



Witness	
Name	LWD Run Number
Marvin Hackworth	2,4
James Adkins	3

Mud Properties Record												
Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
25/Feb/2013	12:29	2	4555.0	Water Based Mud	8.6	28	8.0	N/A	0 / 100	Active Mud Pit	800	0.0
29/Mar/2013	12:00	3	12301.0	Oil Based Mud	9.7	50	N/A	N/A	67 / 20	Active Mud Pit	50000	0.0
01/Apr/2013	16:53	4	16950.0	Oil Based Mud	9.9	53	N/A	N/A	67 / 20	Active Mud Pit	45000	0.0

Mud Resistivity Record				Surface				Downhole			
Date / Time		LWD Run No.	Measured Depth (m.)	Surface Temp (deg C)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg C)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
26/Mar/2013	04:25	3	7425.0	70	100.00	N/A	N/A	70	100.00	N/A	N/A
29/Mar/2013	16:53	4	12950.0	70	100.00	N/A	N/A	70	100.00	N/A	N/A

Mnemonics		
Curve	Description	Units
CACHM	Conductivity Attenuation – Corrected – 2MHz	mmho/m
GRAX	Gamma Ray – Apparent, 0.5 ft. Avg	API
GRIX	Gamma Ray – Data Point Indicator	unitless
GRIM	Gamma Ray – Data Point Indicator	unitless
GRAM	Gamma Ray – Apparent, 0.5 ft. Avg	API
RPCHM	Resistivity Phase – Corrected – 2MHz	ohm.m
RPCLM	Resistivity Phase – Corrected – 400kHz	ohm.m
RACHM	Resistivity Attenuation – Corrected – 2MHz	ohm.m
RACLM	Resistivity Attenuation – Corrected – 400kHz	ohm.m
ROPA	Rate of Penetration, 3.0 ft. Avg	ft/hr
RPTHM	Resistivity Time Since Drilled	min
RPSIHM	Resistivity Phase Long Space Sliding Indicator – 2MHz	unitless
TCDX	Downhole Temperature	degF
TCDM	Downhole Temperature	degF

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
2	DIR	11859501	Directional	51.94	6.750	0.000
2	SRIG	12556139	Gamma	48.56	6.750	0.000
1	22	10005500		55.50	5.000	0.000

3	CS	10623929	-	73.39	5.000	2.250
3	BCPM	12164143	Telemetry	62.43	5.000	0.000
3	STAB	11863323	-	59.13	0.000	2.250
3	OTK	10095221	Directional	54.63	4.843	2.569
3	OTK	10095221	Resistivity	48.66	4.843	2.569
3	OTK	10095221	Gamma	41.47	4.843	2.569
3	OTK	10095221	Pressure	44.10	4.843	2.569
3	CS	10369034	-	37.41	5.000	2.250
4	CS	10143098	-	73.69	5.000	2.250
4	BCPM	11592355	Telemetry	62.74	5.000	0.000
4	STAB	12401251	-	59.47	0.000	2.250
4	OTK	10266171	Directional	54.92	4.843	2.569
4	OTK	10266171	Resistivity	48.95	4.843	2.569
4	OTK	10266171	Gamma	41.76	4.843	2.569
4	OTK	10266171	Pressure	44.39	4.843	2.569
4	CS	10623942	-	37.48	5.000	2.250

### Service and Tool Mnemonics


Mnemonic	Name	Description
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
DIR	Directional	Wellbore directional survey
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module
STAB	Stabilizer	Stabilizer assembly
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA

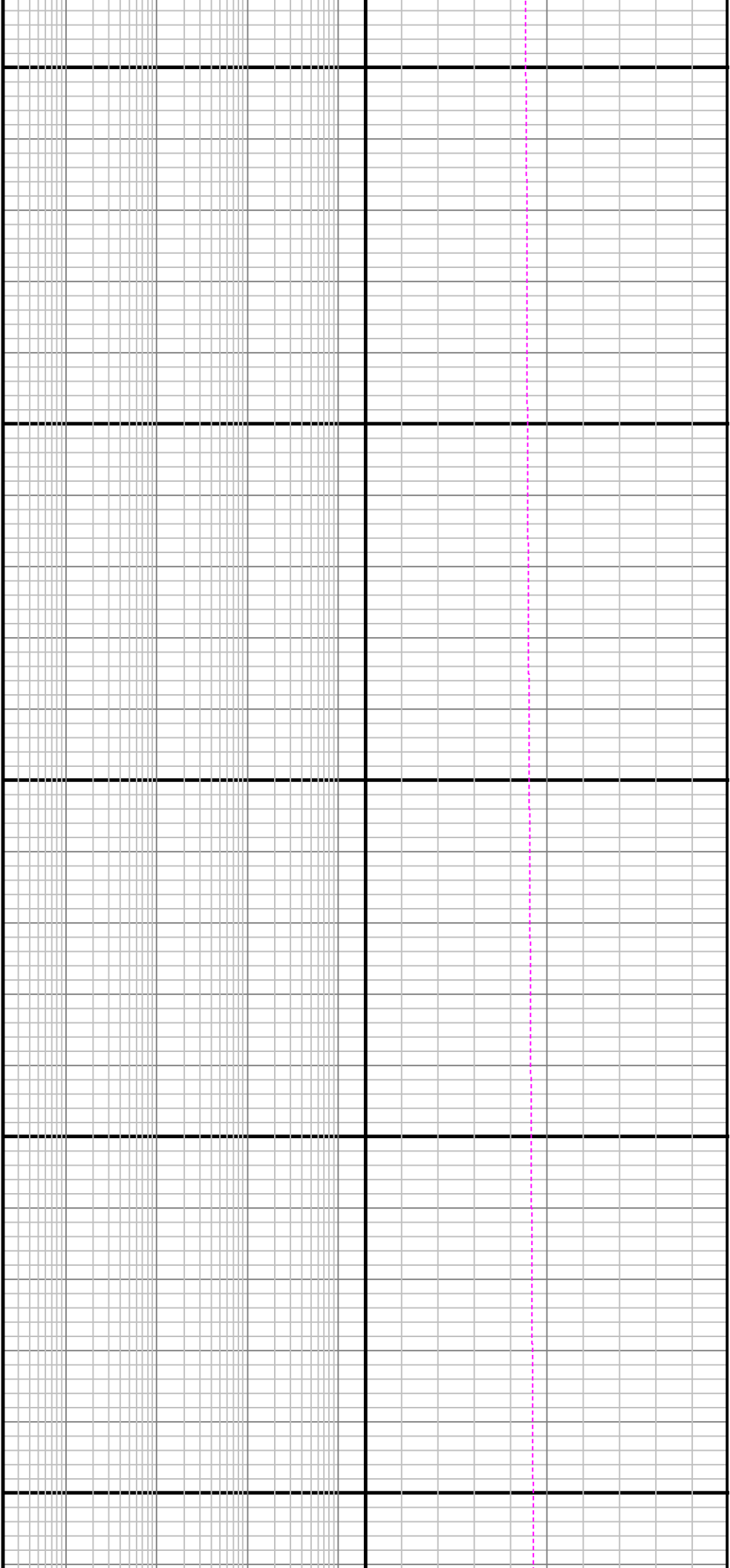
### Comments

1)	Baker Hughes run 2 utilized 6 3/4 inch NaviGamma service (Directional and Gamma Ray) behind an 8 3/4 inch and steerable assembly from 6474 to 7425 feet MD (6426 to 7024 feet TVD).
2)	Baker Hughes Run 3 and 4 utilized 4 3/4 inch OnTrak services (Azimuthal Gamma Ray, Multiple Propagation Resistivity, Directional, and Gamma Ray) behind a 6 1/8 inch bit and steerable assembly from 7425 to 16950 feet MD (7024 to 6941 feet TVD).
3)	The solid line on the right side of the resistivity track indicates the interval over which data was collected while not rotating.

### Remarks

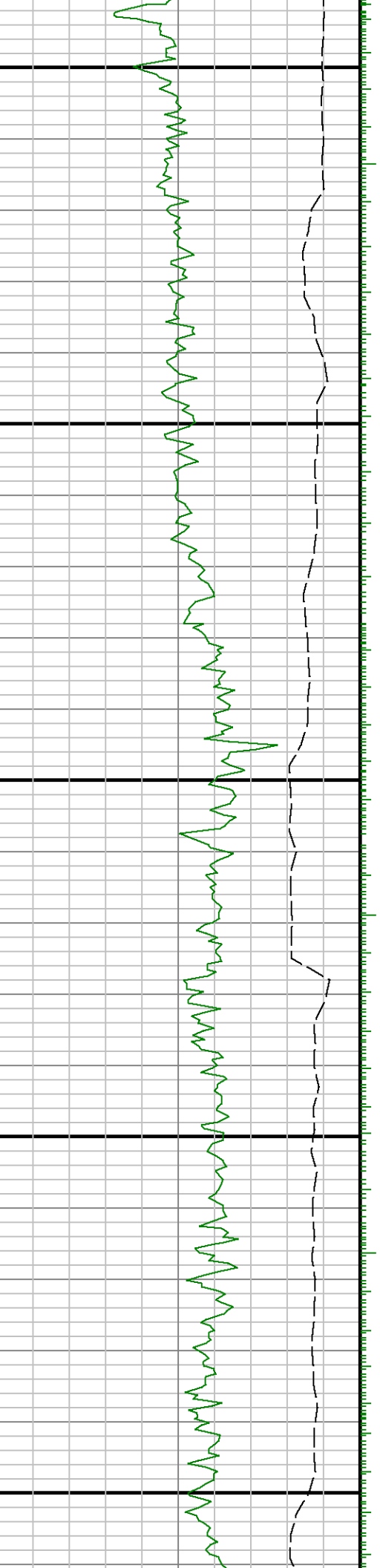
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6455	8.750	2	The interval from 6425 to 6474 feet MD (6377 to 6425 feet TVD) was logged up to 12 hours after being drilled due to a trip to pick up the curve assembly.
2	7405	6.125	3	The interval from 7376 to 7425 feet MD (7020 to 7024 feet TVD) was logged up to 32 days after being drilled due to a rig skid while batch drilling curve section.
3	12935	6.125	4	The interval from 12913 to 12954 feet MD (6984 to 6984 feet TVD) was not logged up to 24 hours after being drilled due to a trip to pick up a new motor.

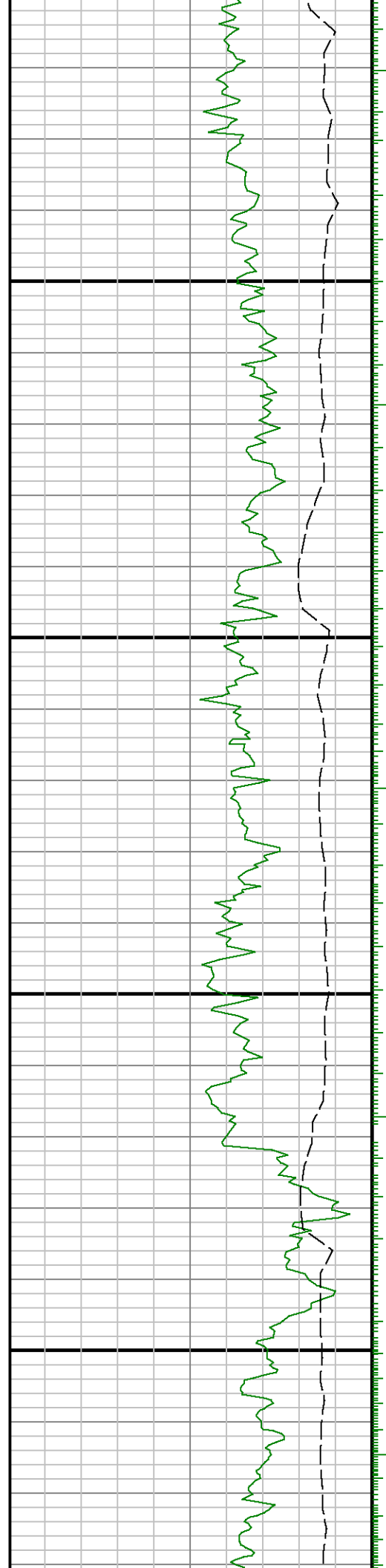
<div> <div>  </div> <div> <div>Company : Kerr-McGee Oil &amp; Gas Onshore LP</div> <div>Well : Hudson 36N-35HZ</div> <div>Interval : 6410.00 - 16960.00 feet</div> <div>Created : 01/Apr/2013 11:14:08 AM</div> </div> </div>			
<div>Gamma Ray Apparent 0.5 ft Avg GRAM</div> <div>0 200</div> <div>API</div> <div>Gamma Ray Apparent 0.5 ft Avg GRAX</div> <div>0 200</div> <div>API</div> <div>Rate of Penetration 3.0 ft Avg ROPA</div> <div>1000 0</div> <div>ft/hr</div>	<div>MD feet 1:240</div>	<div>Res PD LS 2MHz Corr RPCHM</div> <div>0.2 2000</div> <div>ohm.m</div> <div>Res PD LS 400kHz Corr RPCLM</div> <div>0.2 2000</div> <div>ohm.m</div> <div>Res AT LS 2MHz Corr RACHM</div> <div>0.2 2000</div> <div>ohm.m</div> <div>Res AT LS 400kHz Corr RACLM</div> <div>0.2 2000</div> <div>ohm.m</div>	<div>Con AT LS 2MHz Corr CACHM</div> <div>100 0</div> <div>mmho/m</div> <div>Time Since Drilled RPTHM</div> <div>0 600</div> <div>min</div> <div>Downhole Temperature TCDX</div> <div>0 300</div> <div>degF</div> <div>Downhole Temperature TCDM</div> <div>0 300</div> <div>degF</div>
<div>GRAX</div> <div>ROPA</div>	<div>GRIX</div> <div>&gt; Run 2</div> <div>6500</div>	<div>See Remark 1</div>	<div>TCDX</div>



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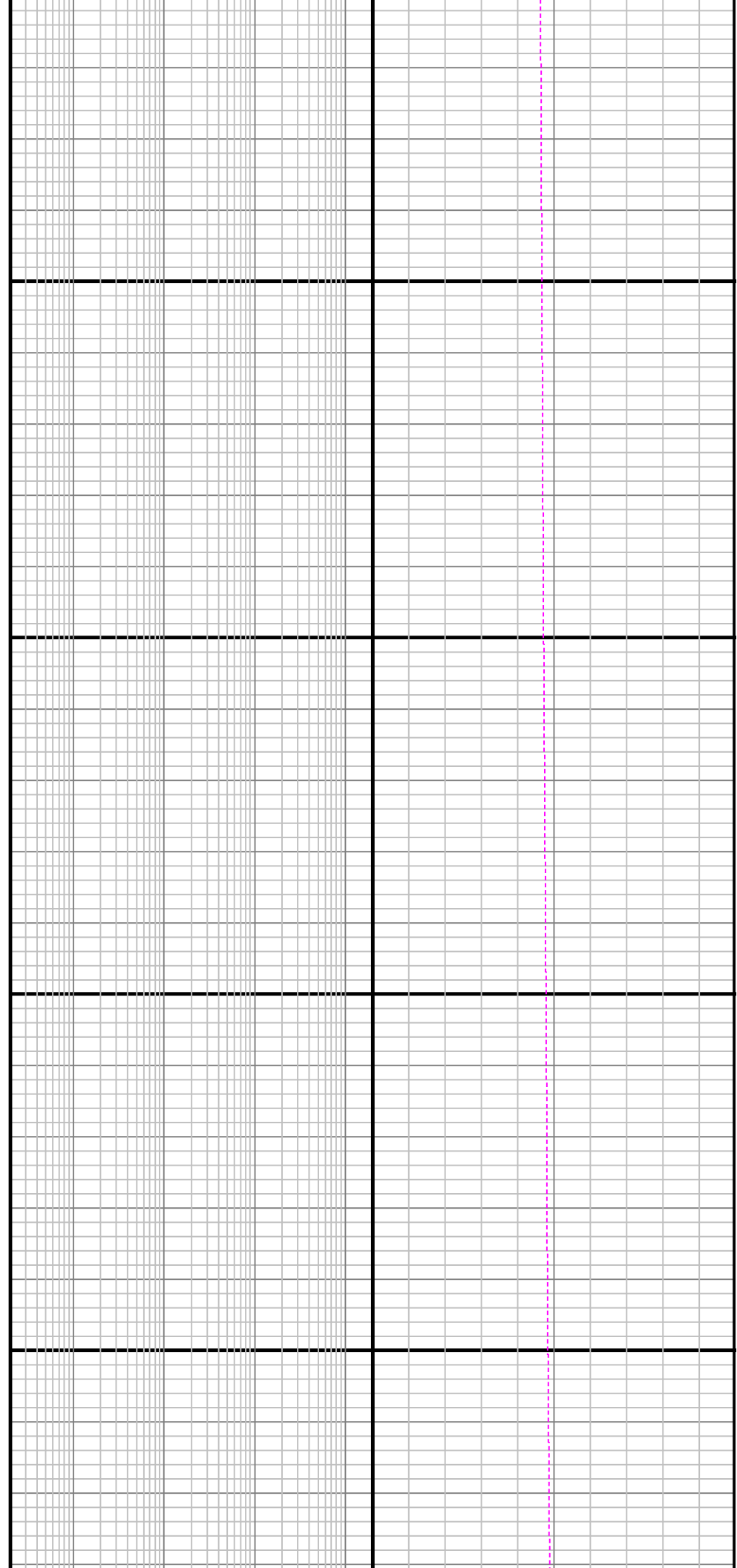
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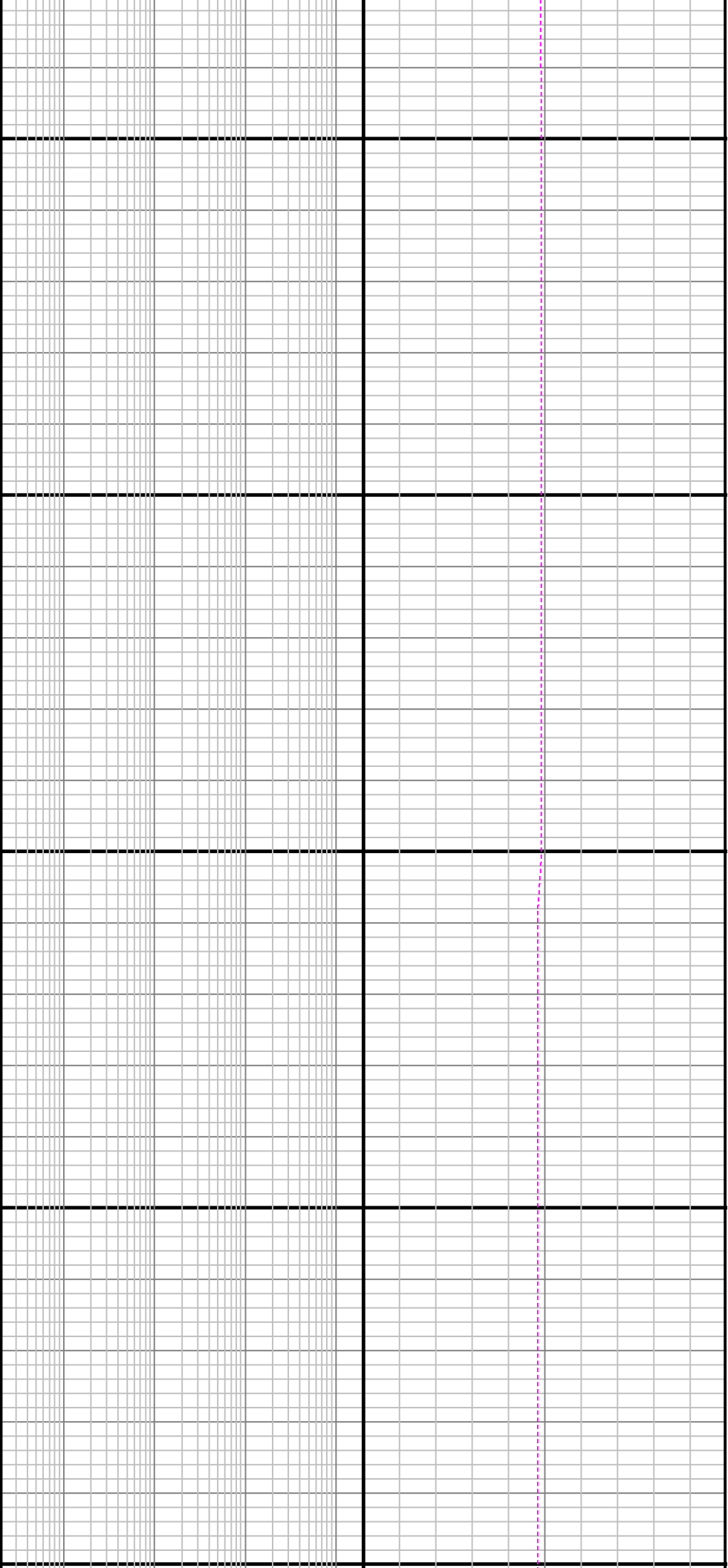




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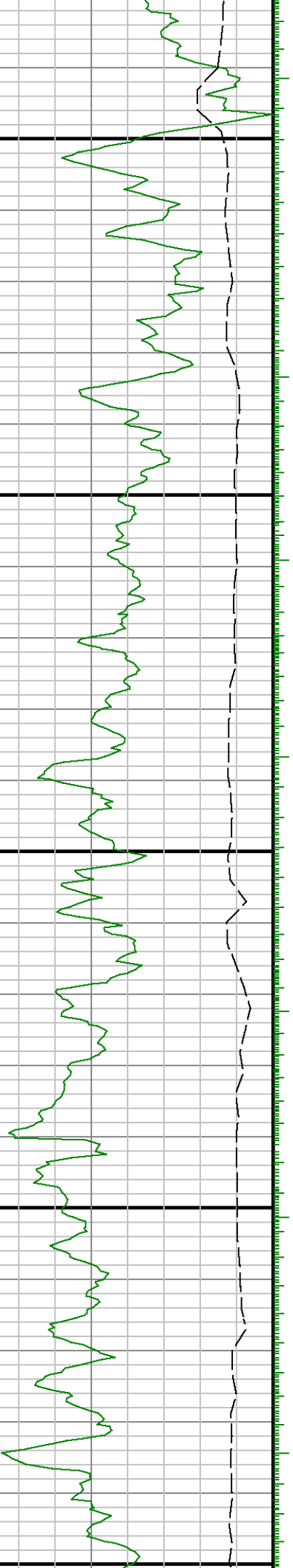


