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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+ (%)
2017-09-14 18:40	1	25.00	Water Based Mud	9.0	25	7.6	14.0	7/93	Active Pit	80000	0.00
2017-10-10 12:46	2	1800.00	Diesel-Oil Based Mud	10.3	22	N/A	10.0	81/19	Active Pit	44000	0.00
2017-10-11 16:00	2	8013.57	Diesel-Oil Based Mud	10.2	27	N/A	9.8	79/21	Active Pit	48000	0.00
2017-10-12 04:00	2	10238.56	Diesel-Oil Based Mud	10.3	26	N/A	9.8	79/21	Active Pit	49000	0.00
2017-10-12 16:00	2	11389.02	Diesel-Oil Based Mud	10.2	26	N/A	9.2	80/20	Active Pit	45000	0.00
2017-10-13 07:30	3	11890.95	Diesel-Oil Based Mud	10.2	26	N/A	9.2	80/20	Active Pit	45000	0.00

2017-10-14 04:00	3	13350.87	Diesel-Oil Based Mud	10.3	27	N/A	9.2	81/19	Active Pit	45000	0.00
2017-10-15 06:11	4	15112.00	Diesel-Oil Based Mud	10.2	24	N/A	9.4	82/18	Active Pit	46000	0.00
2017-10-16 04:00	4	16647.61	Diesel-Oil Based Mud	10.4	29	N/A	9.8	79/21	Active Pit	46000	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	Sensor Sub	ZAPS230939	Gamma (single)	9.99	53.70	8.000	3.250
1	Sensor Sub	ZAPS230939	Directional (mag)	11.23	54.94	8.000	3.250
1	Sensor Sub	ZAPS230939	VSS	11.23	54.94	8.000	3.250
1	Sensor Sub	ZAPS230939	Pressure	31.80	75.51	8.000	3.250
2	ATC_SU	14169950	Near Bit VSS	5.93	6.73	7.000	4.330
2	ATC_SU	14169950	Near Bit Inclination	5.93	6.73	7.000	4.330
2	ATC_MWD	12075790	Gamma (single)	2.75	12.90	7.000	3.250
2	ATC_MWD	12075790	Directional (mag)	12.27	22.42	7.000	3.250
3	ATC_SU	12480108	Near Bit Inclination	5.93	6.73	7.000	4.330
3	ATC_SU	12480108	Near Bit VSS	5.93	6.73	7.000	4.330
3	ATC_MWD	12109322	Gamma (single)	2.75	12.90	7.000	3.250
3	ATC_MWD	12109322	Directional (mag)	12.27	22.42	7.000	3.250
4	ATC_SU	13867779	Near Bit VSS	5.93	6.73	7.000	4.330
4	ATC_SU	13867779	Near Bit Inclination	5.93	6.73	7.000	4.330
4	ATC_MWD	12211066	Gamma (single)	2.76	12.90	7.000	3.250
4	ATC_MWD	12211066	Directional (mag)	12.28	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
GAM	APS	APS EM Module
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 obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD Run 1 utilized 8 inch NaviTrak service (Directional only) behind a 13 1/2 inch bit and steerable assembly from surface to 1825 feet MD (surface to 1824 feet TVD). No logging data was acquired during this run.
3	OnTrak® * @SY OAU) • AGHapAA dā^aa A/4/ & CpaāDe { a^A^cā• ACee { aūēāpā/Oā^&Cā) aDā^Q āāp AA FIDā & CāāpāāI cāē A c^āāp^āē•^ē āI^ A[(A I G Aē A FJGēA feet MD (1824 to 7283 feet TVD).
4	Several small gaps in Gamma Ray data are present from 10090 to 14380 feet MD (7257 to 7299 feet TVD) due to tool powering off while drilling ahead.
5	Gamma Ray Curves (GRAM-GRAUM-GRADM) are presented 0 to 300 API per customer request.
6	OnTrak® * @SY OAU) • AGHapAA dā^aa A/4/ & Cā) Vāē A^ācā• A T^ [q^AūI[] aēāē) Aū• ā cāē D^) AFGG A^mōēā Q āāp AA A/4/ & CāāpāāI cāē A c^āāp^āē•^ē āI^ Aē A perform a MAD (Measurement After Drilling) pass from 1825 to 7886 feet MD (1824 to 7258 feet TVD).

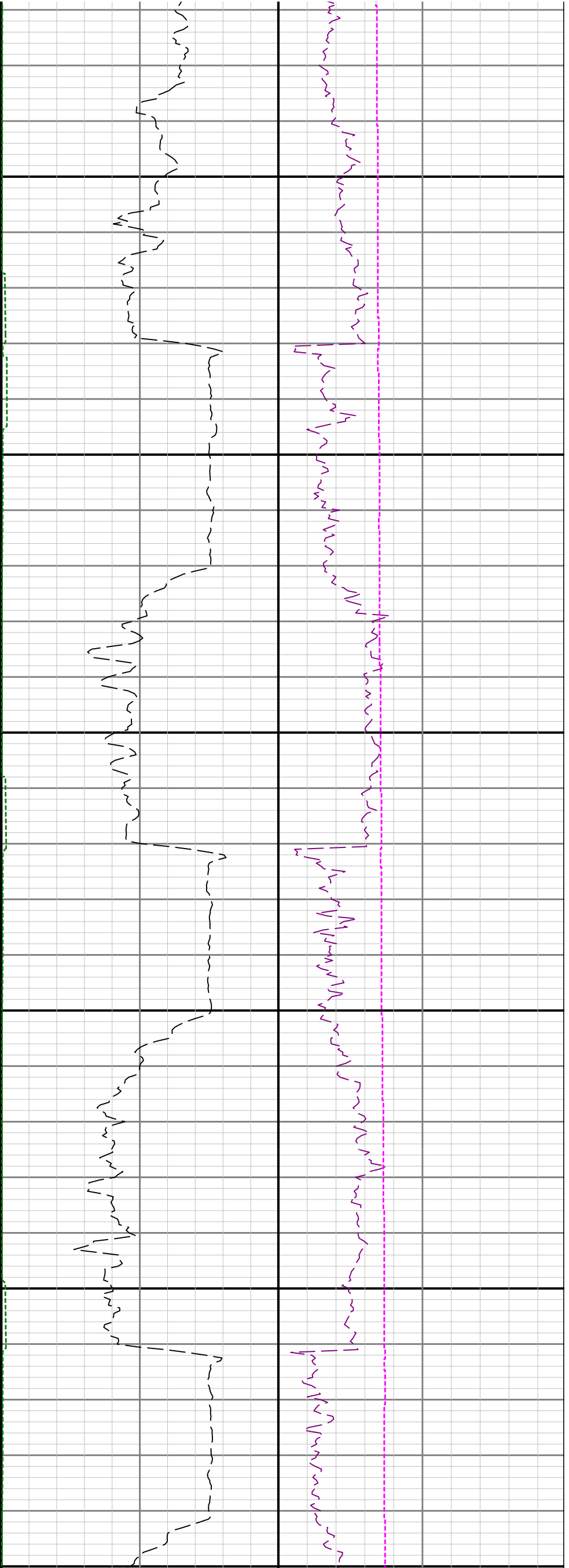
Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1823.00	8.500	2	The interval from 1825 to 1900 feet MD (1824 to 1998 feet TVD) Gamma Ray and Surface data was not logged due to an issue with 3rd party surface software.
2	11873.00	8.500	3	The interval from 11868 to 11882 feet MD (7286 feet TVD) was logged up to 19 hours after being drilled due to a trip out of the hole for a tool failure.
3	15103.00	8.500	4	The interval from 15099 to 15113 feet MD (7301 feet TVD) was logged up to 24 hours after being drilled due to a trip out of the hole for a tool failure.
4	19113.00	8.500	4	The interval from 19107 to 19120 feet MD (7283 feet TVD) was not logged 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	OnTrak - Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	OnTrak - Gamma Ray - Data Point Indicator - Memory	unitless
GRTM	OnTrak - Gamma Ray - Time Since Drilled - Memory	min
GRADM	OnTrak - Gamma Ray - Apparent - Down Quadrant - Memory 0.5 ft Average	API
GRAUM	OnTrak - Gamma Ray - Apparent - Up Quadrant - Memory 0.5 ft Average	API
TCDM	Downhole Temperature	degF

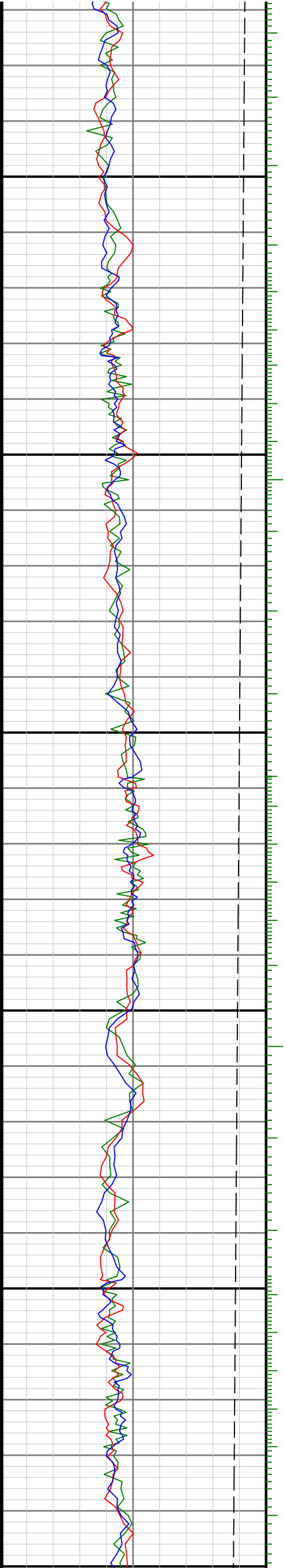


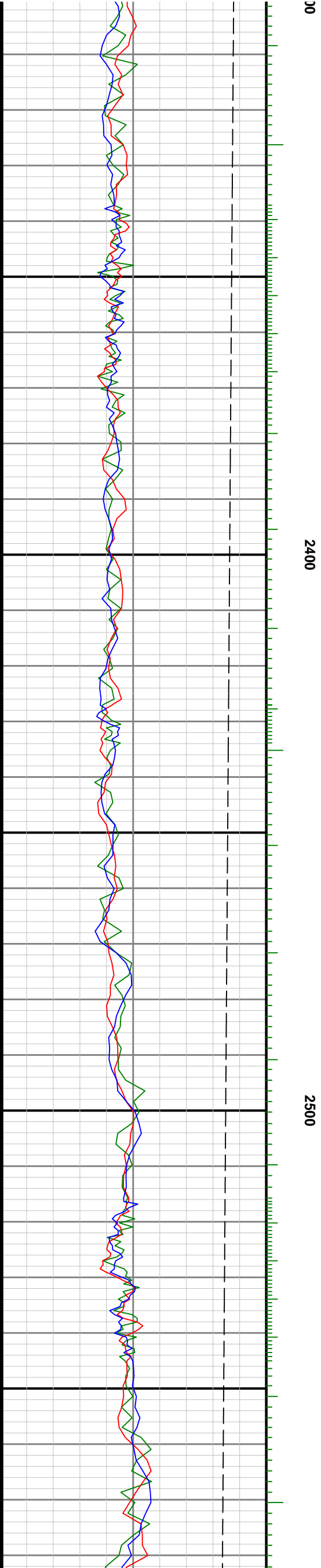
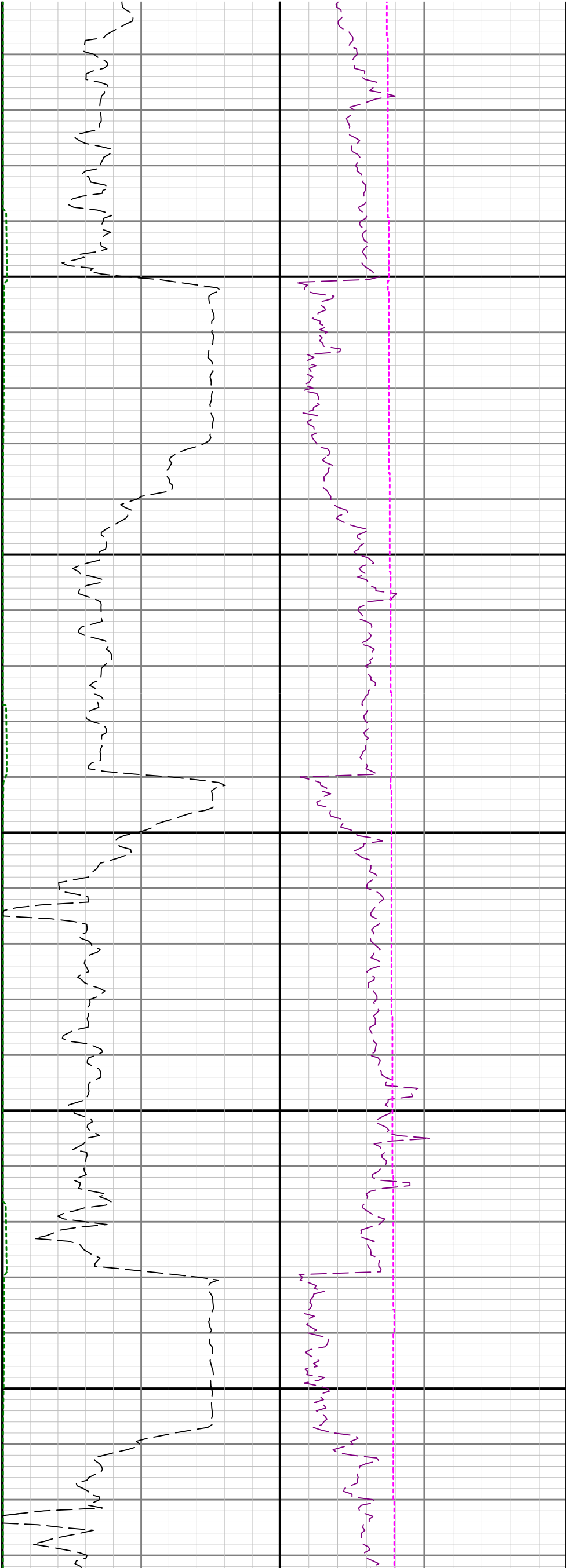


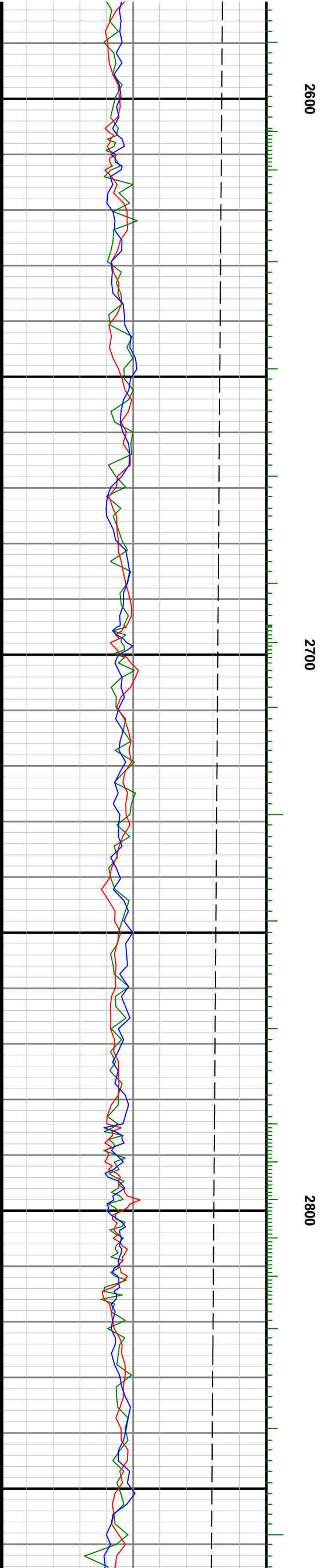
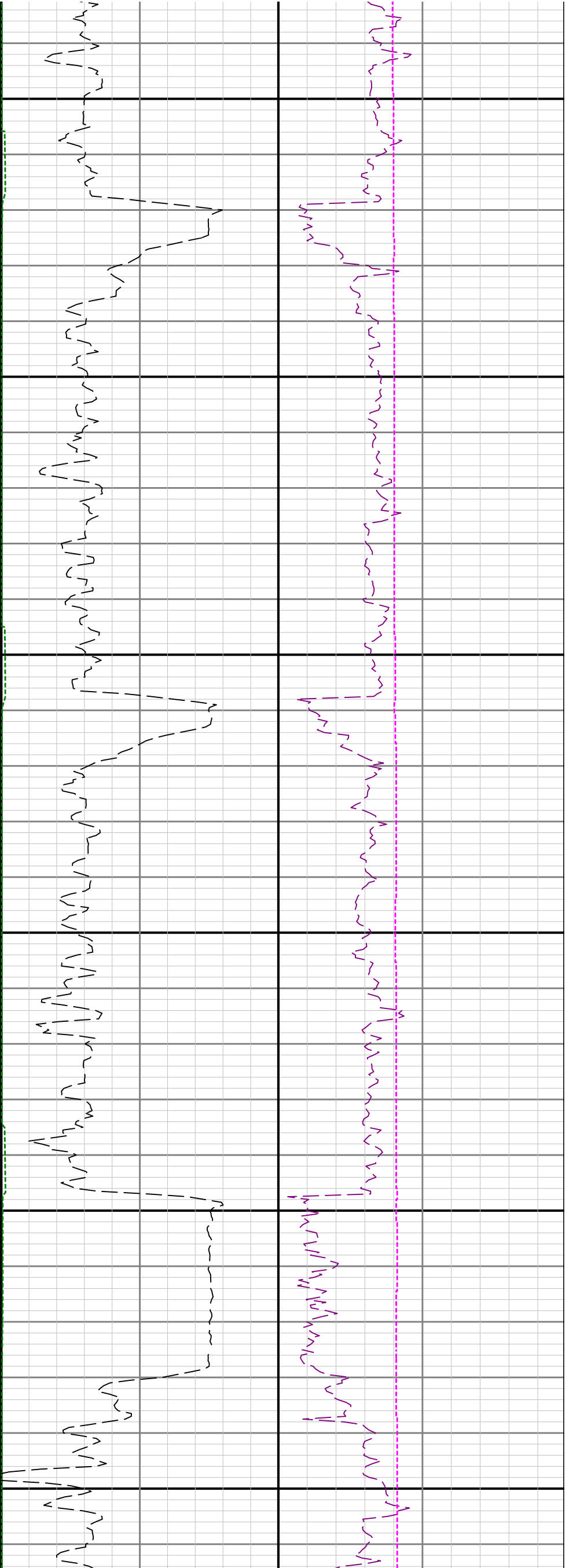
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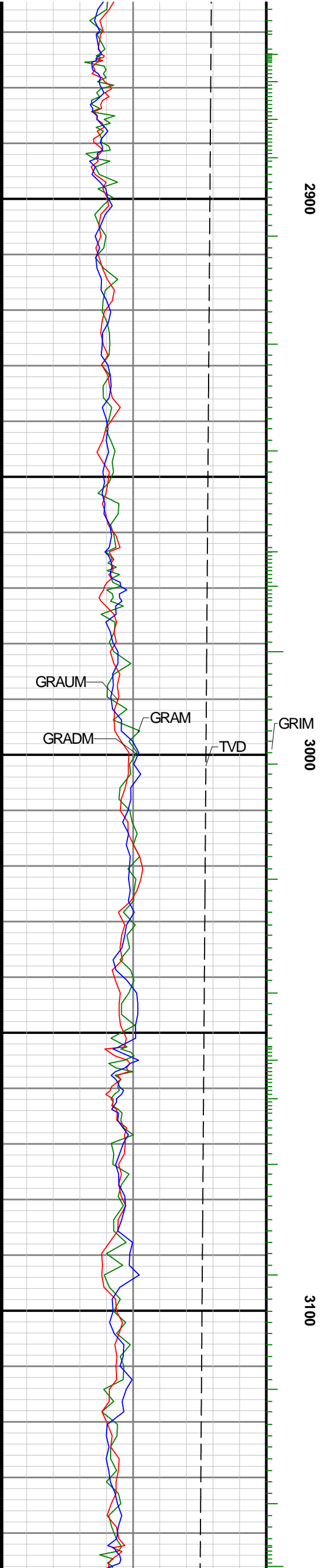
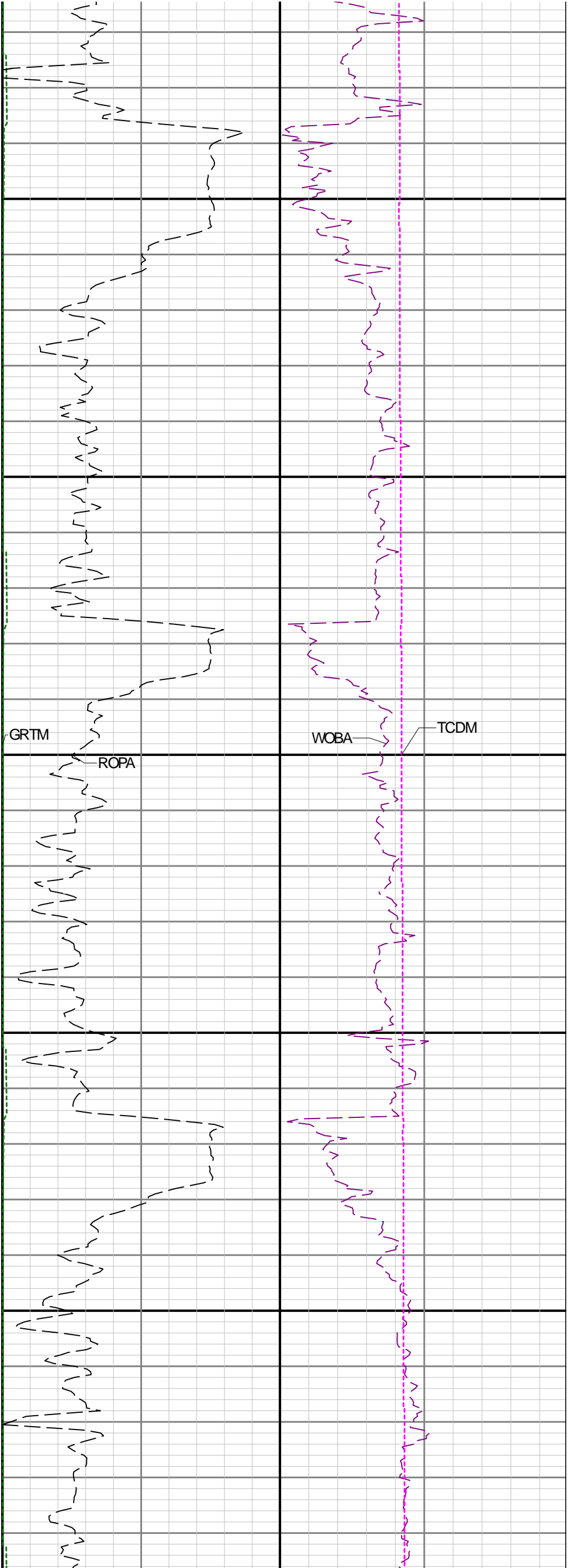
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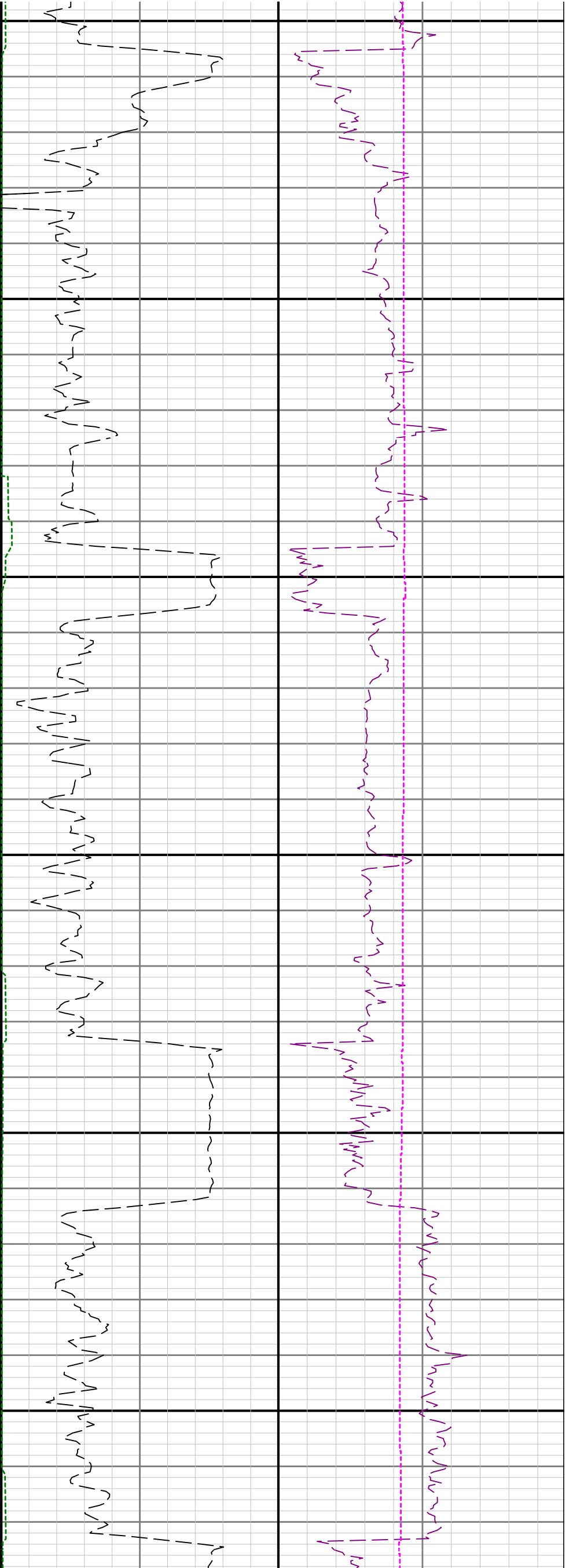
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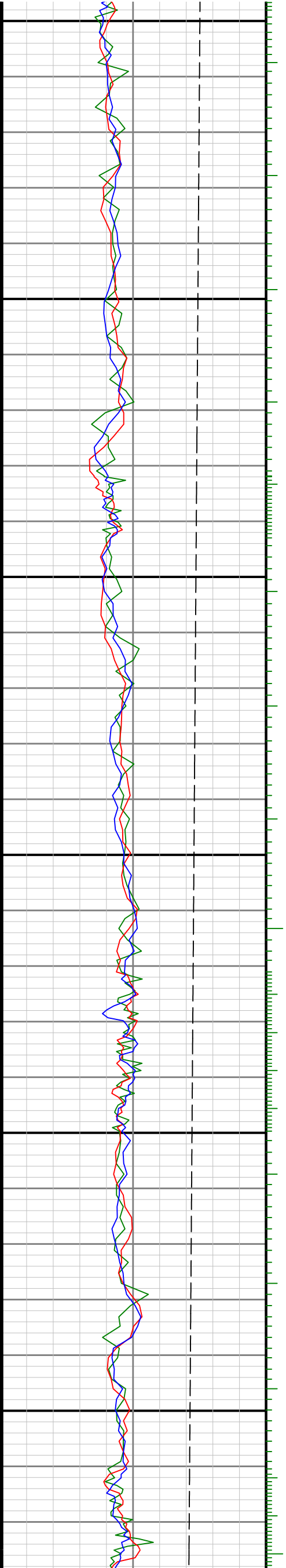


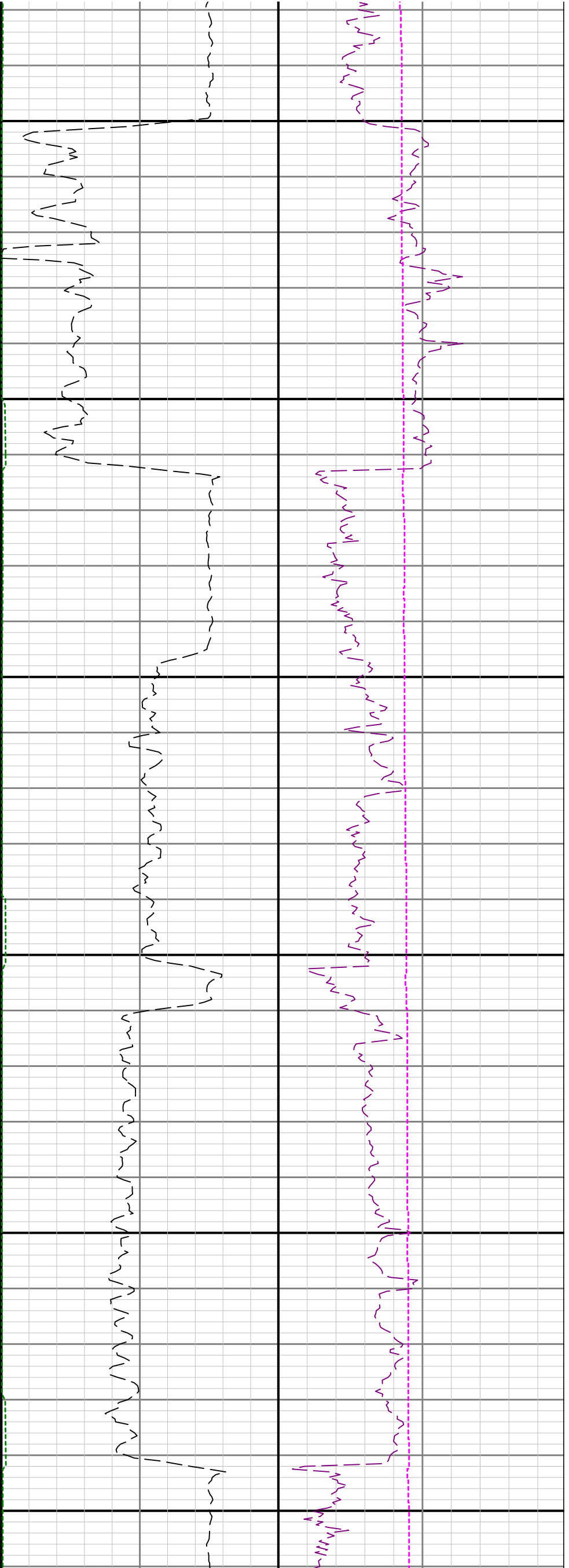


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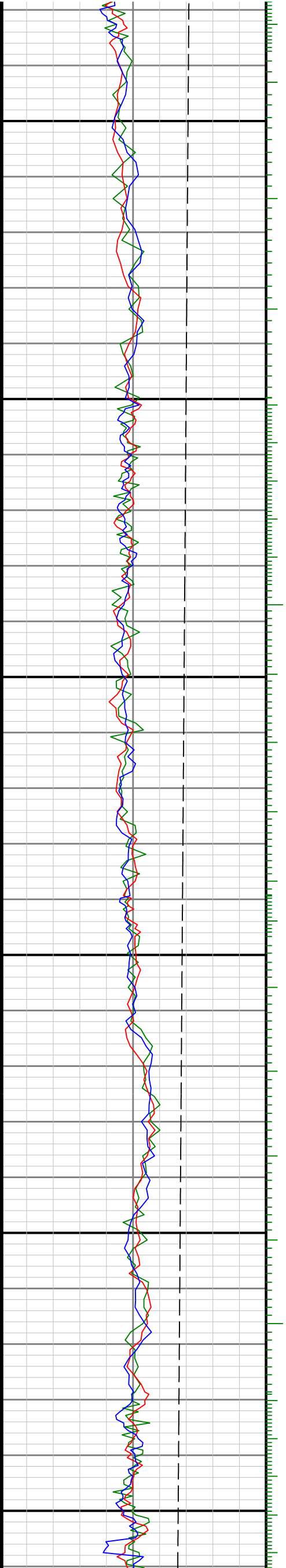


