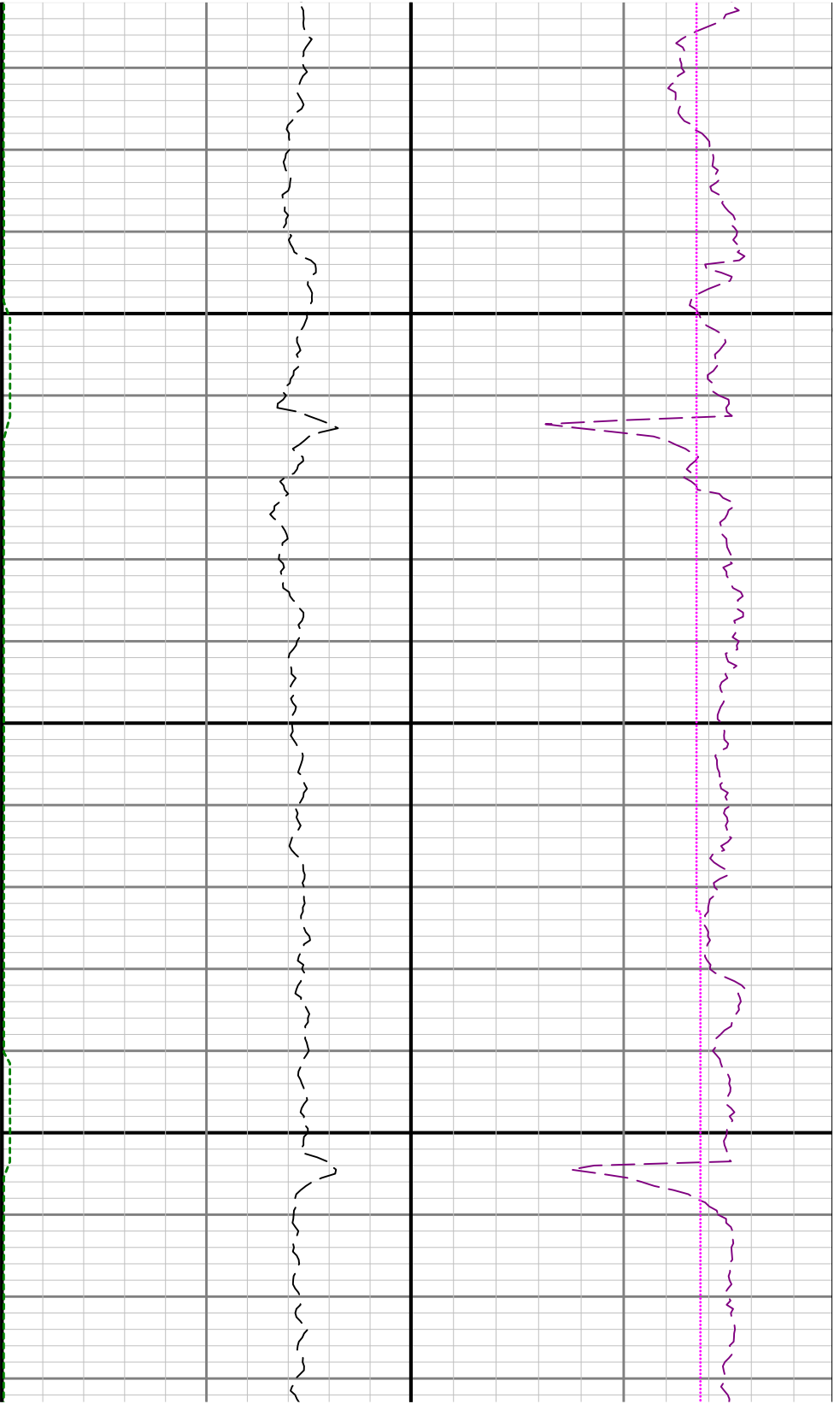
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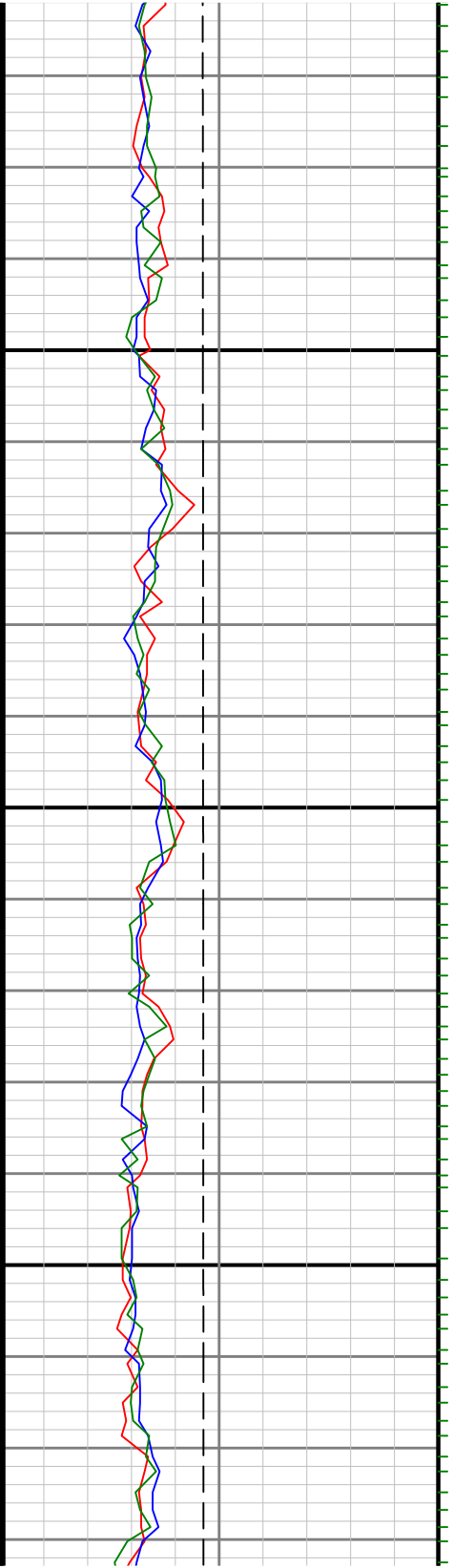