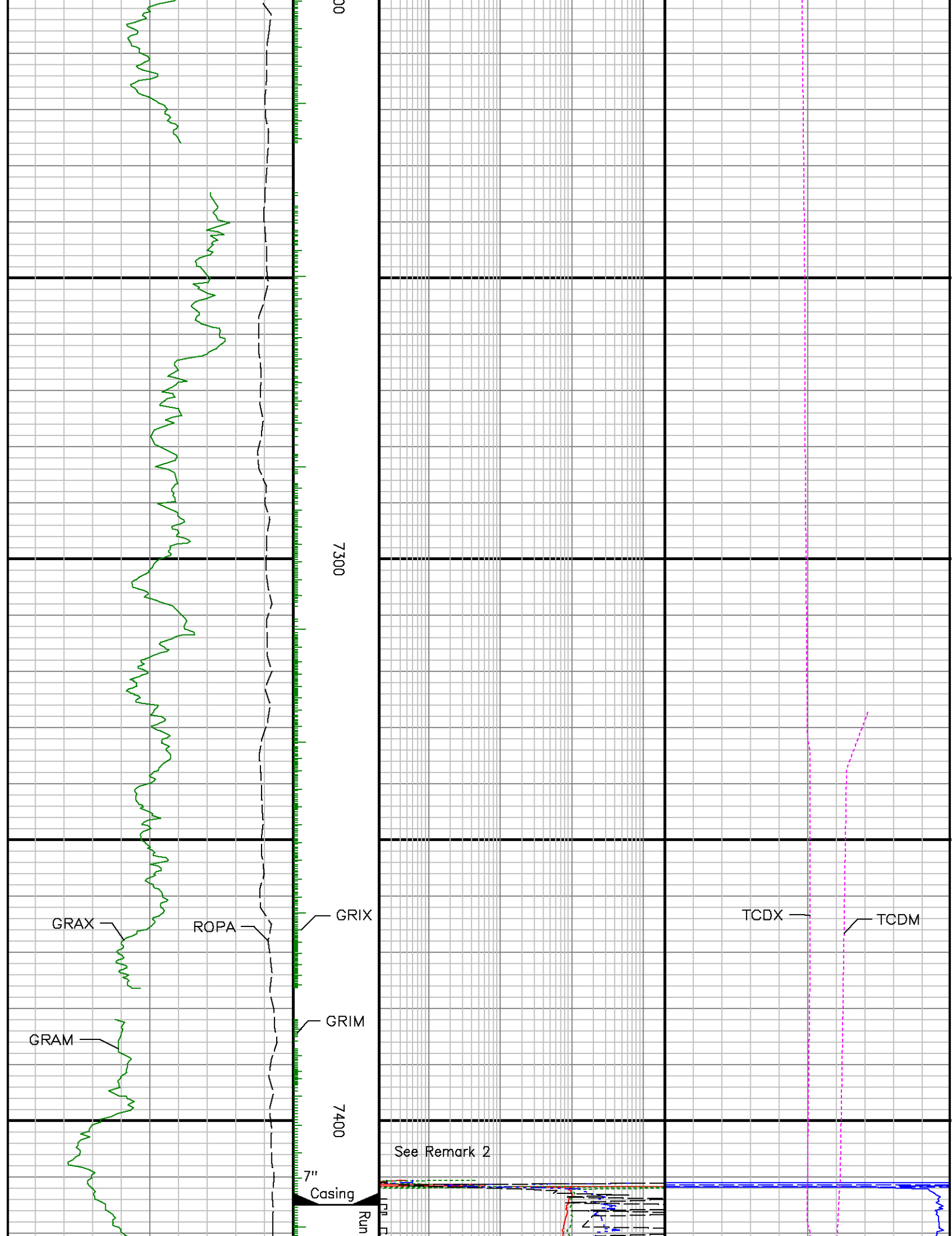


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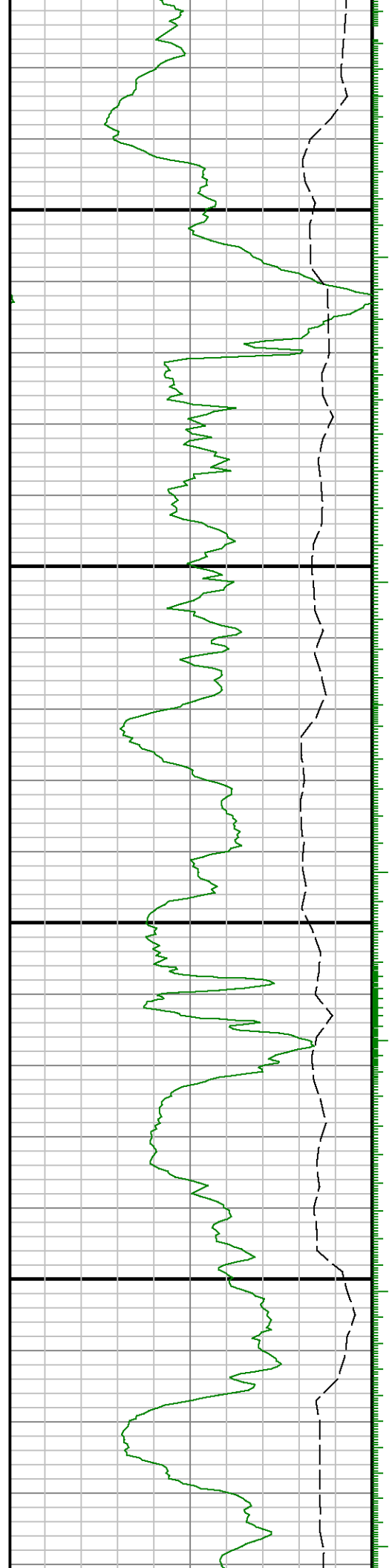
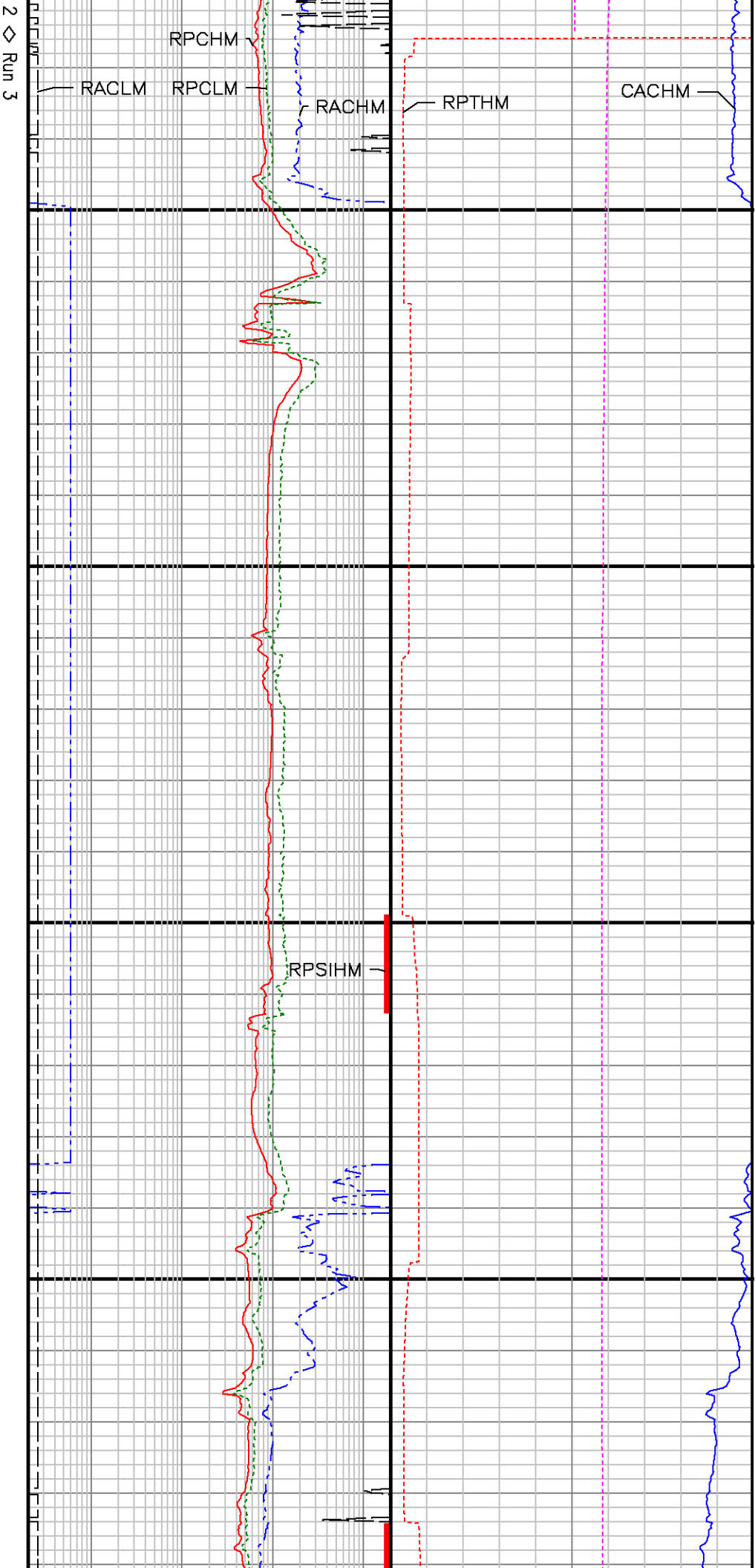
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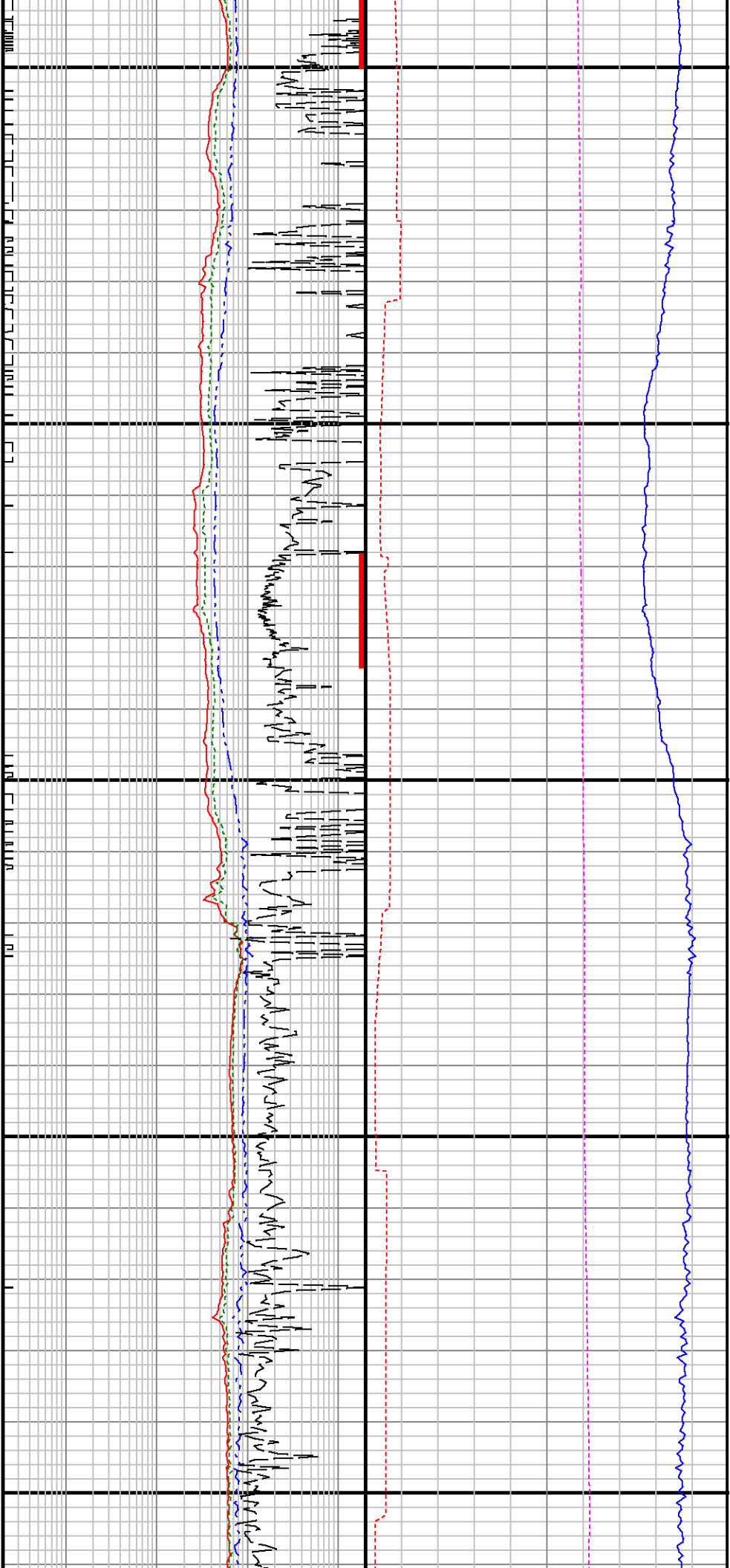
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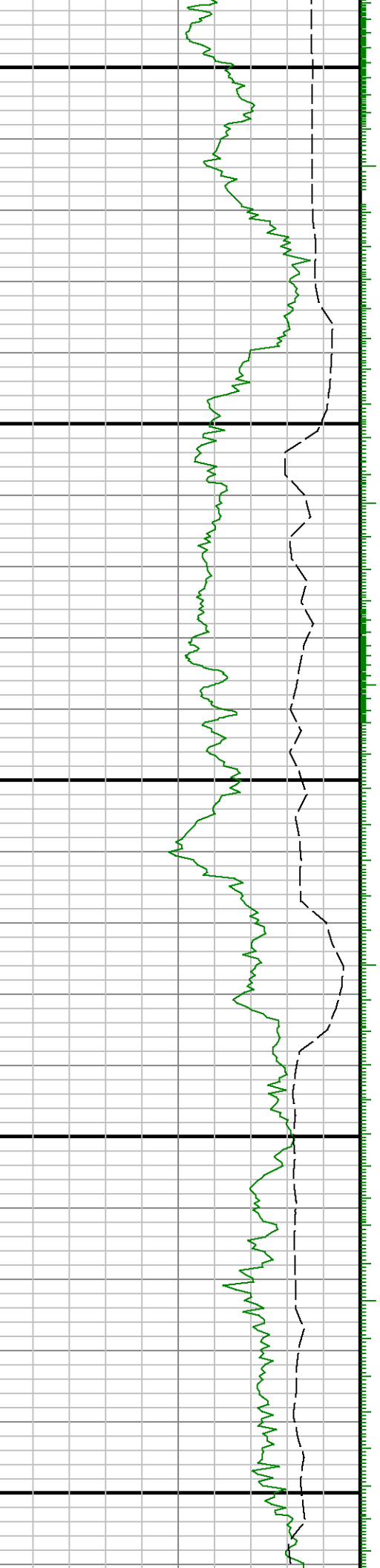


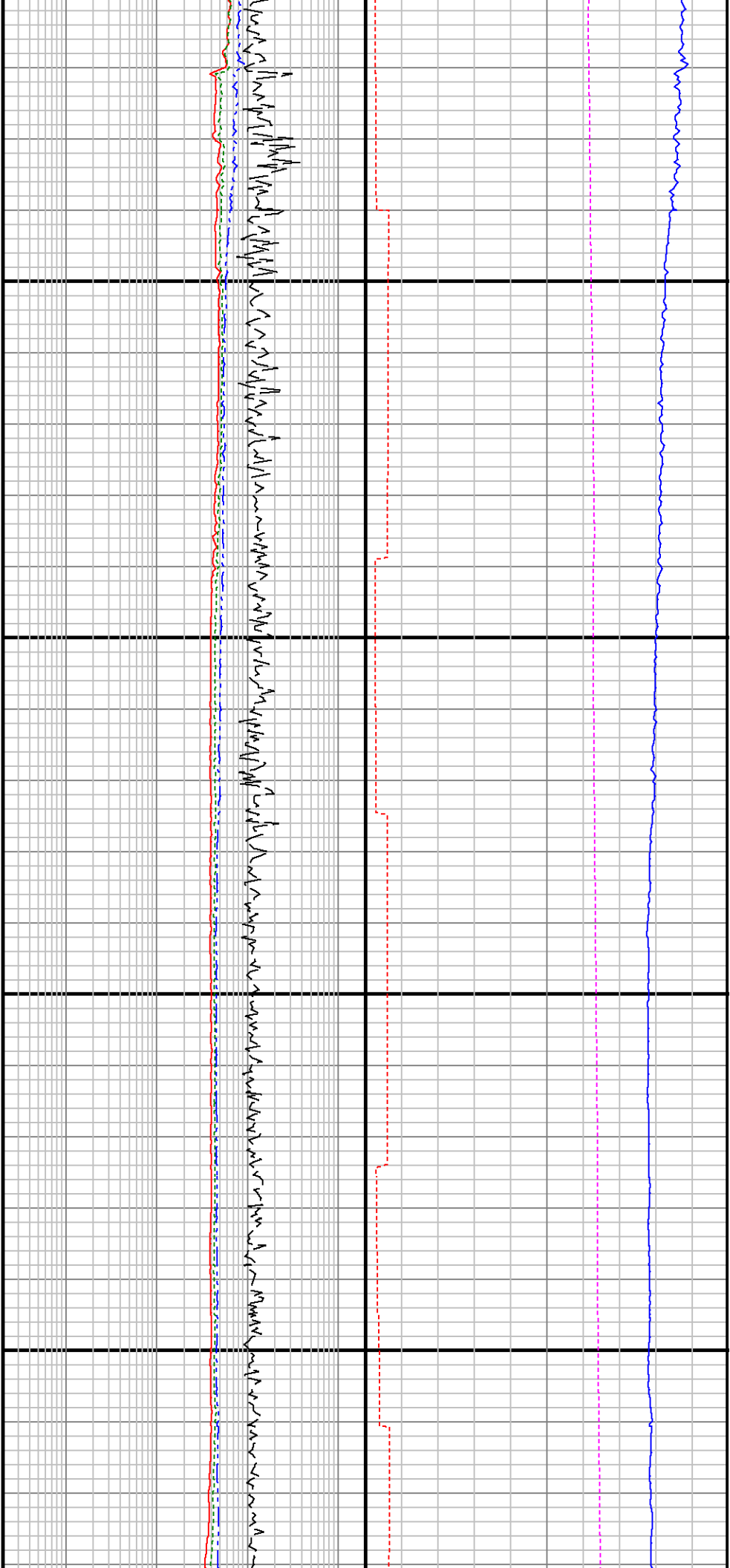




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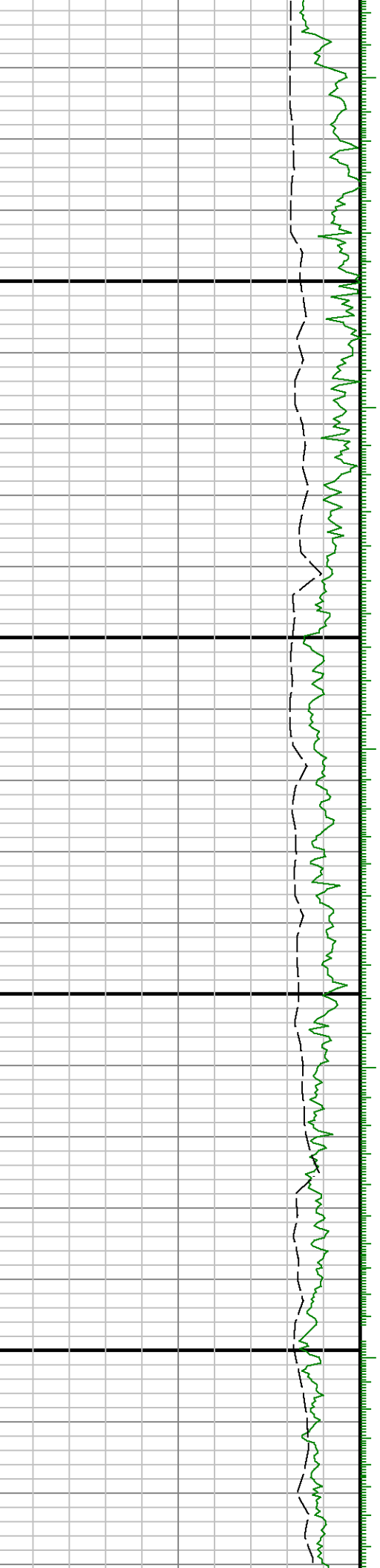
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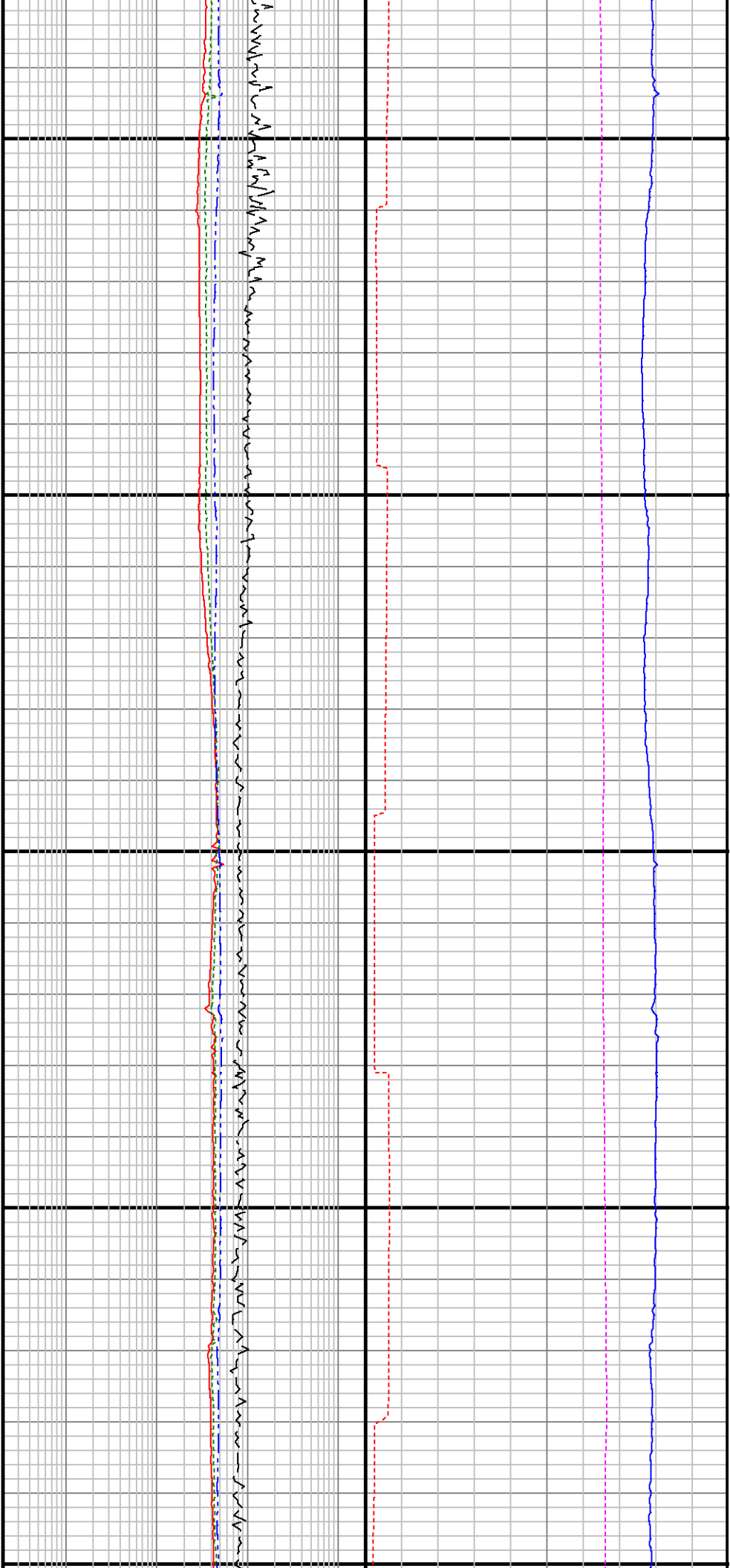




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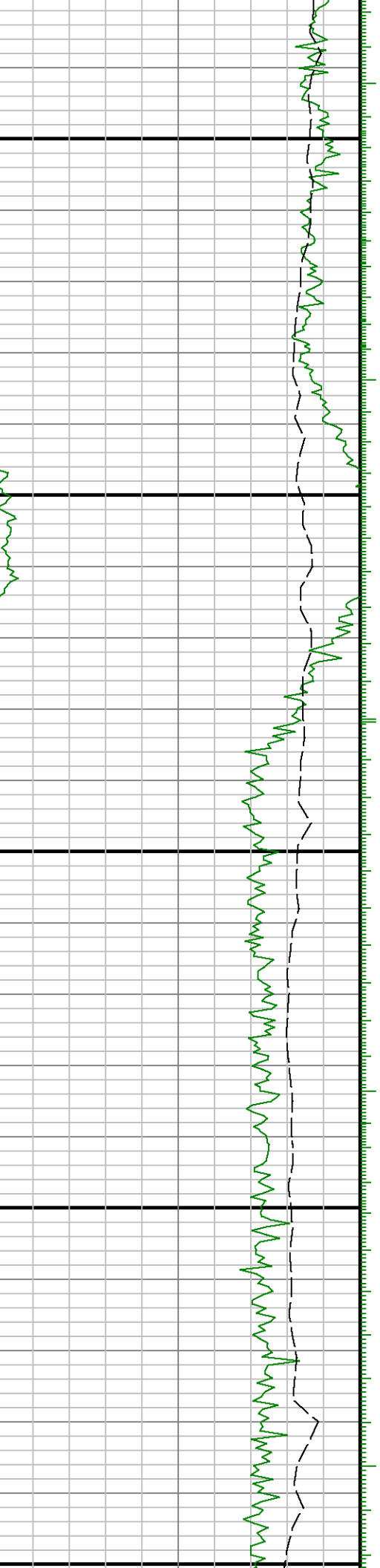