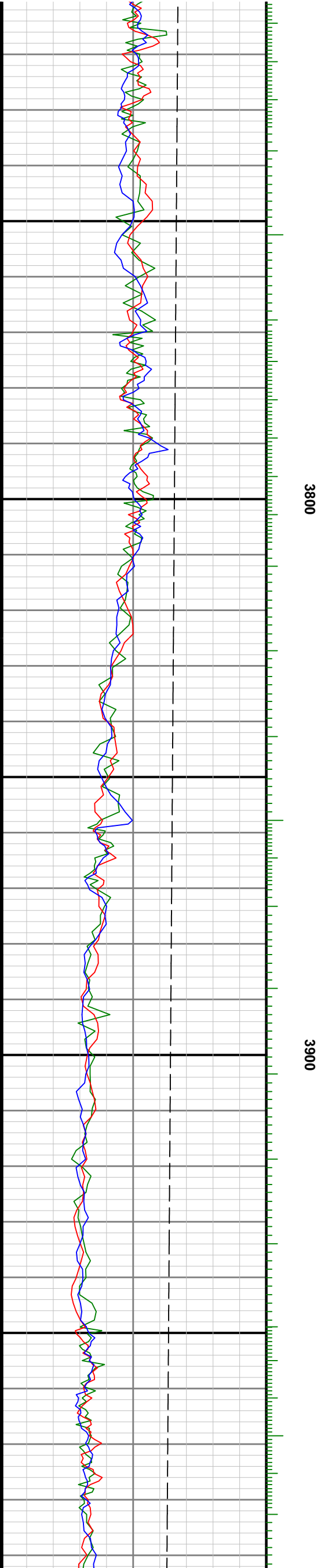
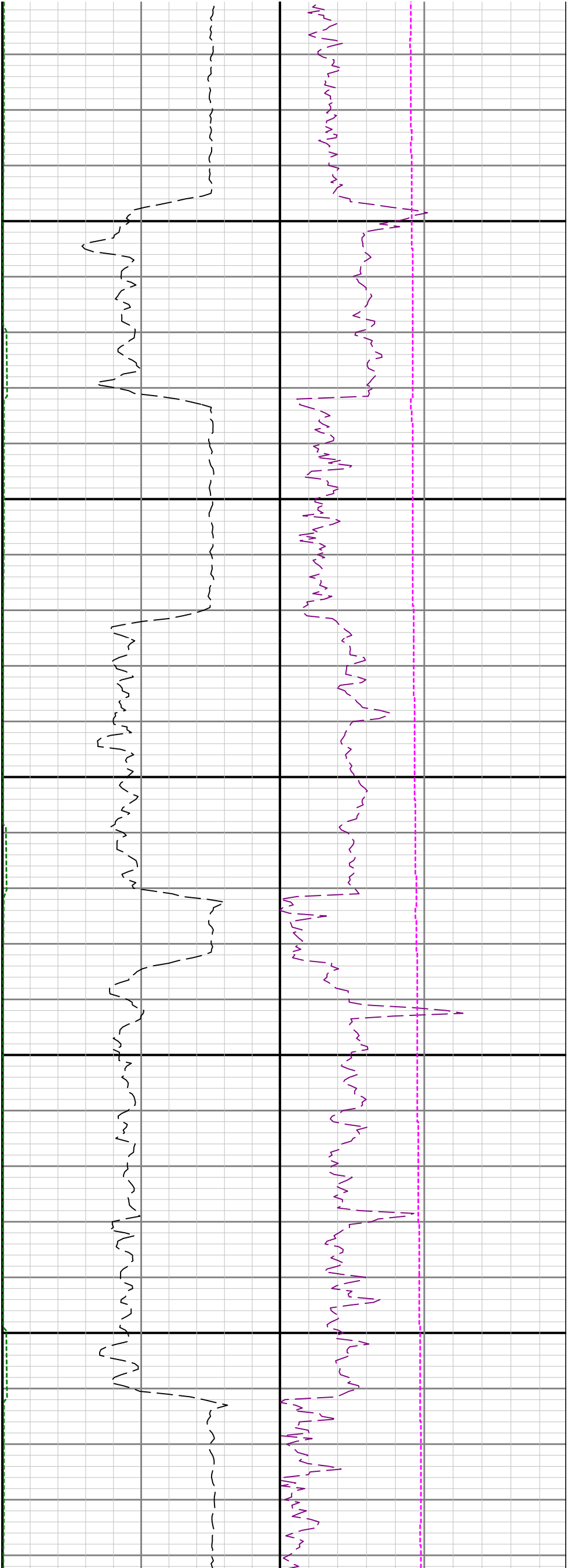


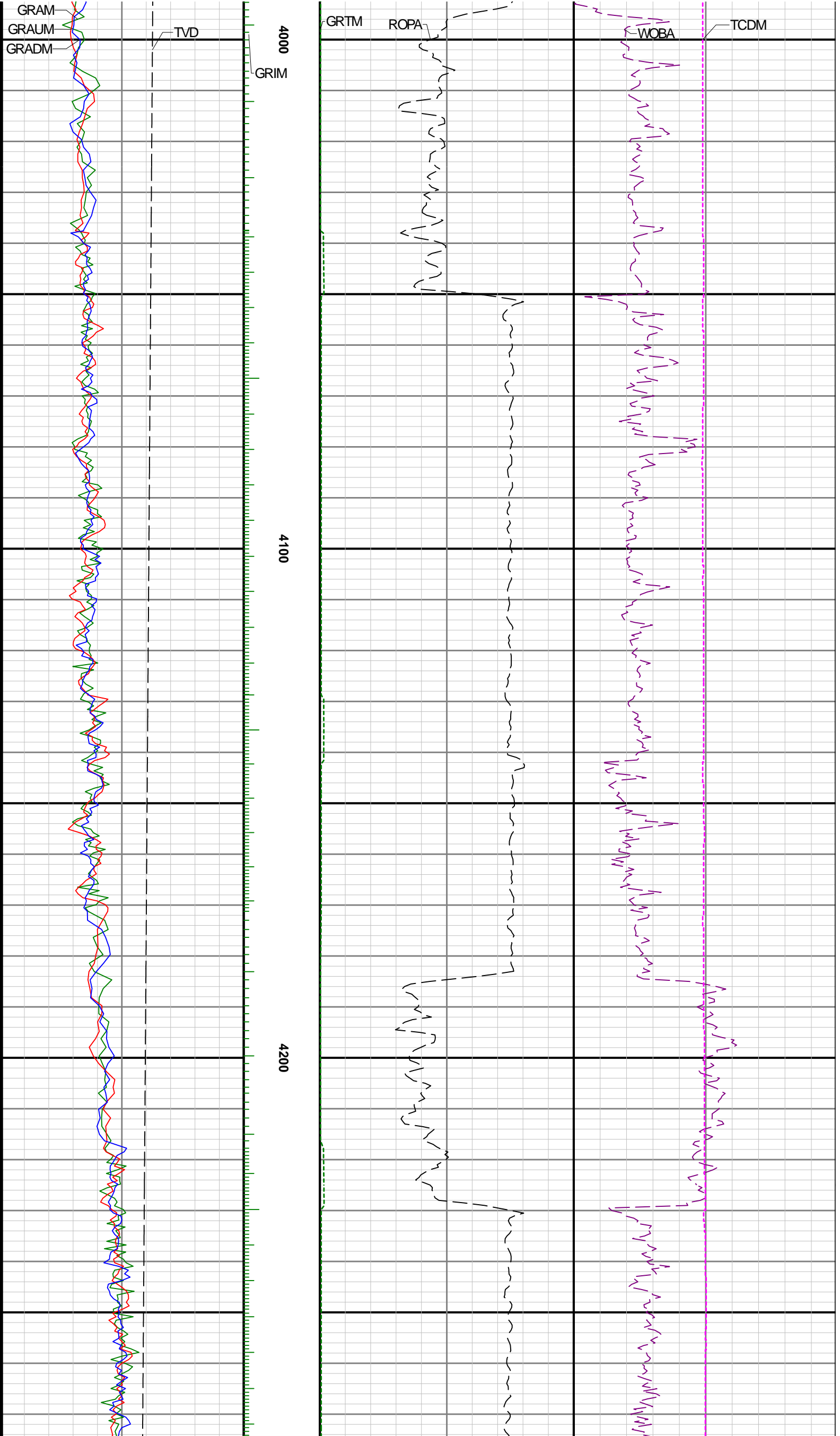
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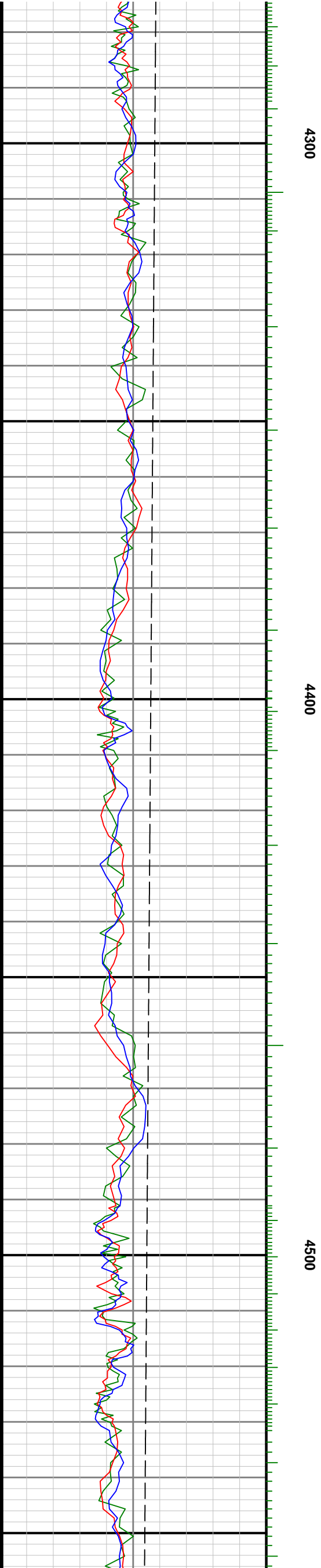
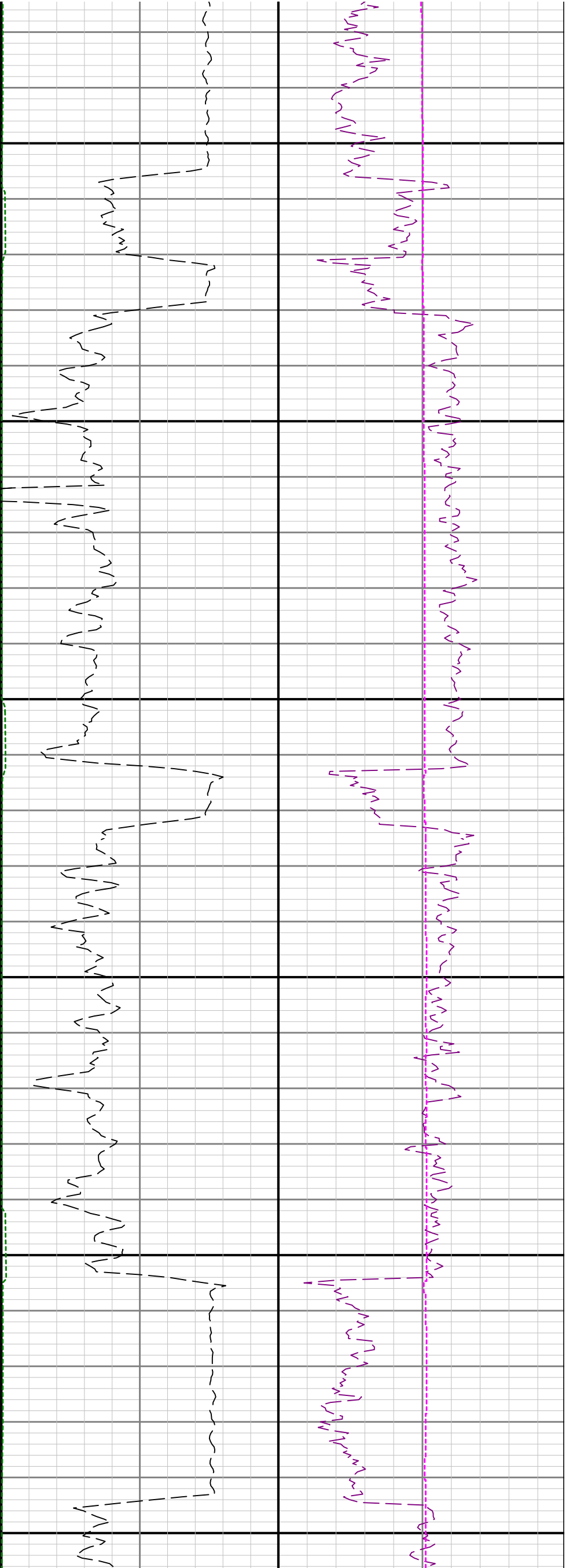
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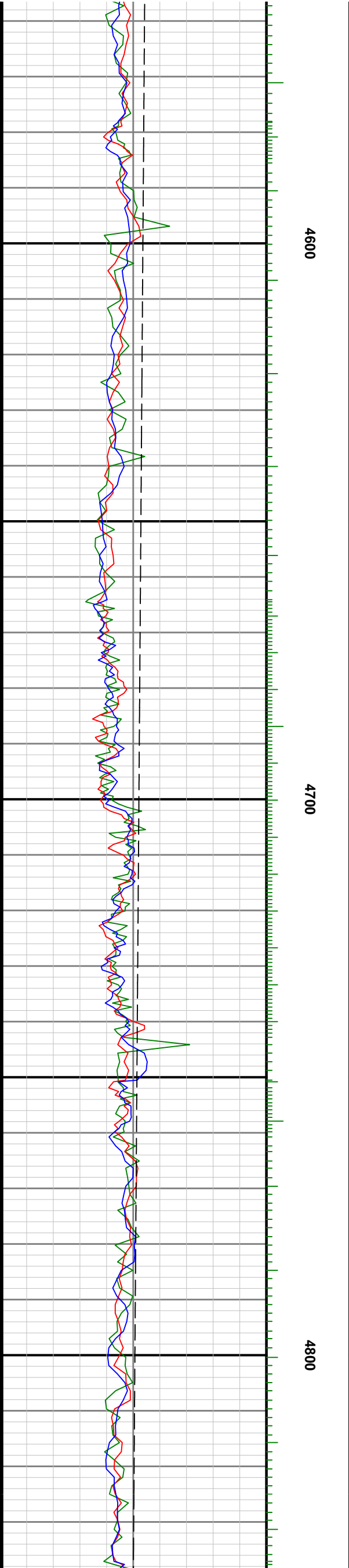
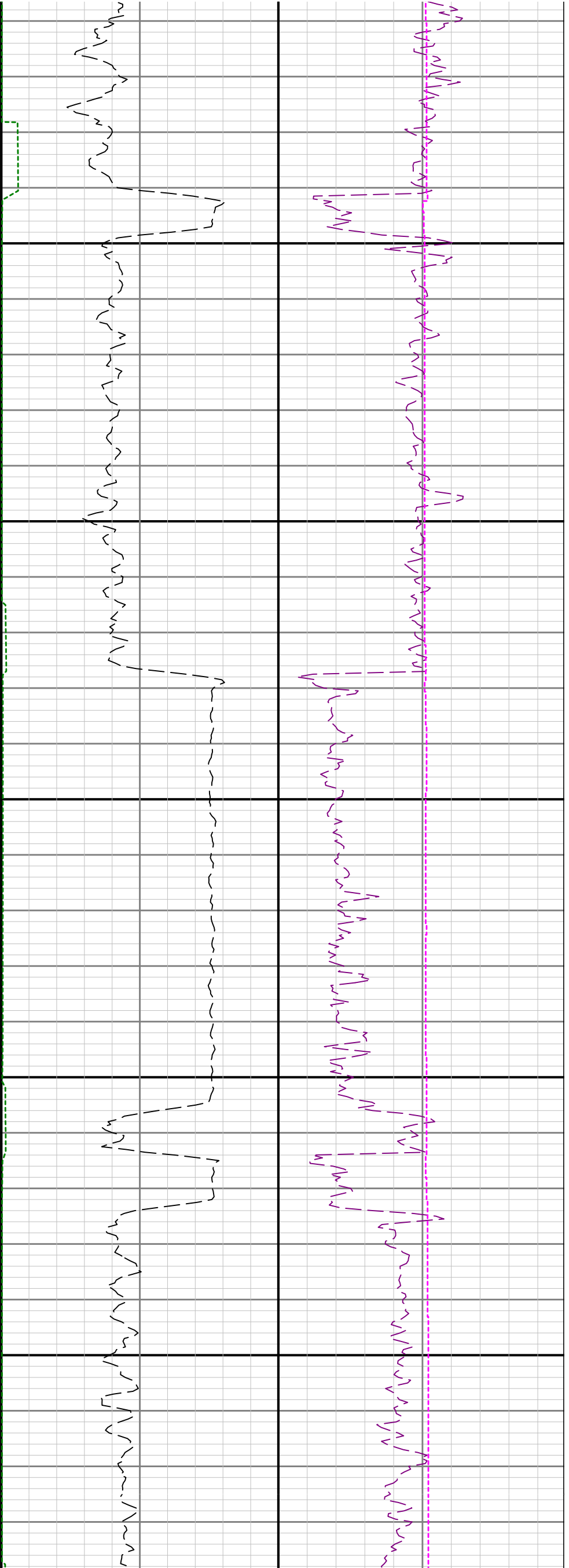
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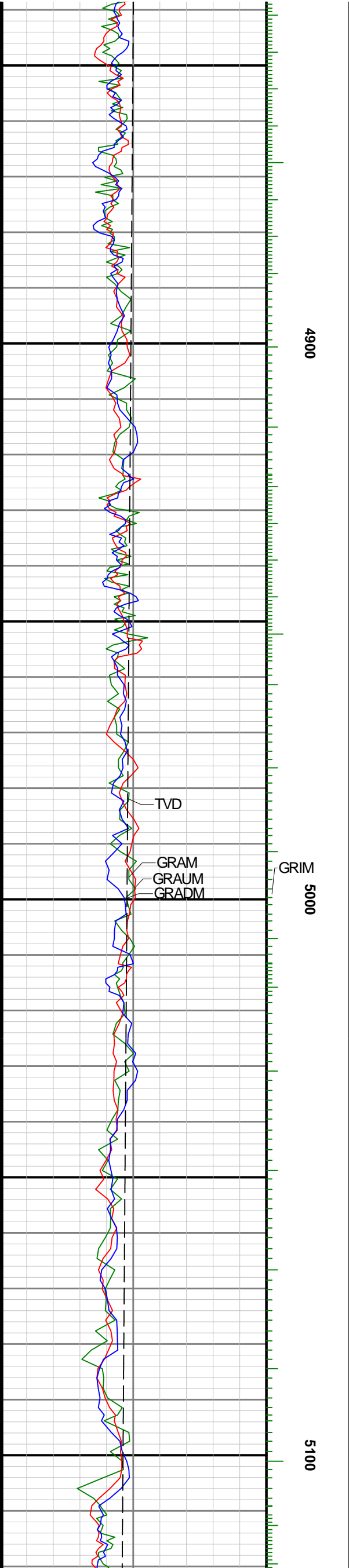
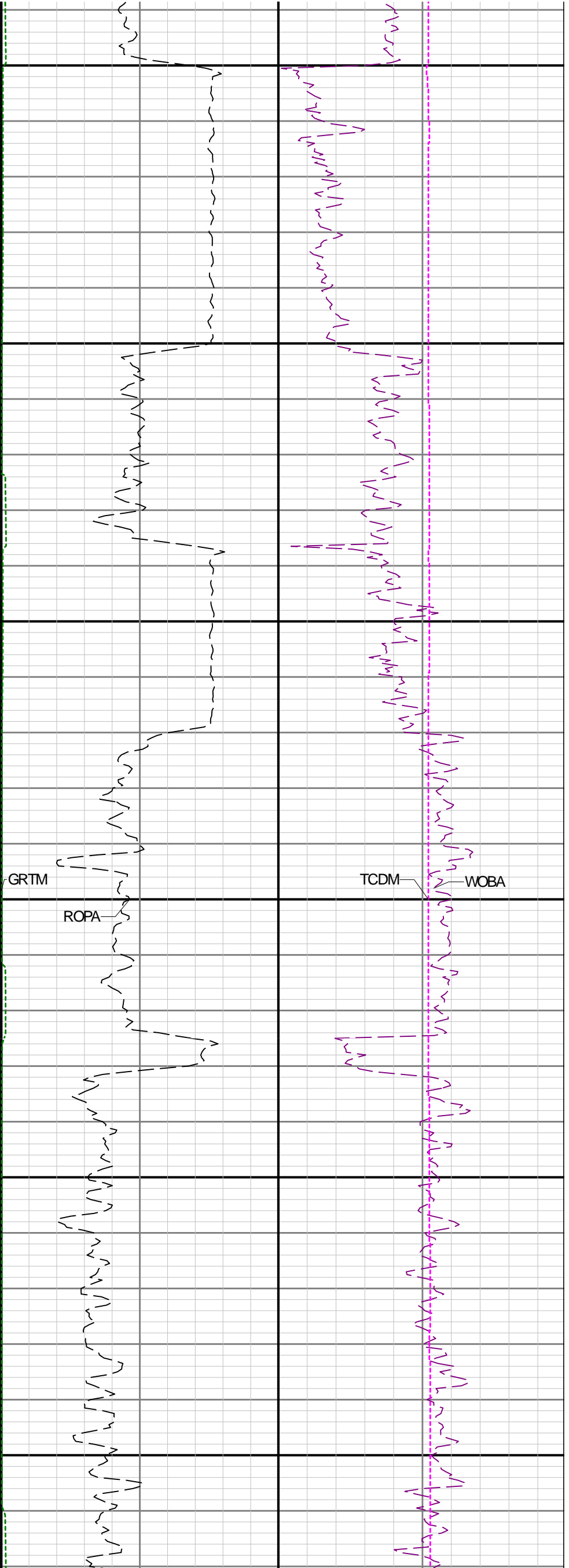


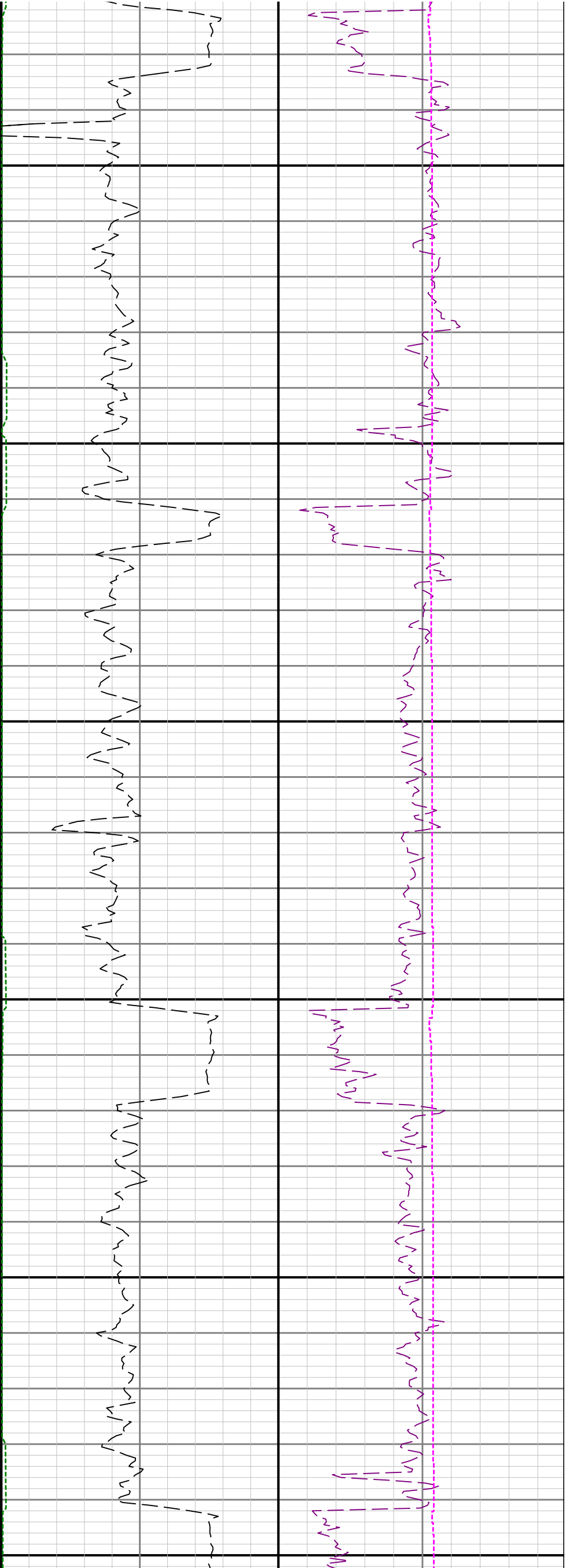








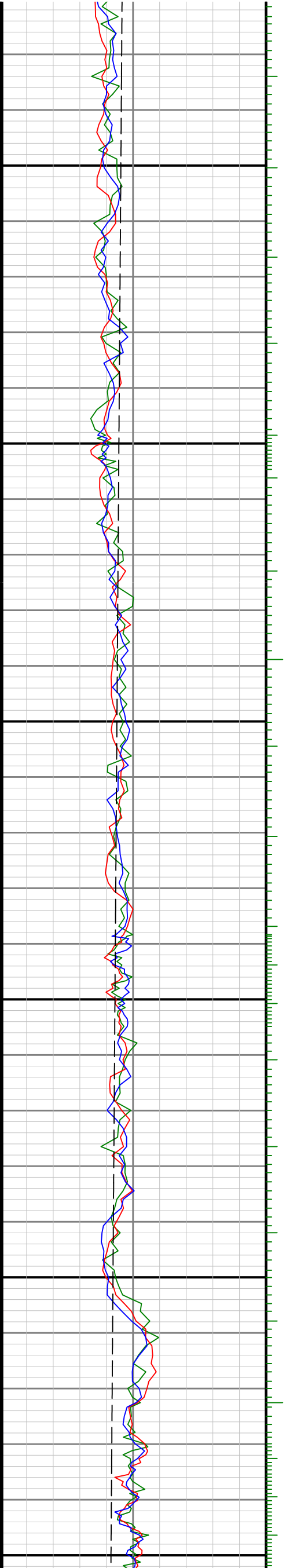


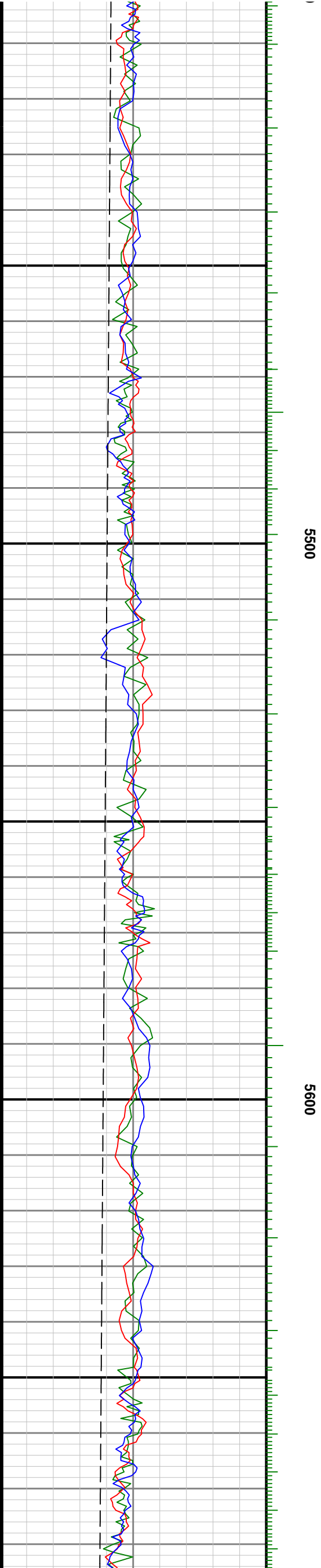
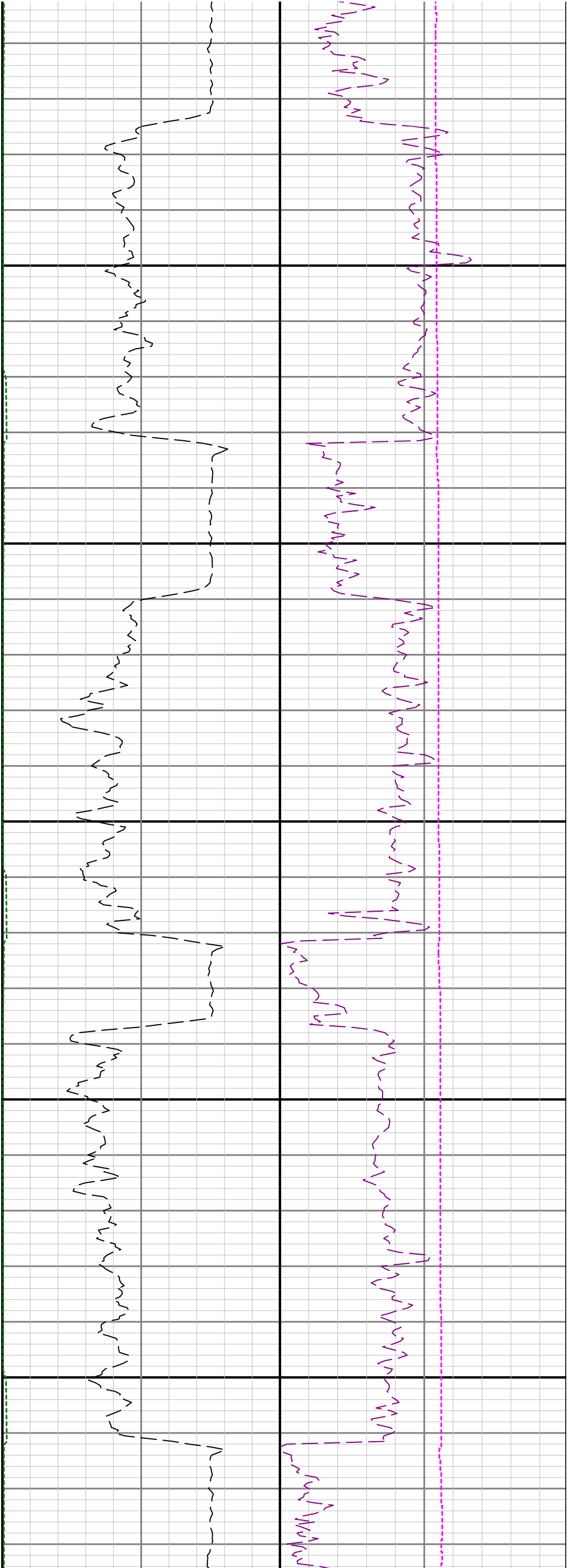