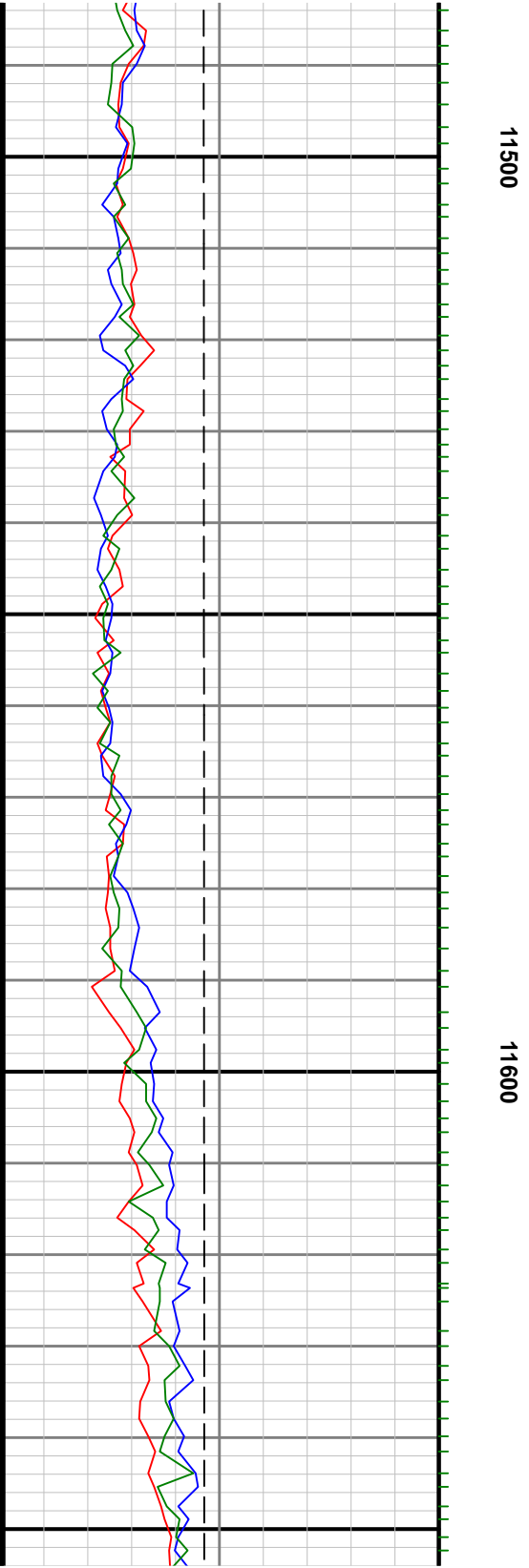


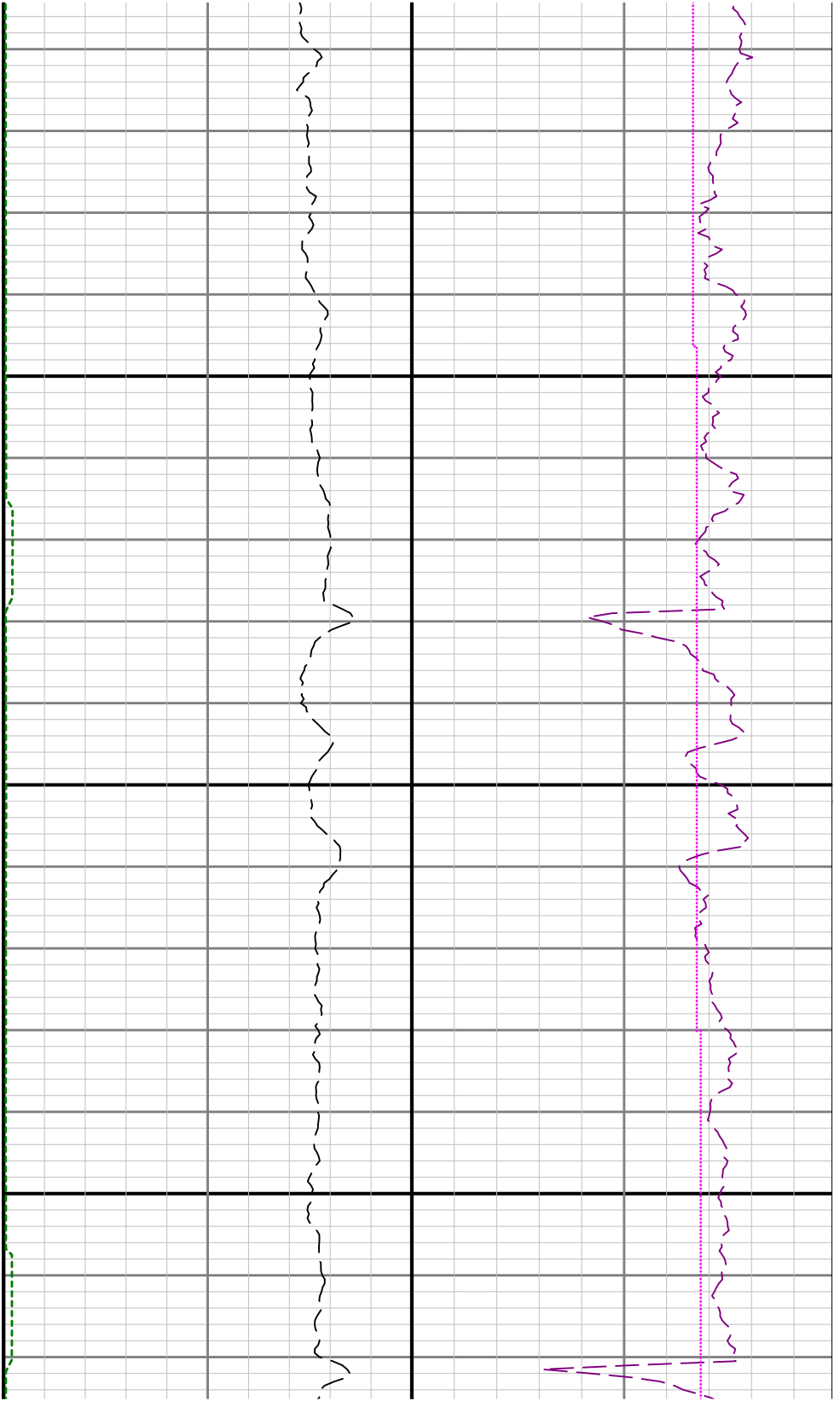