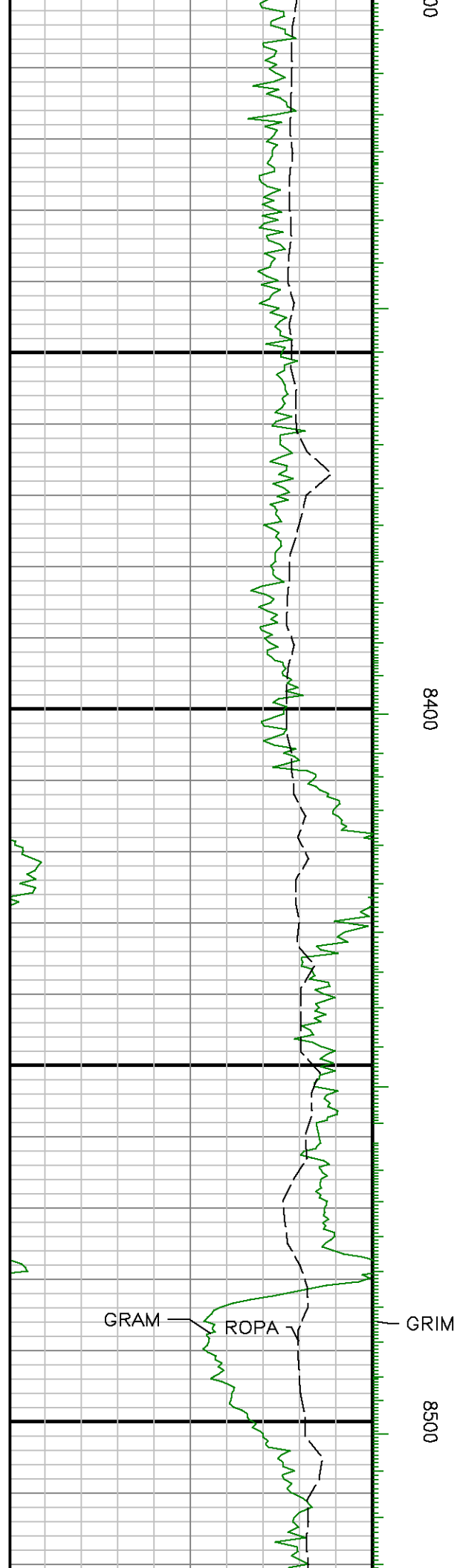


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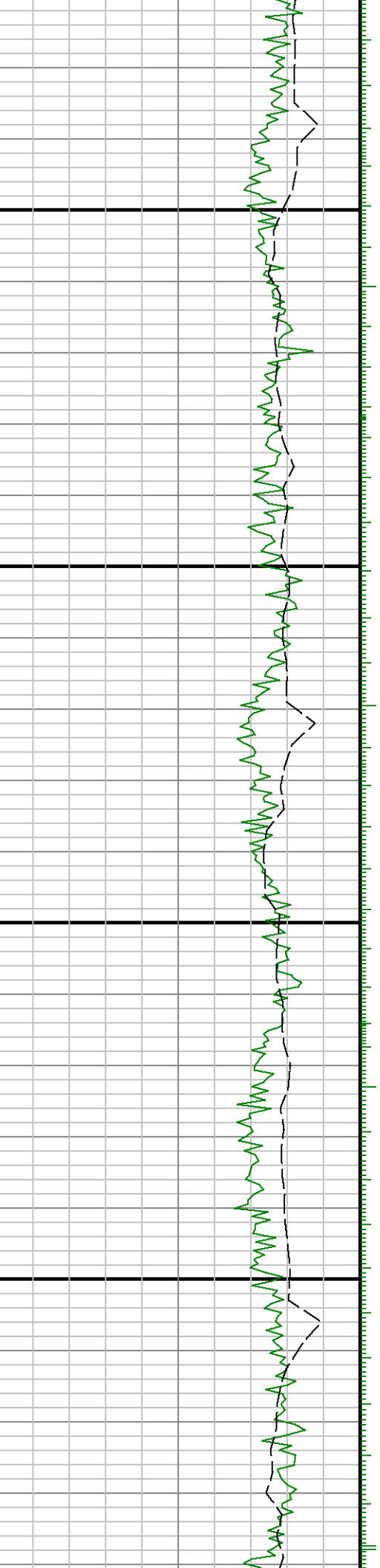


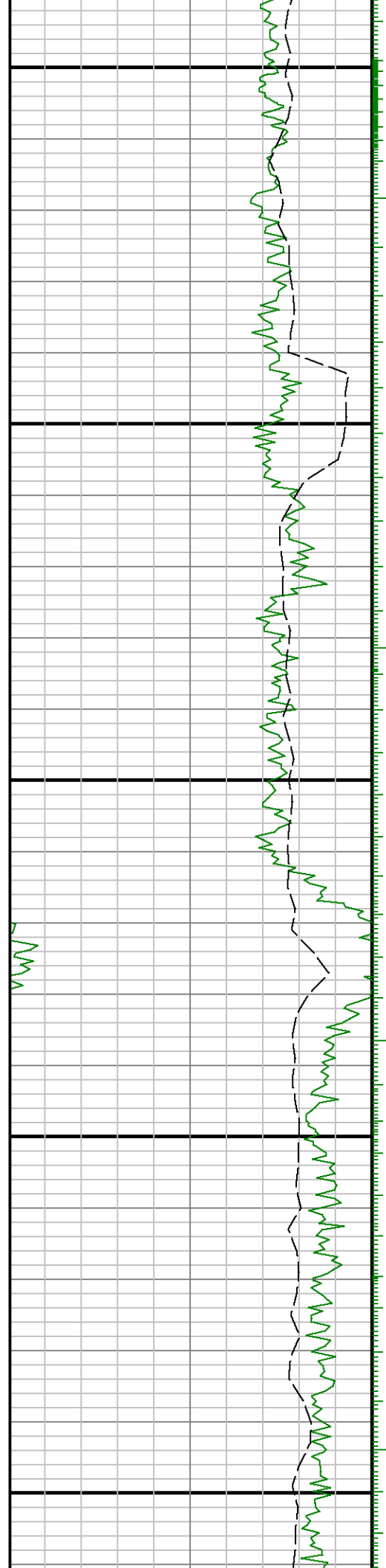




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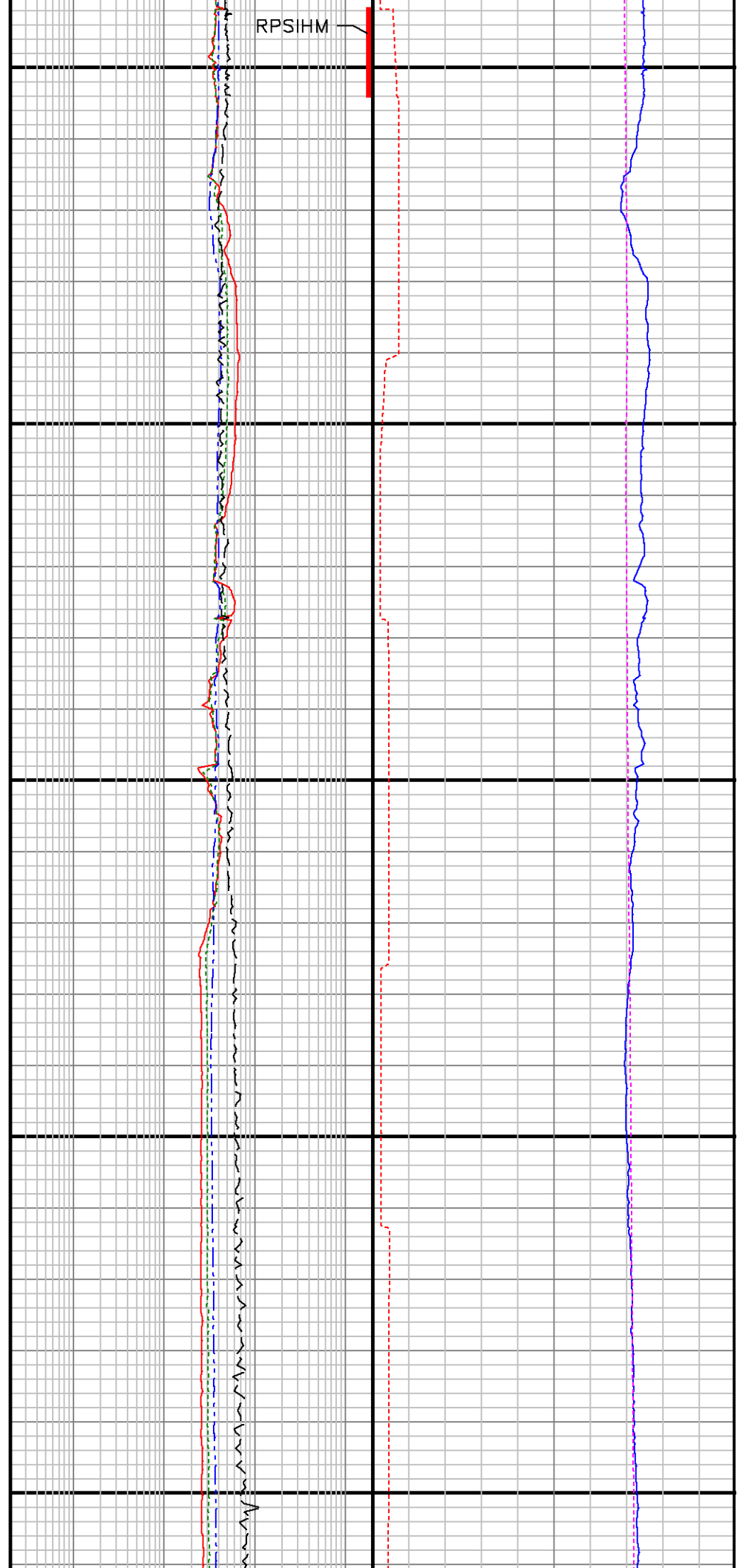
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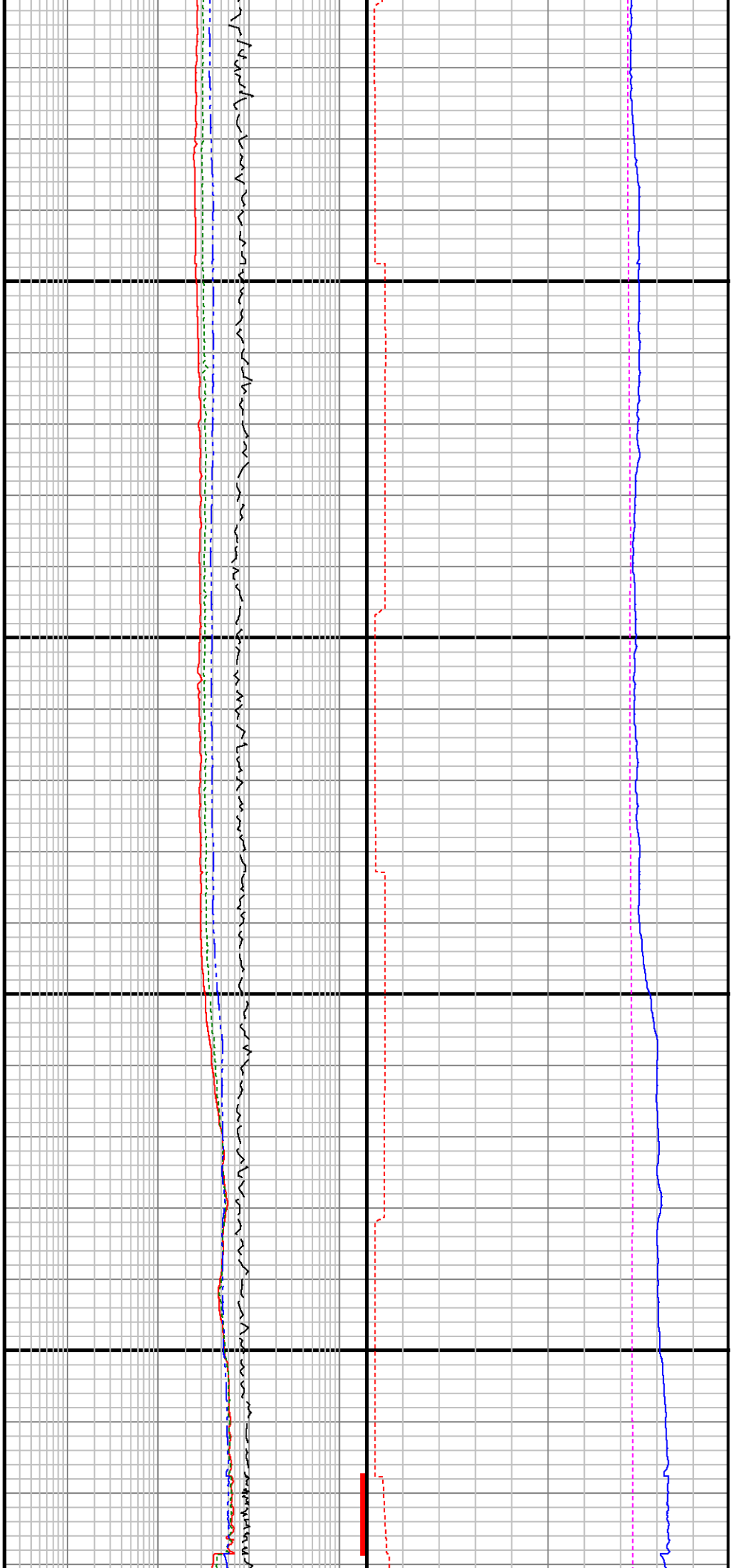


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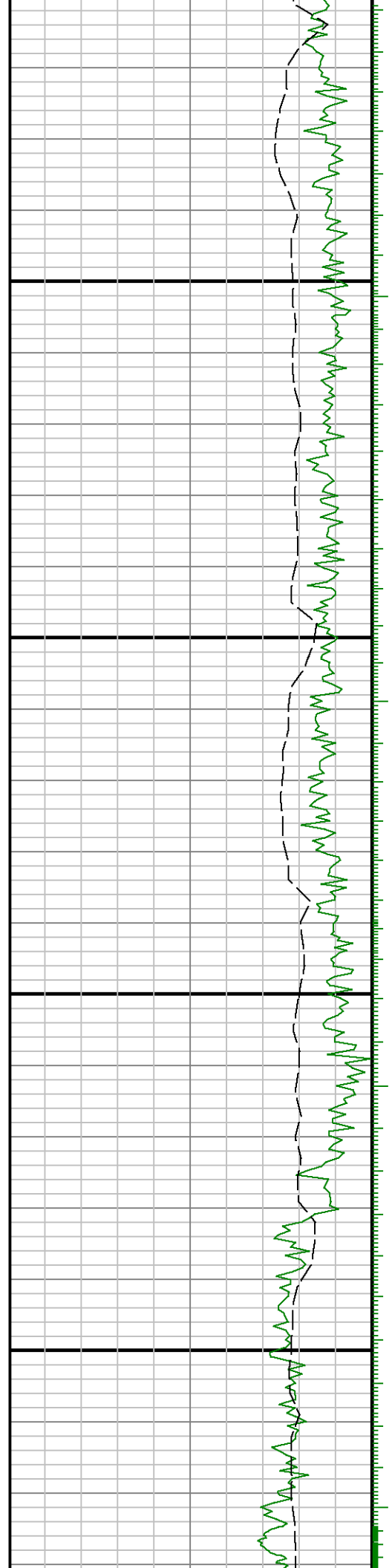


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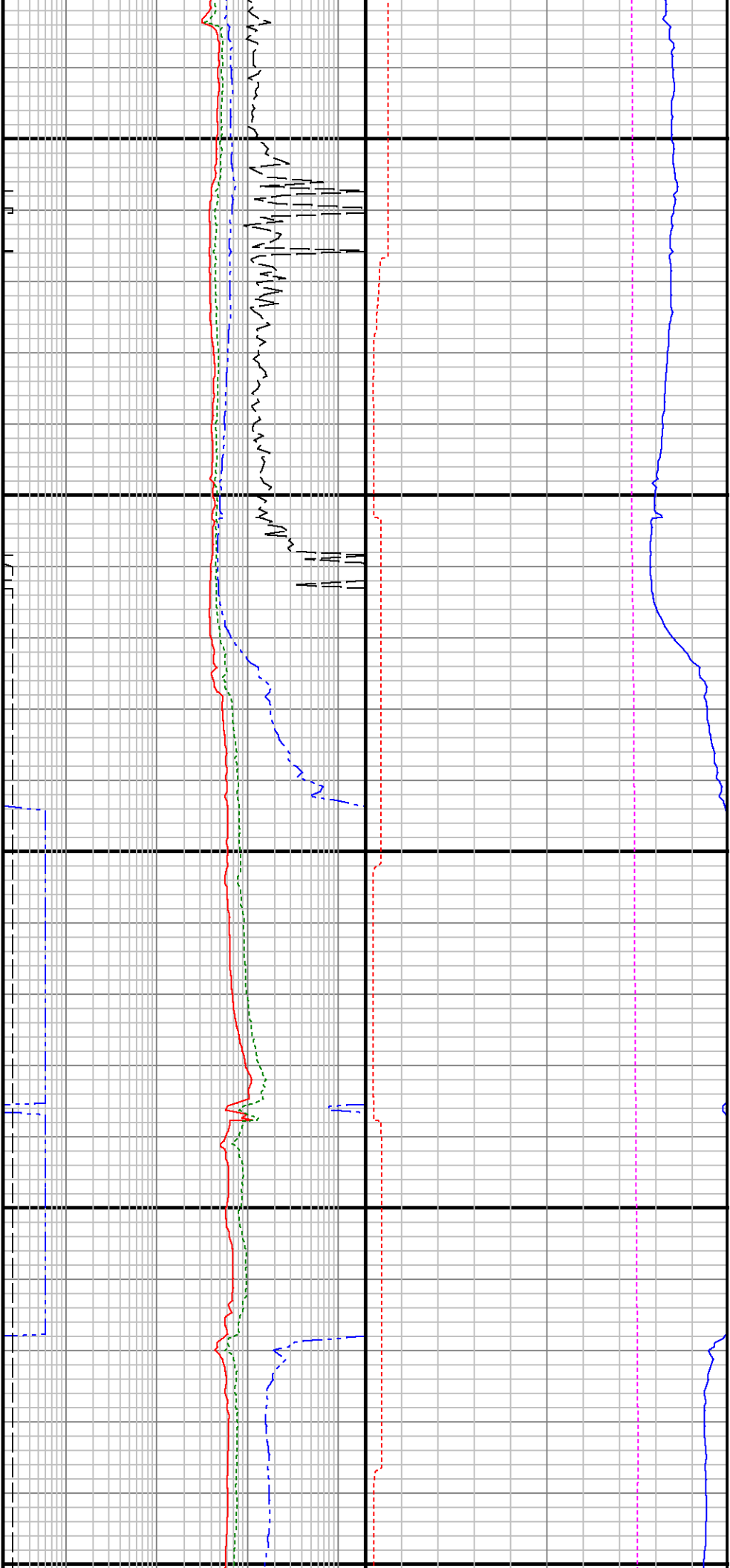


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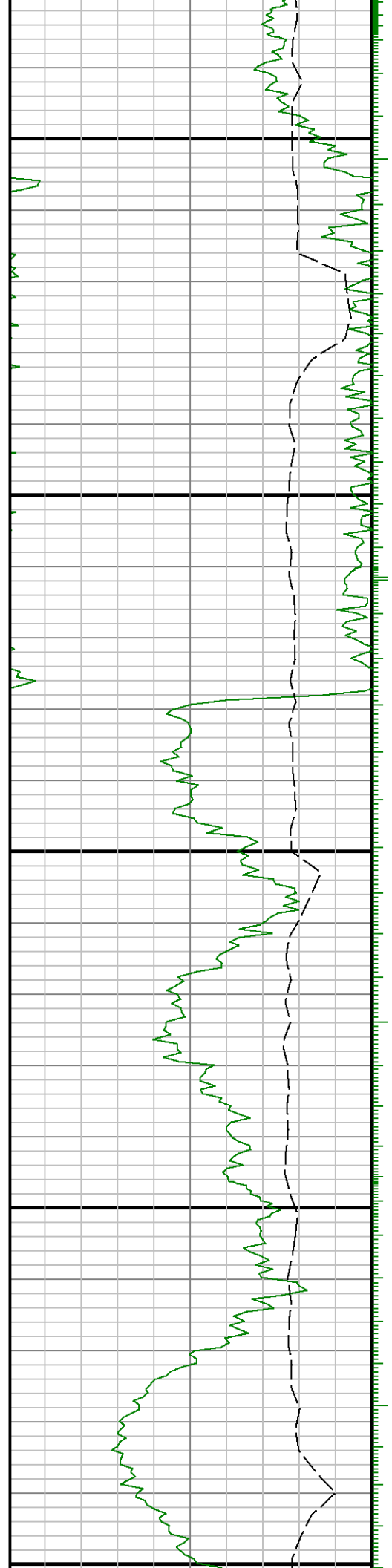


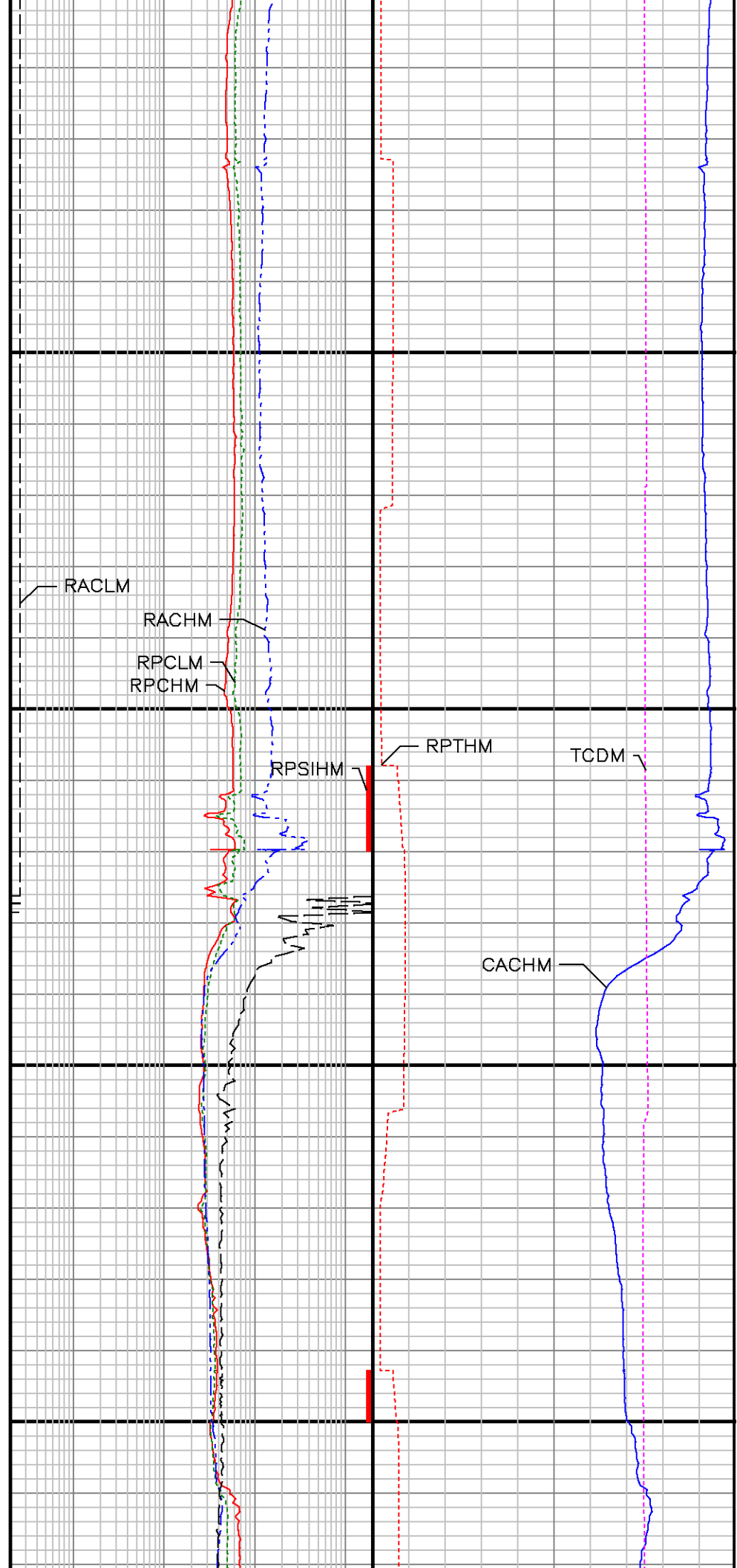
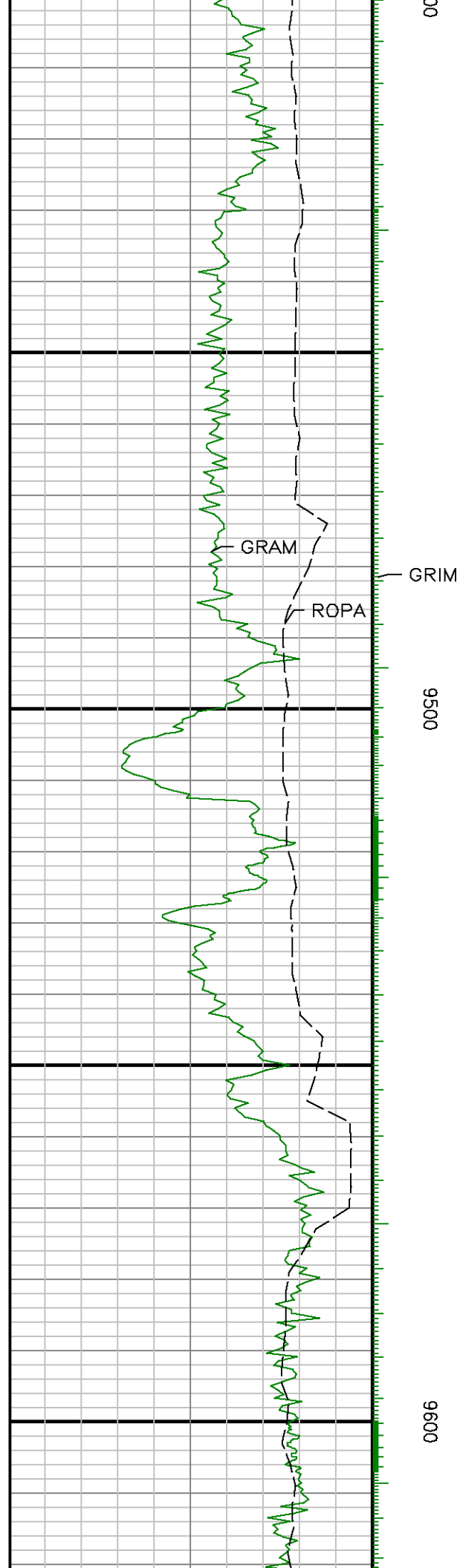