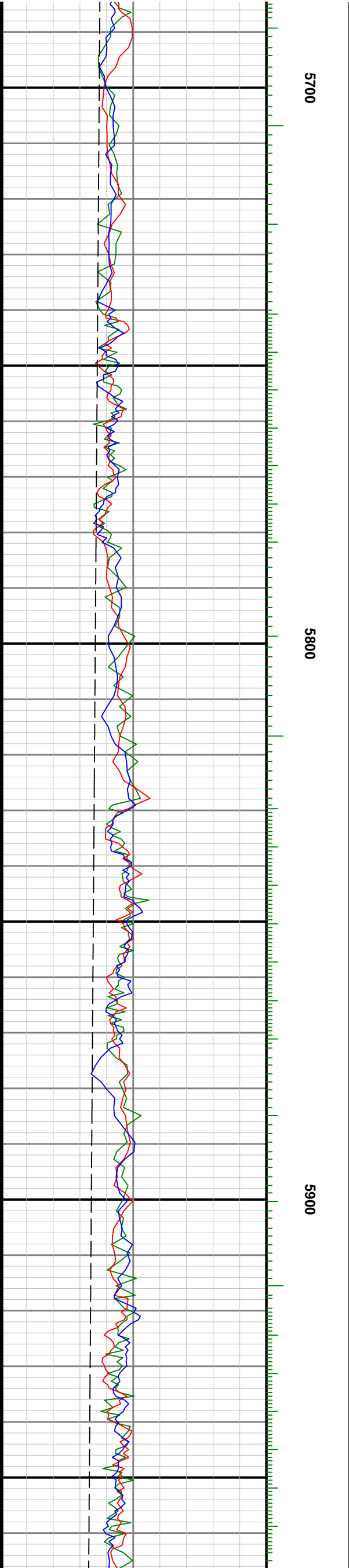
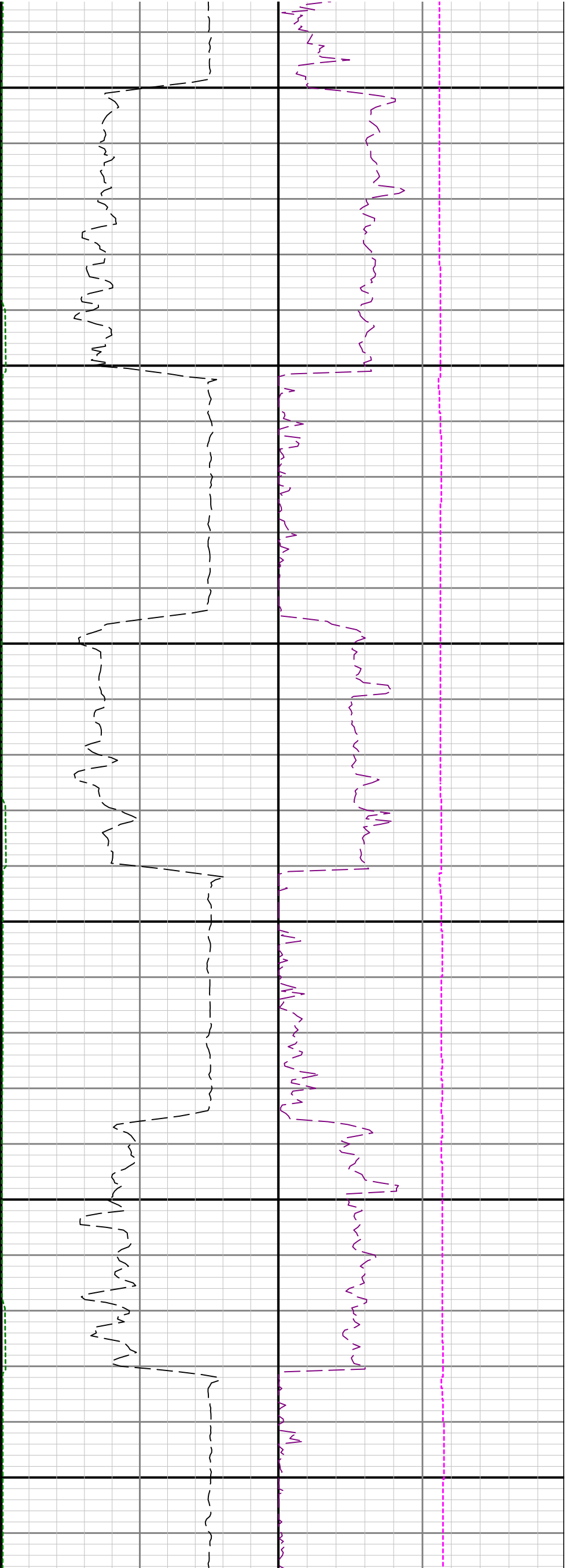
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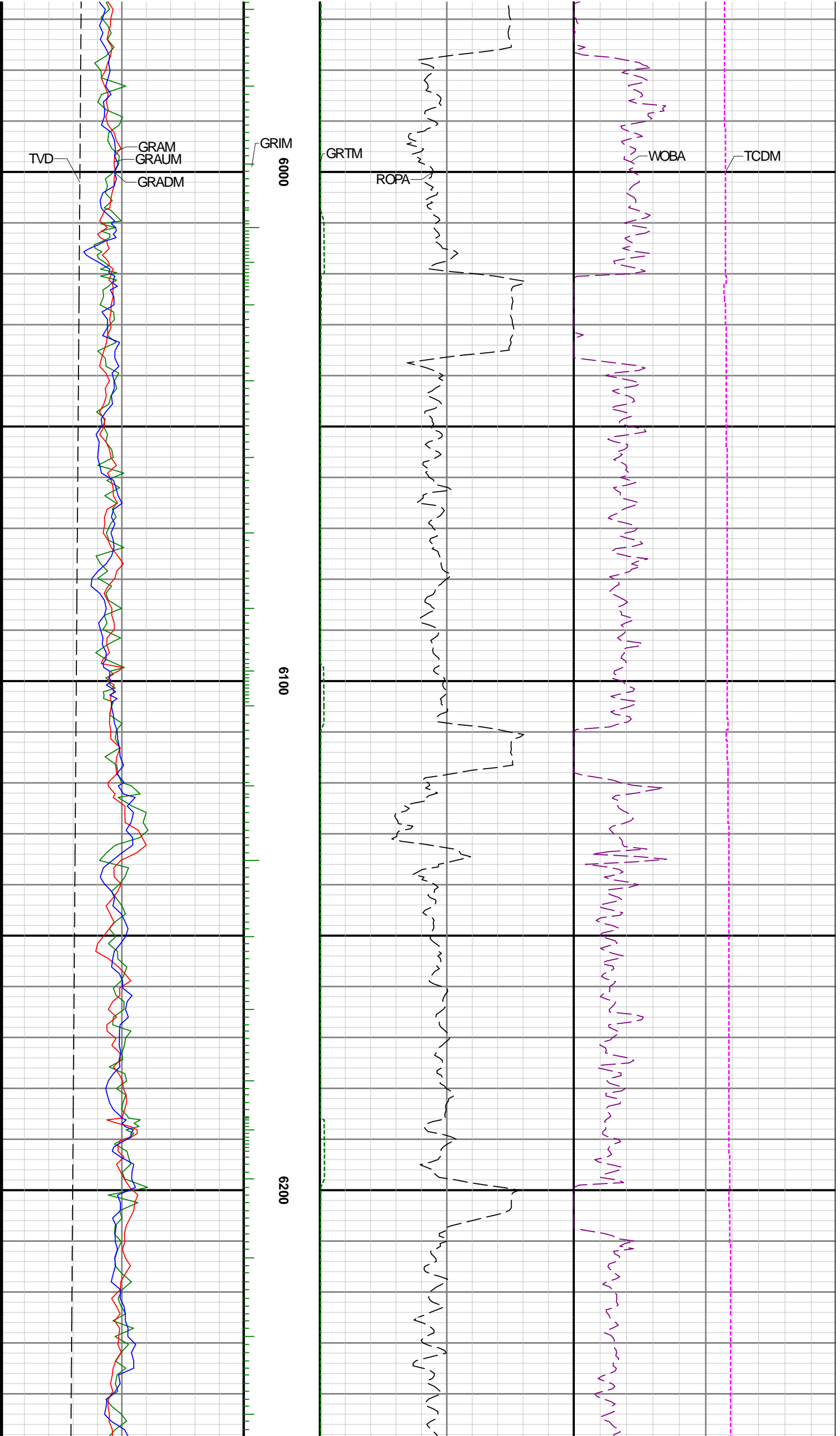
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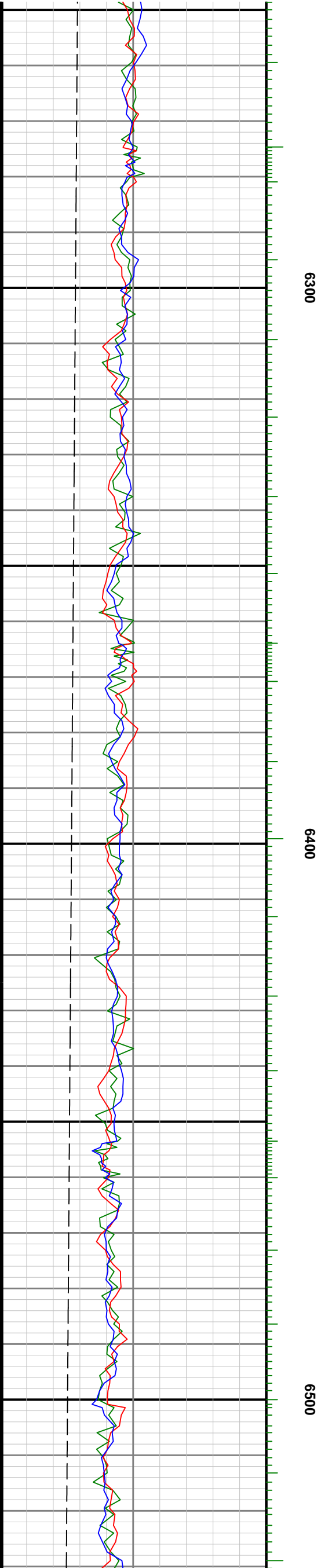
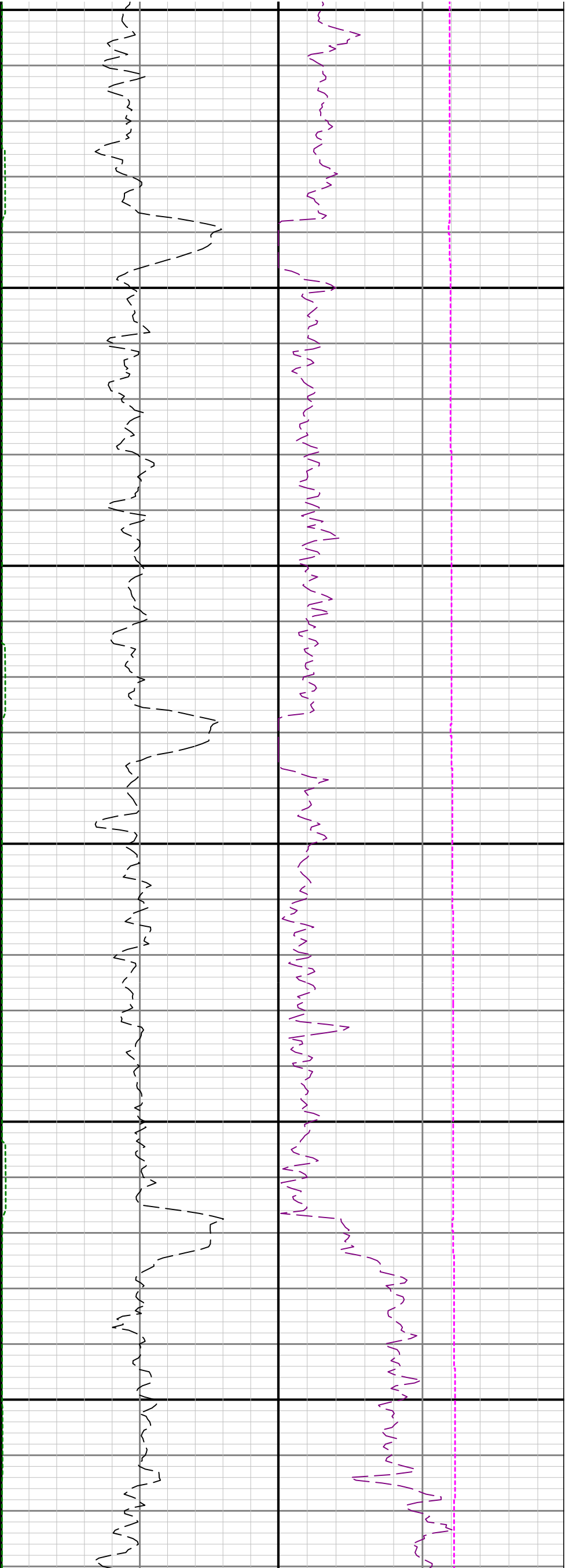
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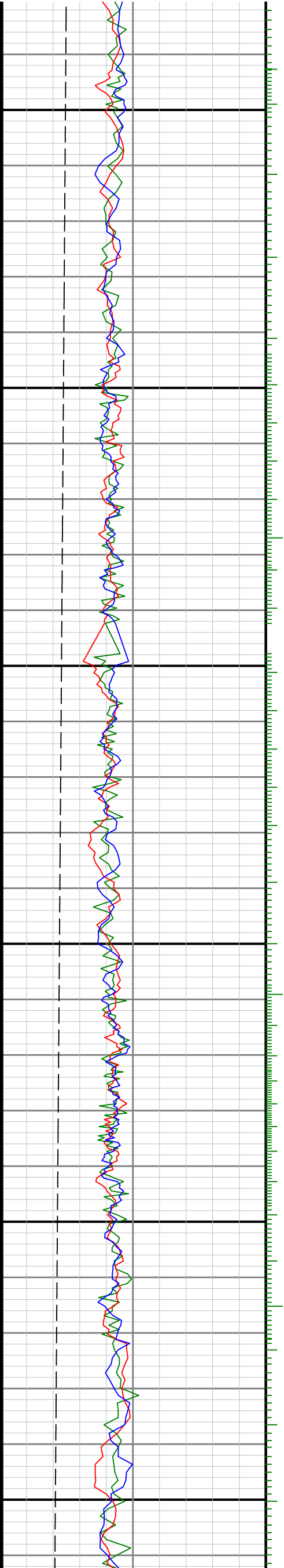