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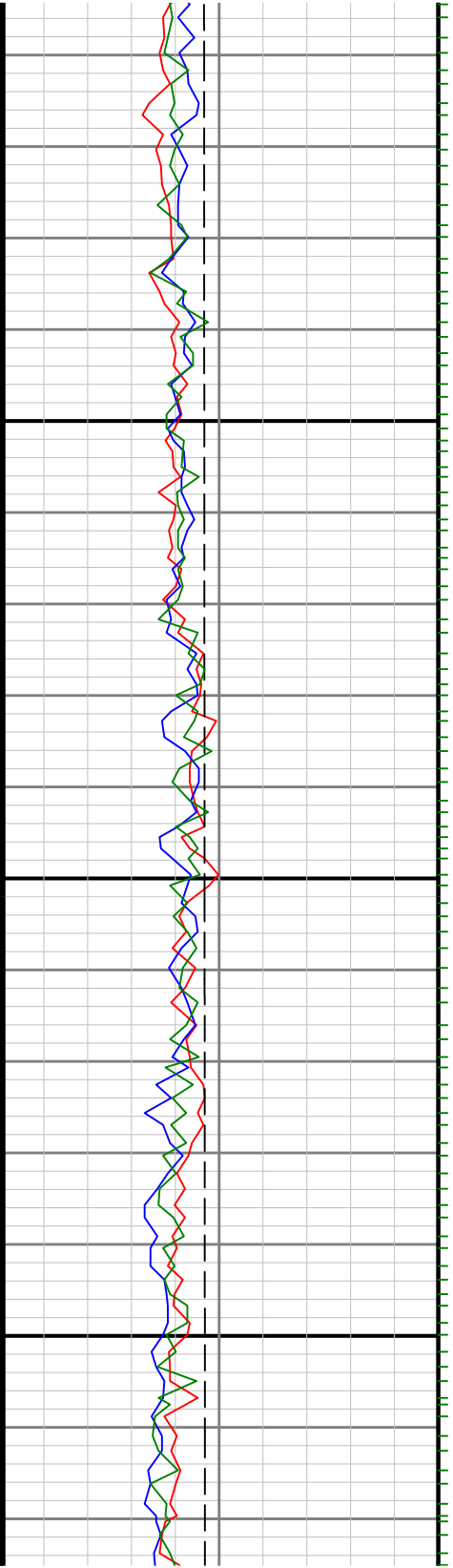


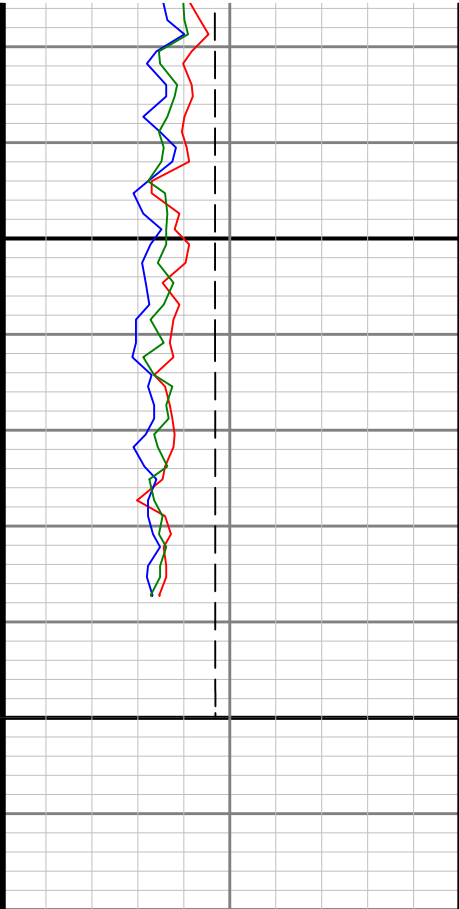