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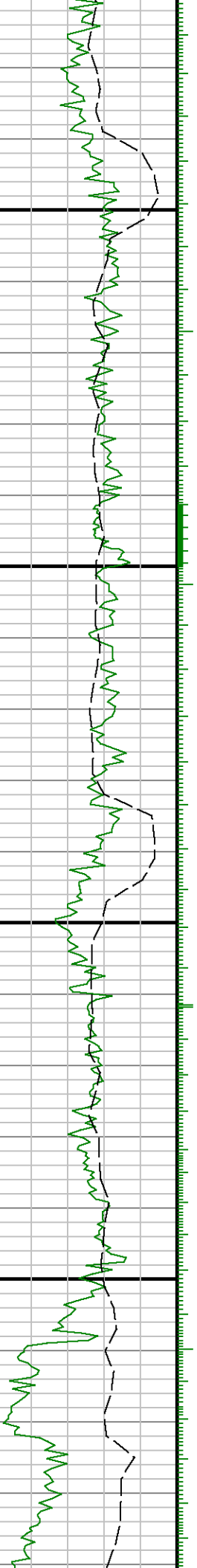


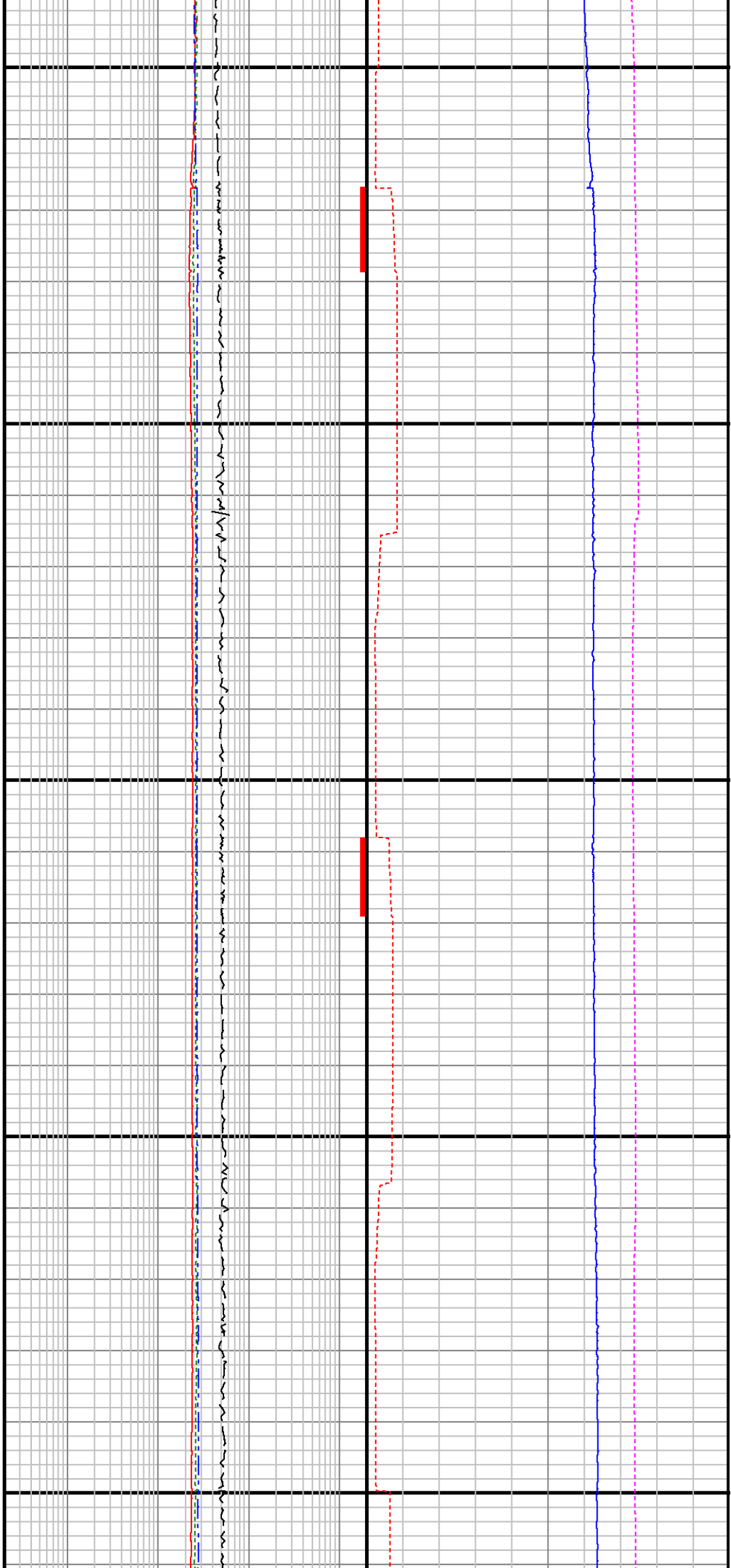




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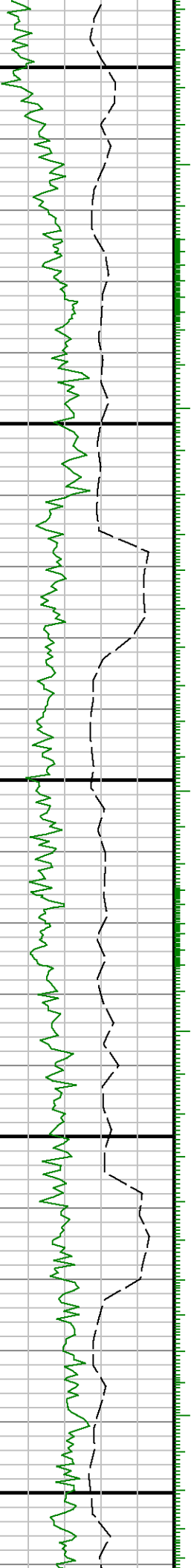
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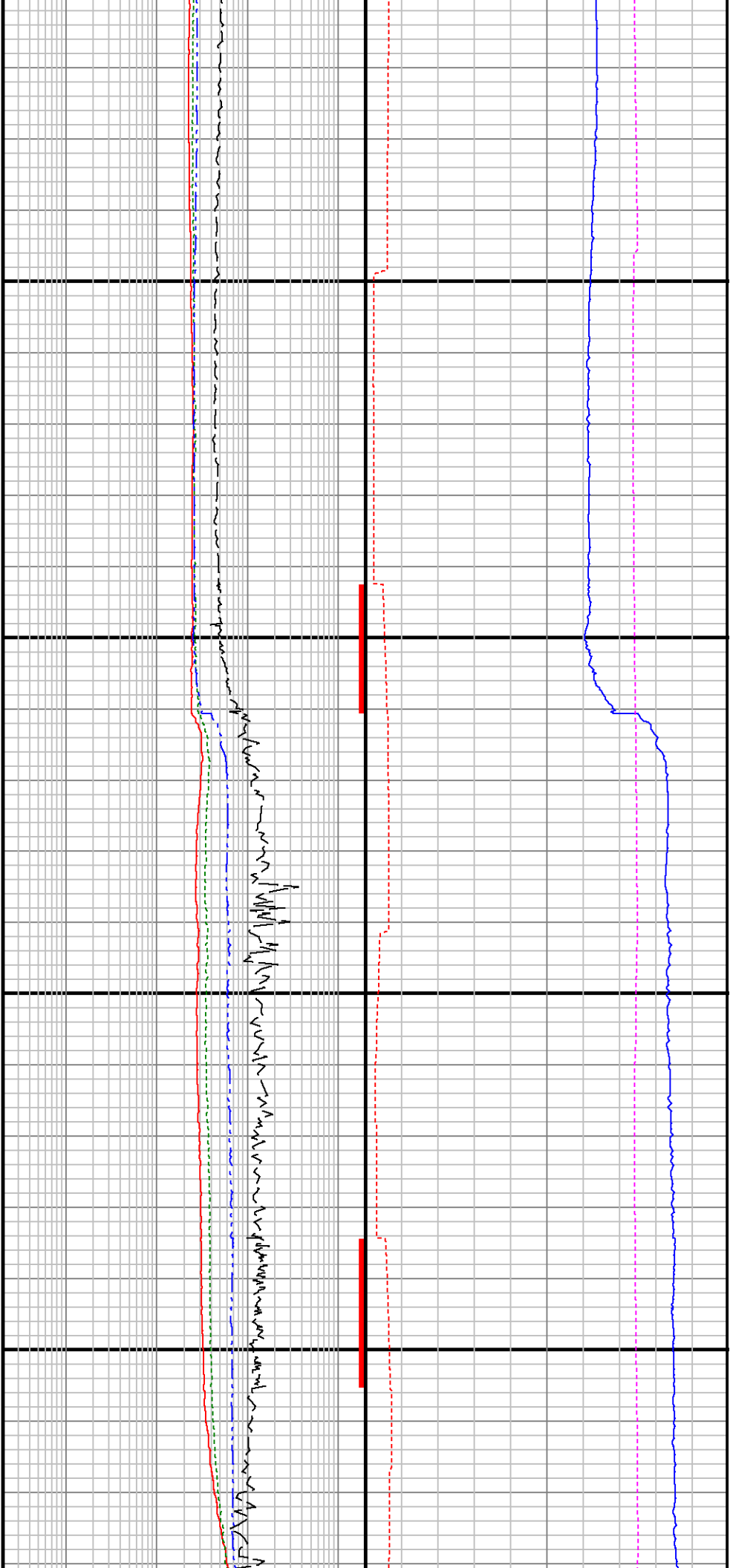




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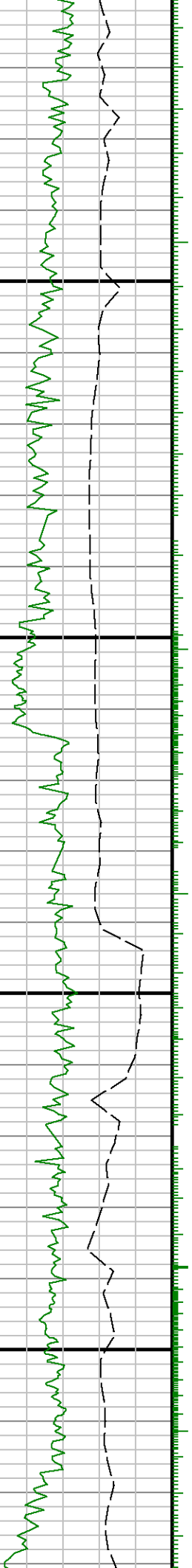
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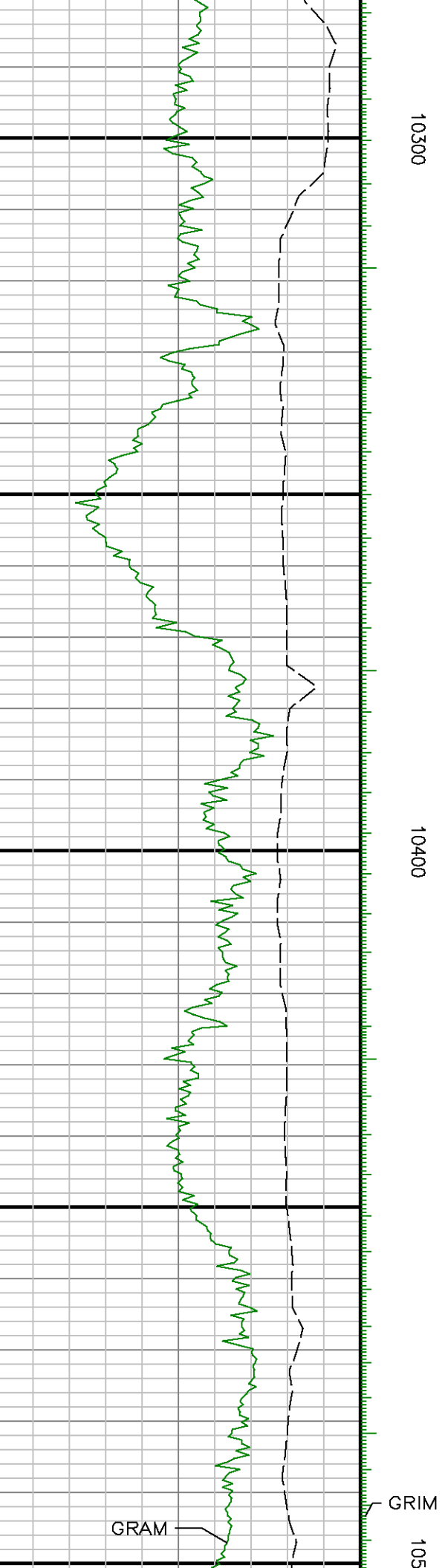
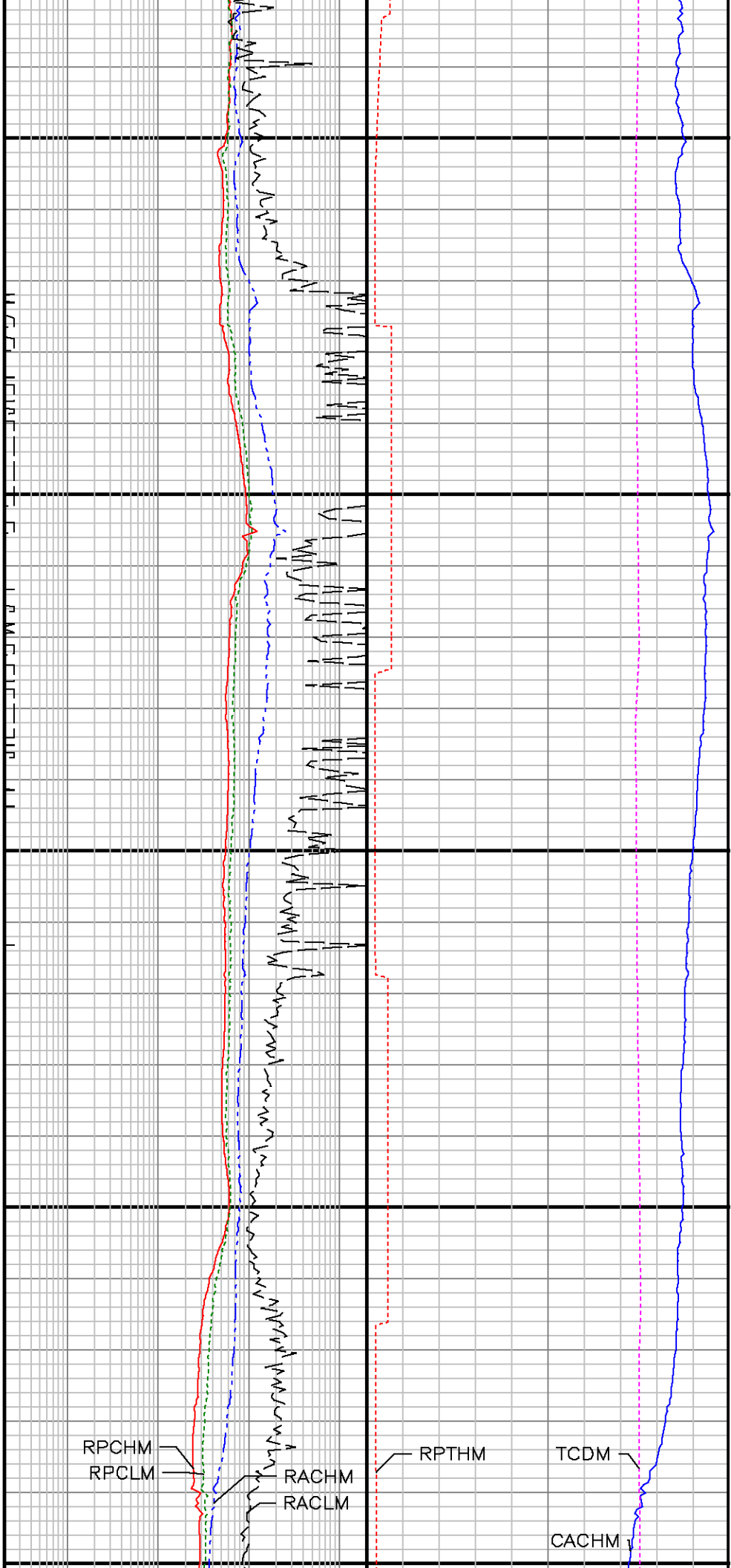


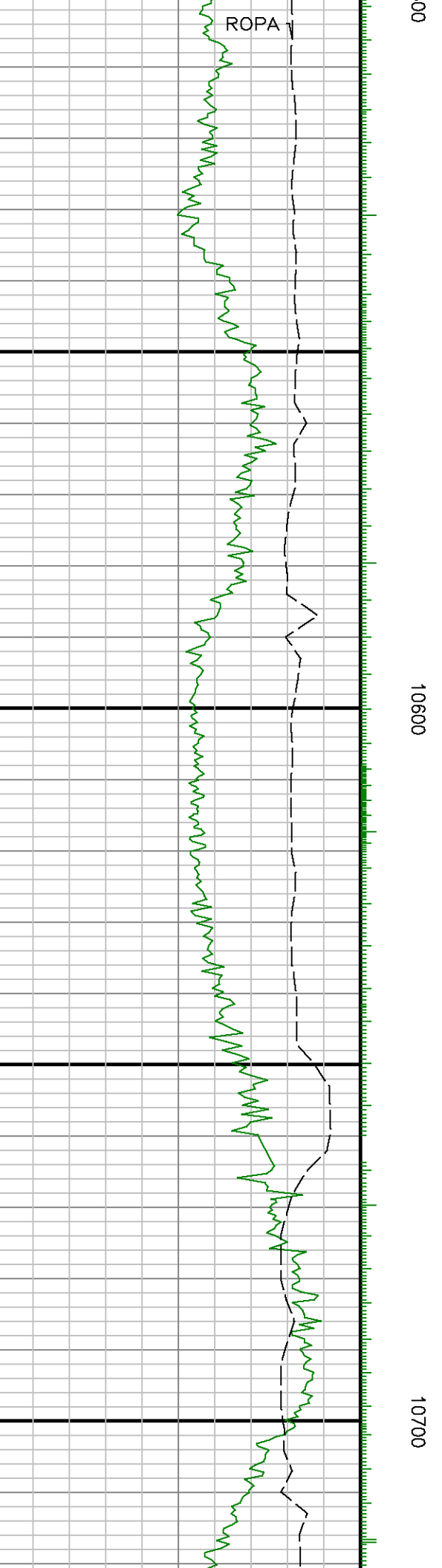
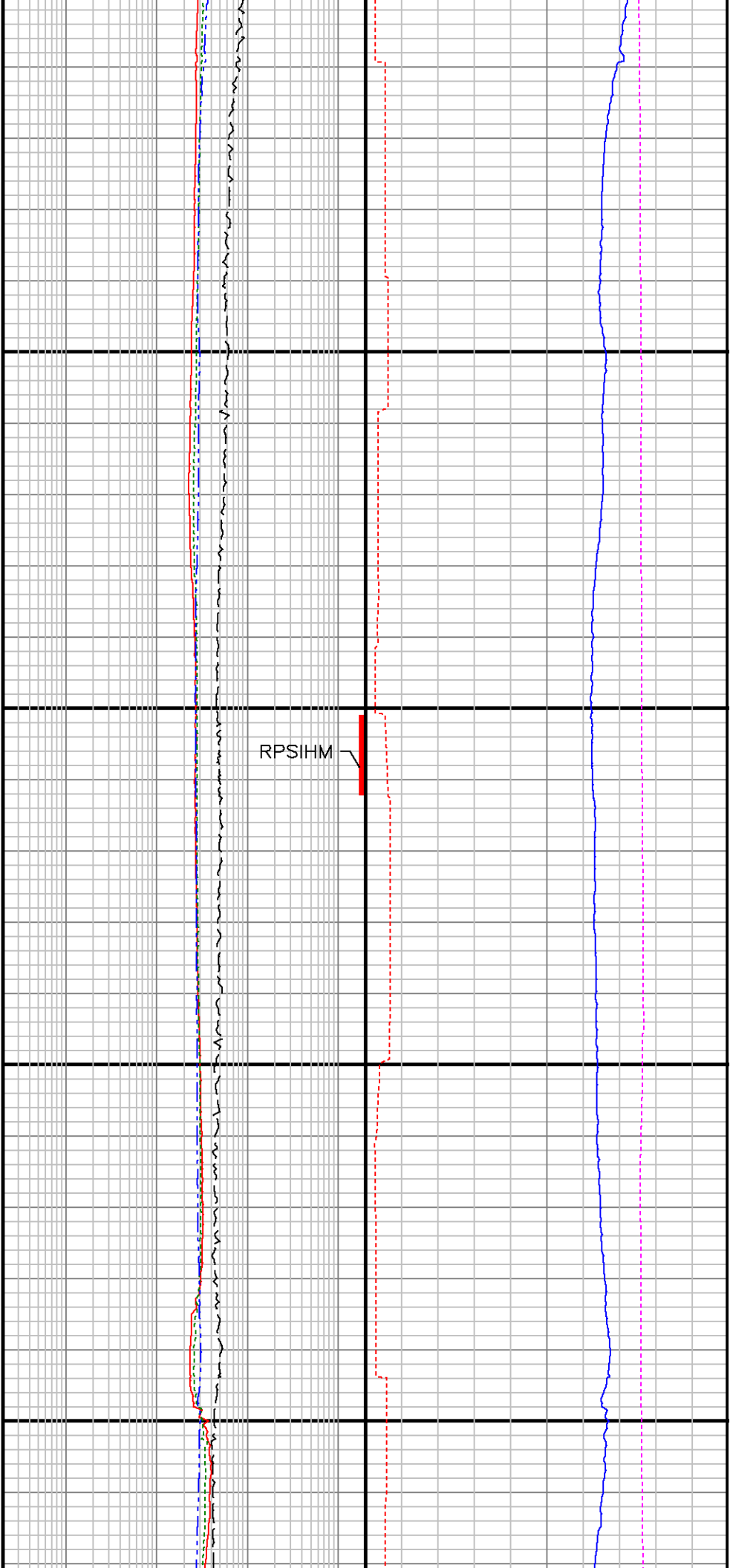


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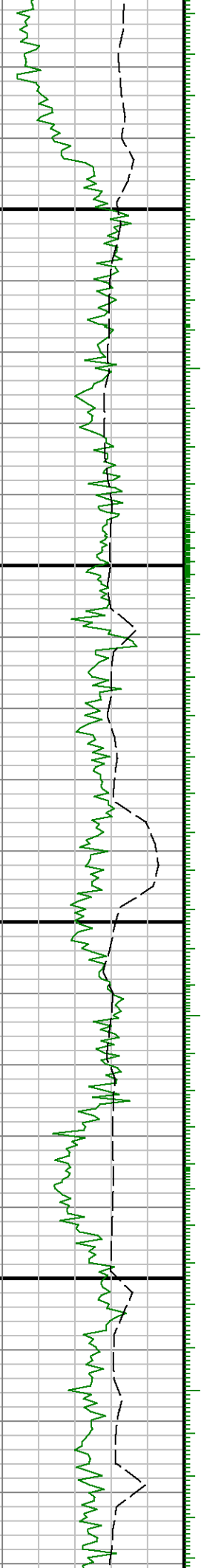