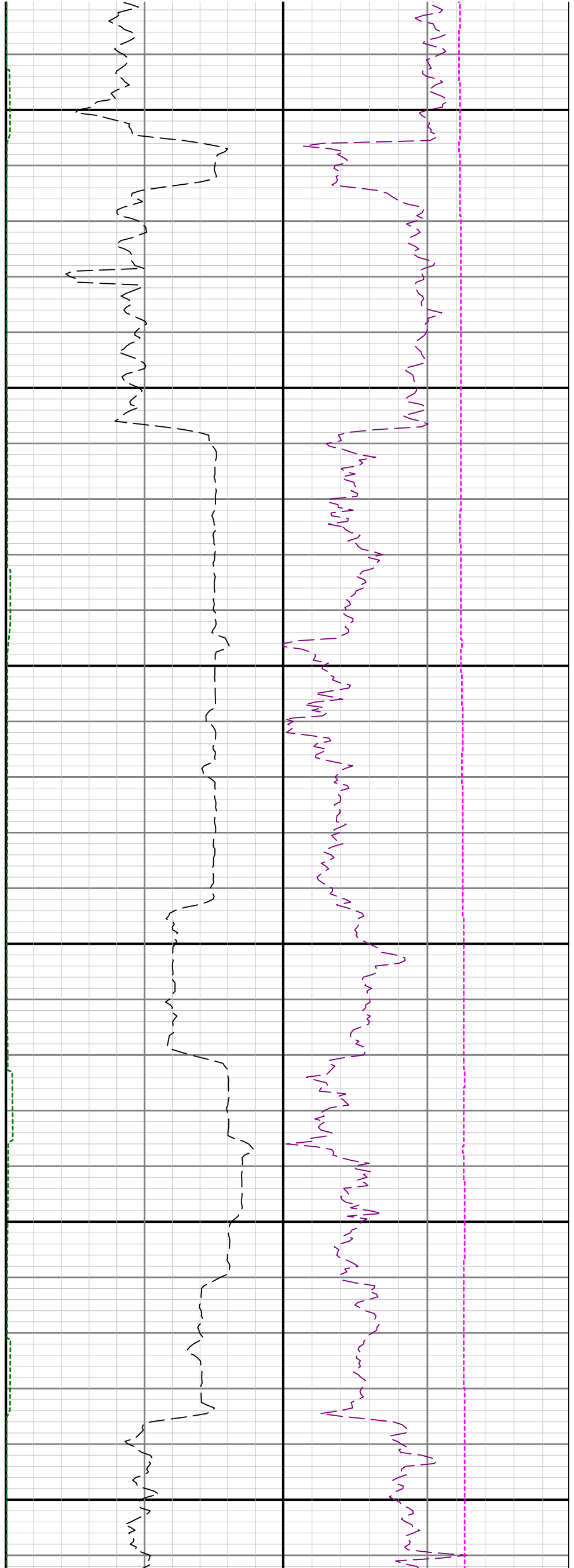


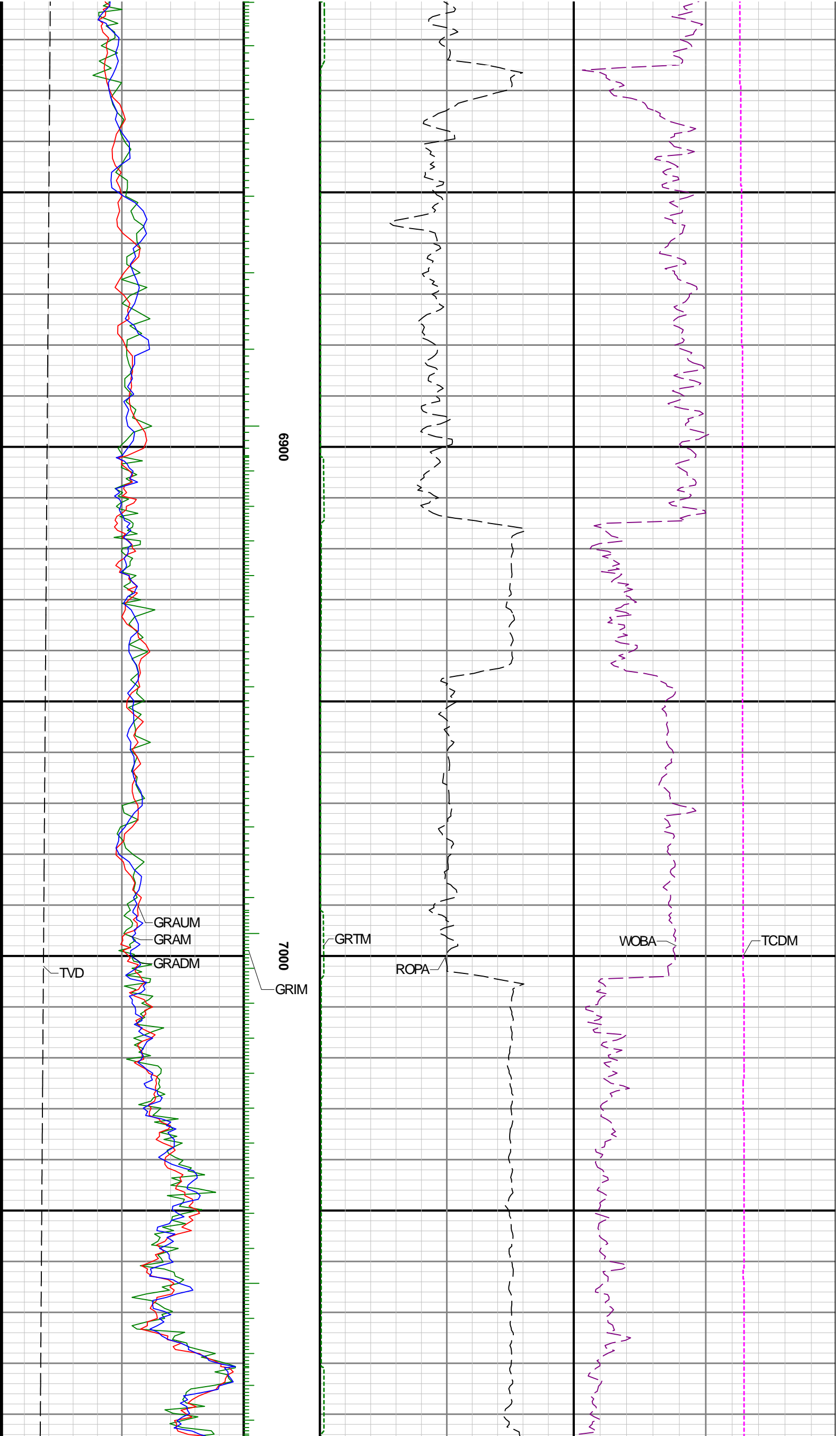


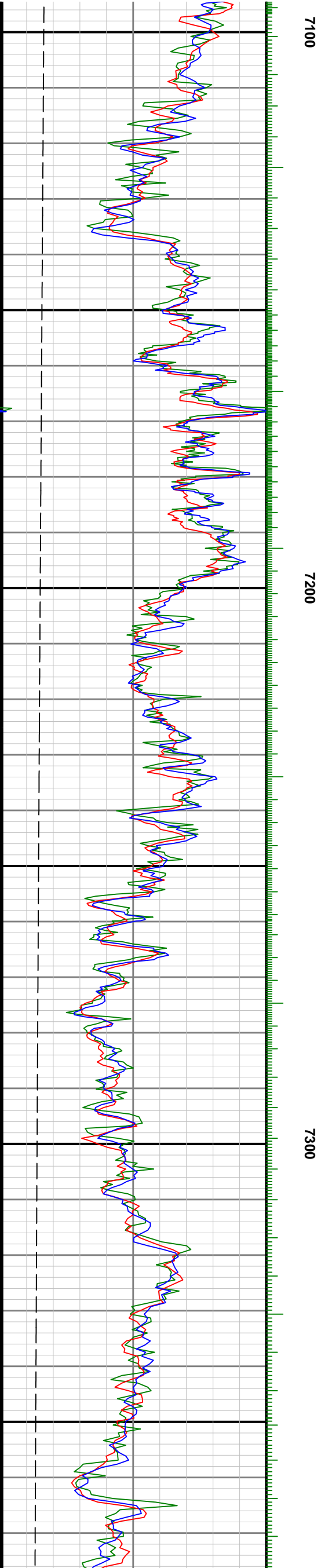
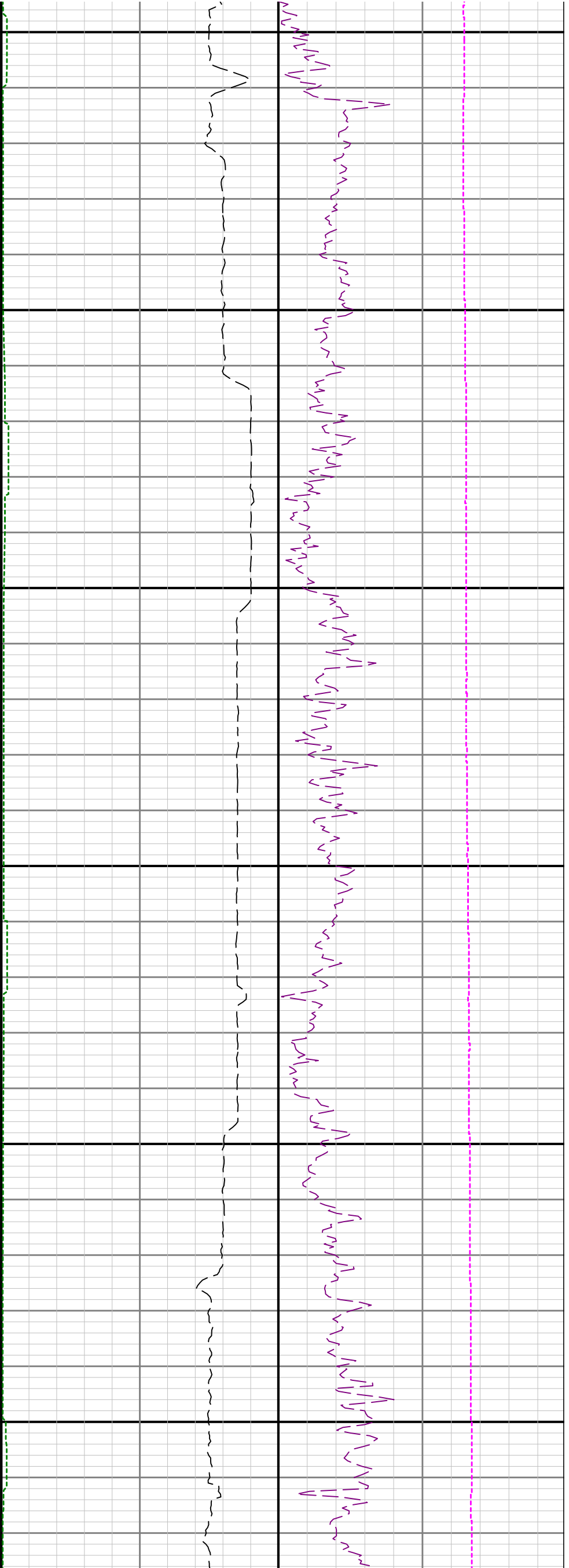
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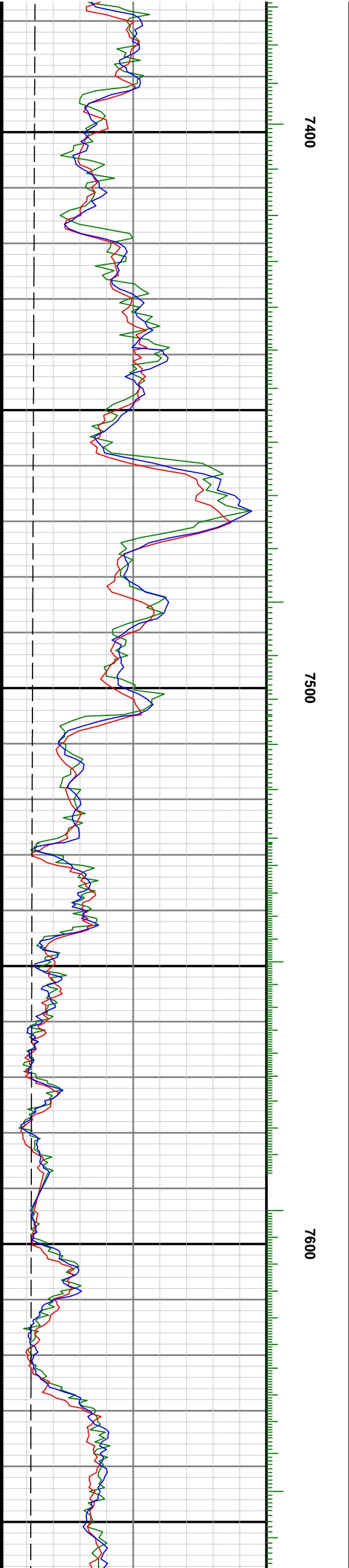
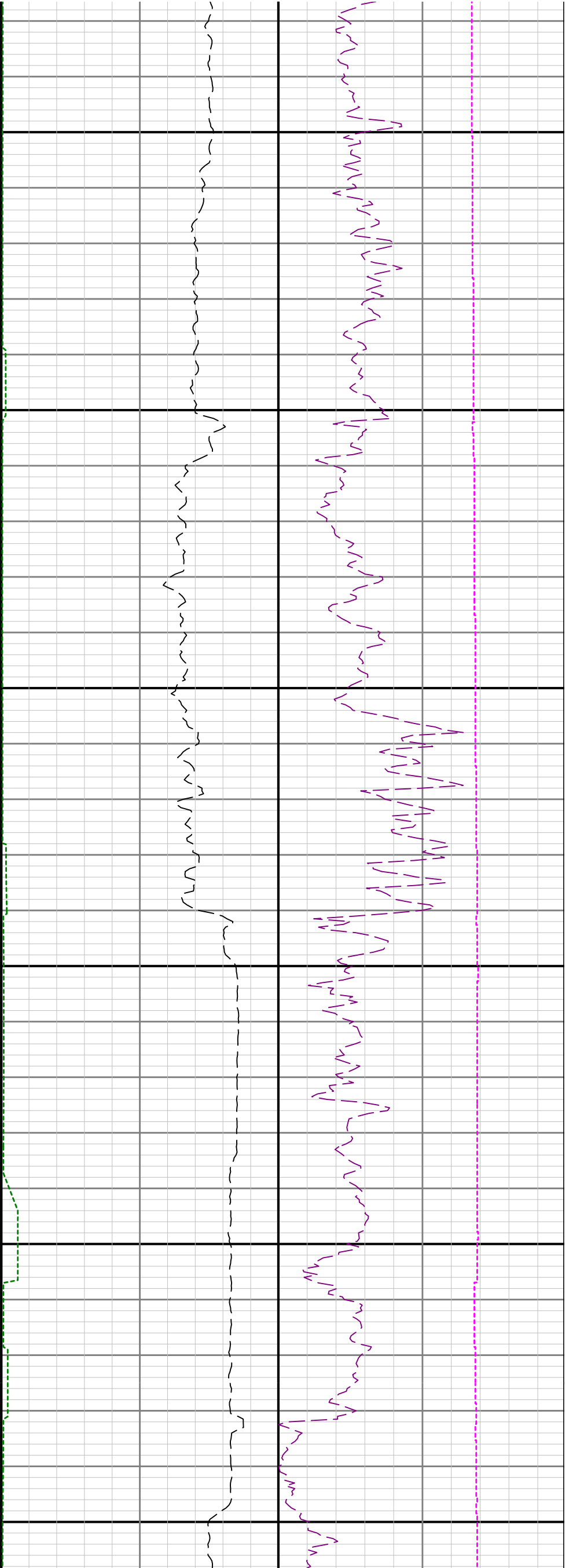
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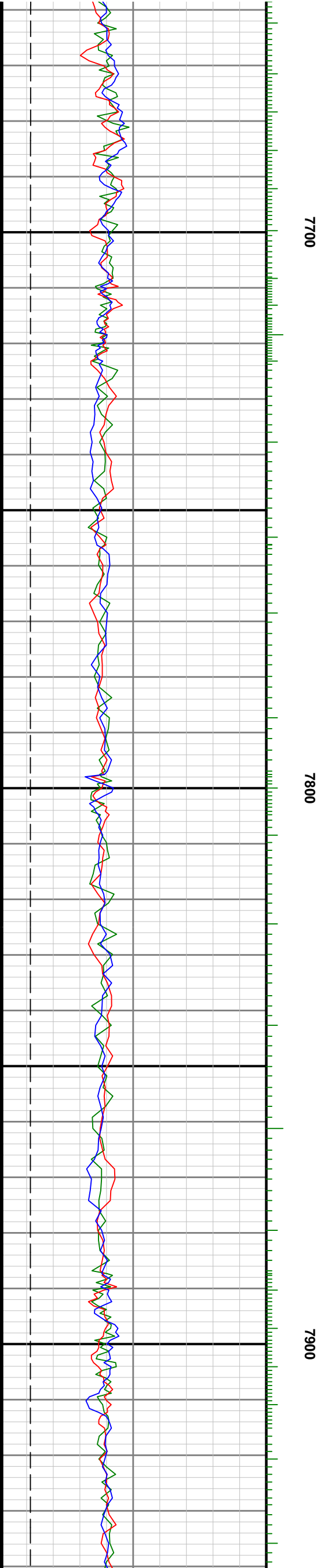
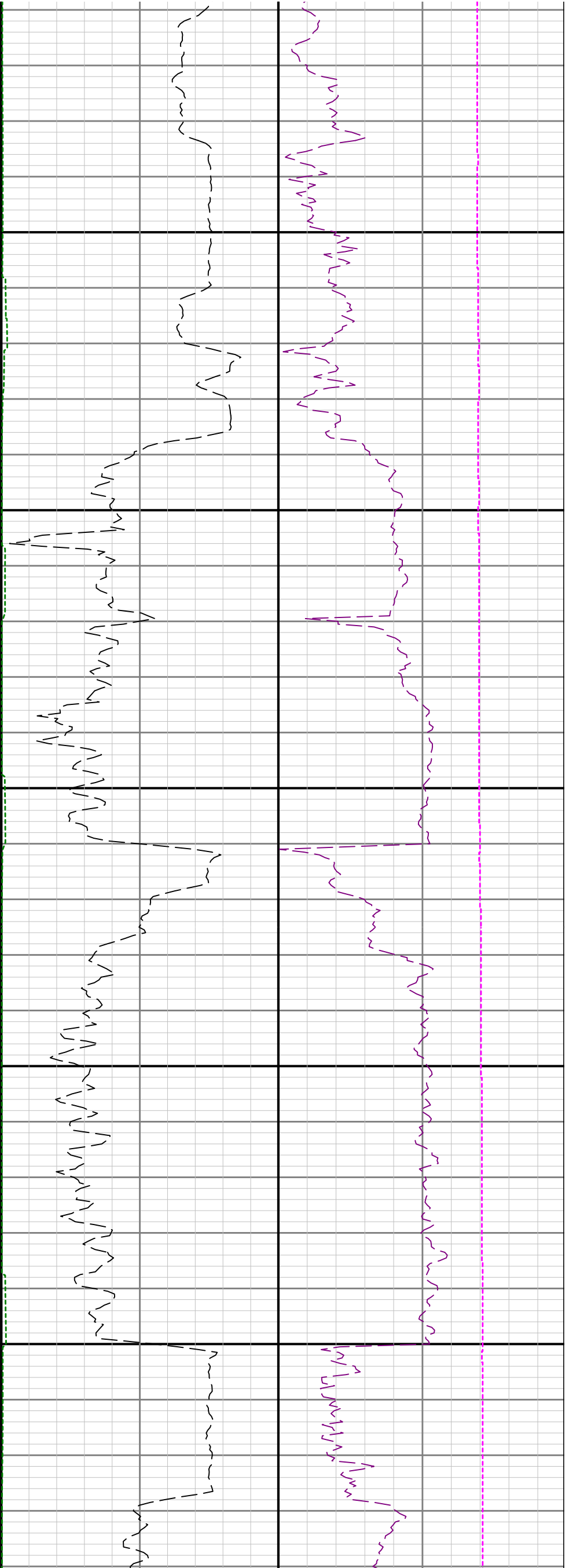
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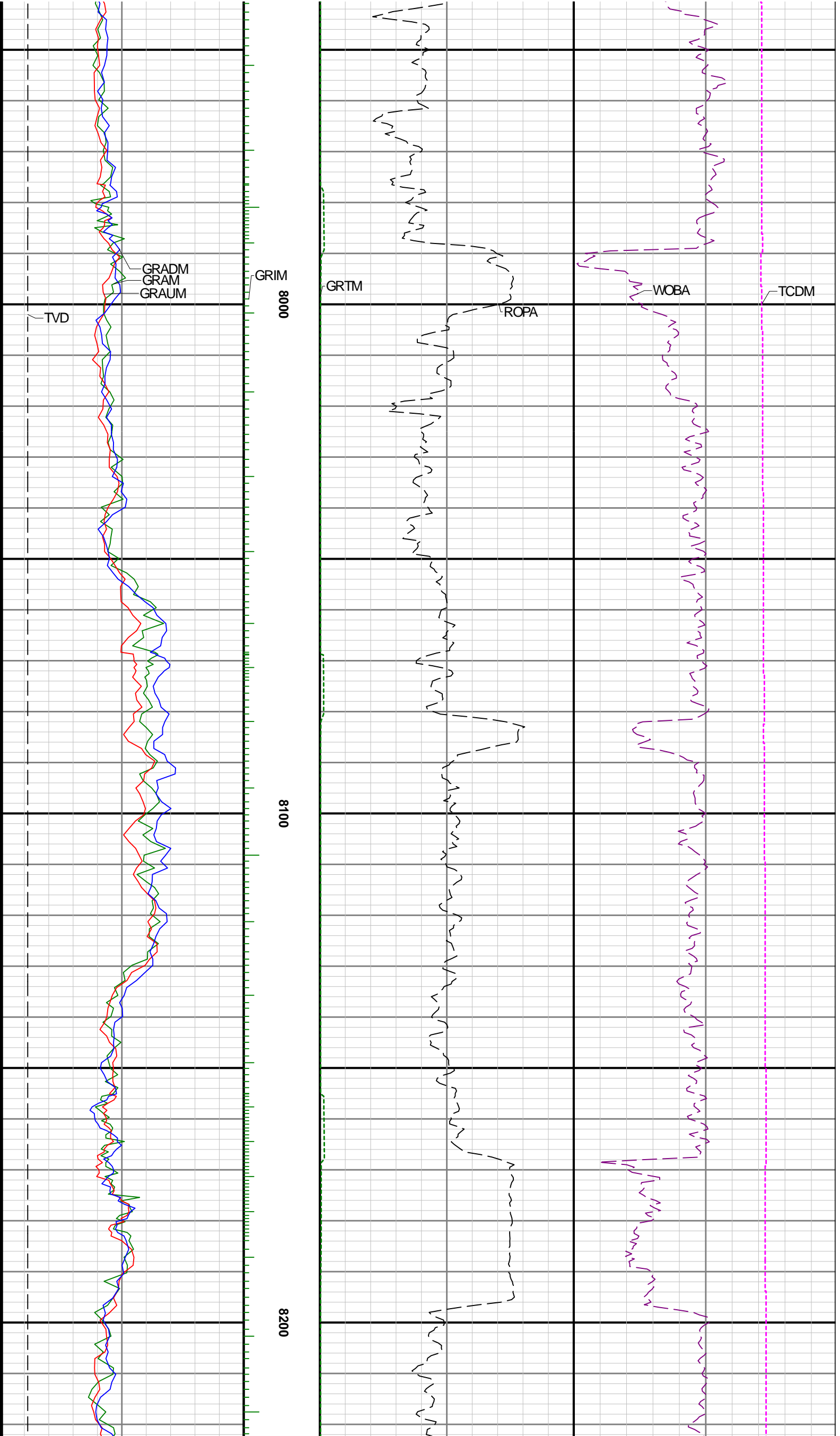


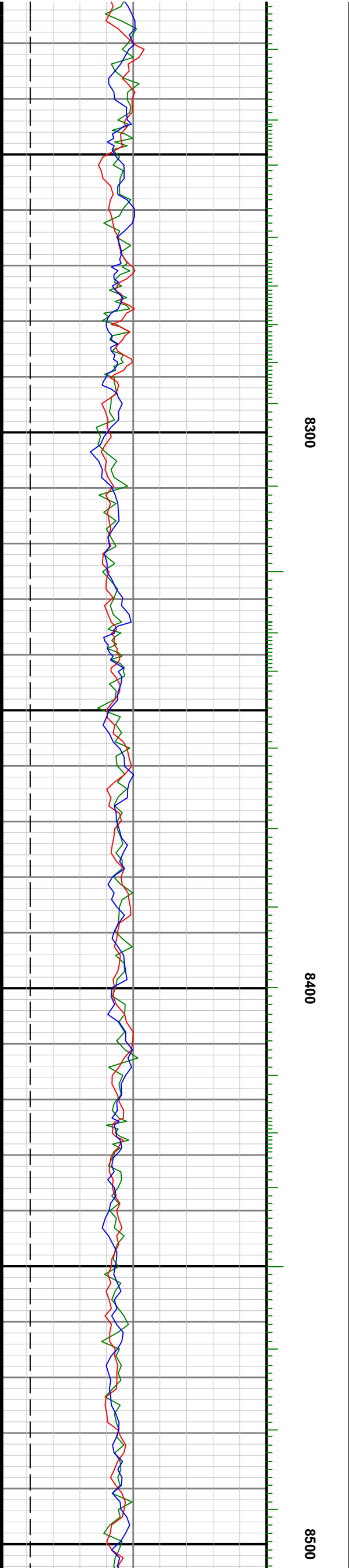
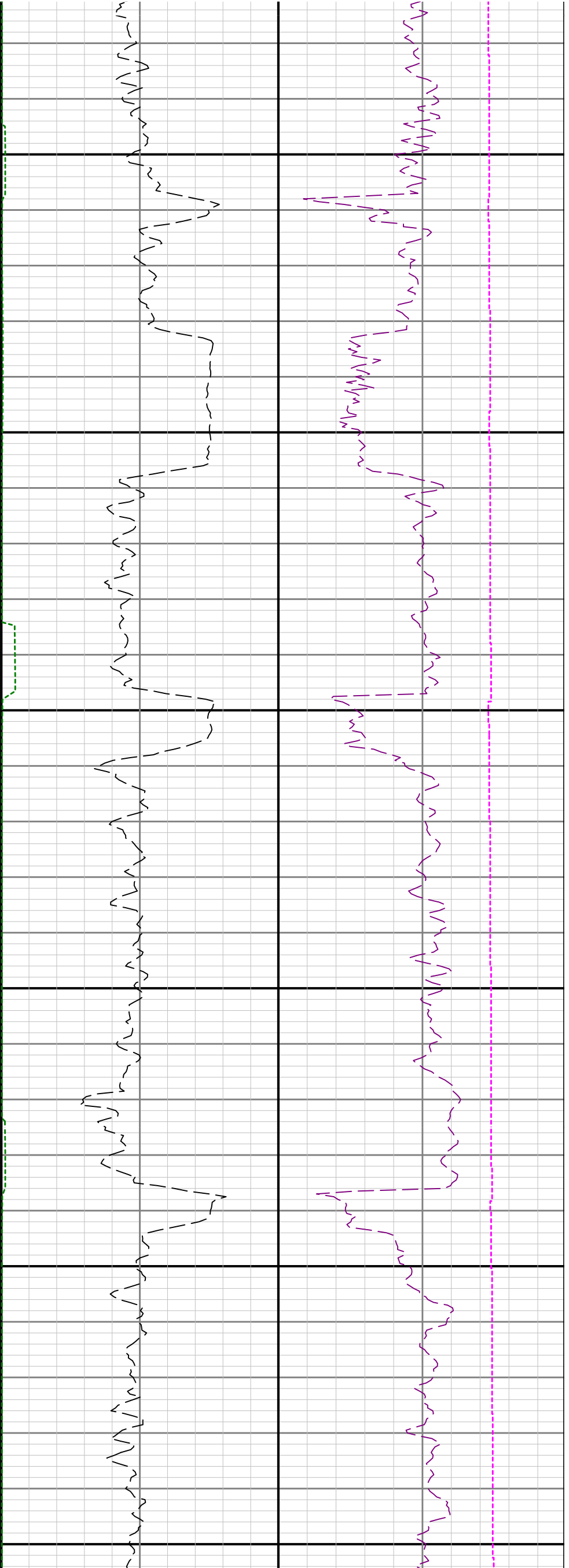


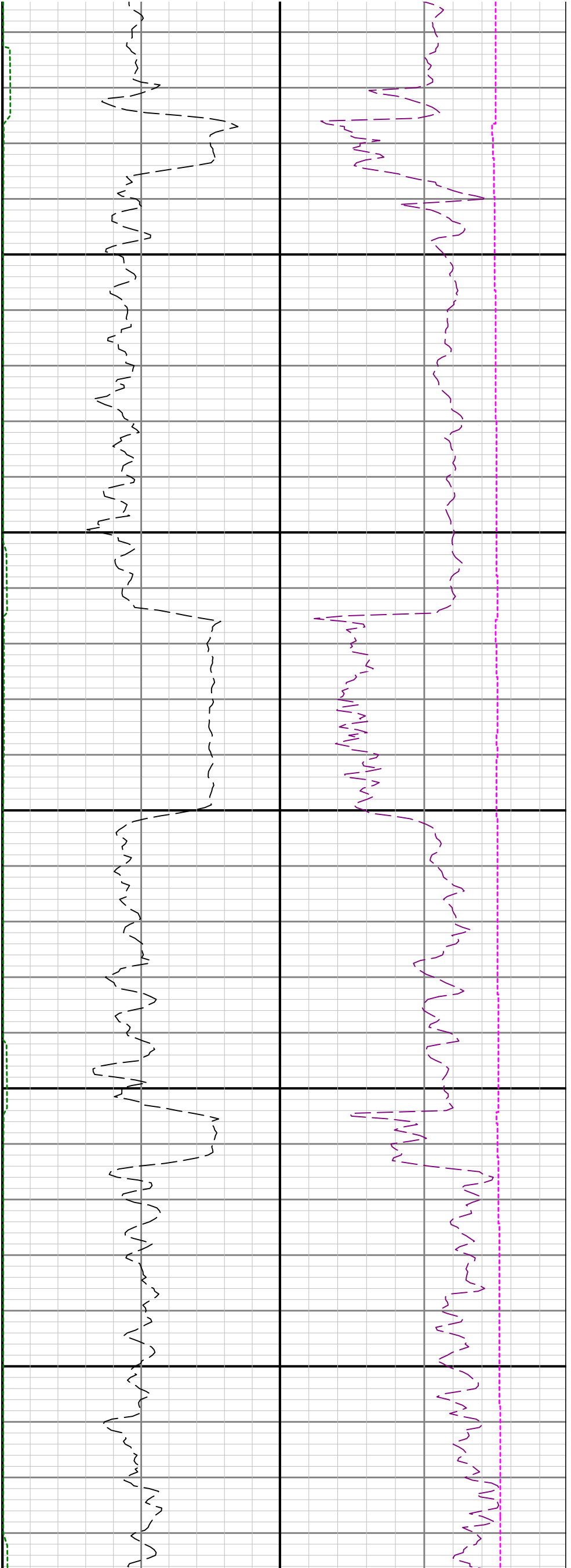






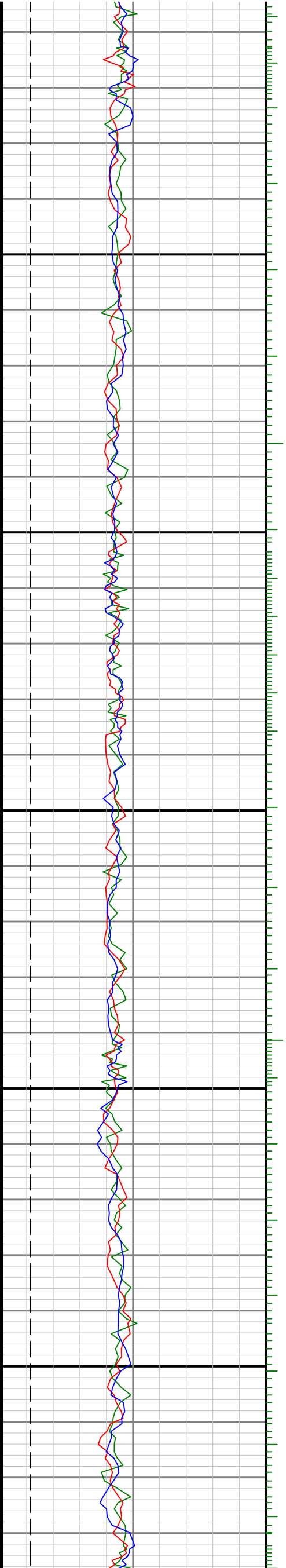


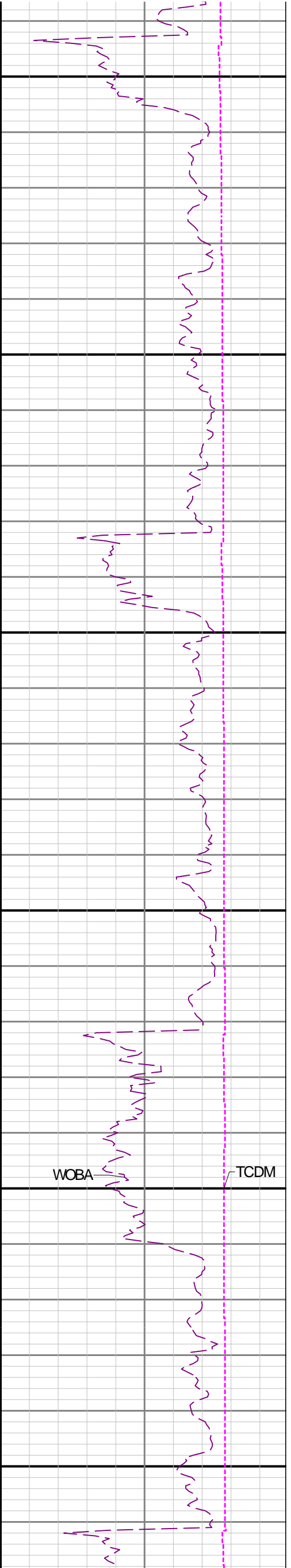
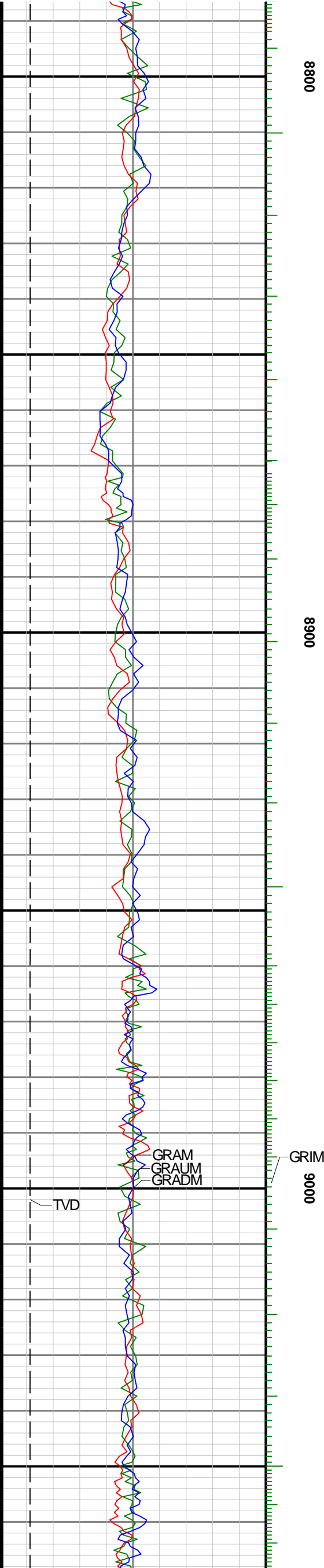


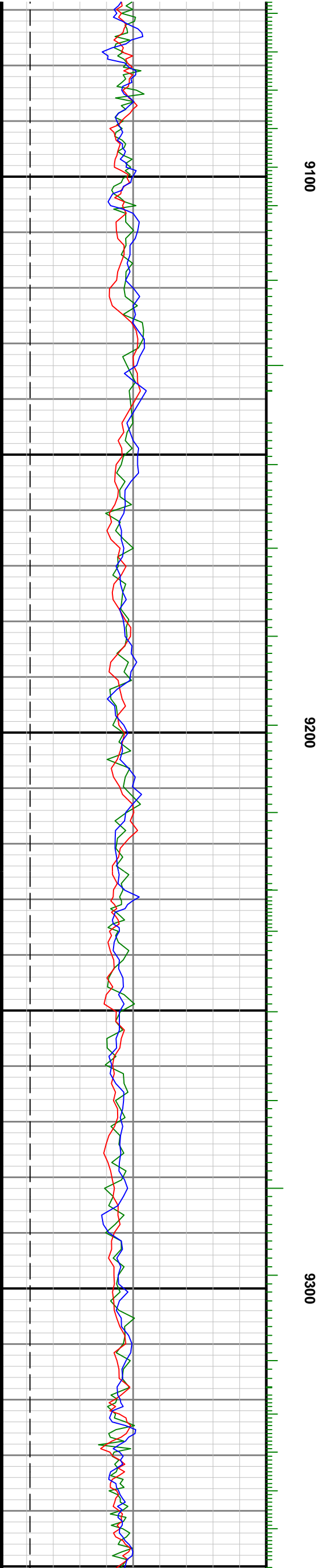
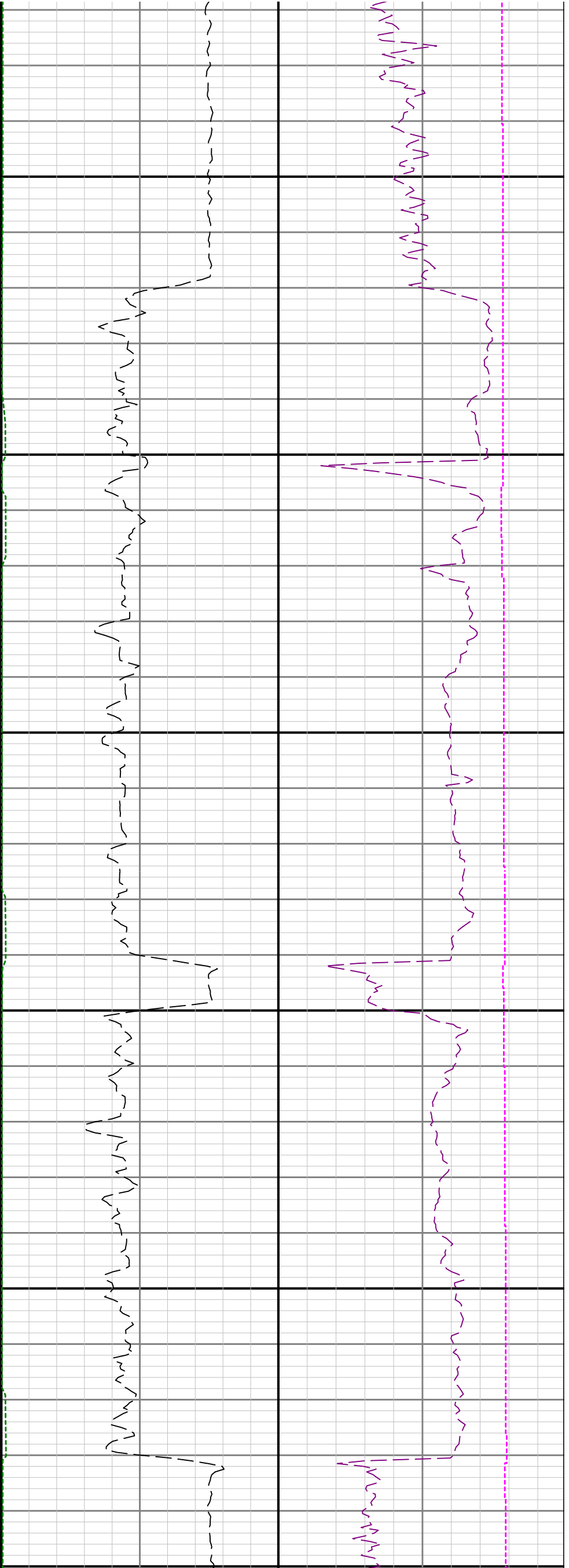