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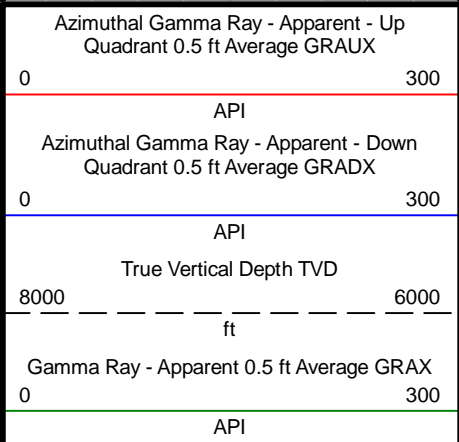
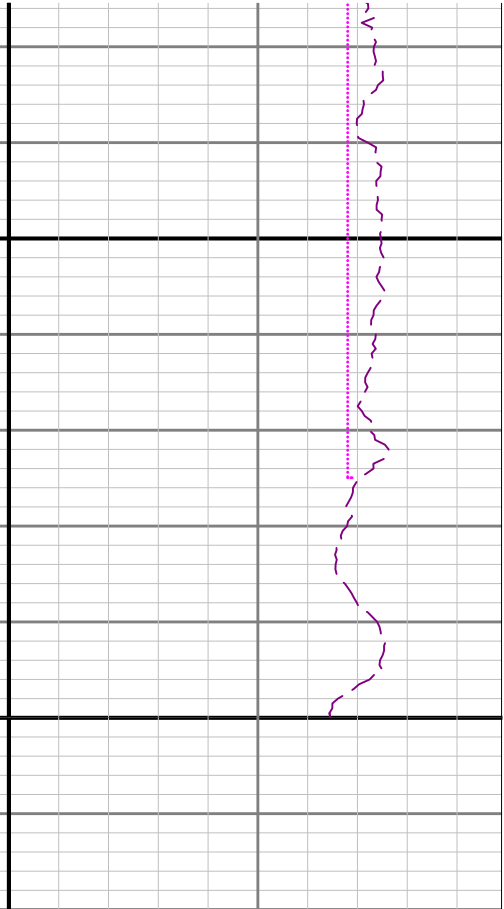
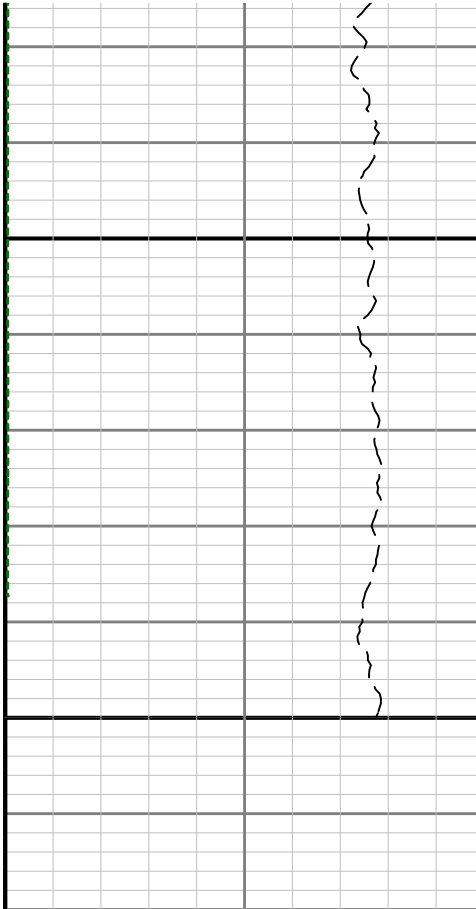
11800





11900

R3<



MD 1:240 feet