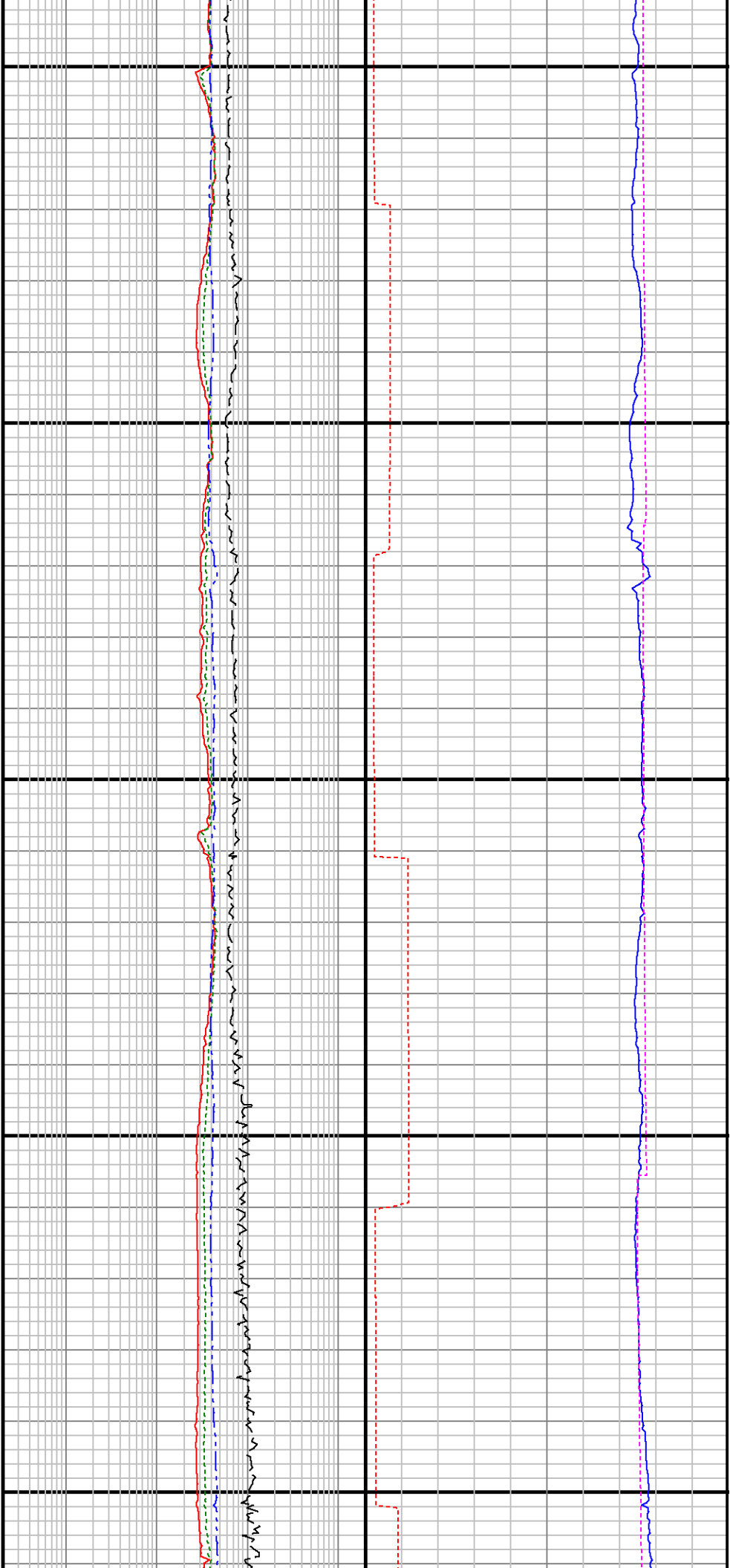


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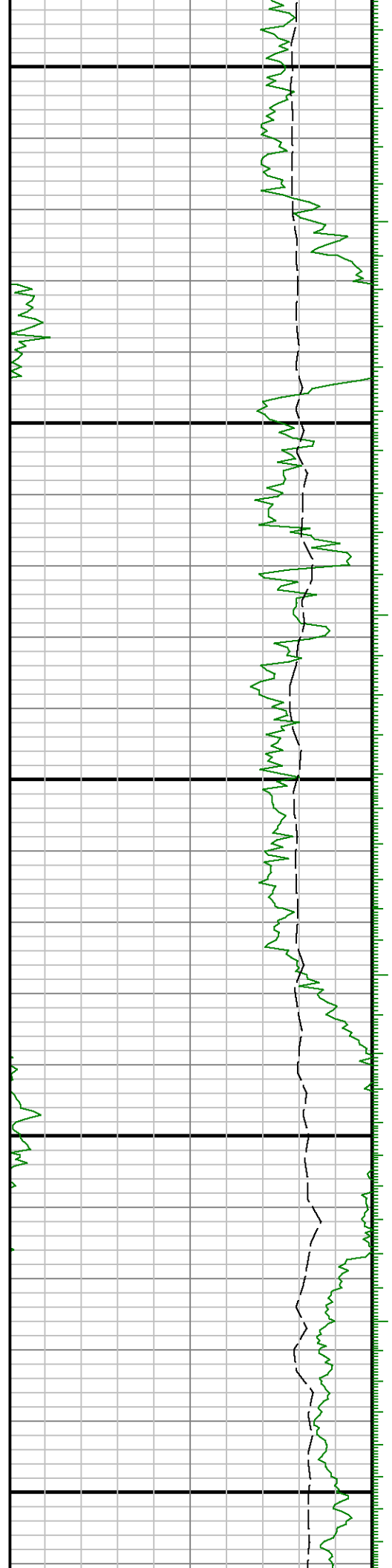


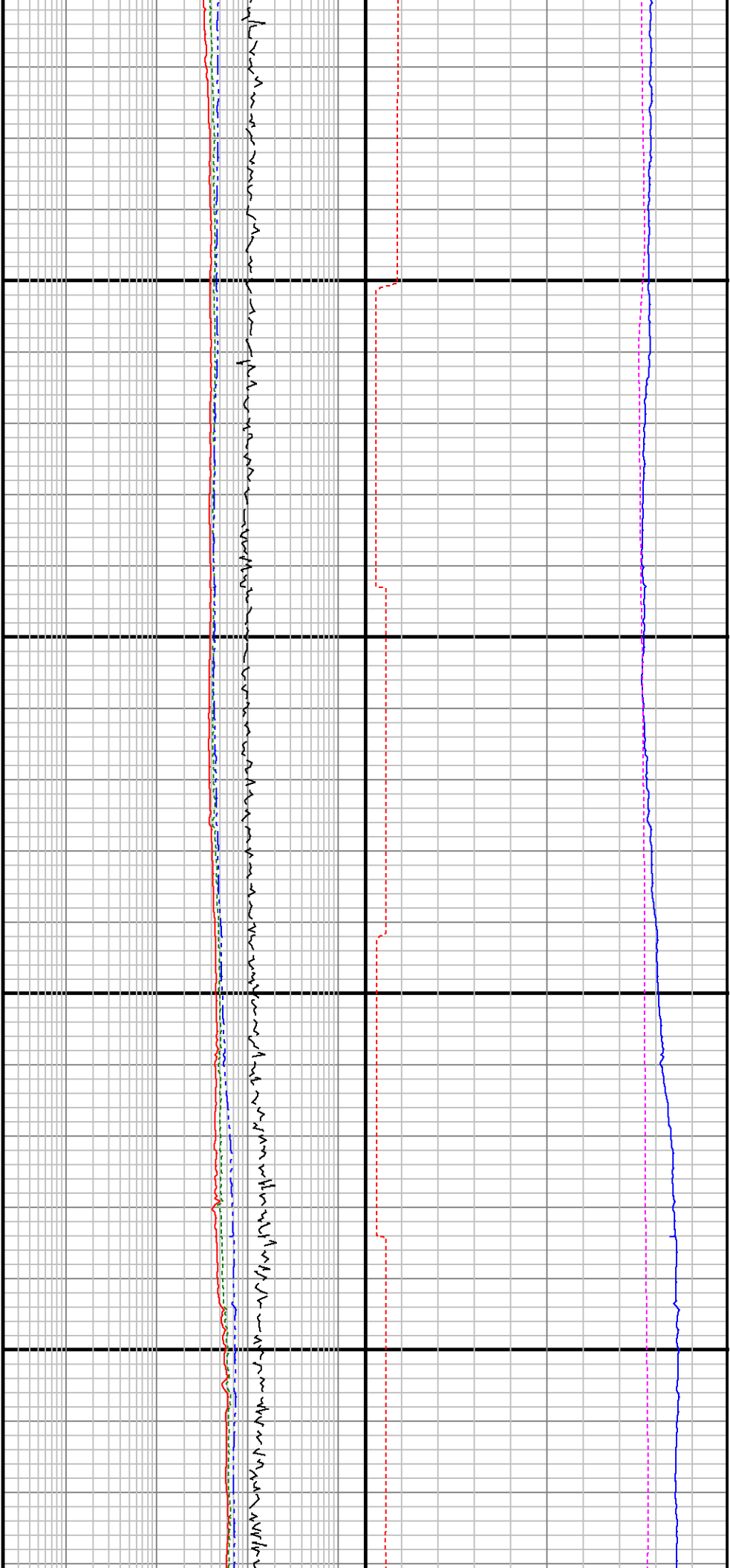




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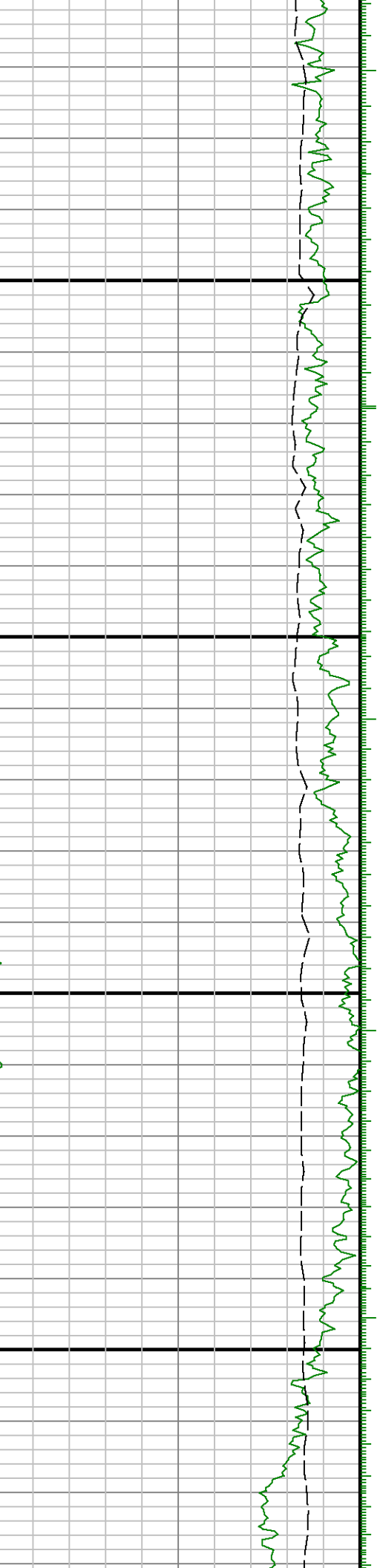
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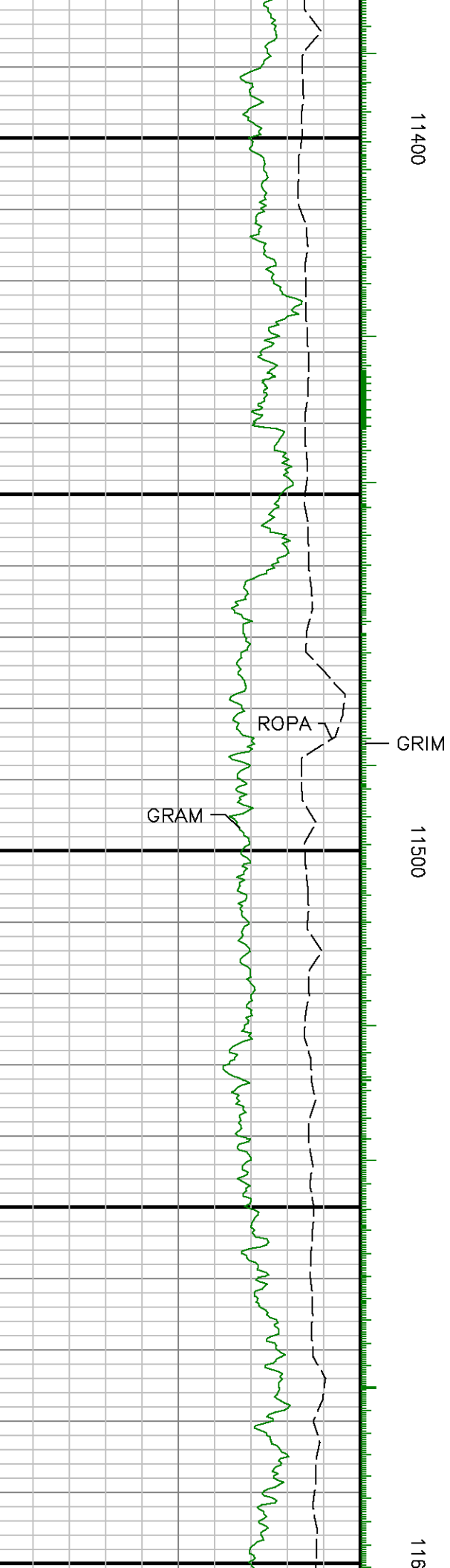
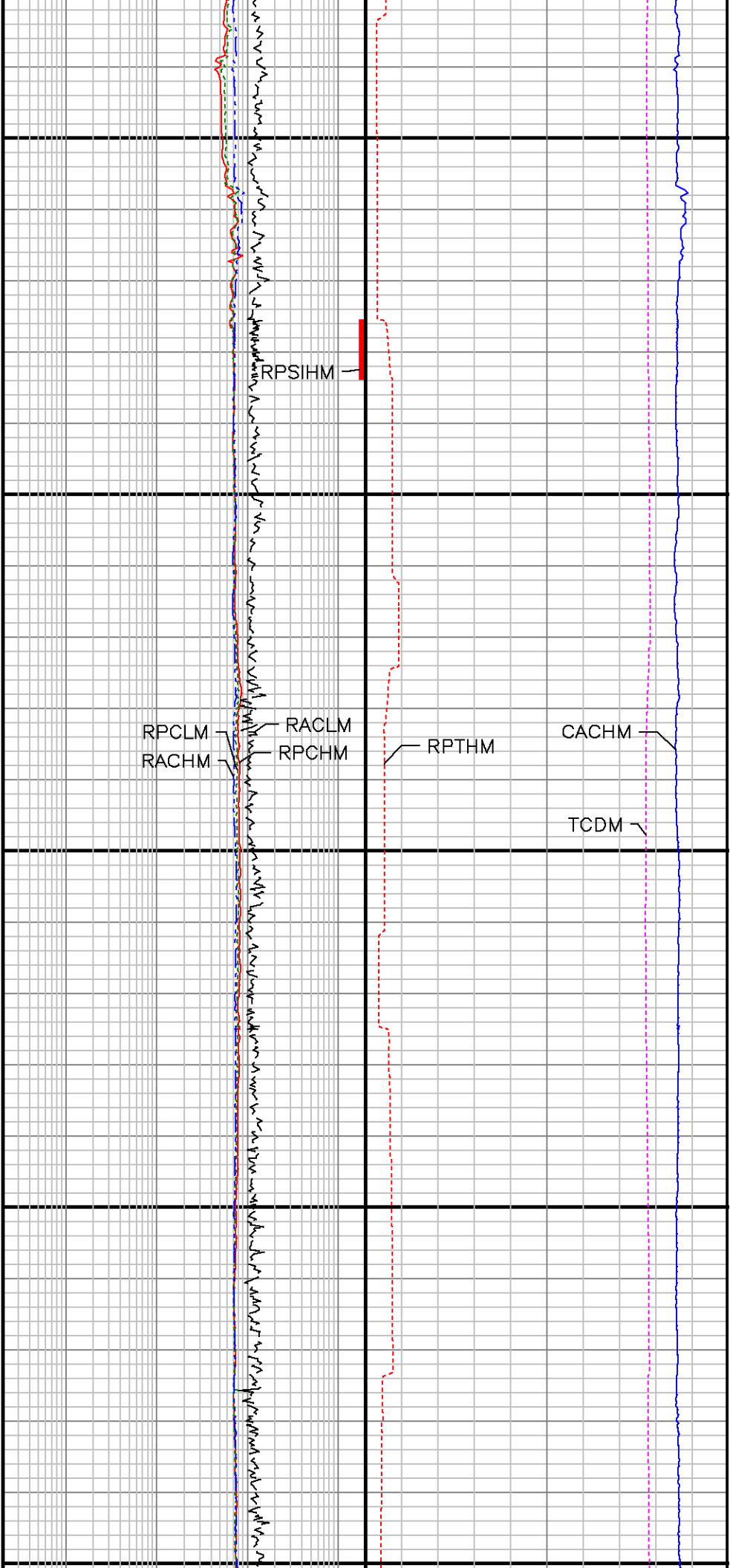


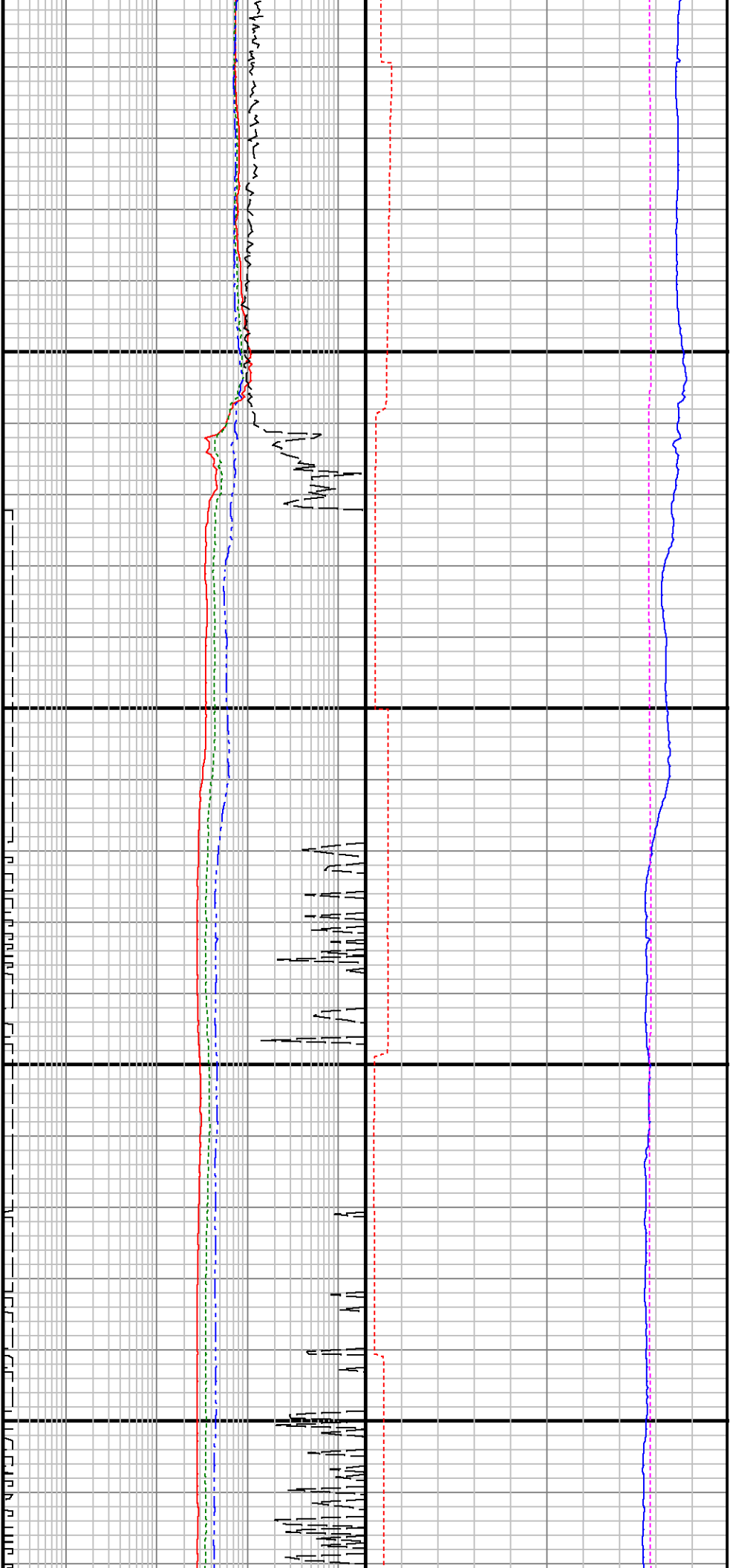


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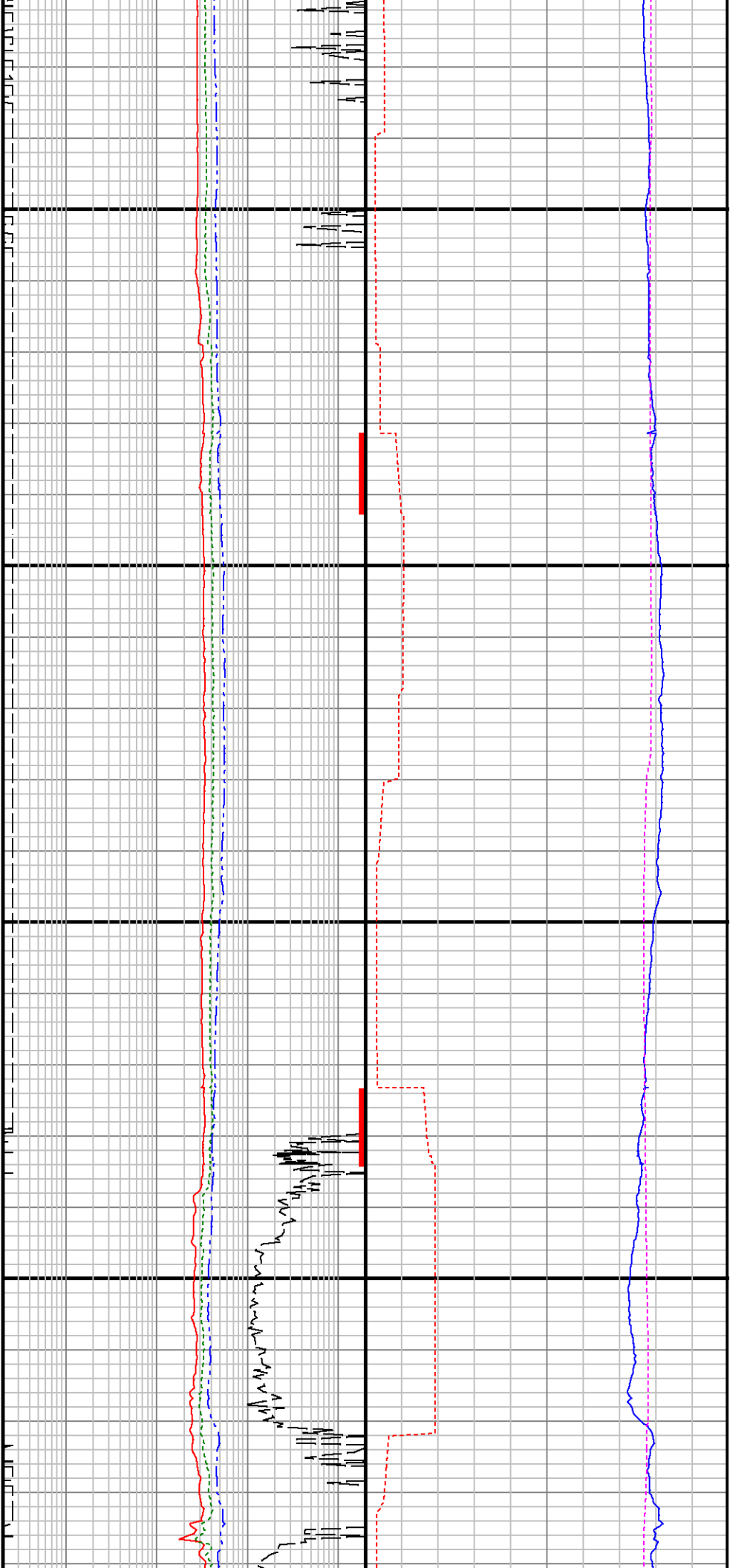