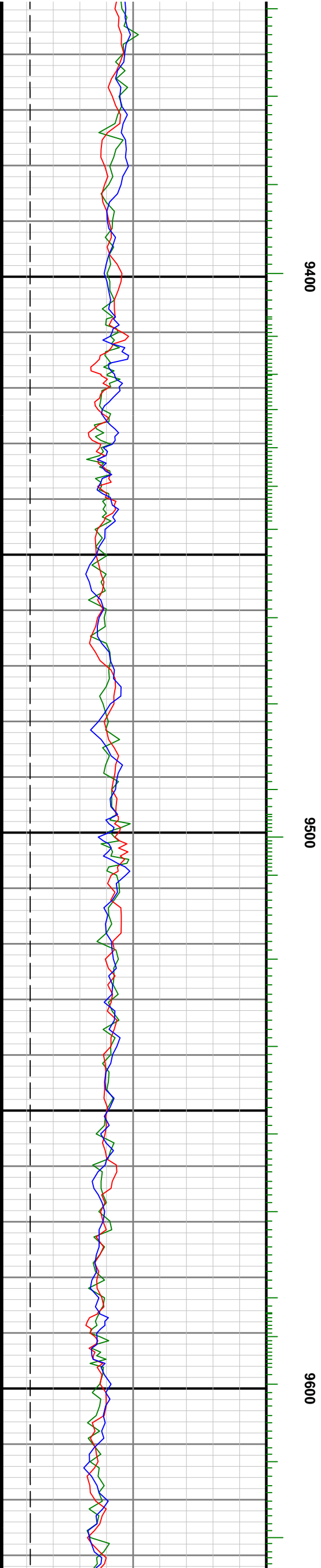
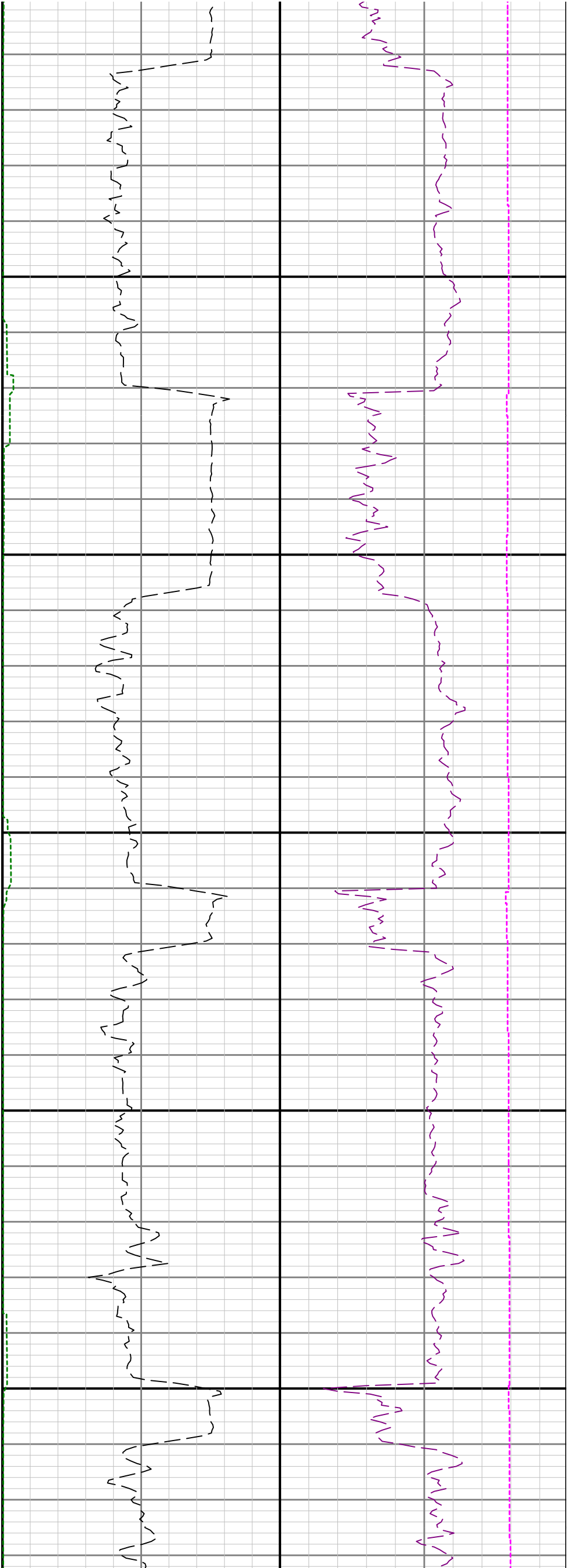
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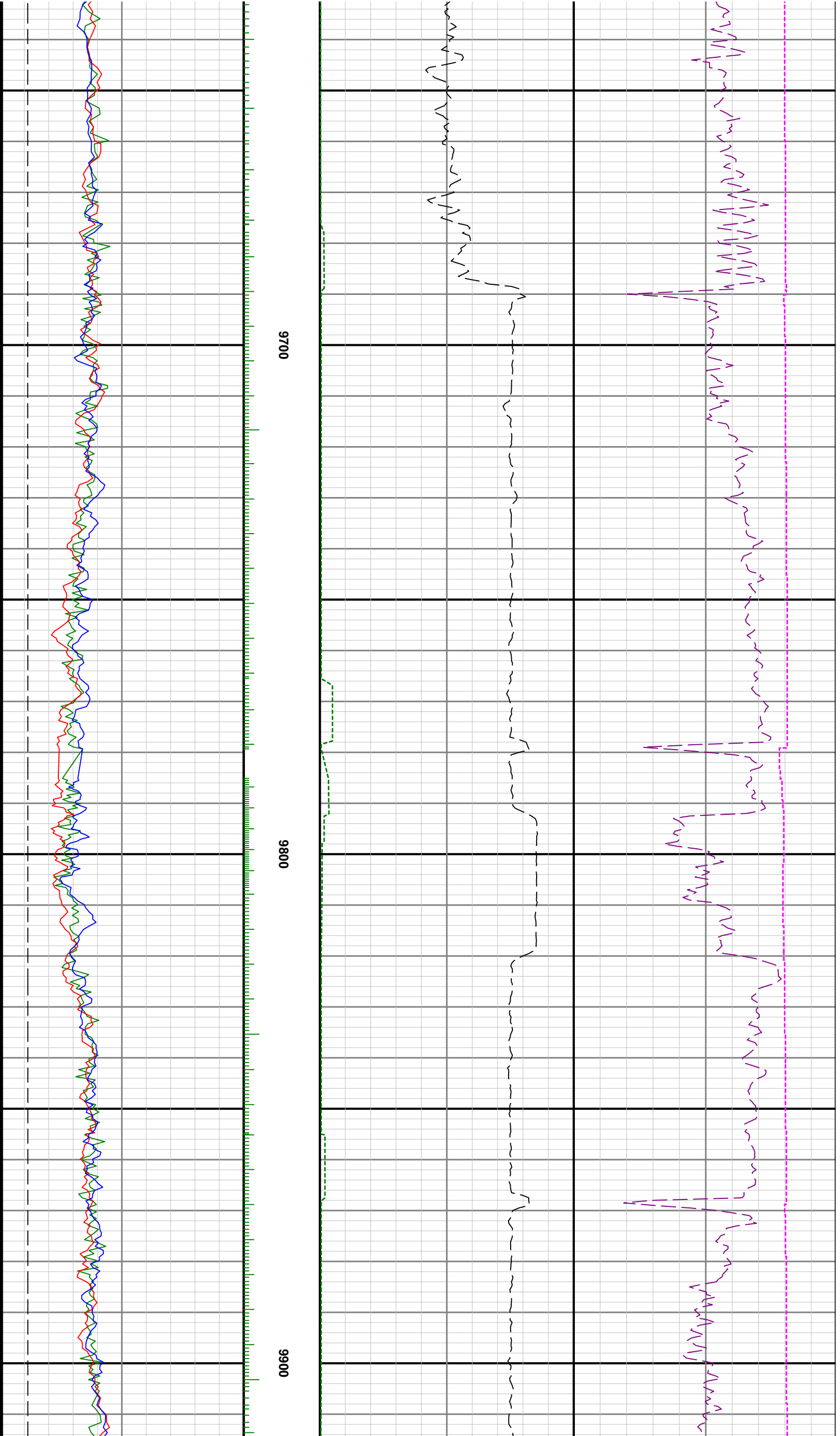
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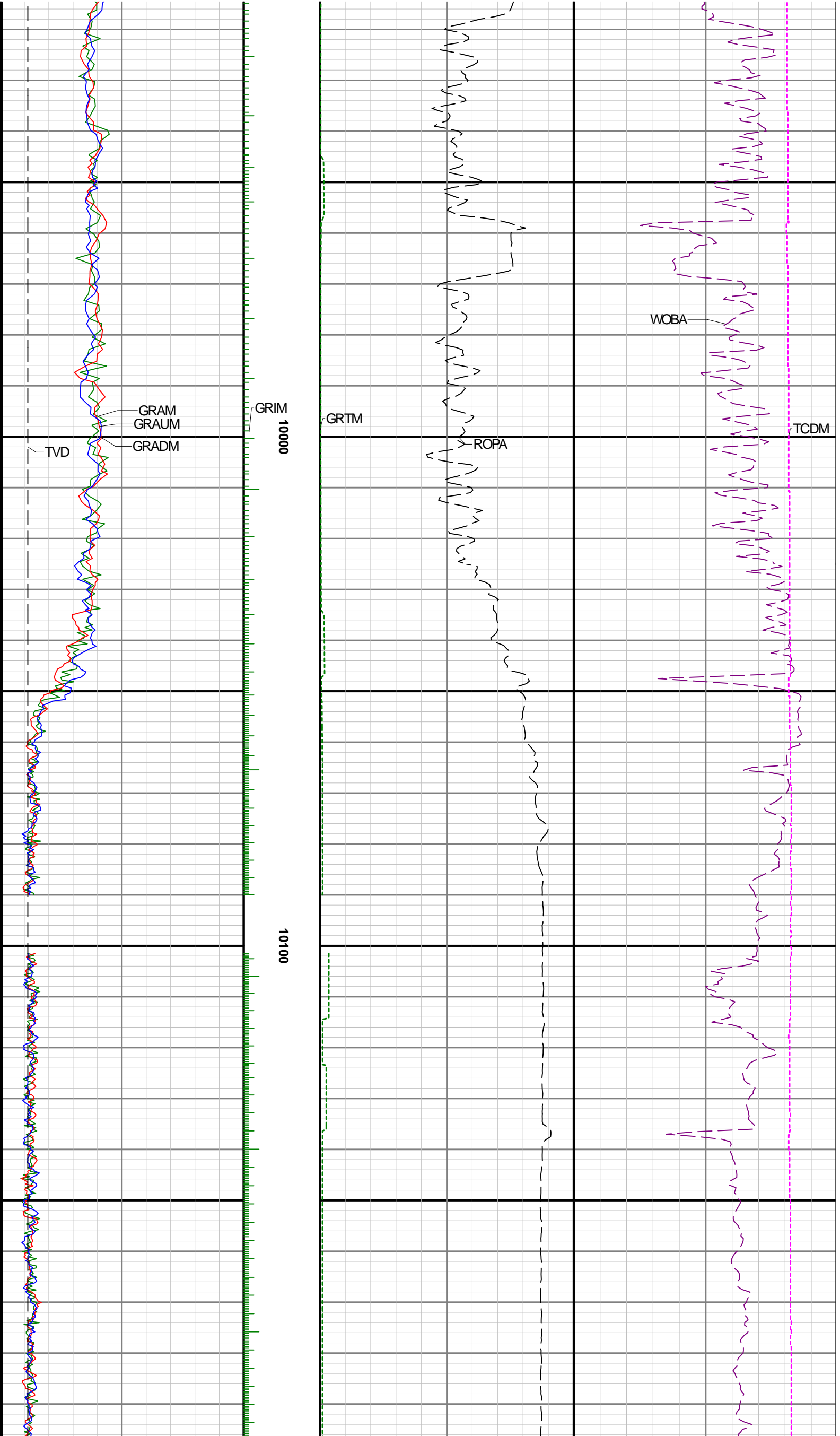


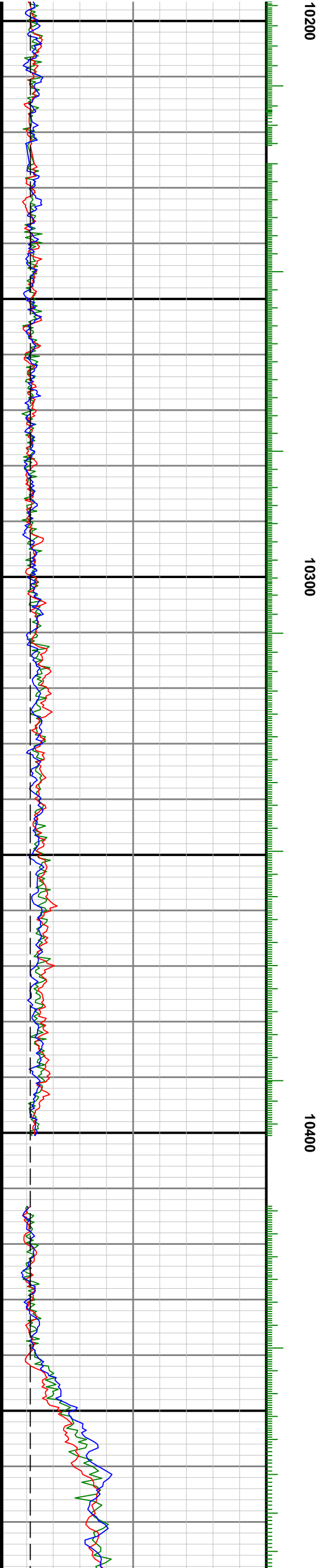
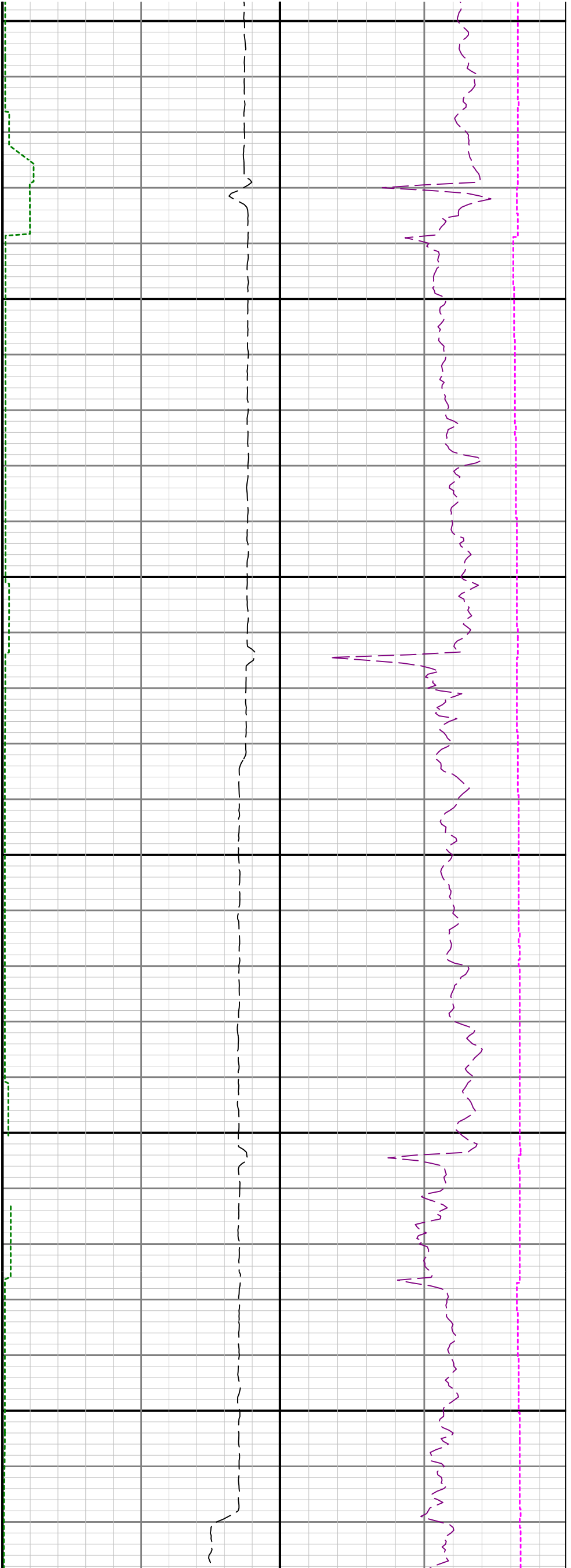


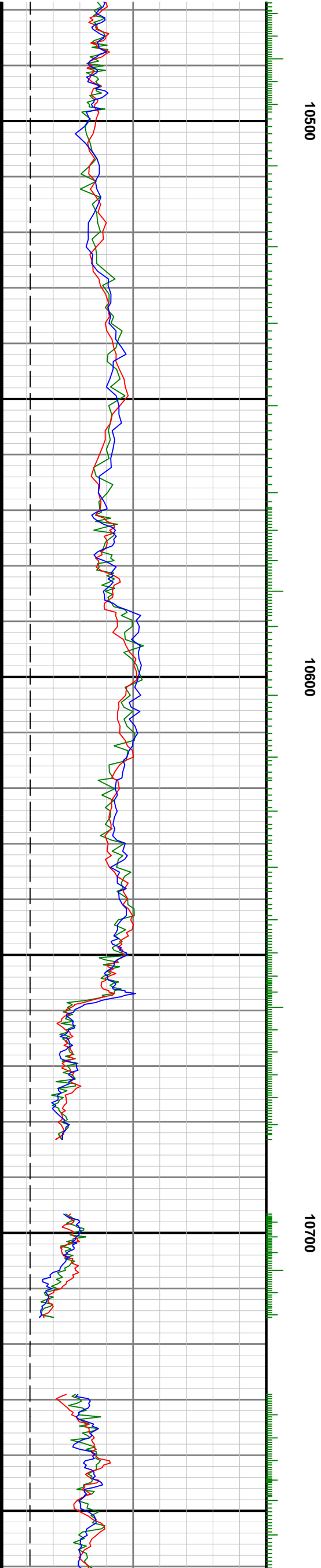
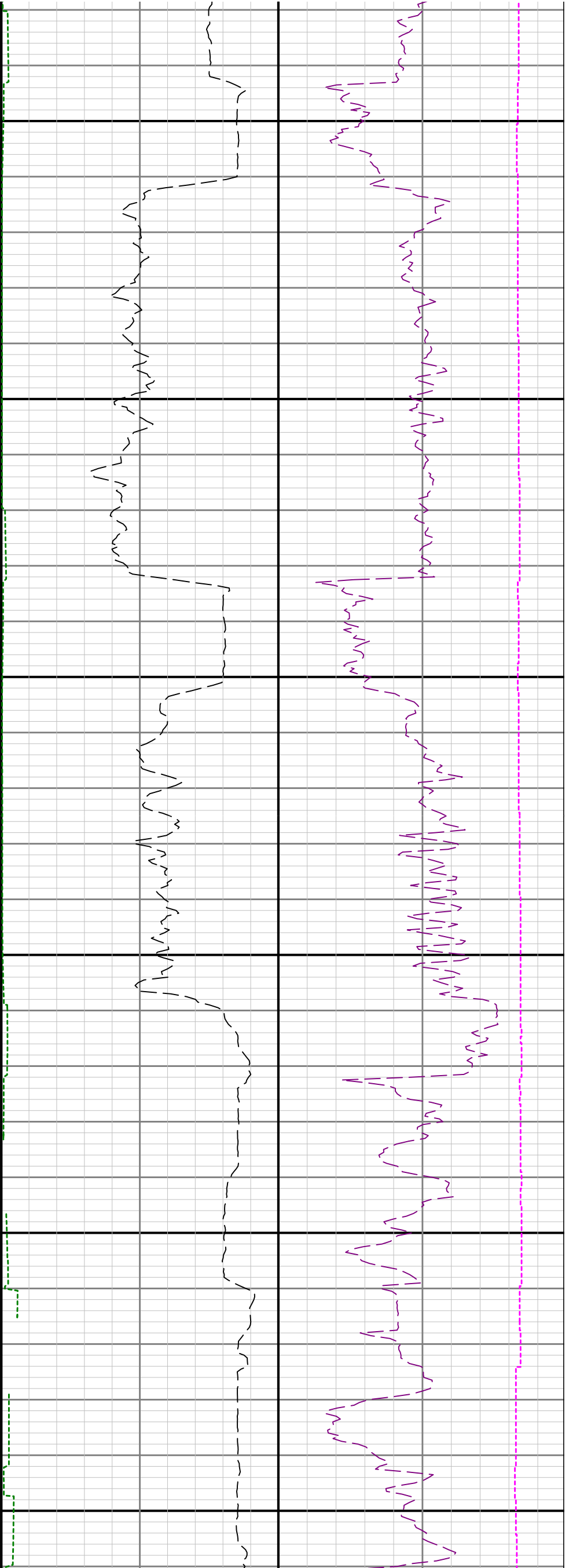


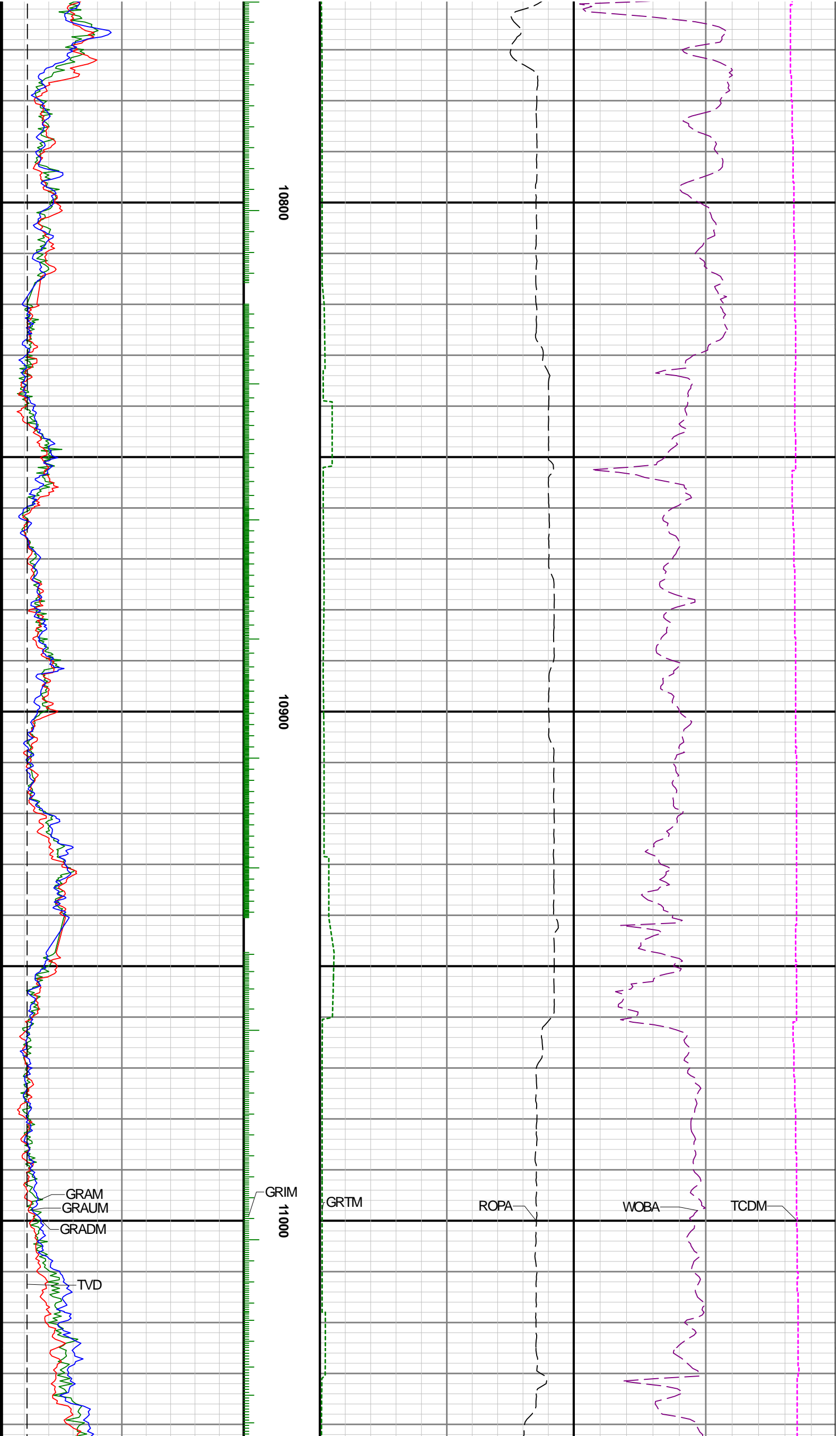


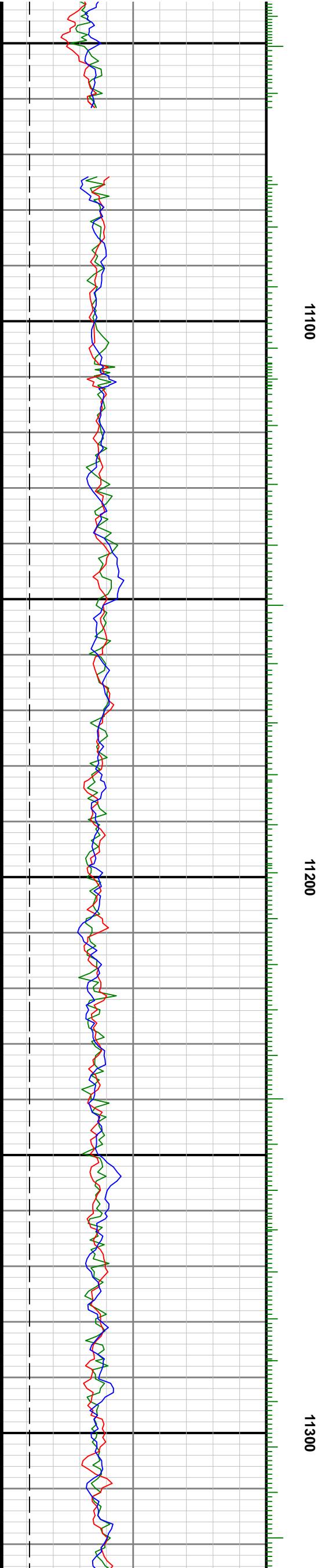
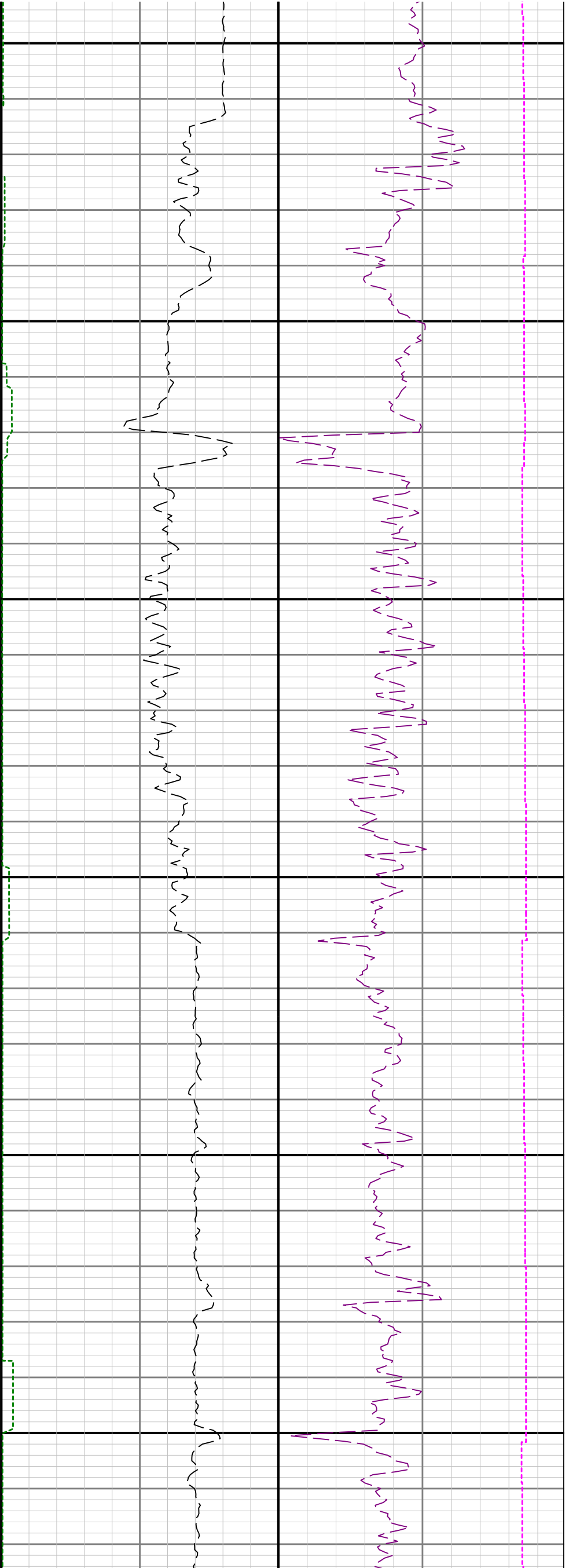


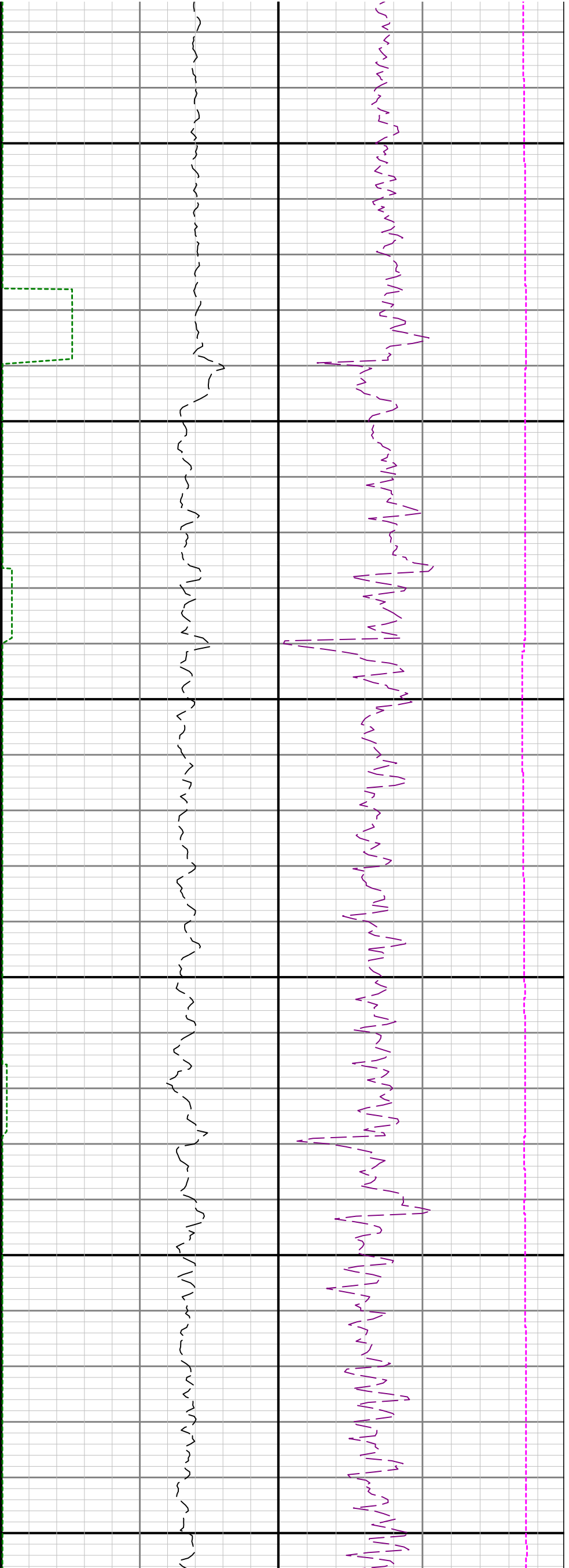








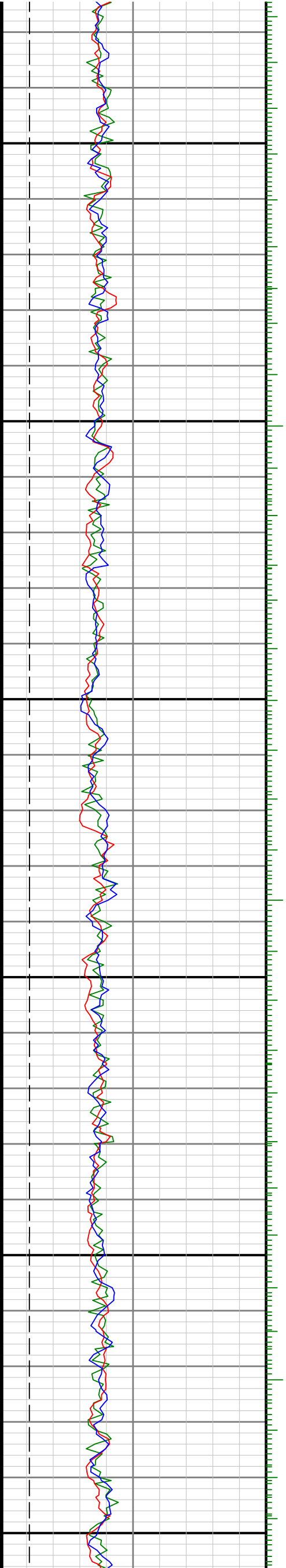


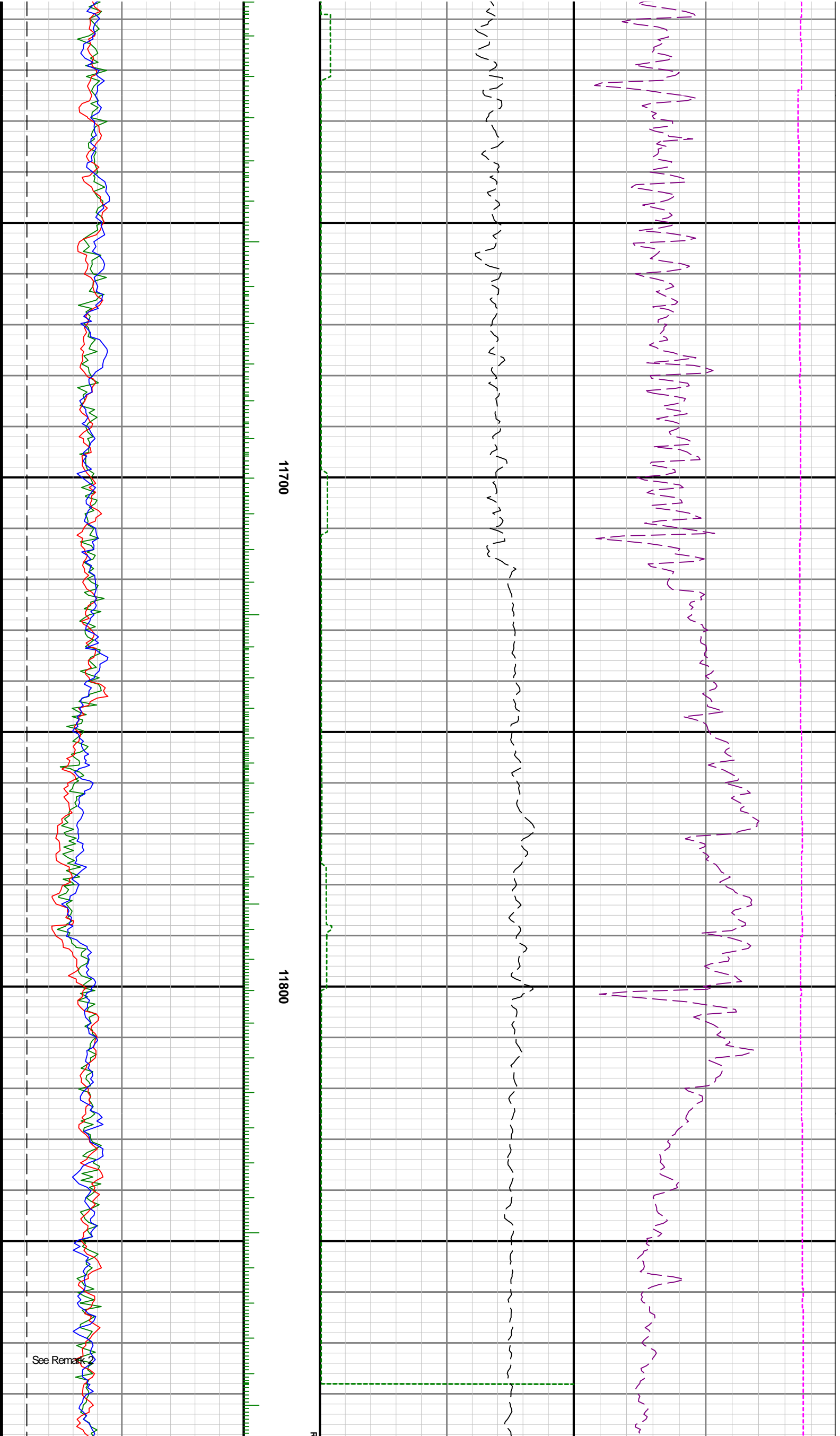


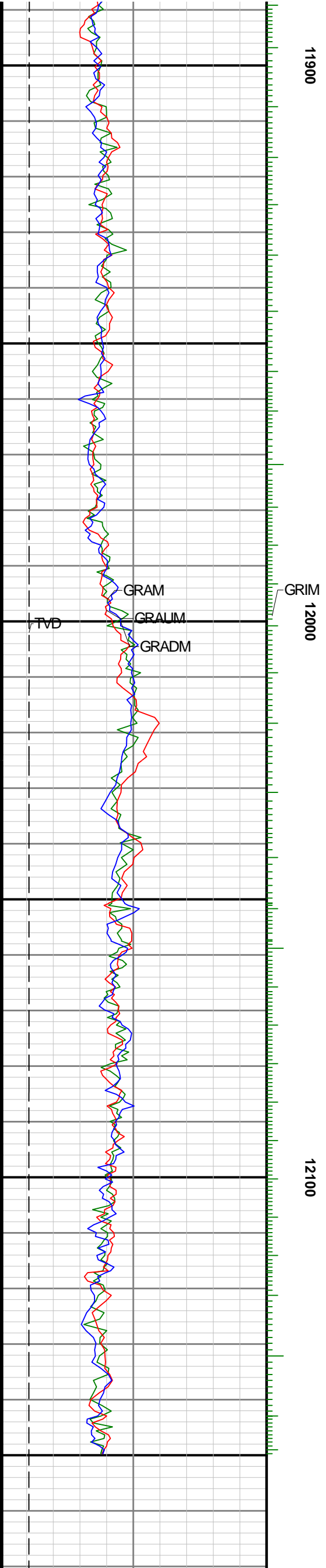
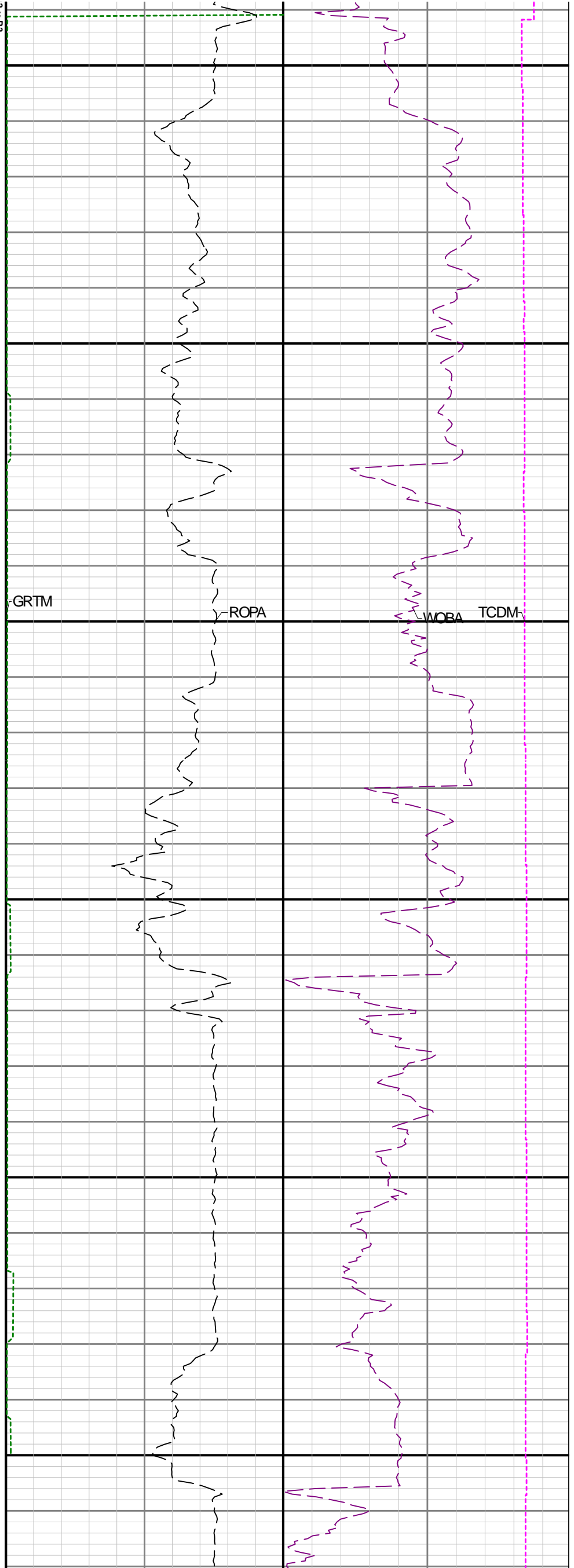
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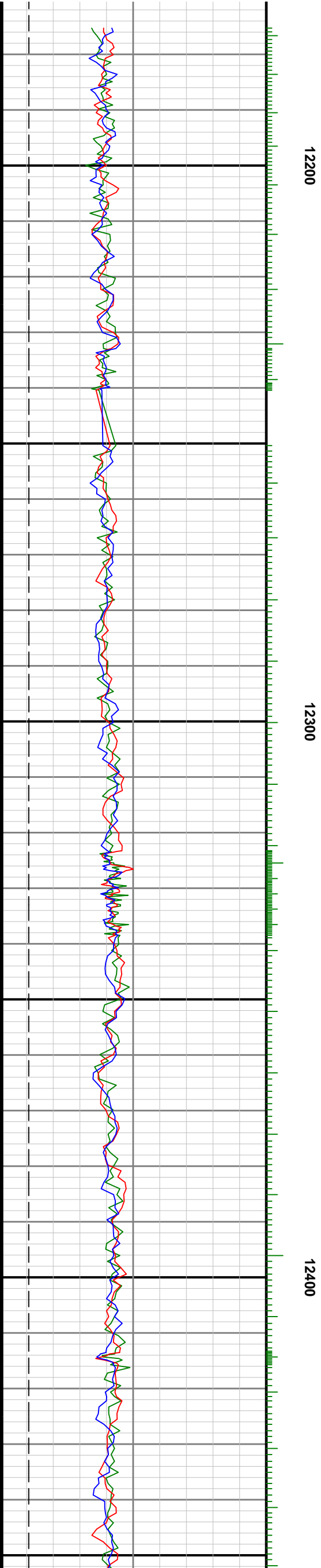
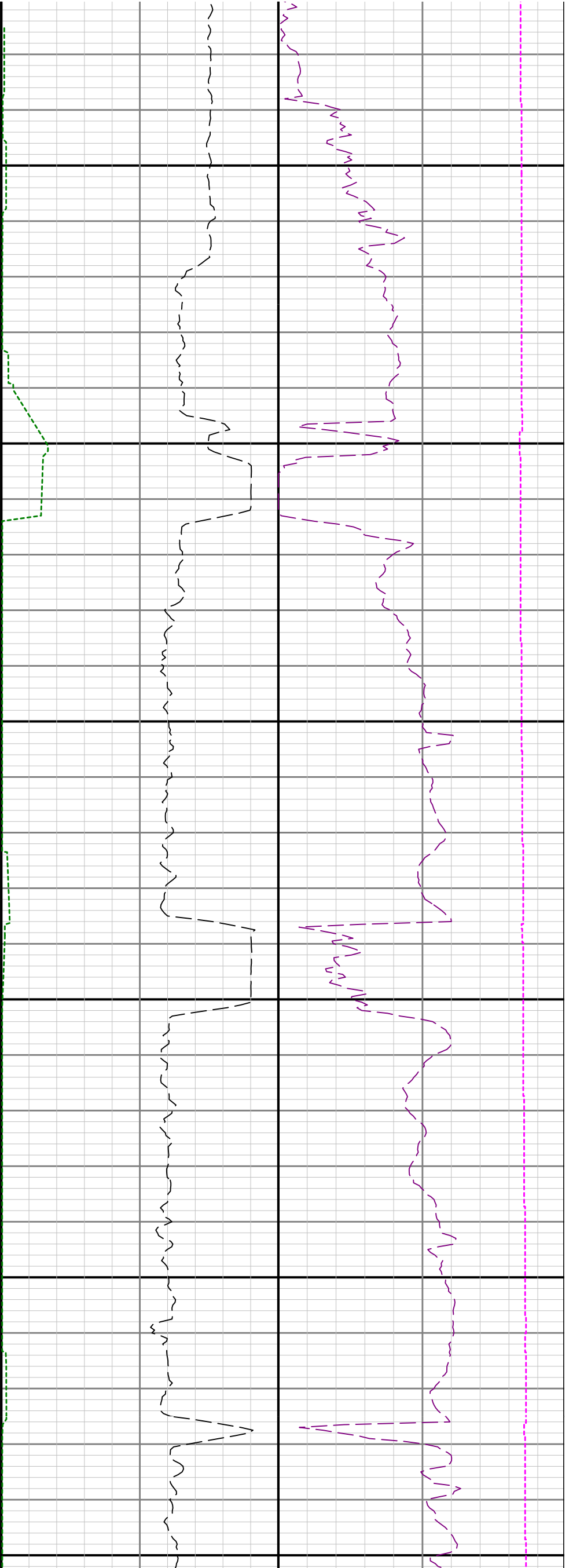
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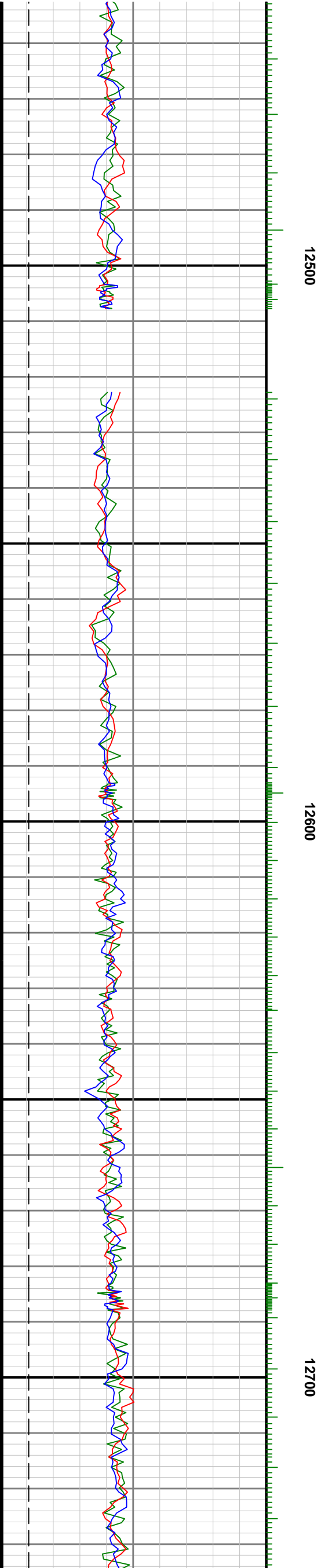
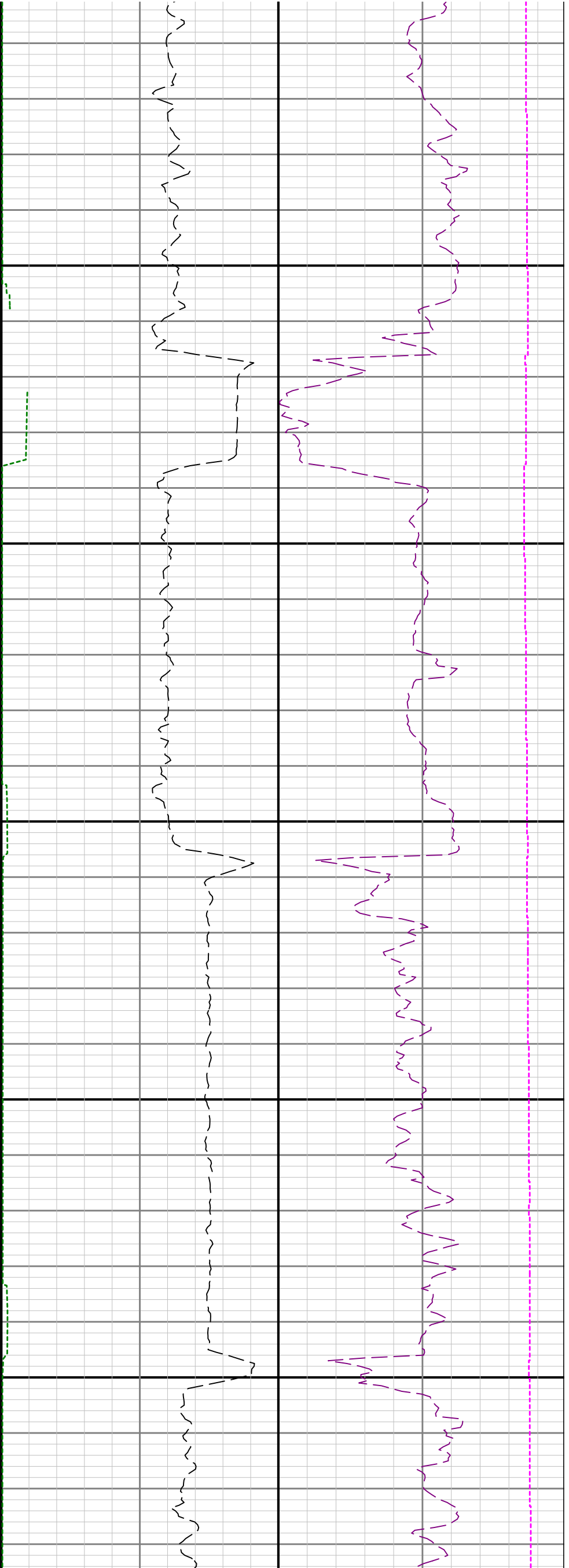
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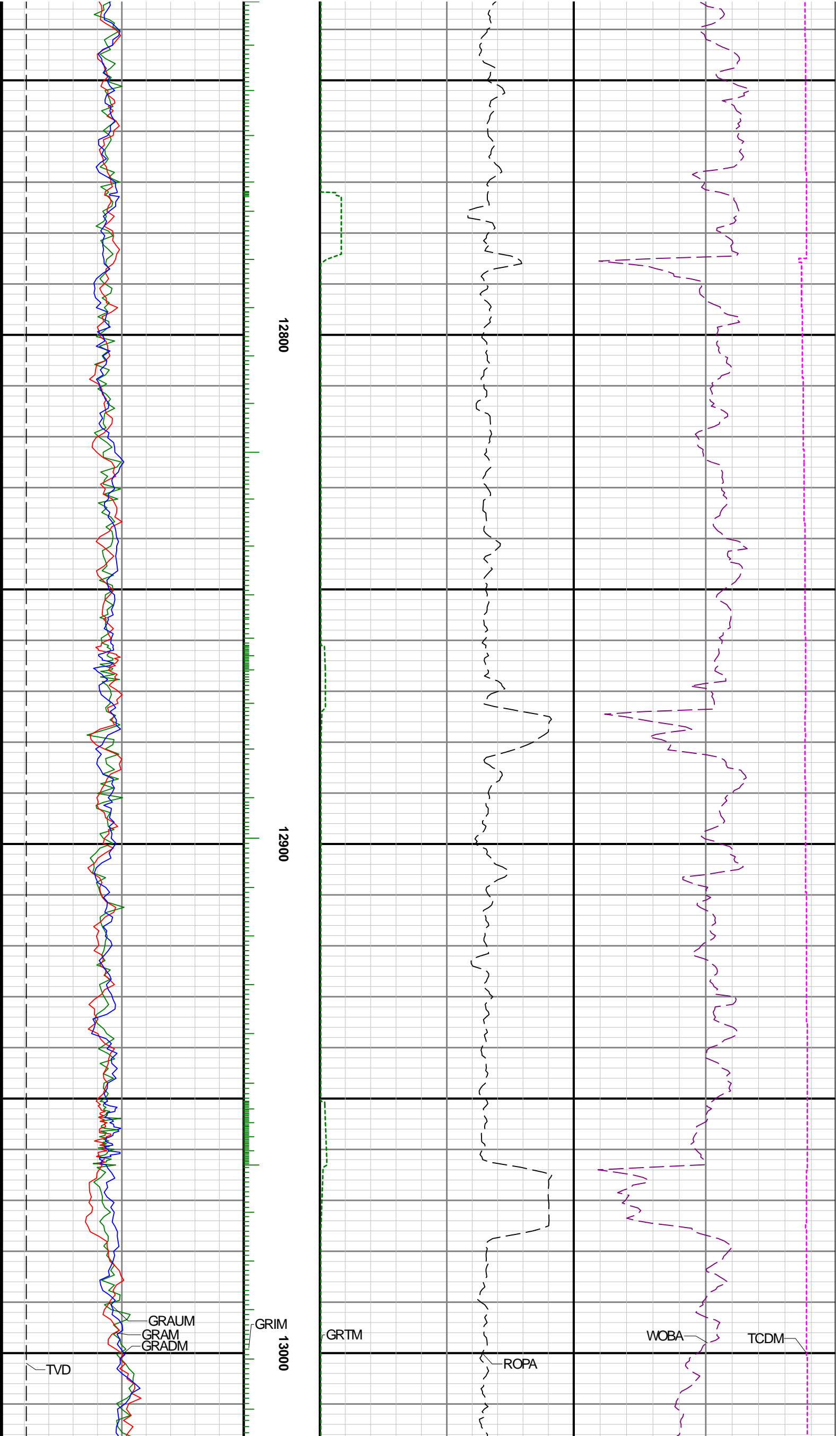


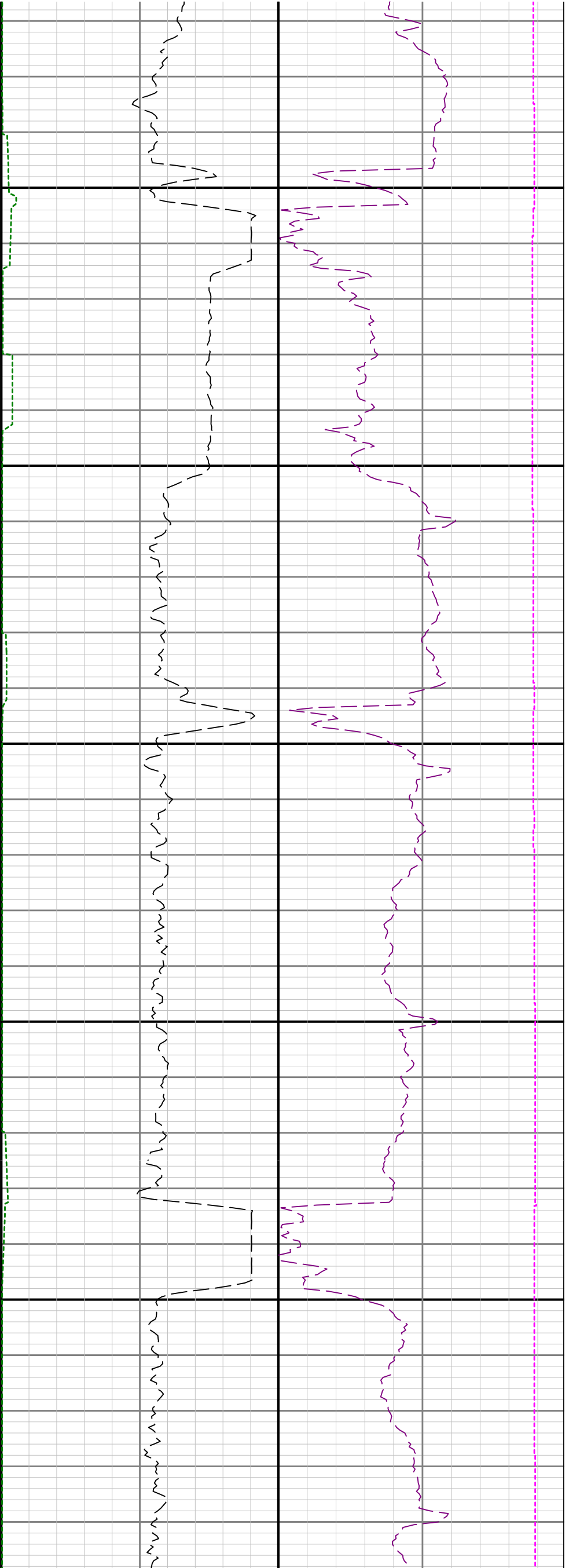








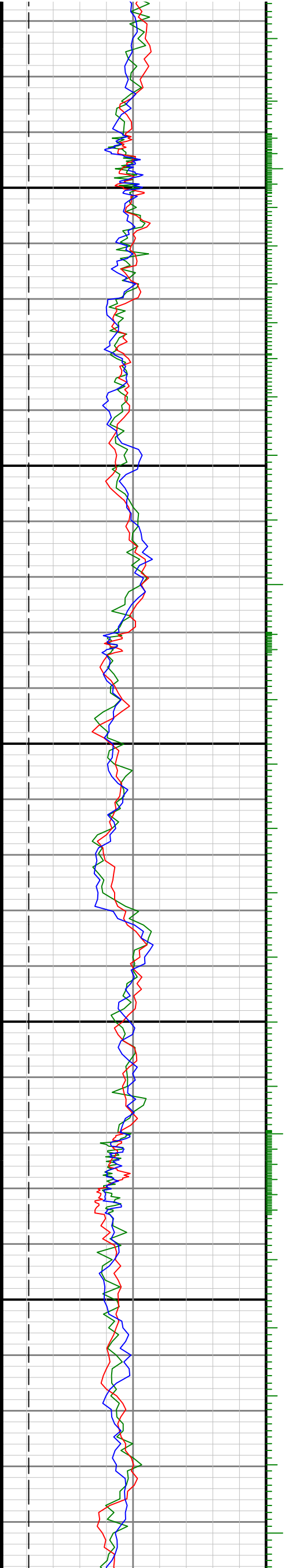


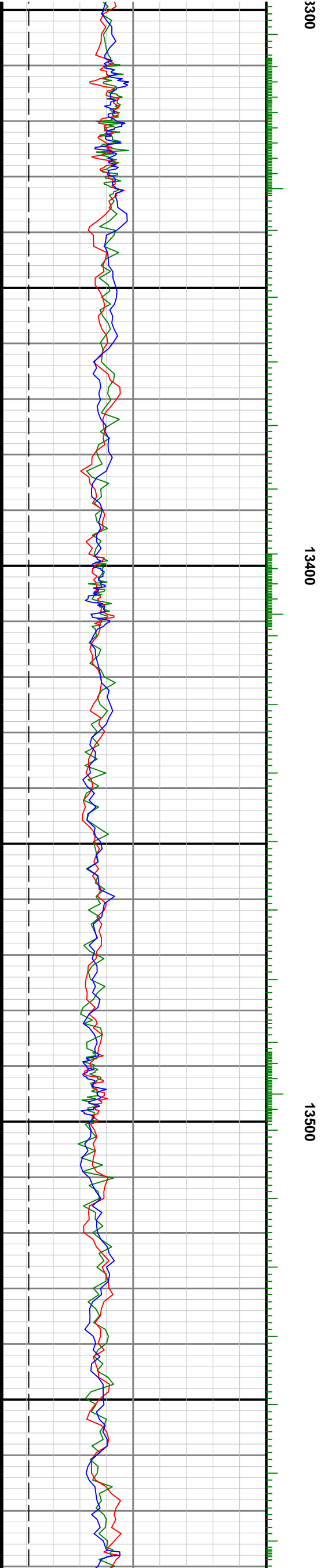
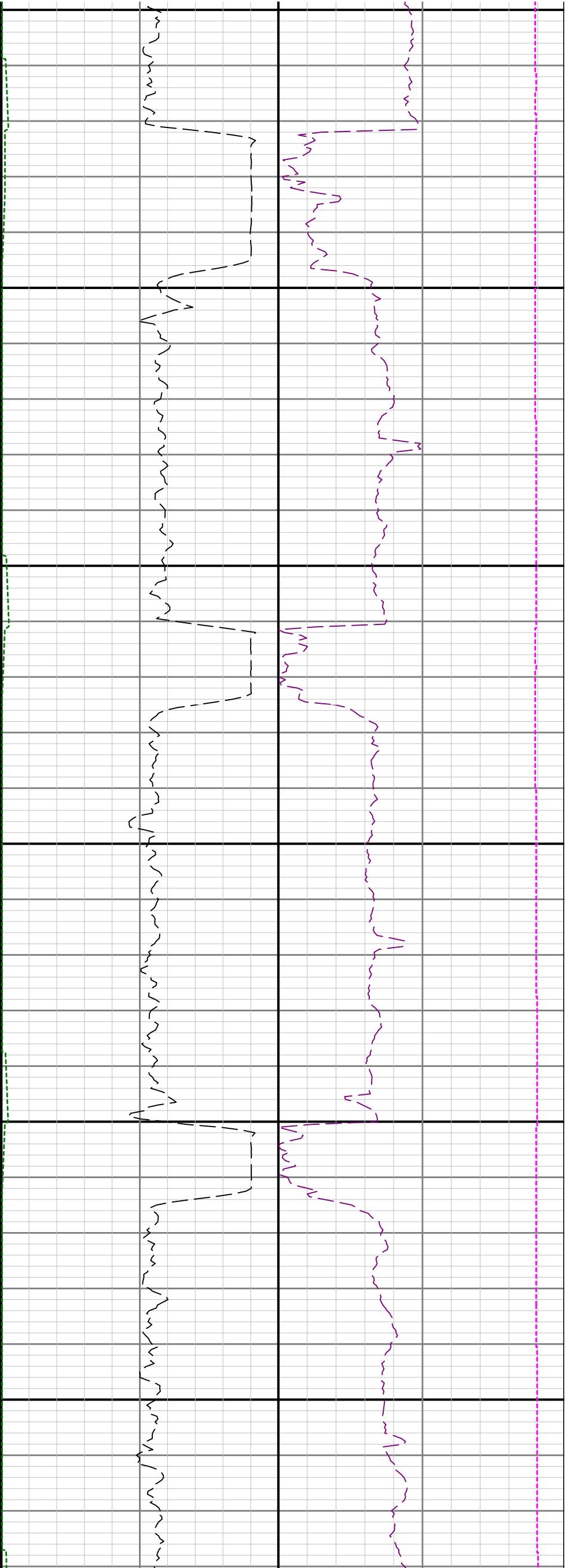