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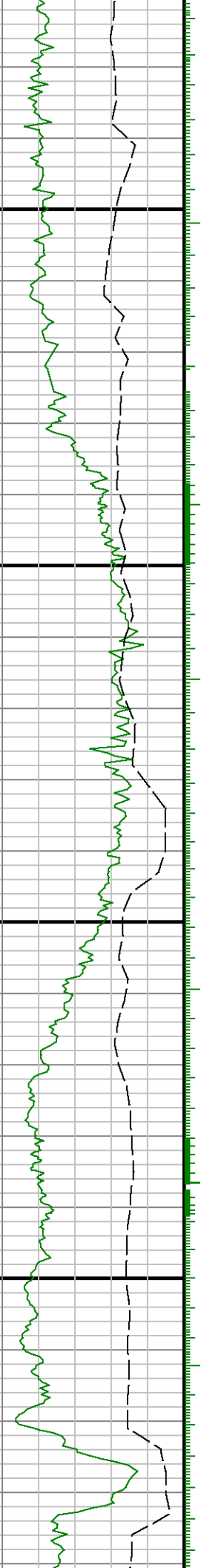
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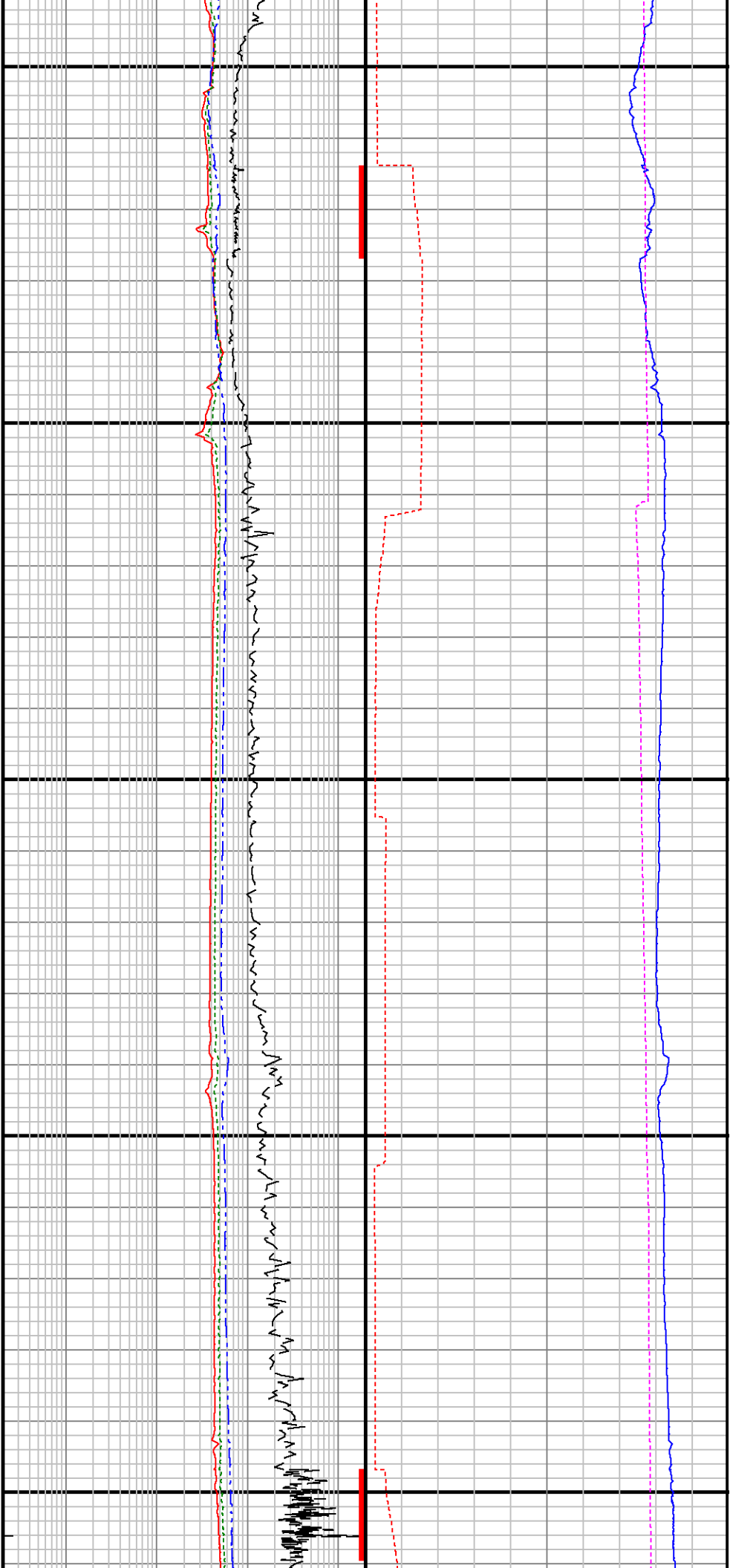
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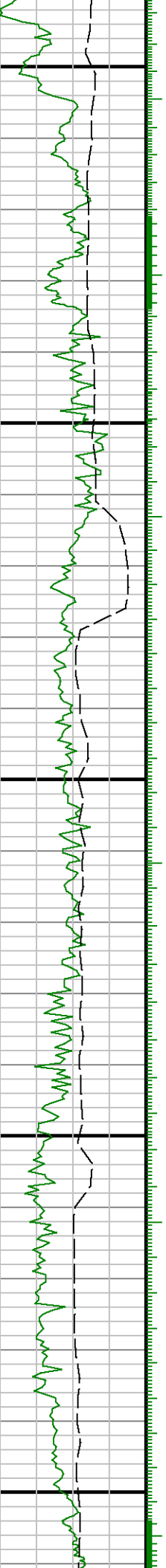
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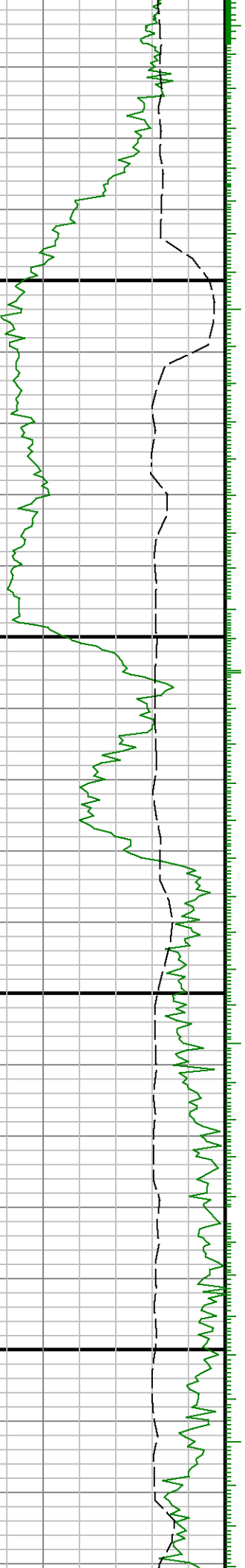
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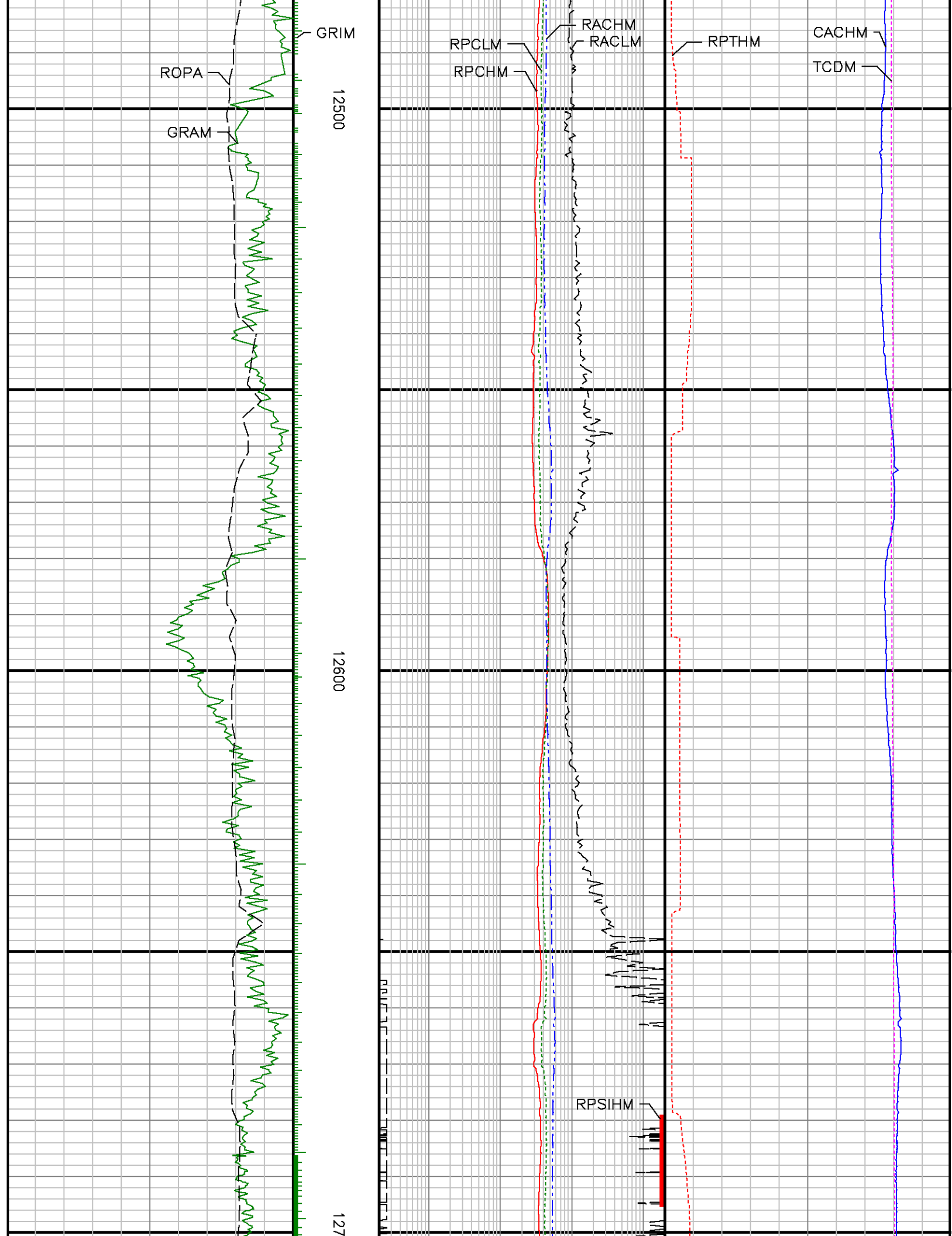




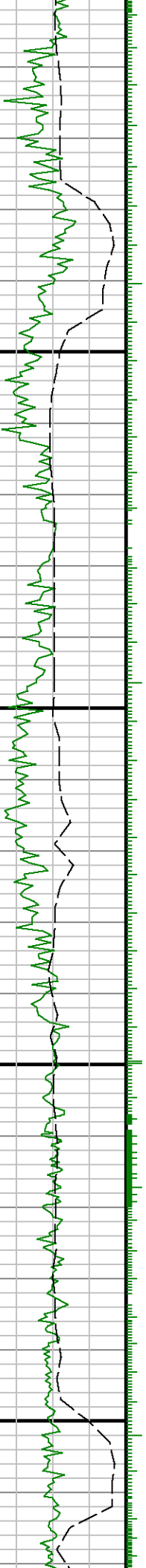
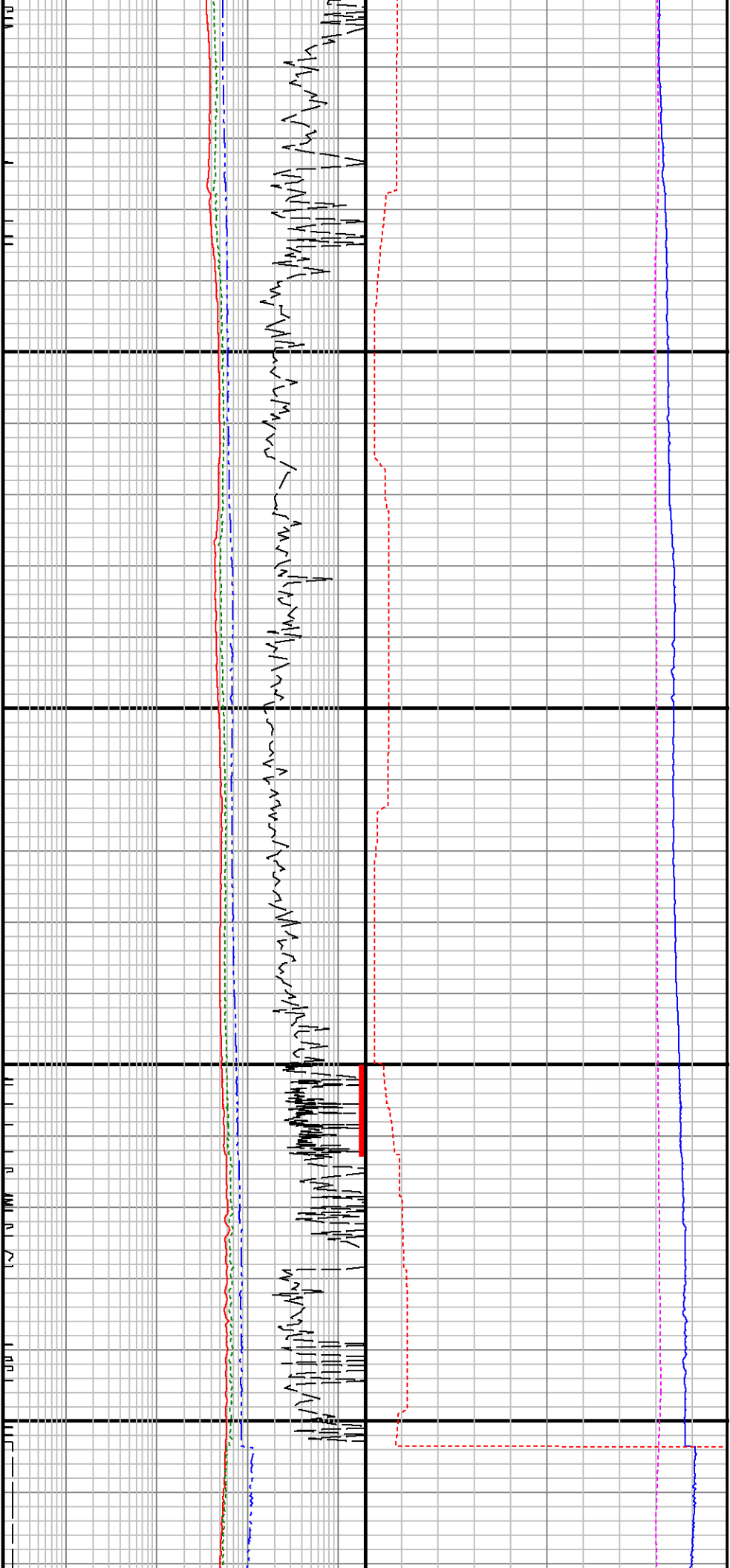
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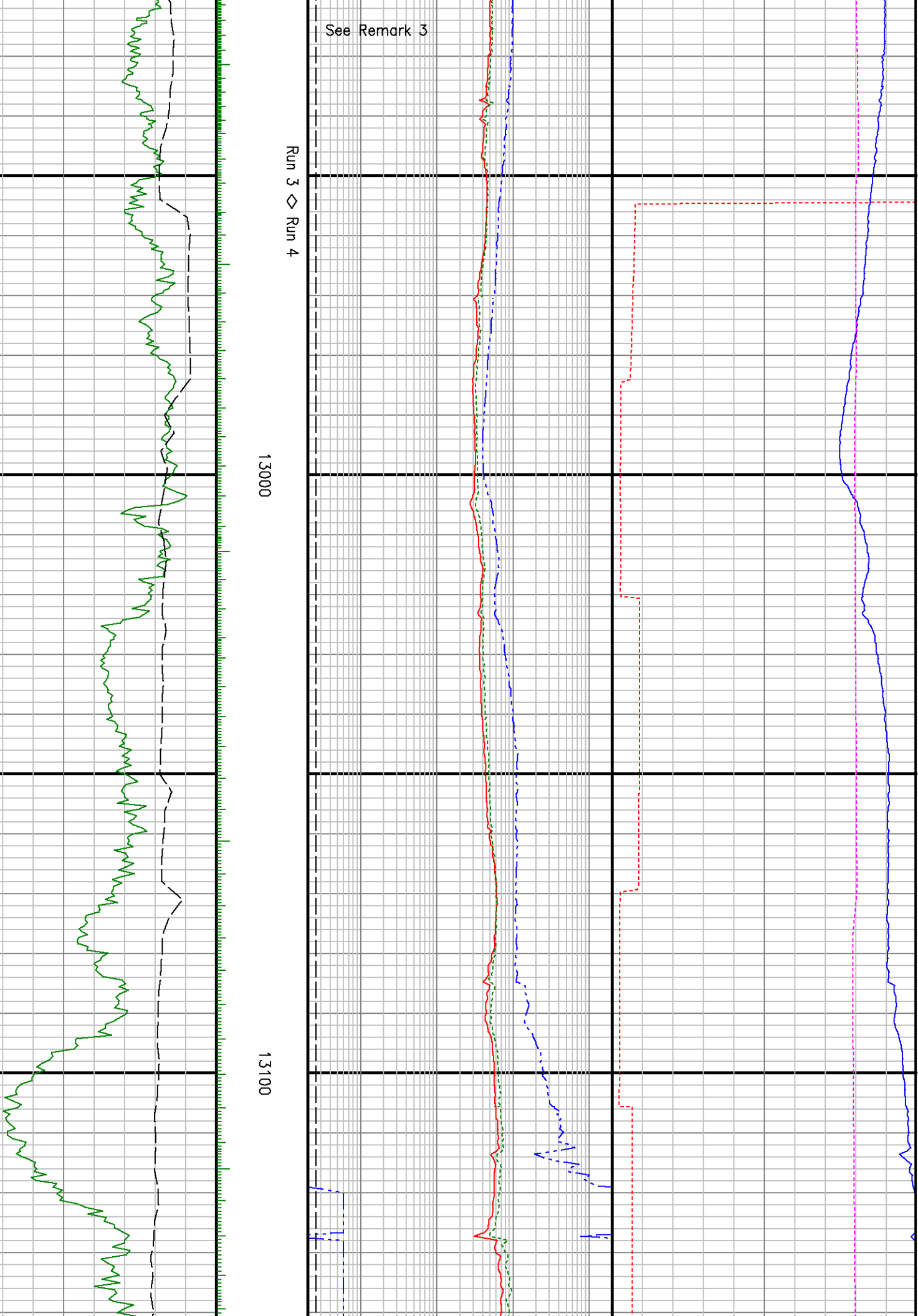


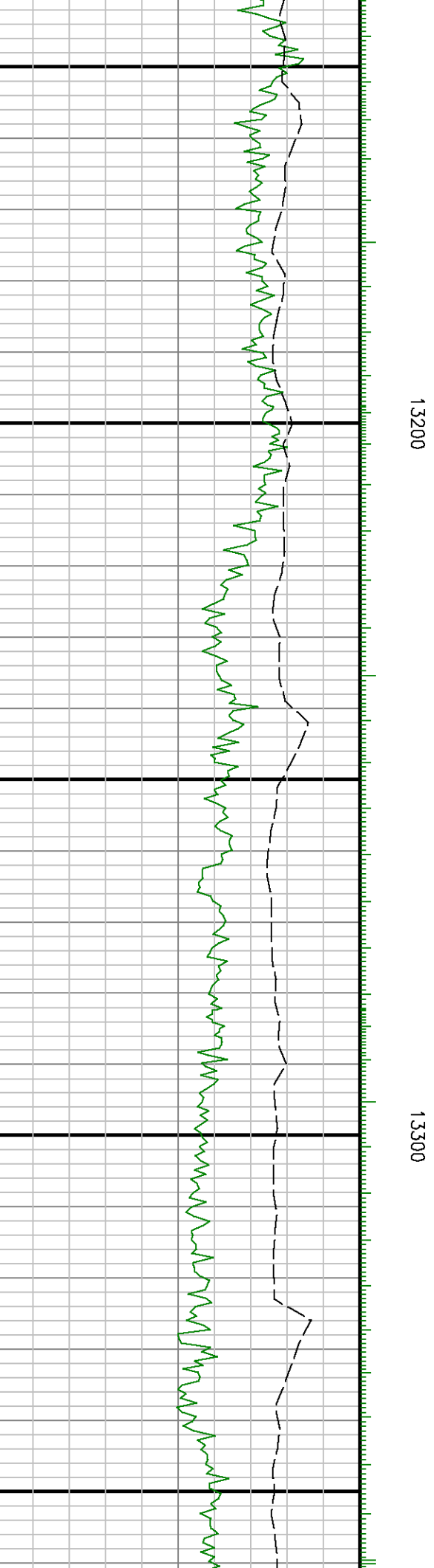
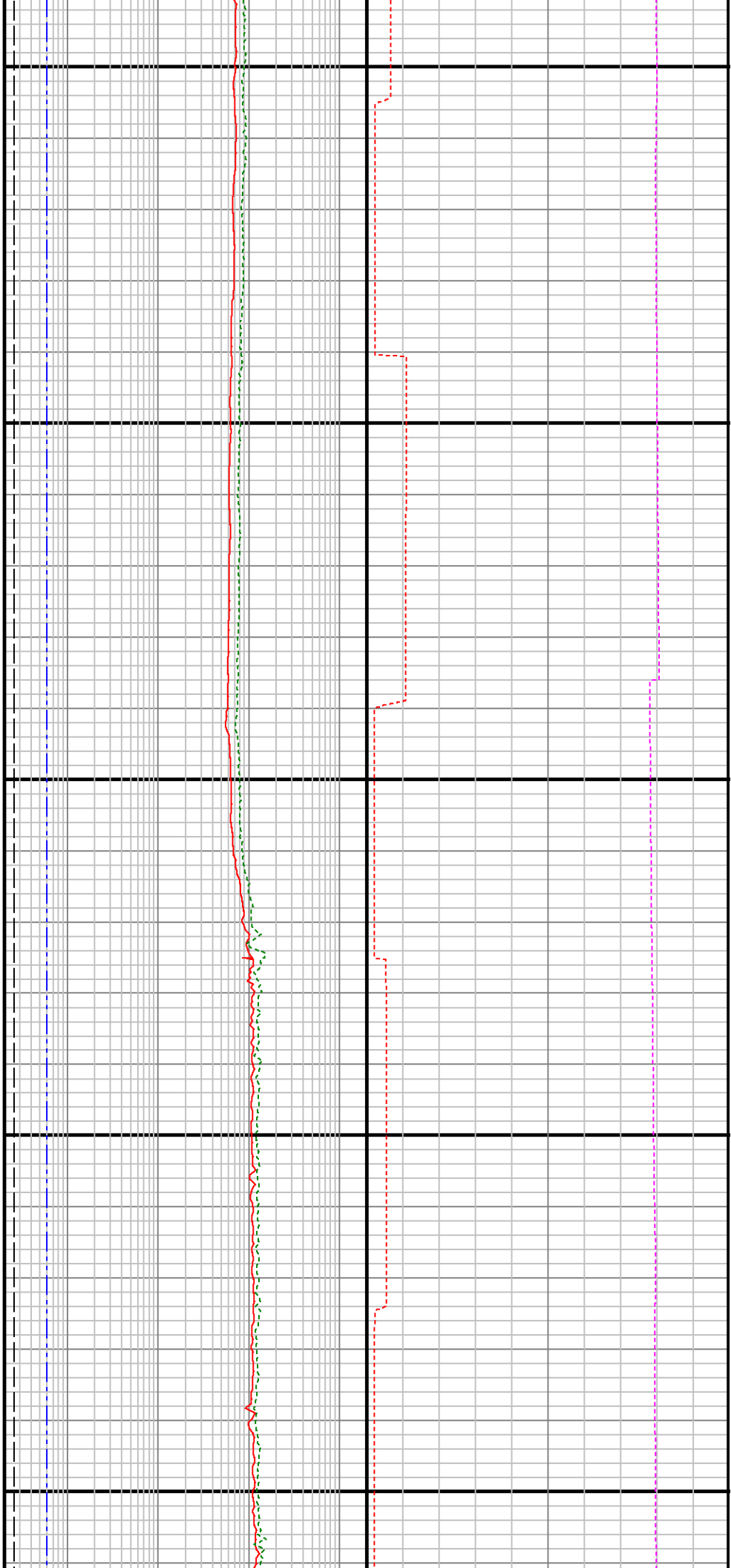
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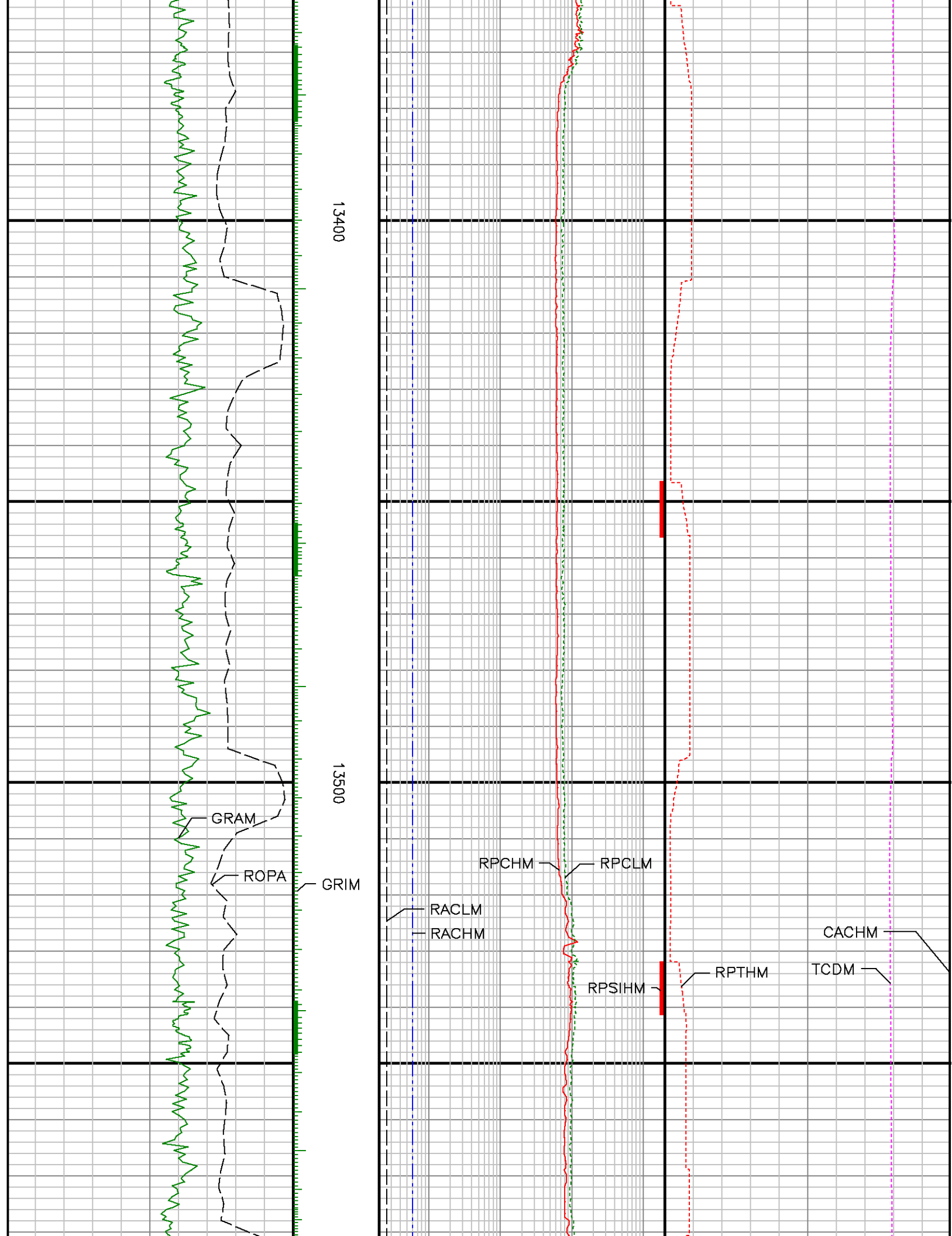
Run 3  $\diamond$  Run 4

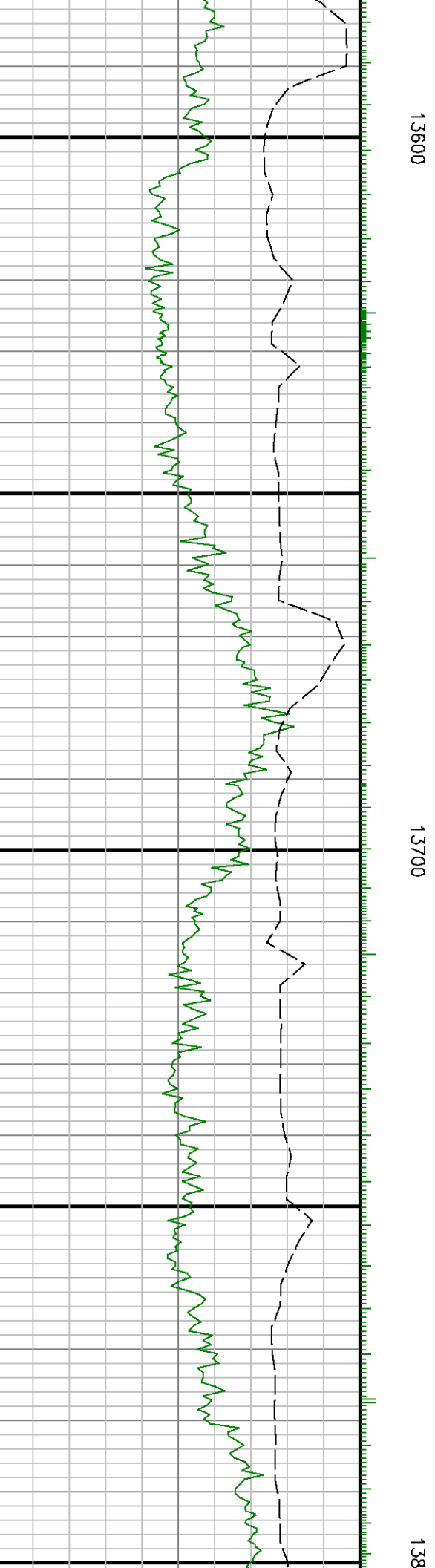
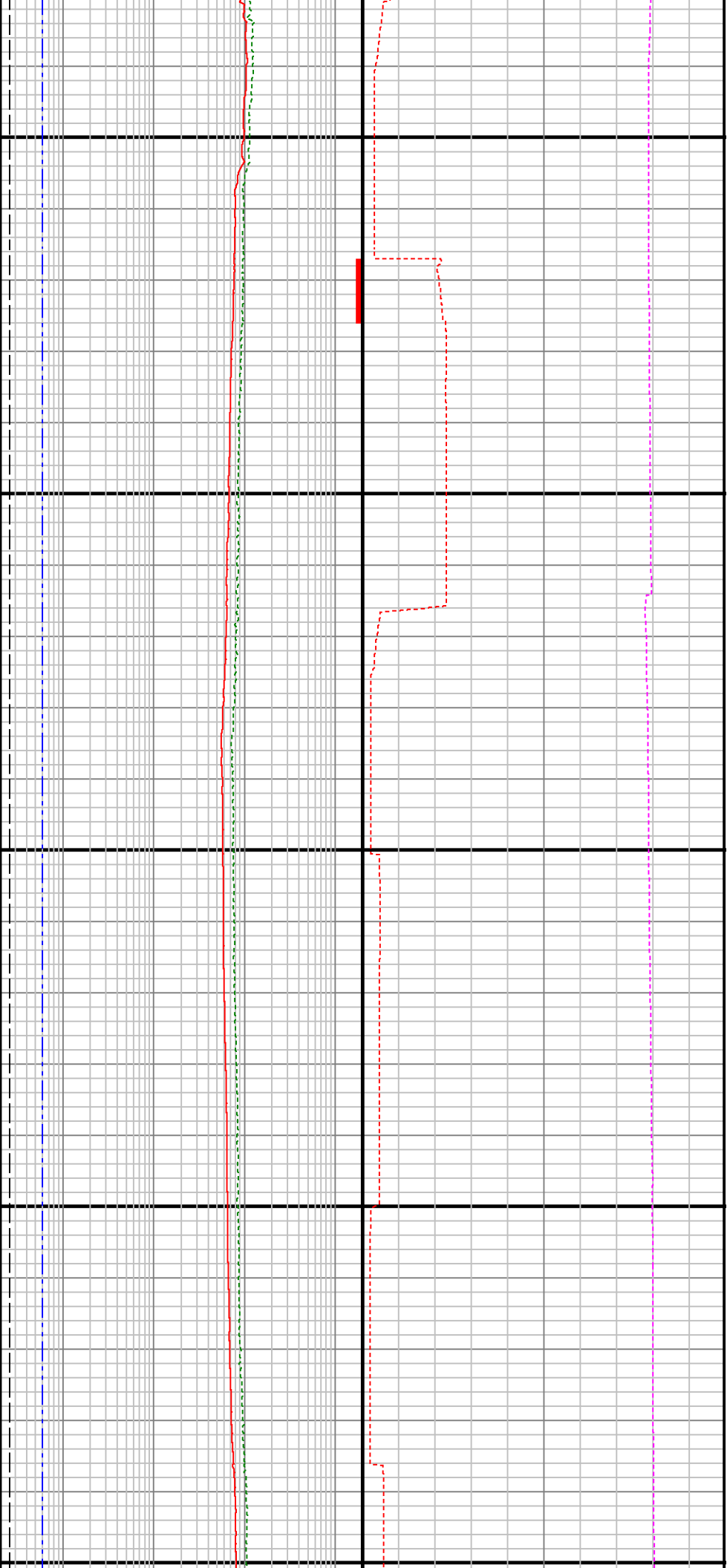
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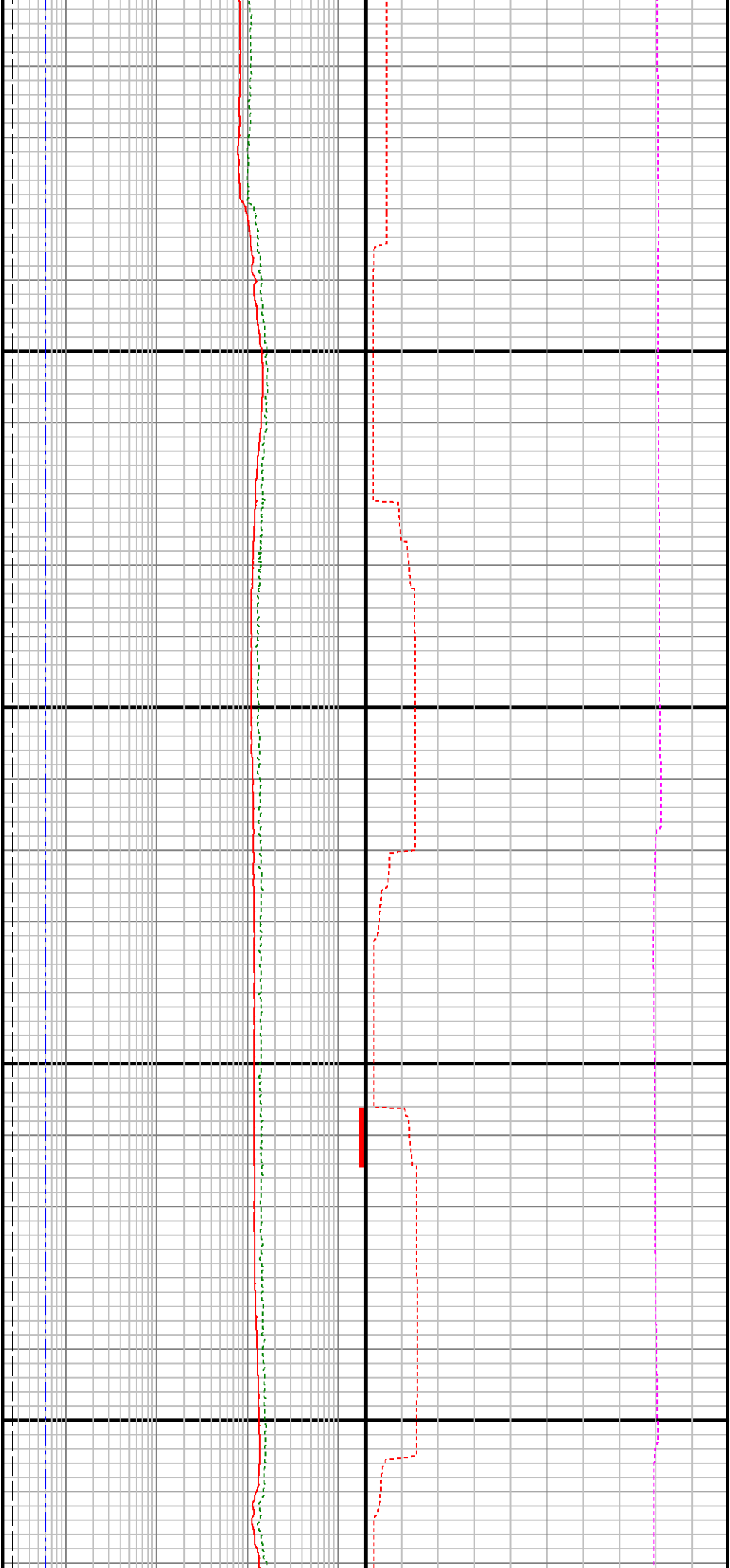
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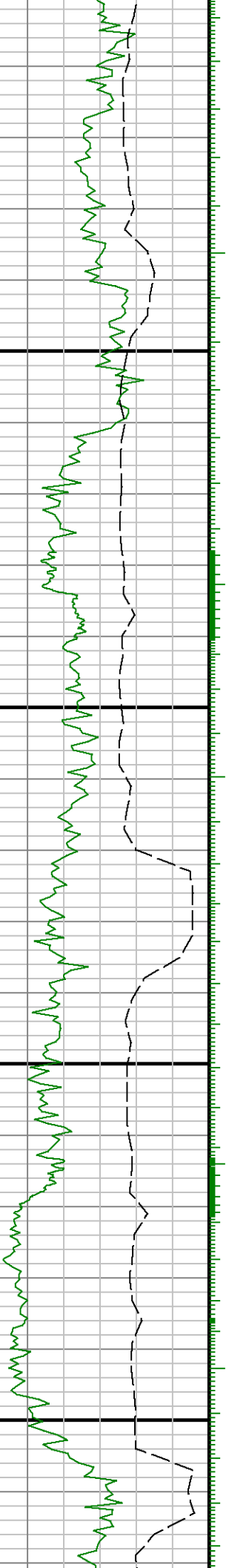


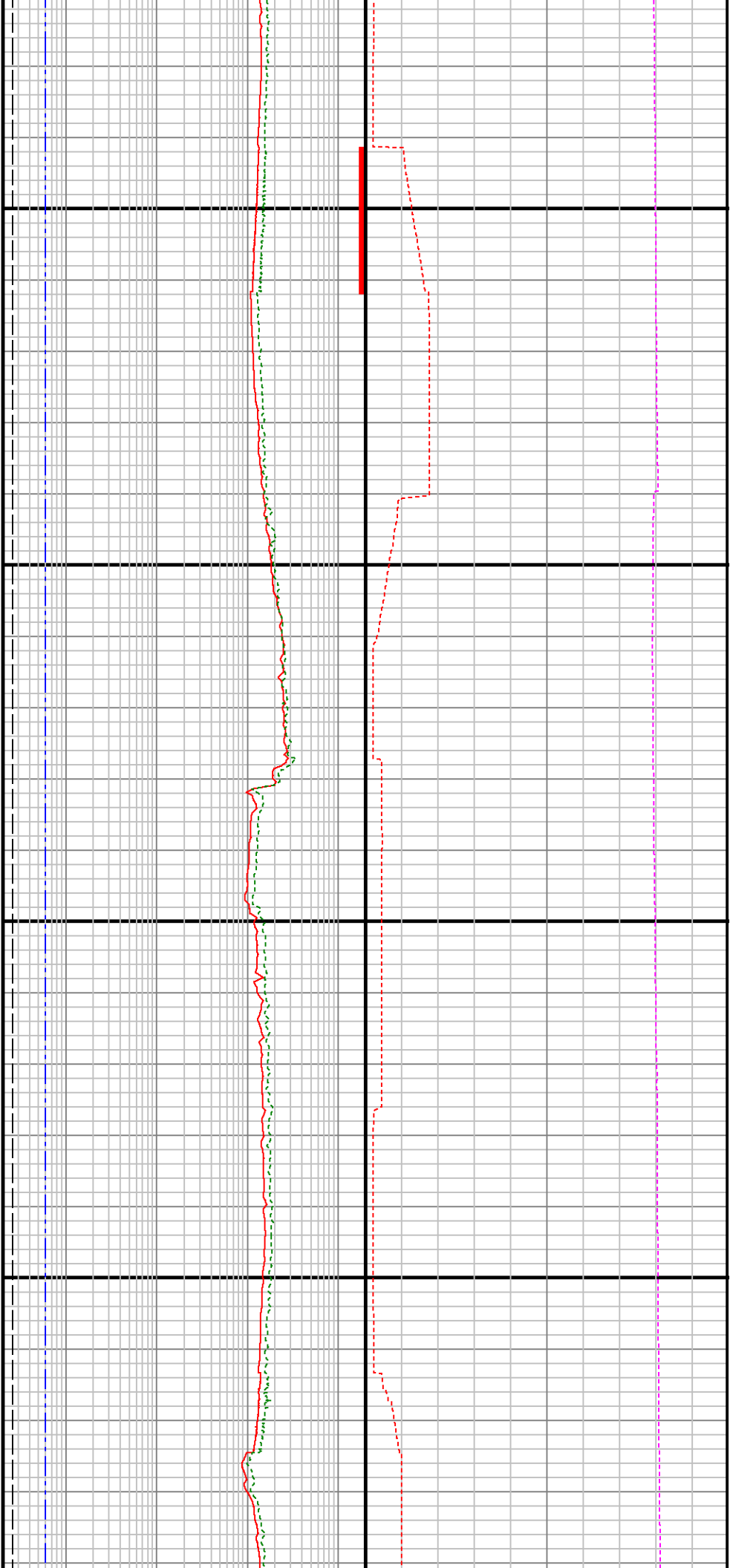


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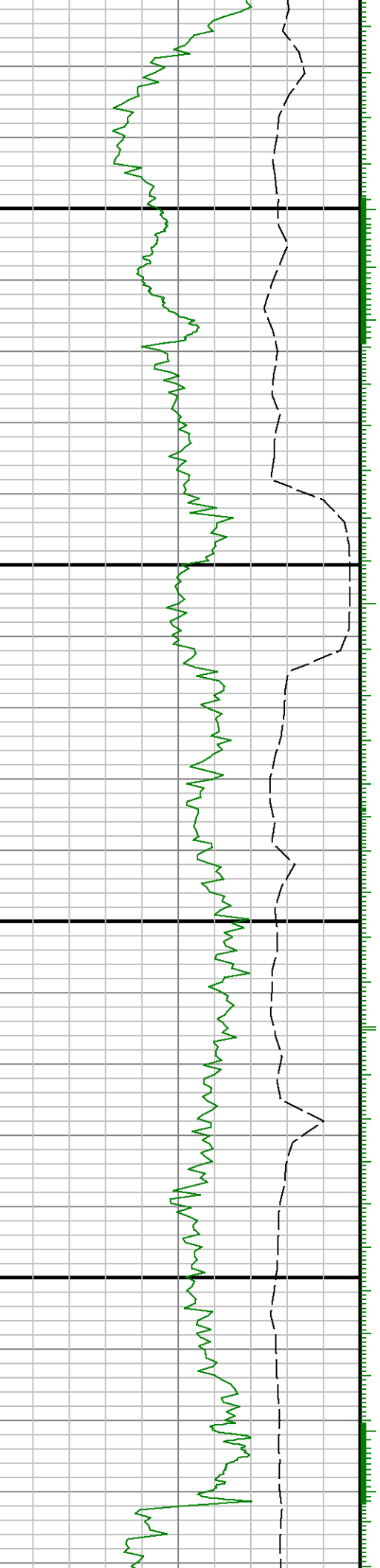
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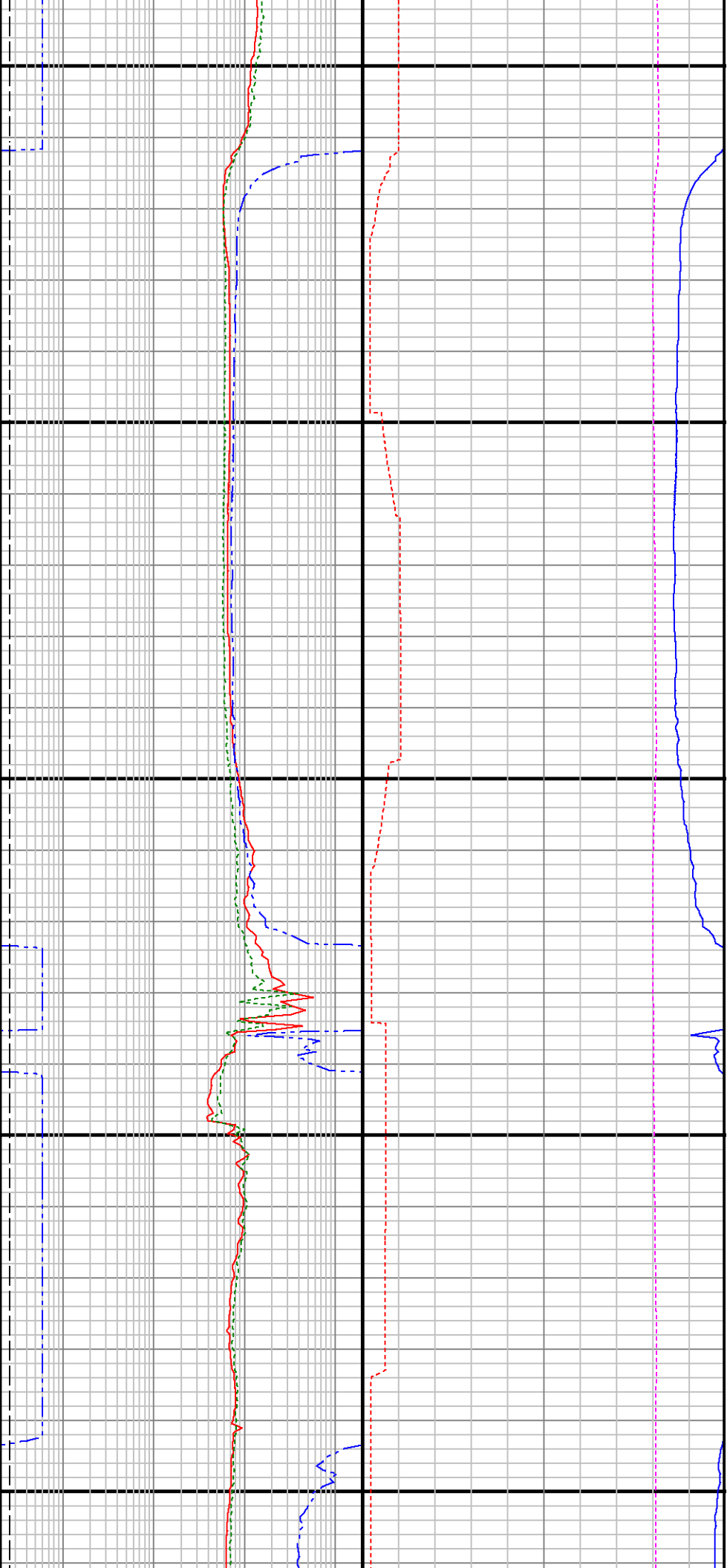




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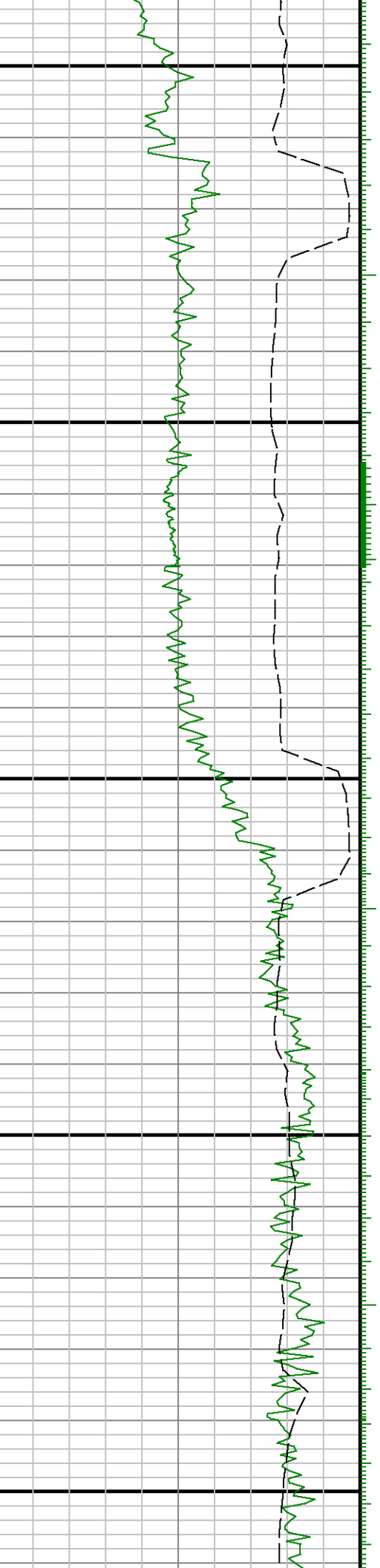
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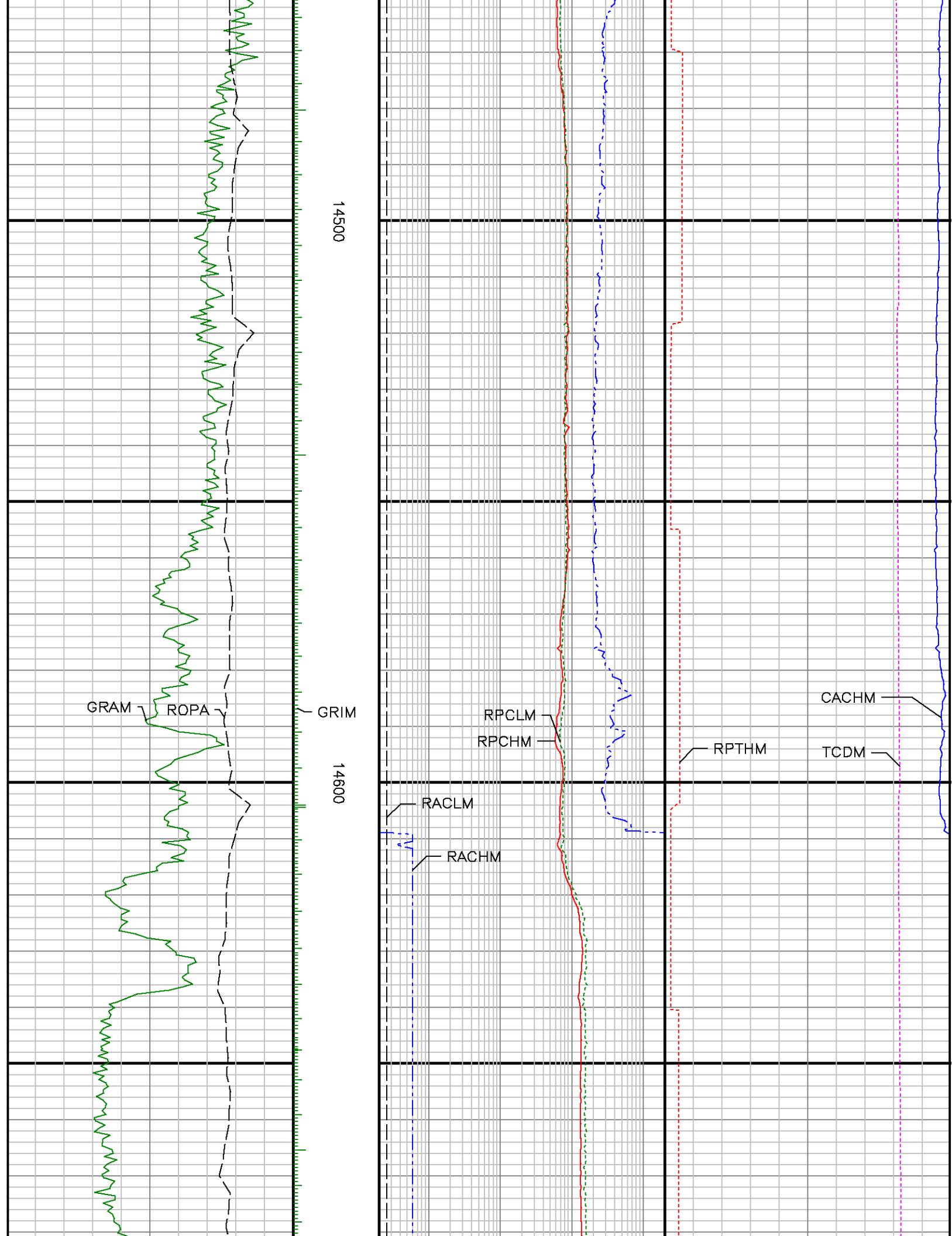