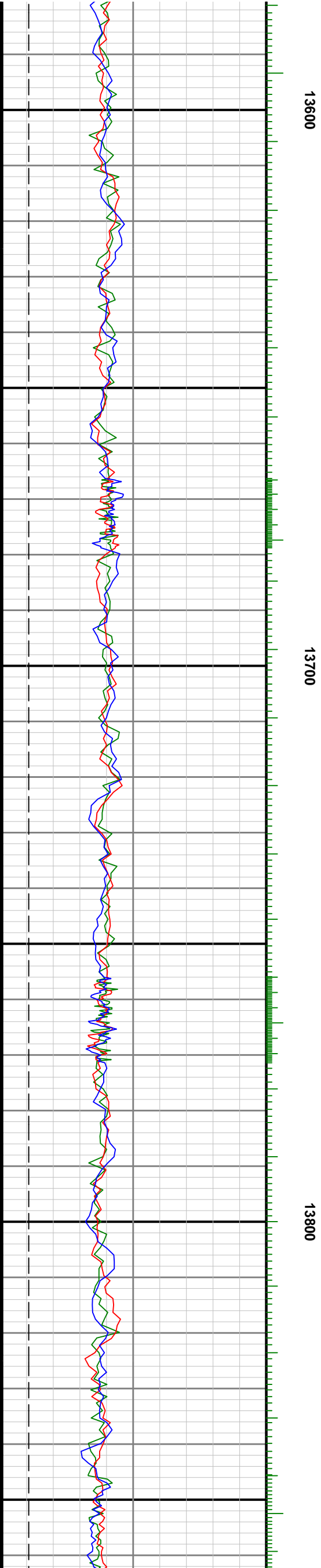
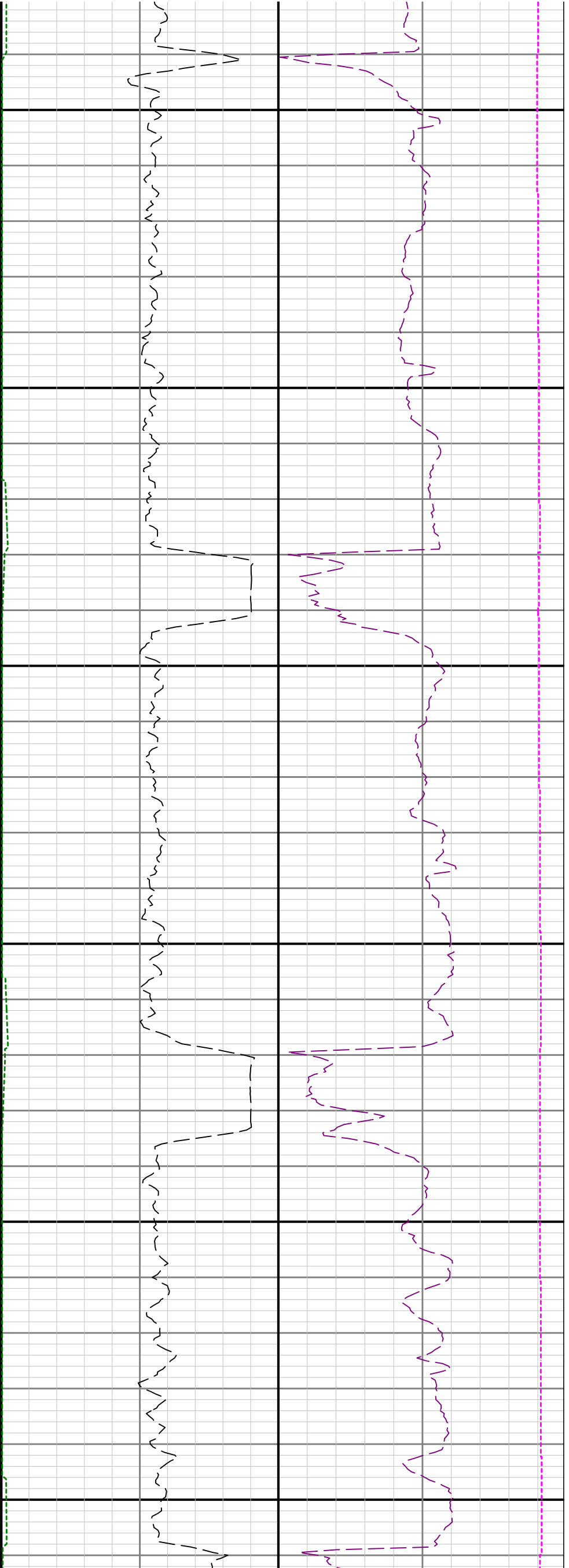
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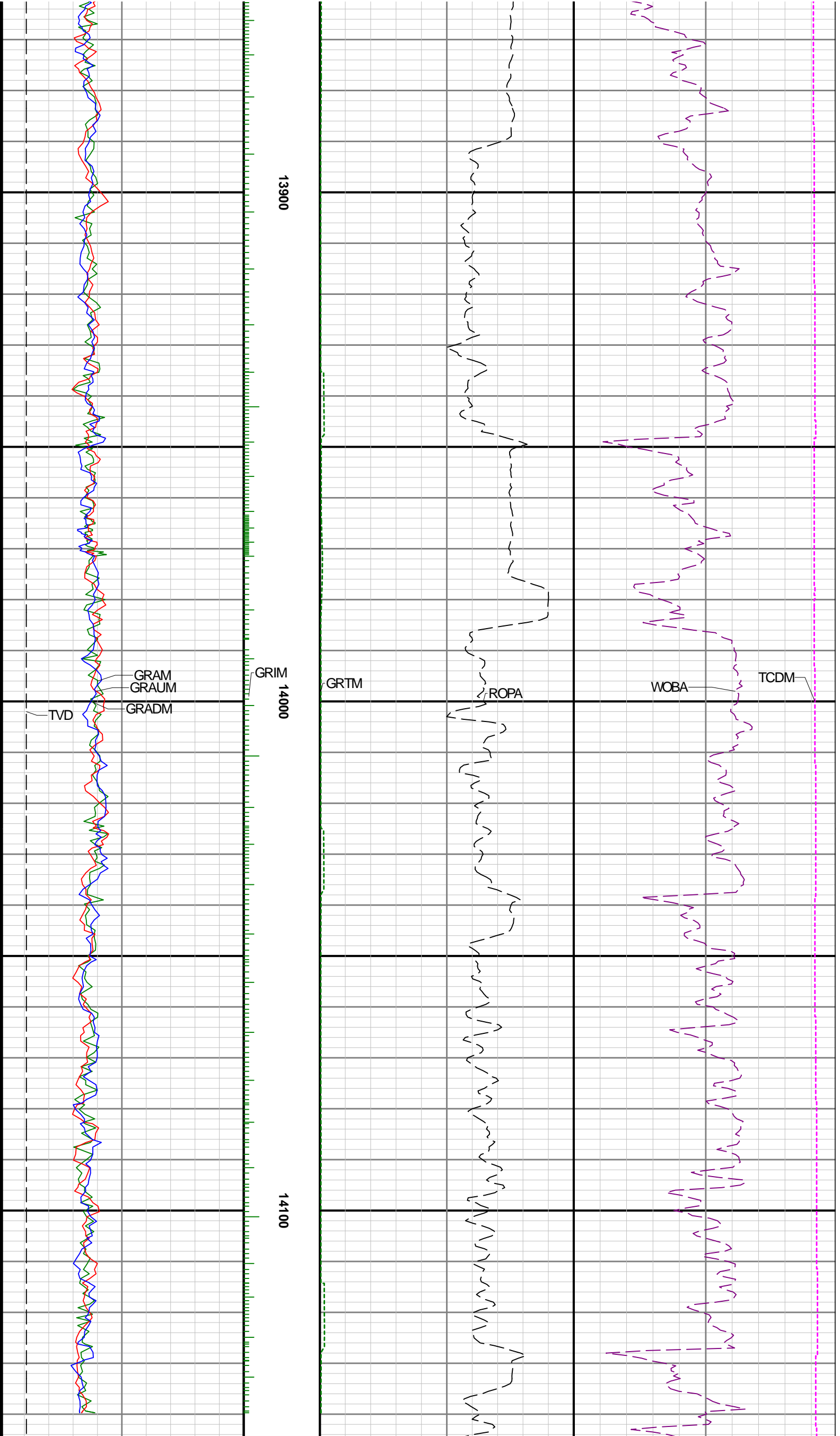
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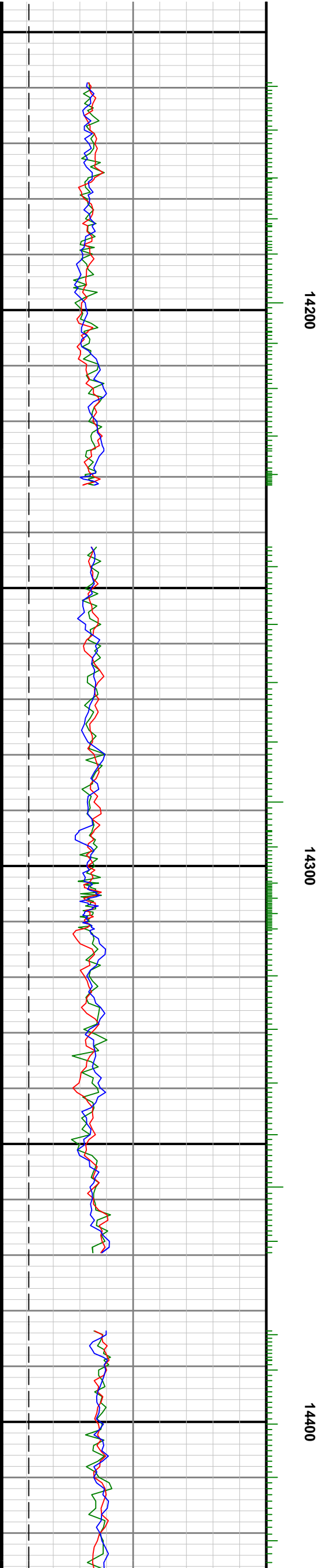
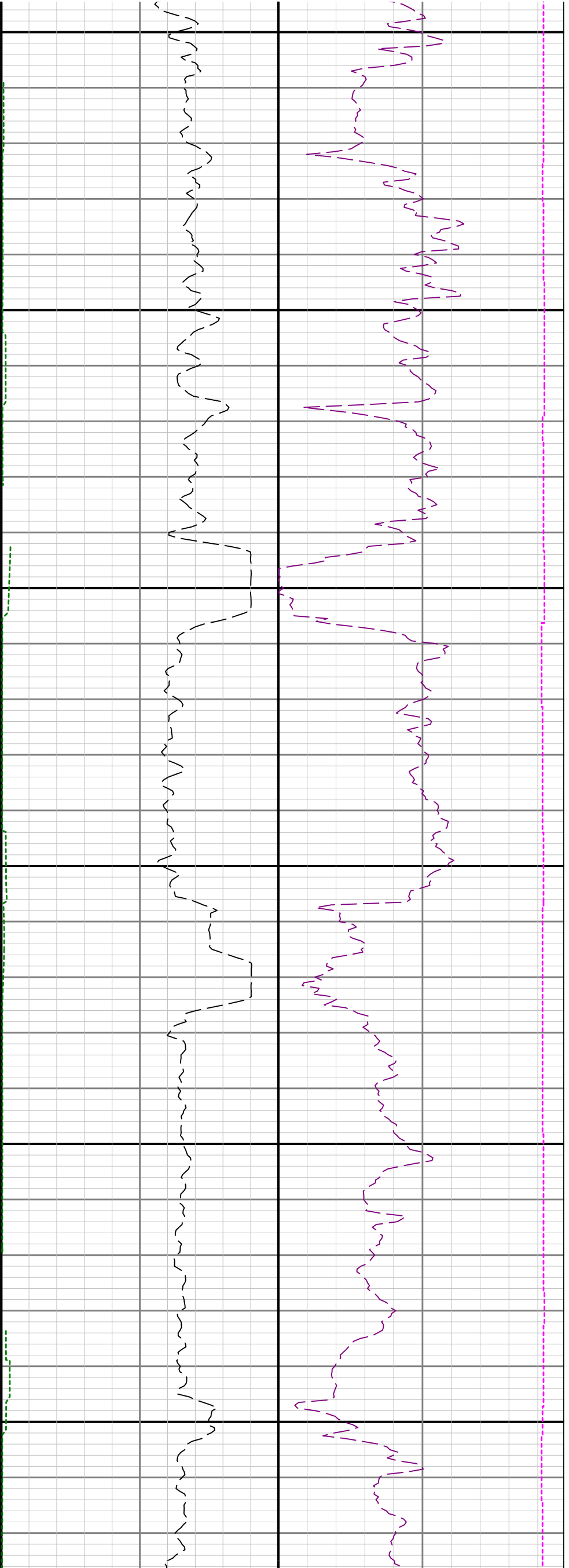
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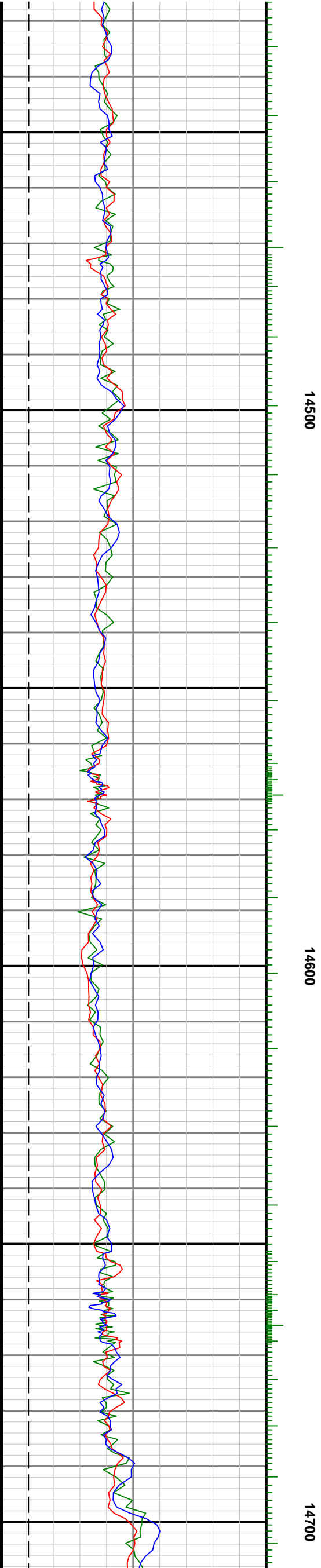
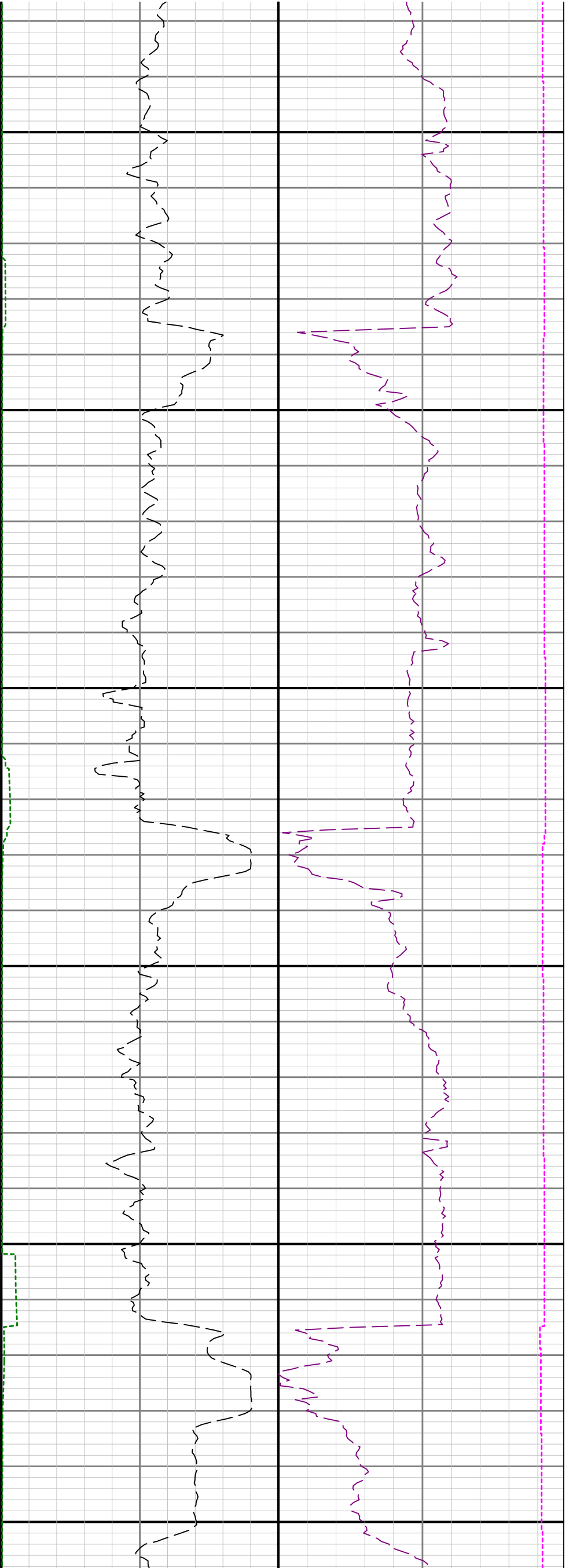


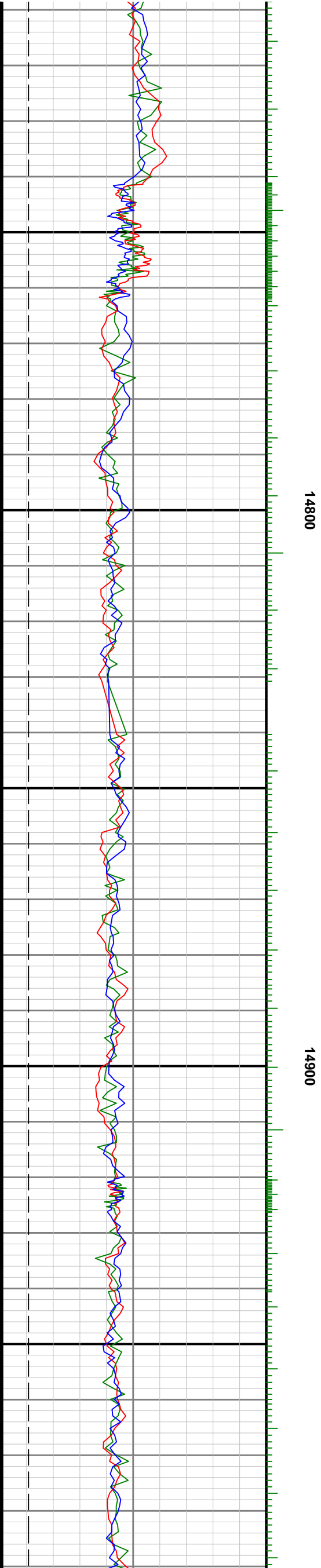
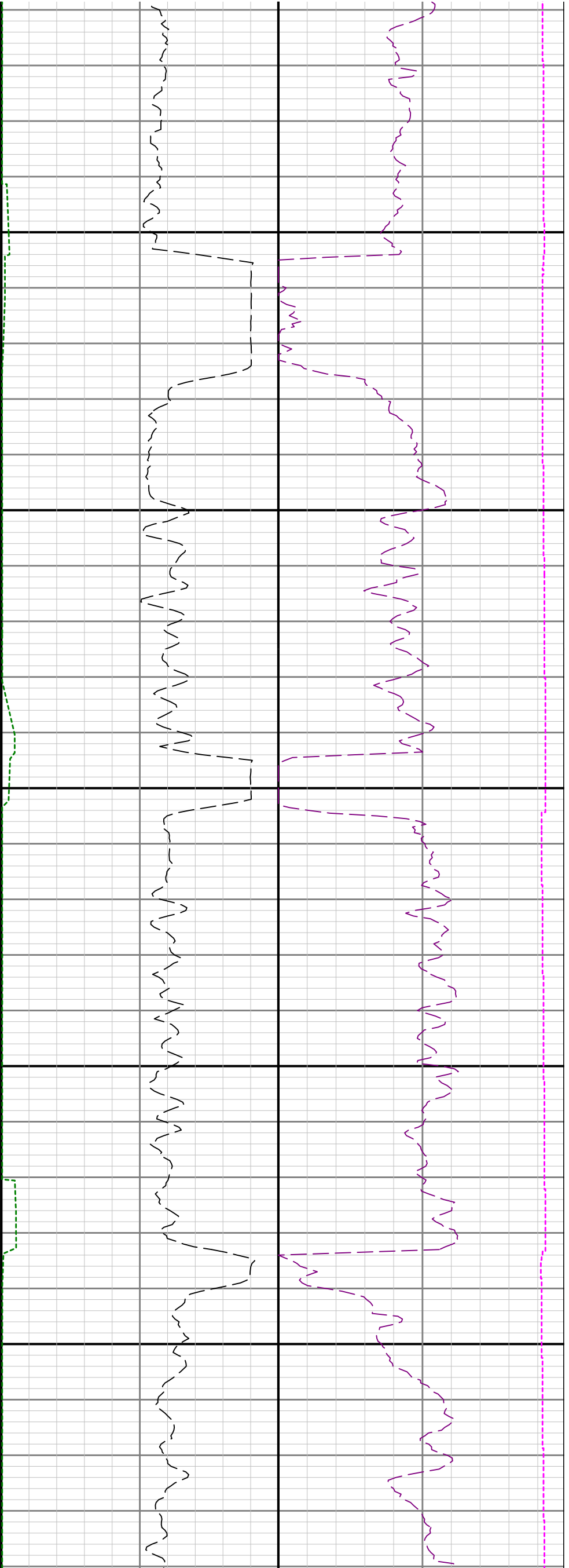


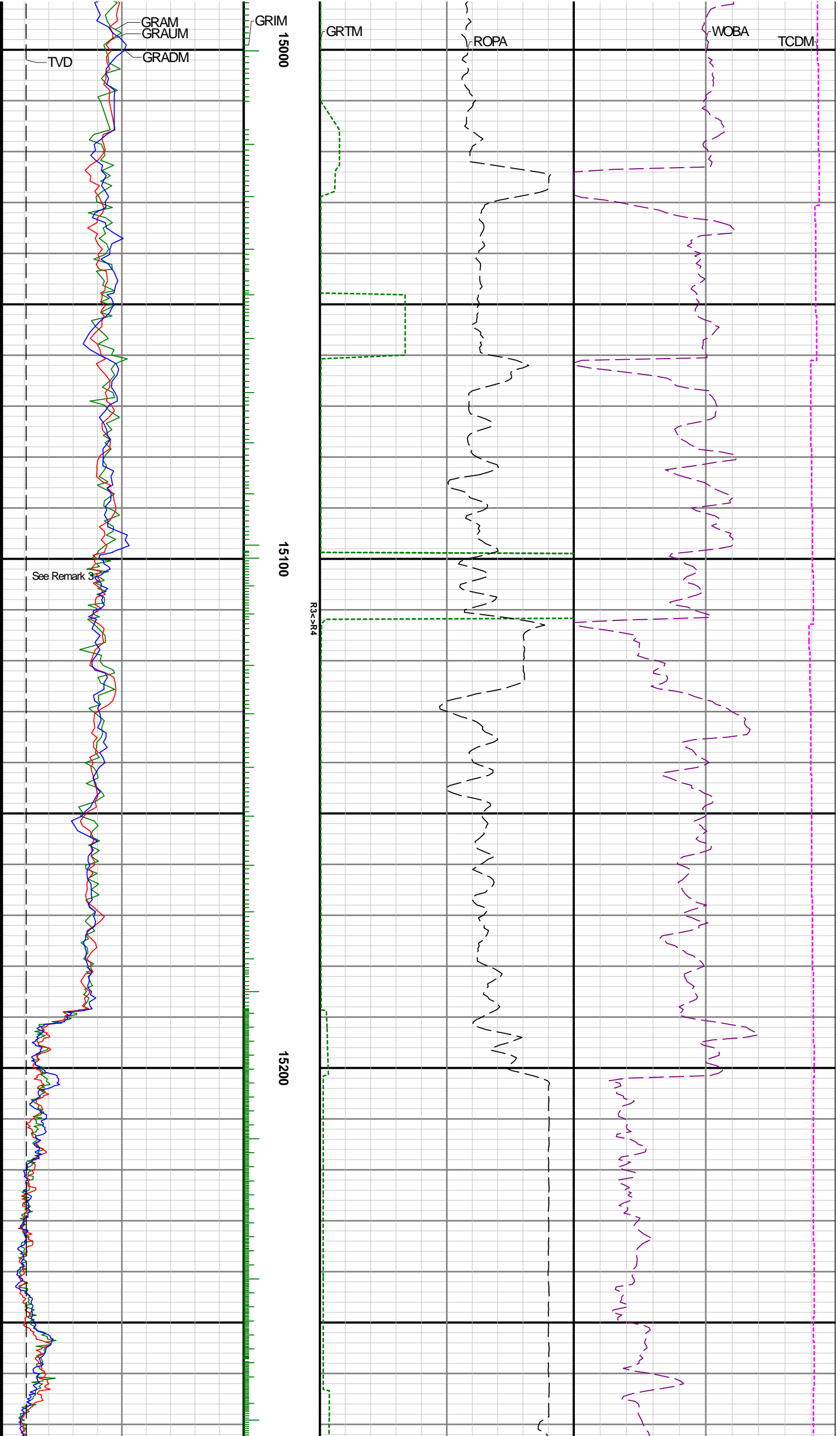


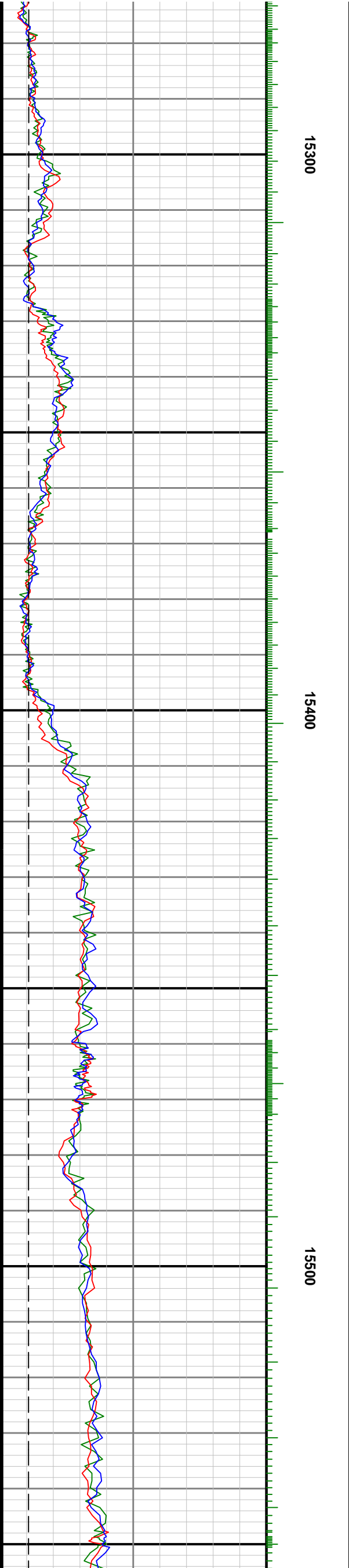
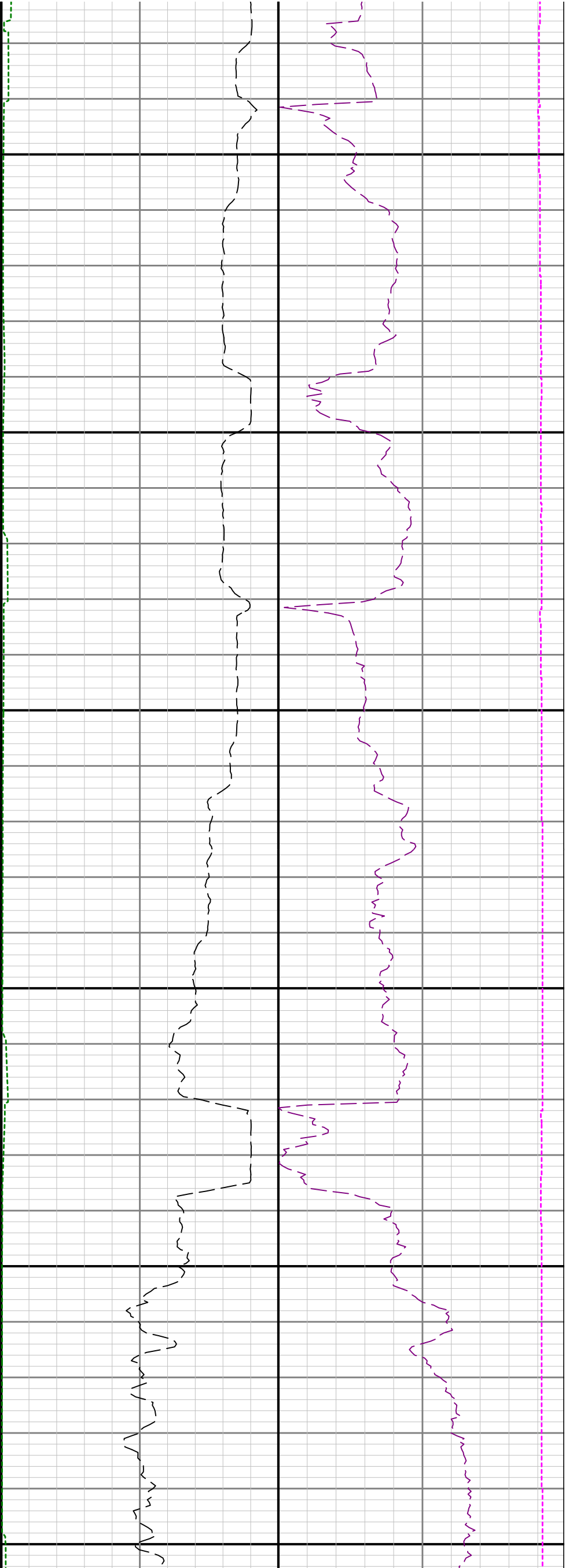


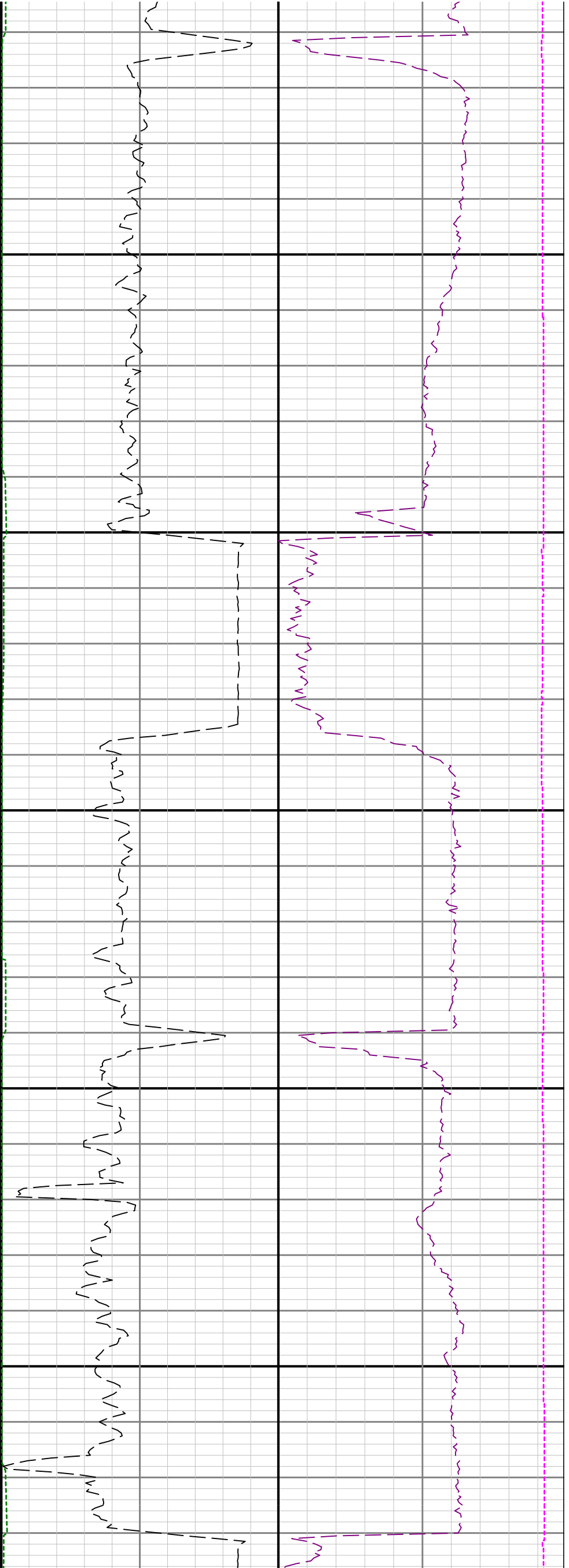








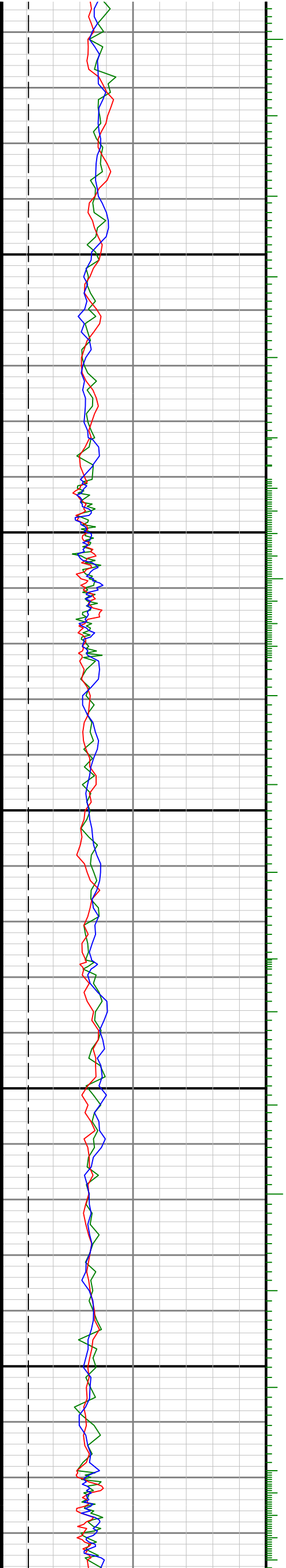


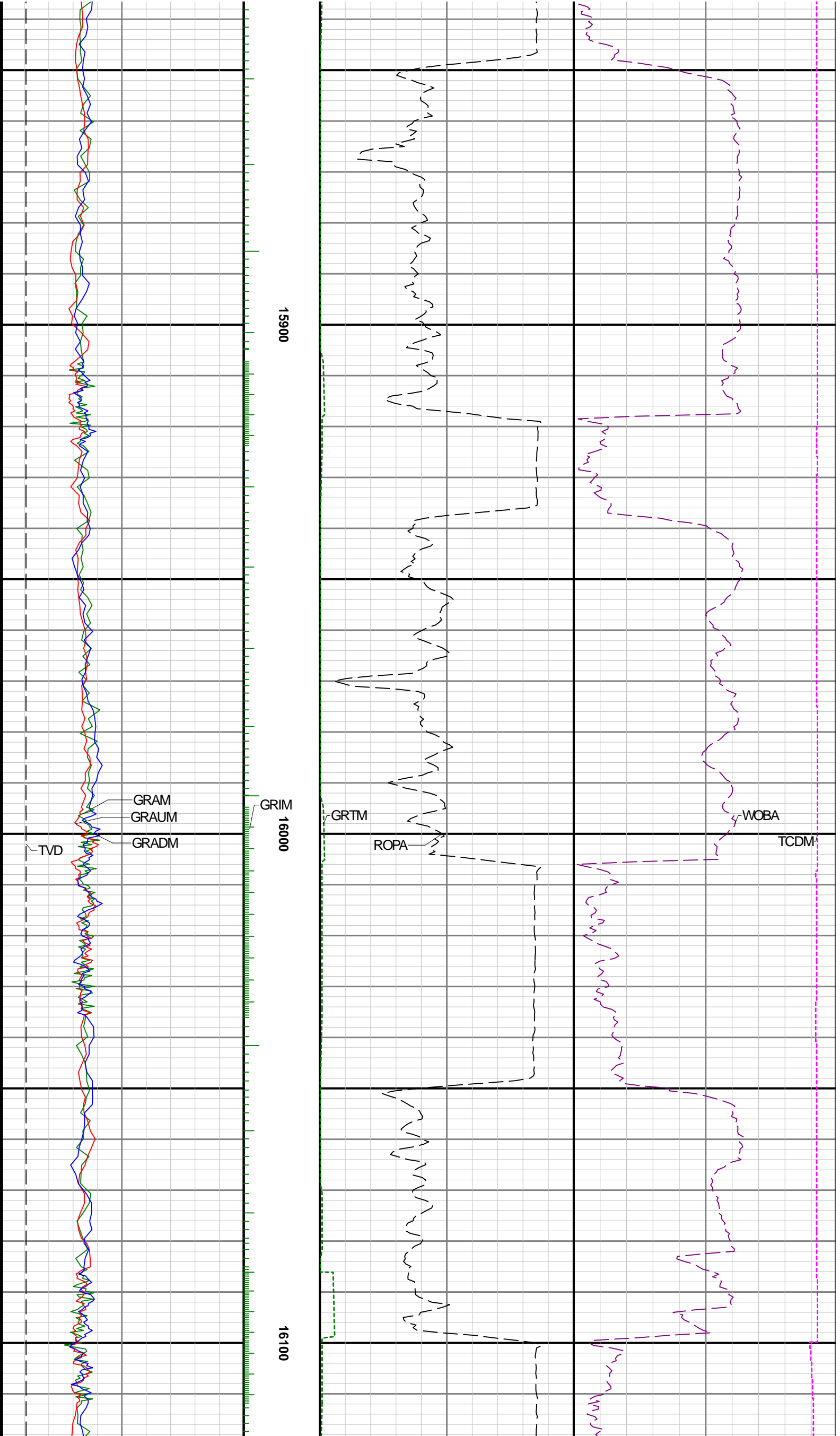


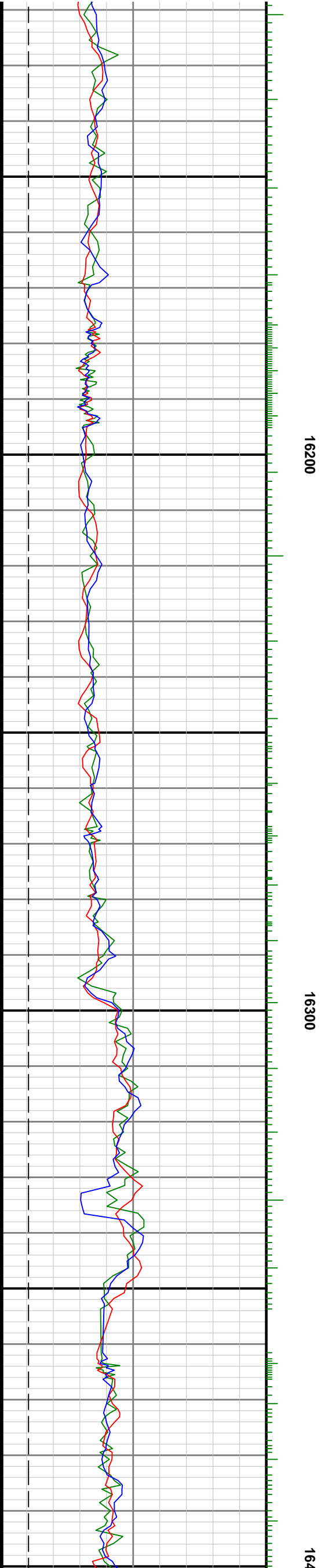
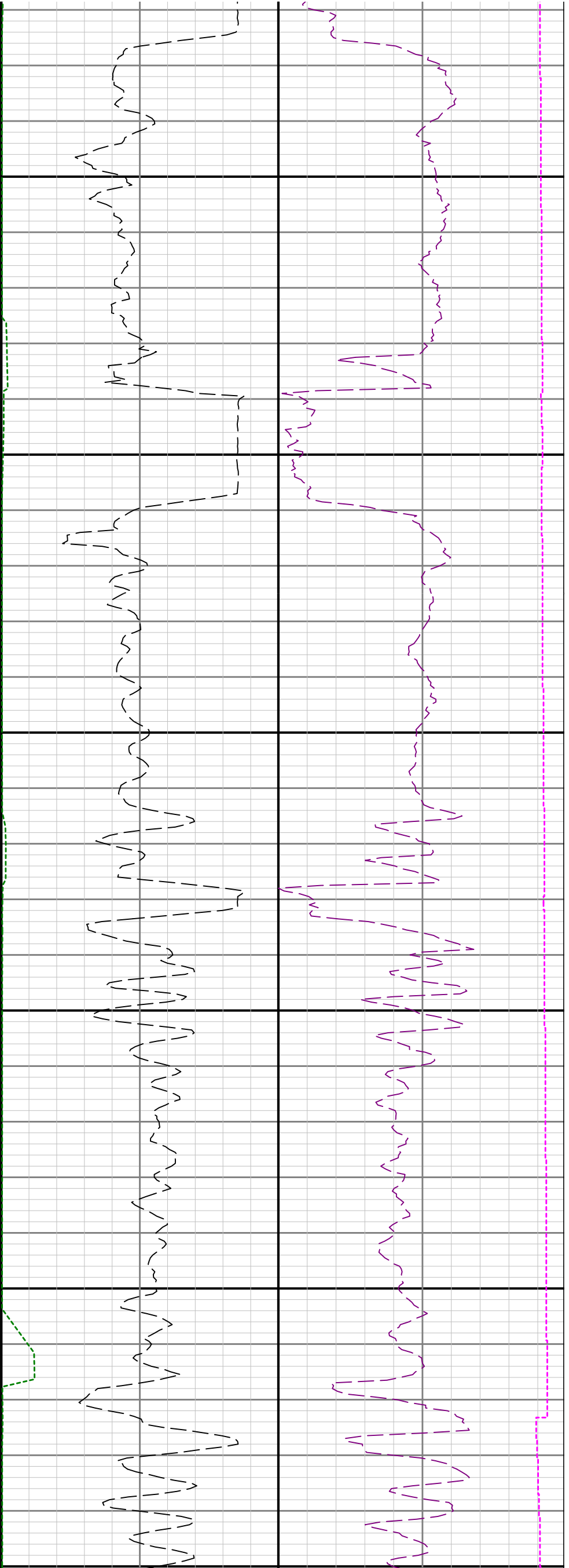
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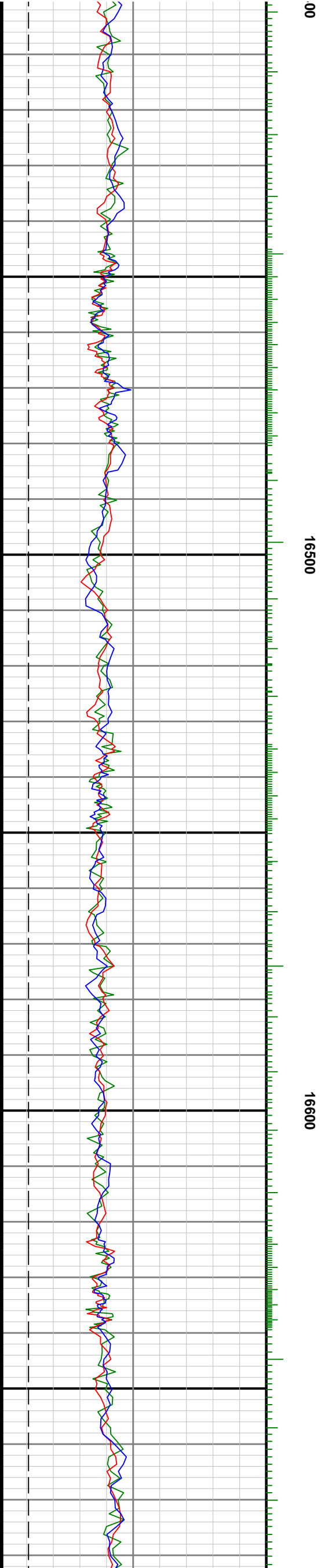
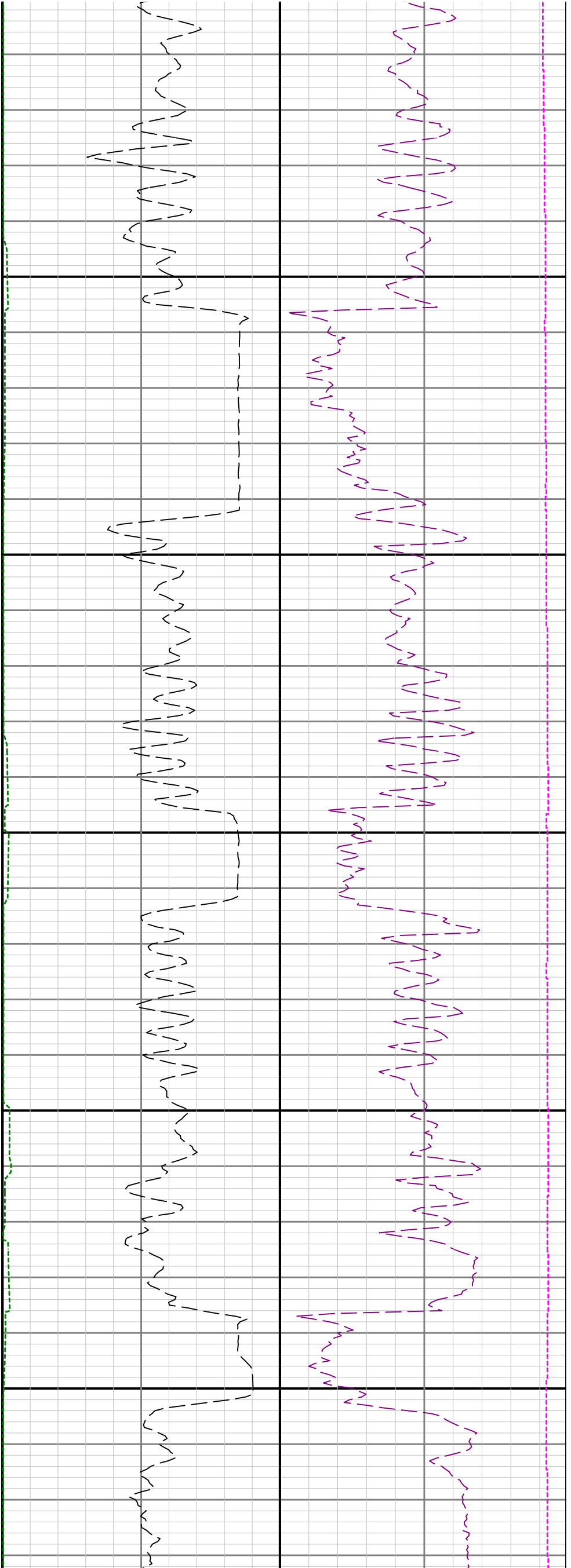
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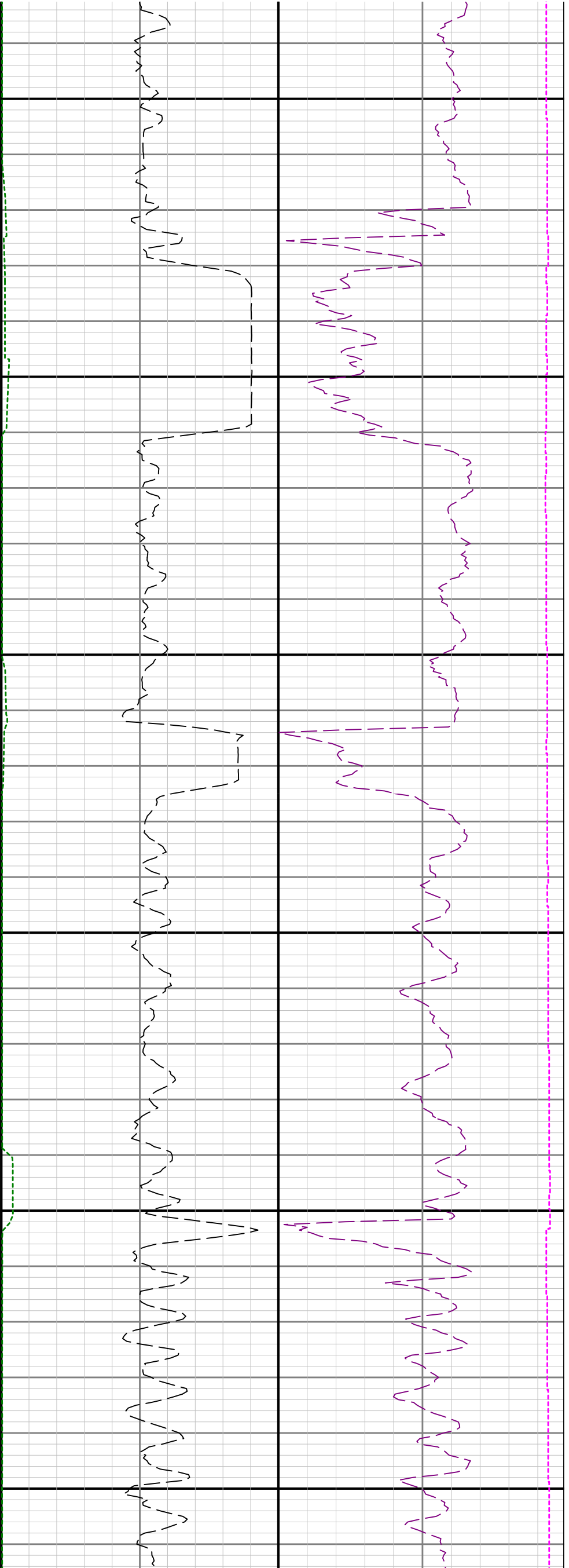
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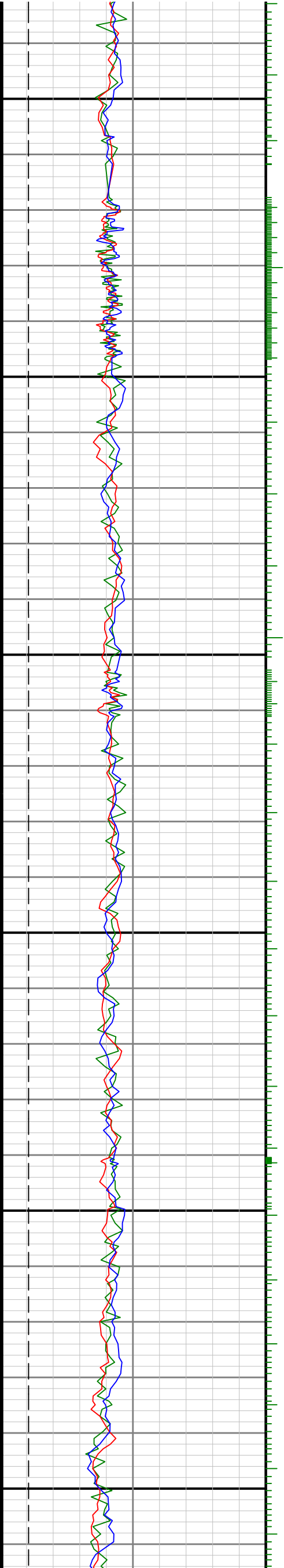
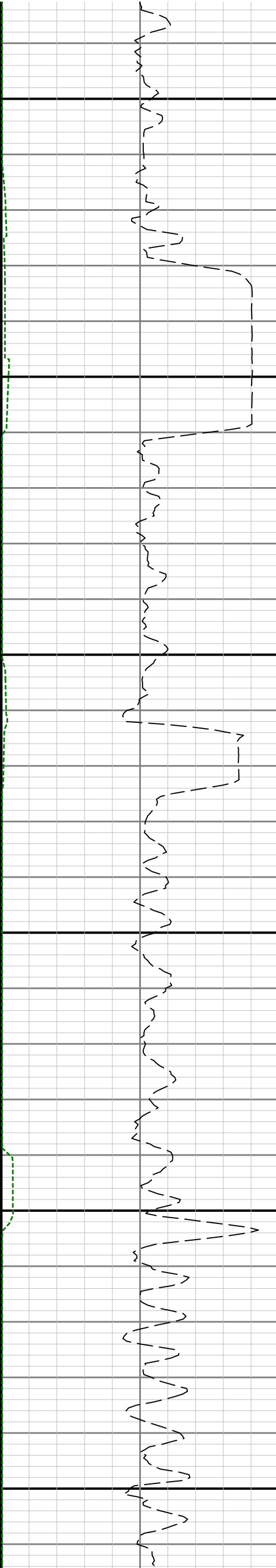


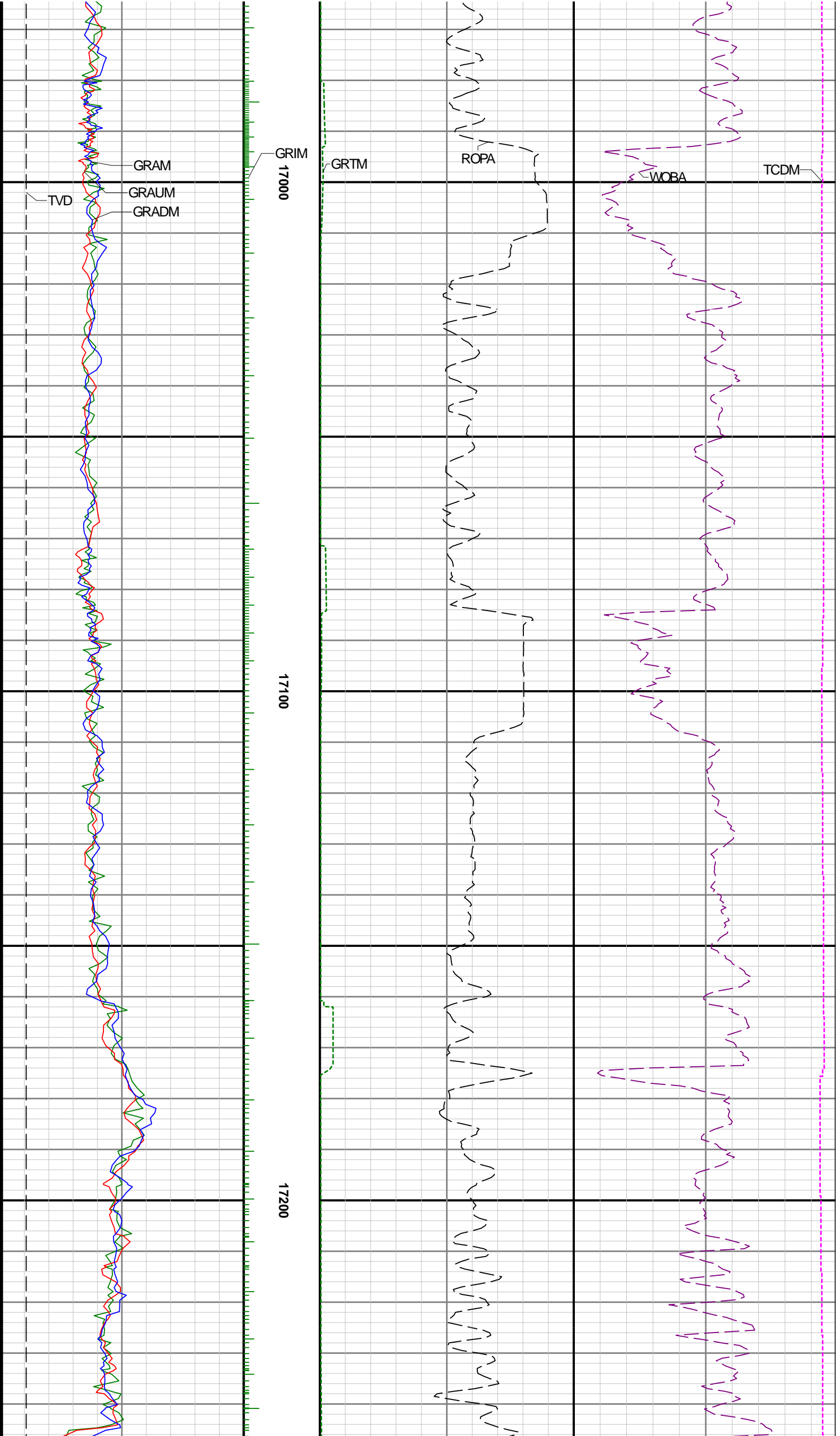


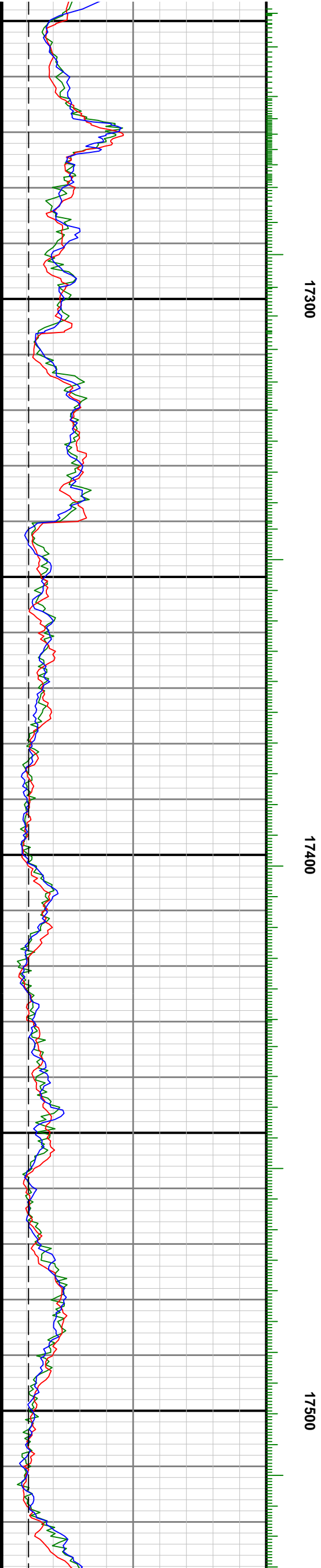
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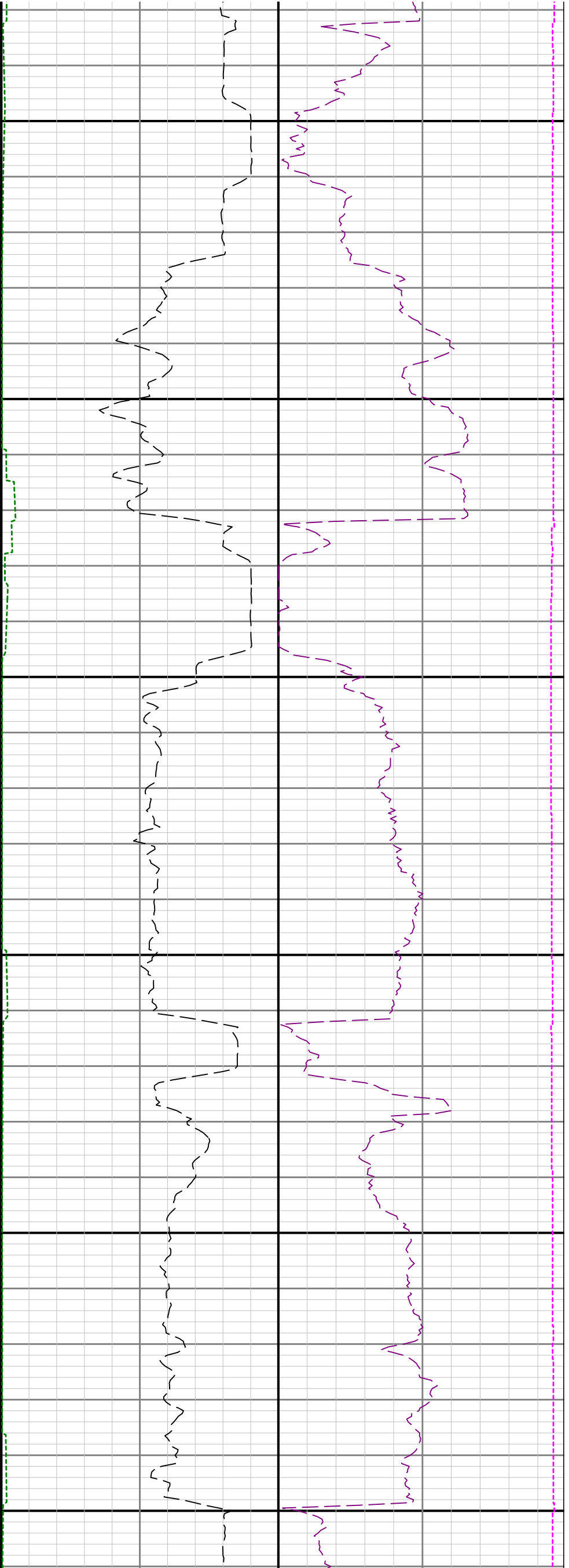
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17600

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17800