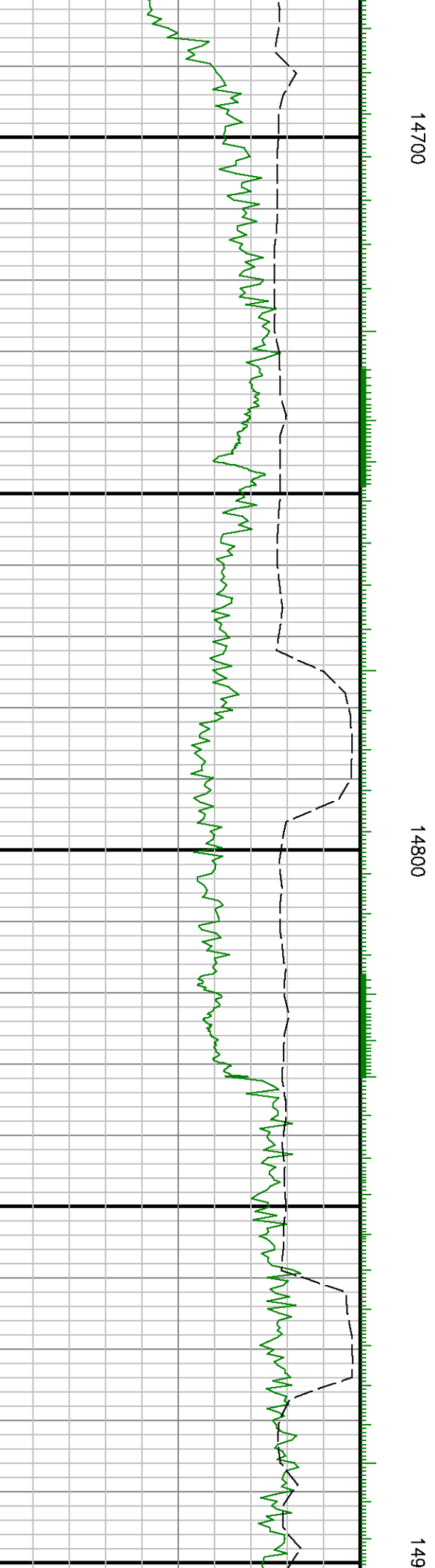
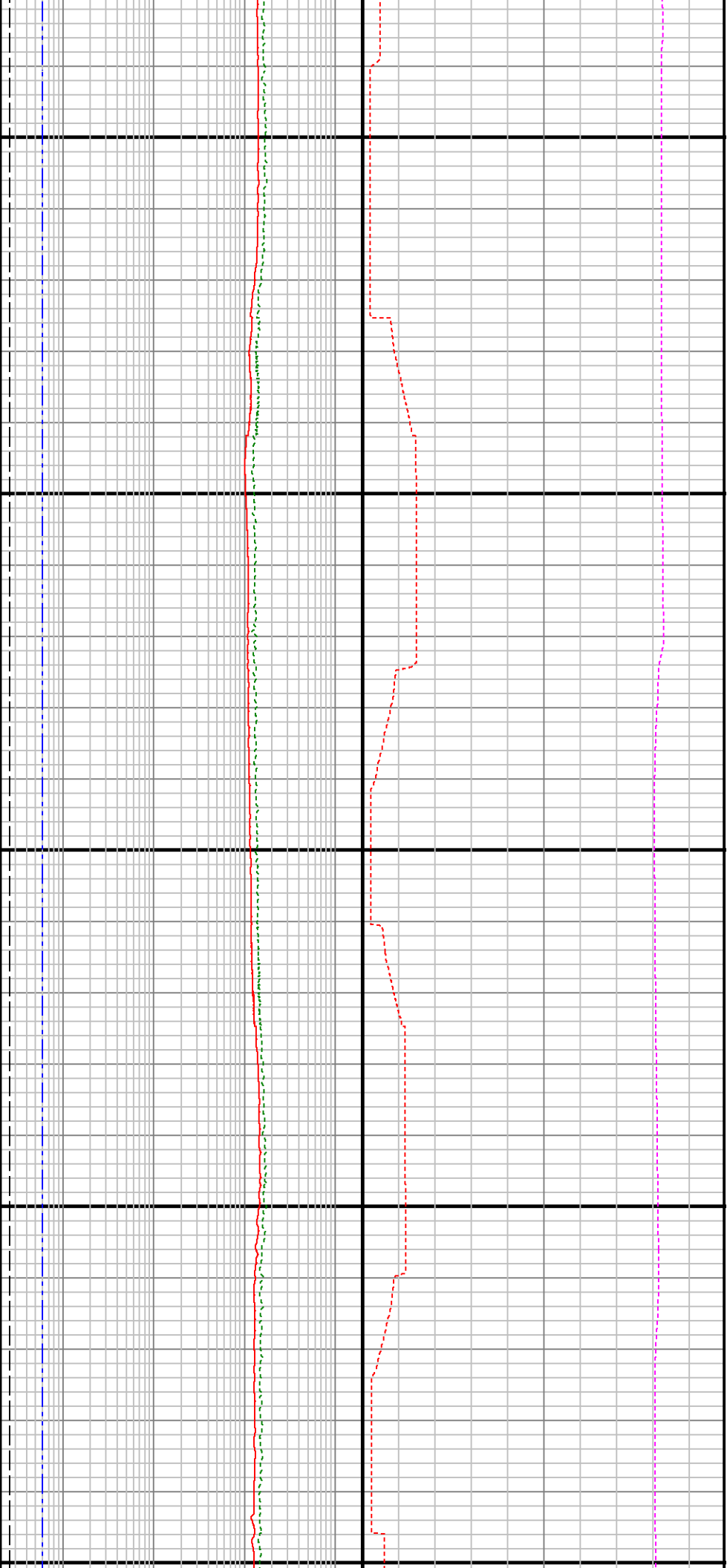
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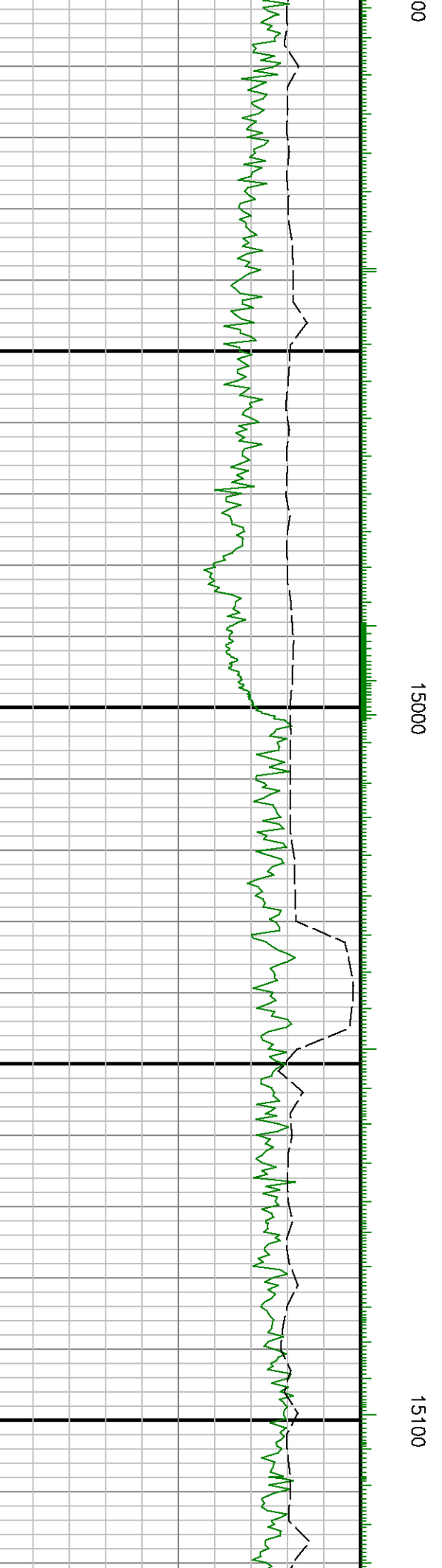
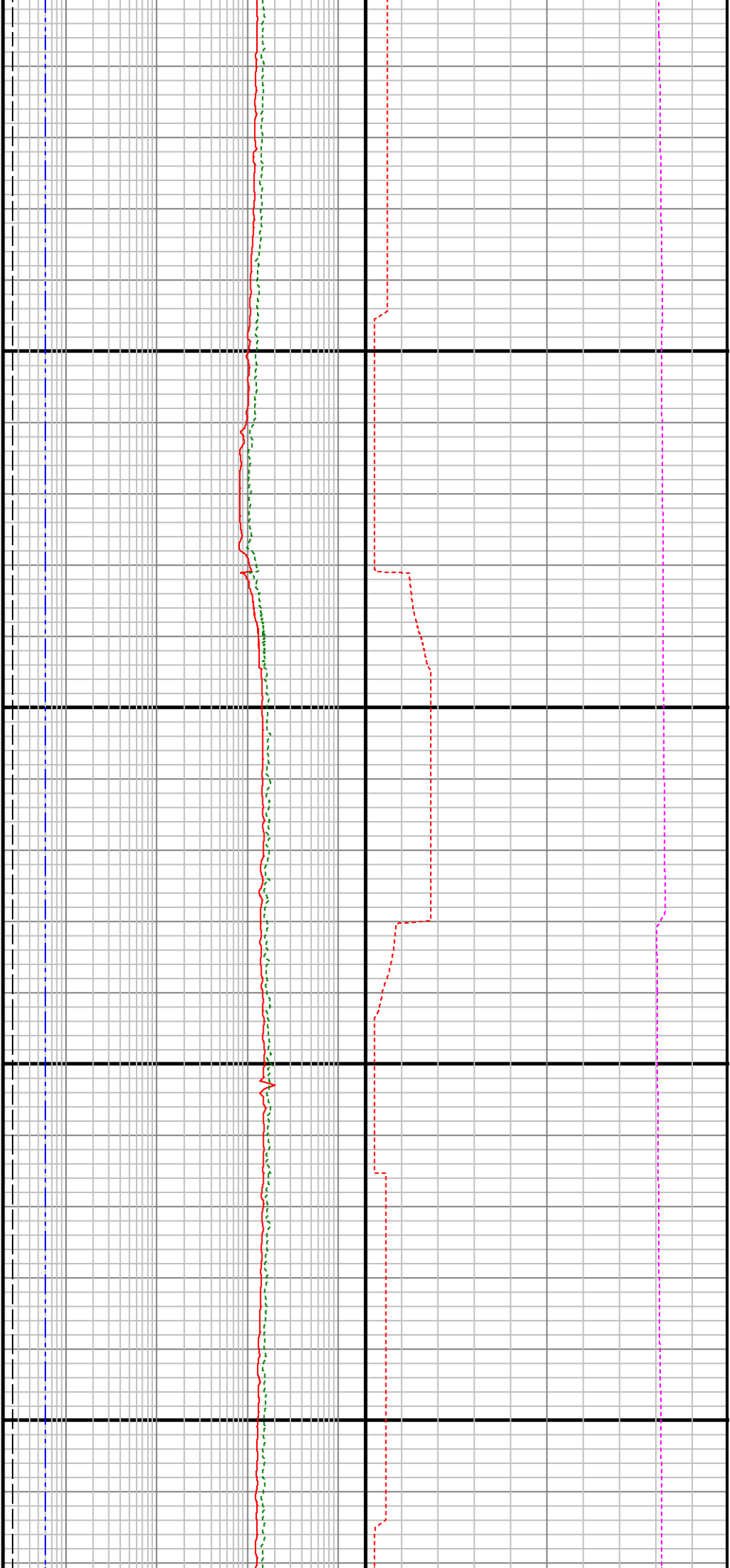
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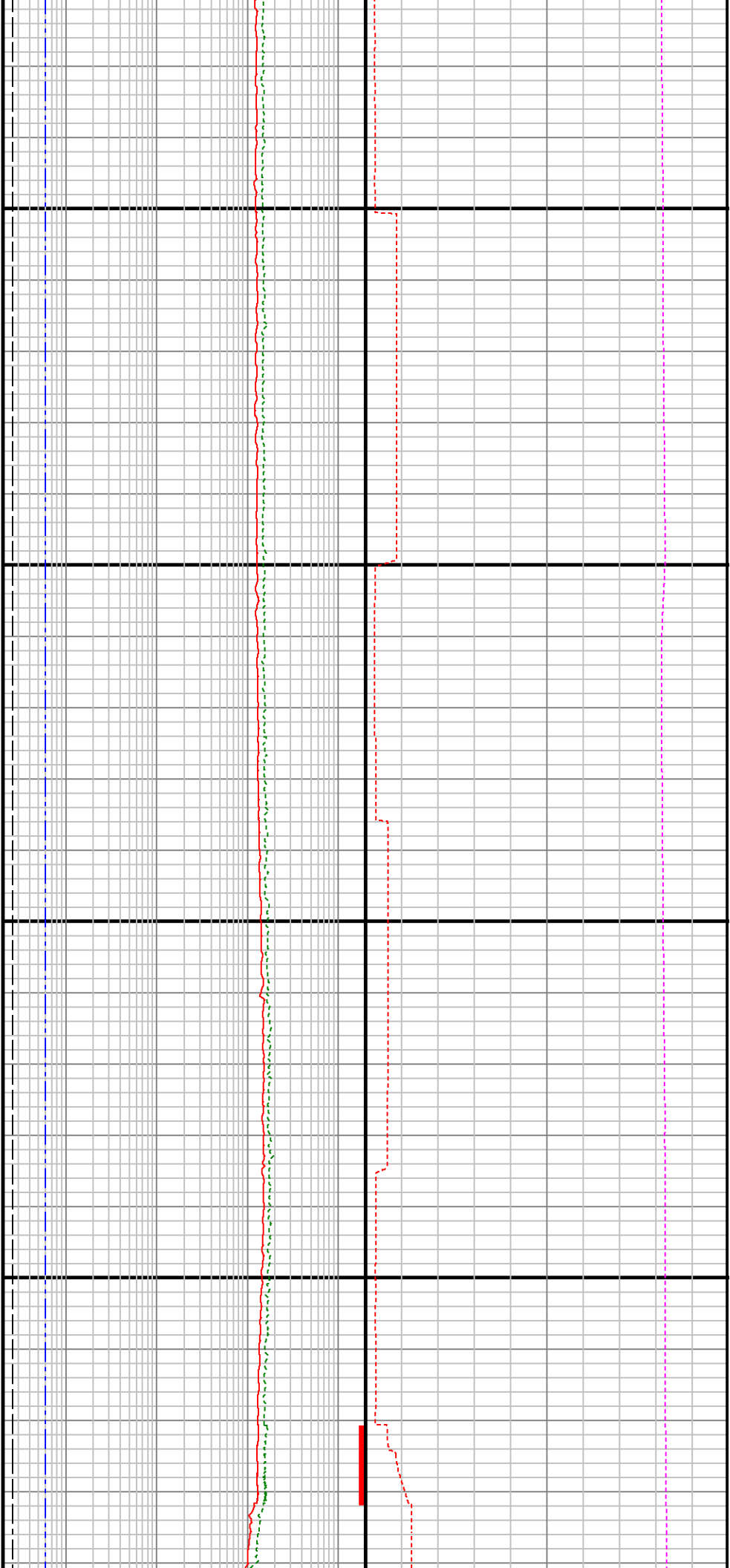






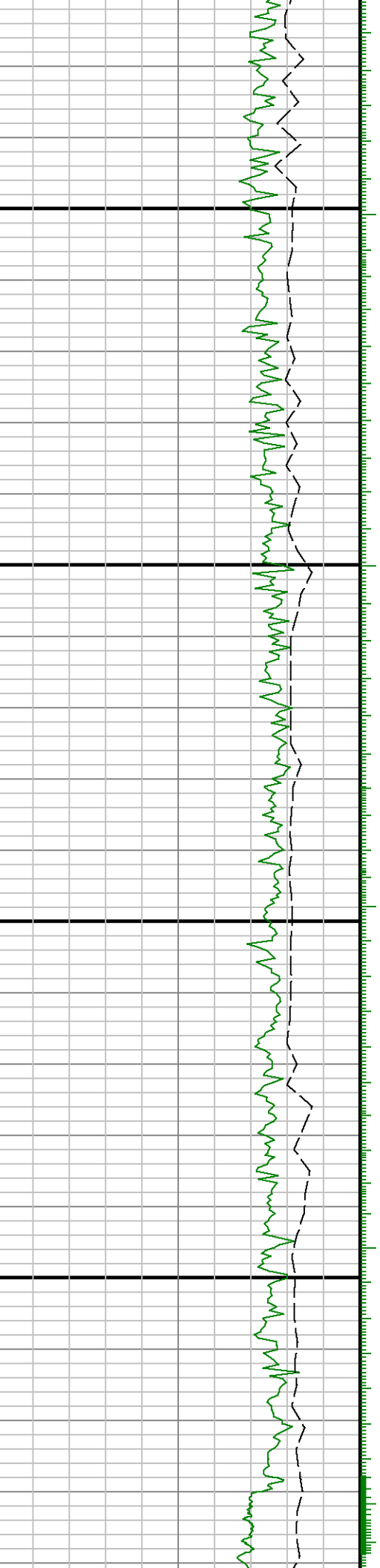


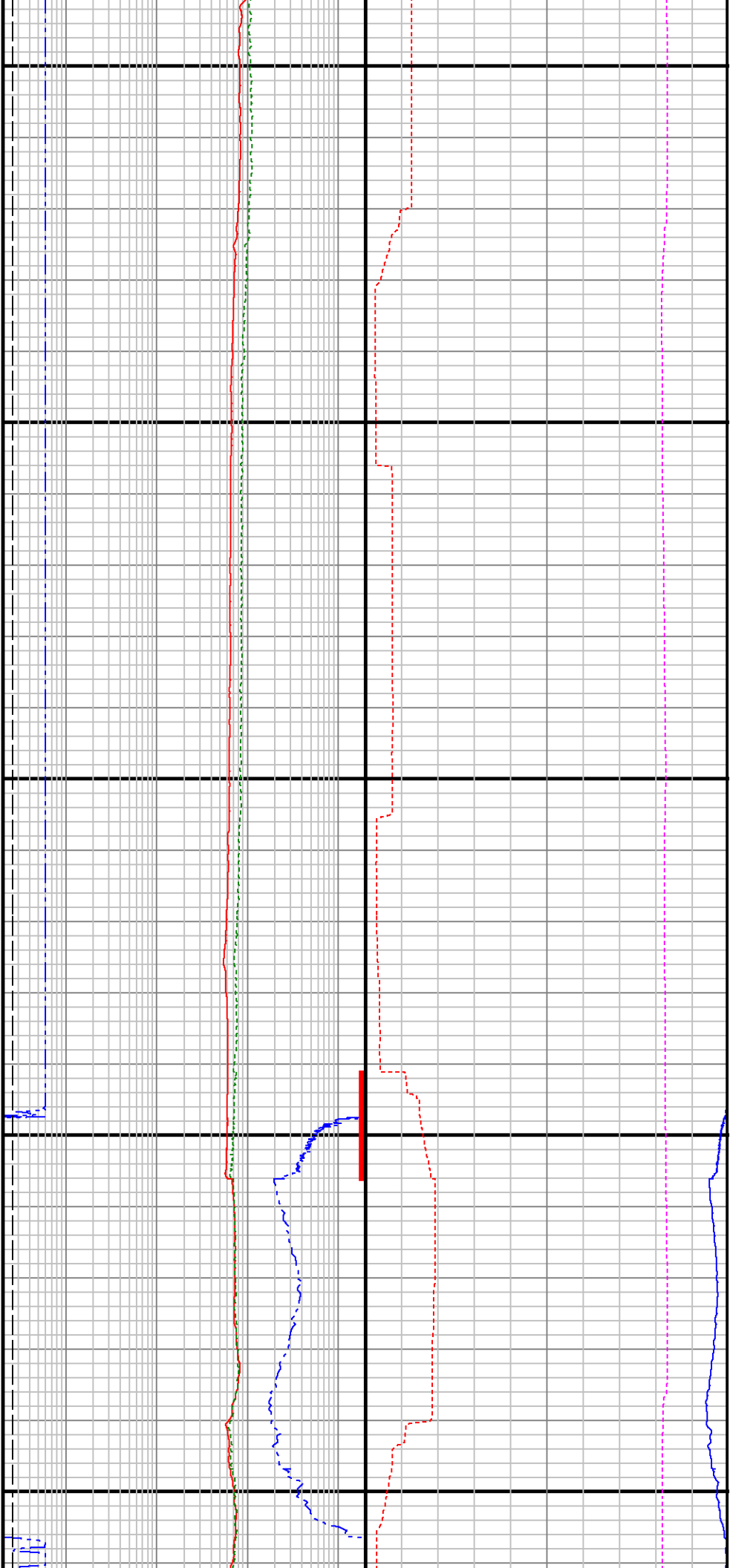




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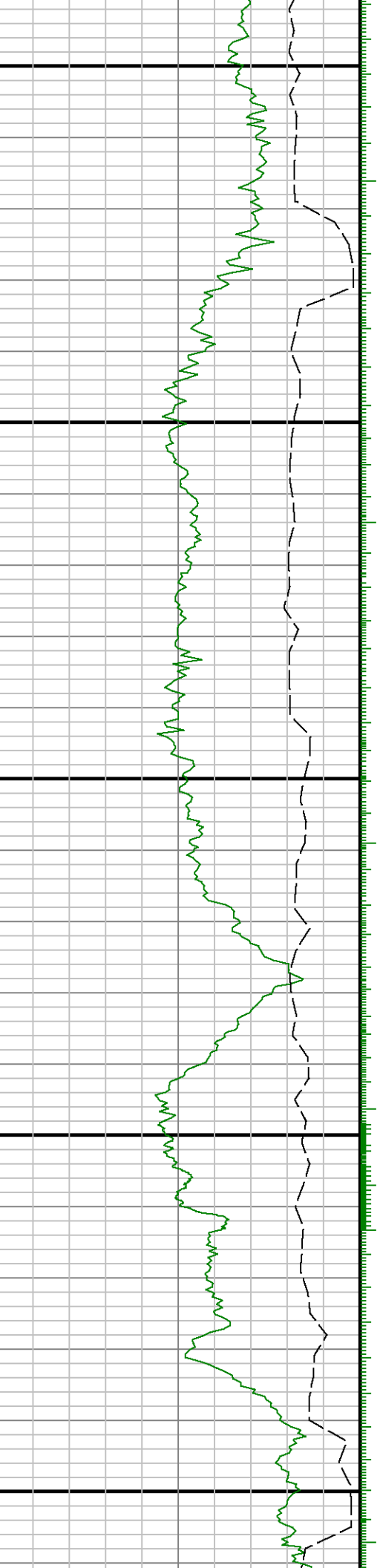
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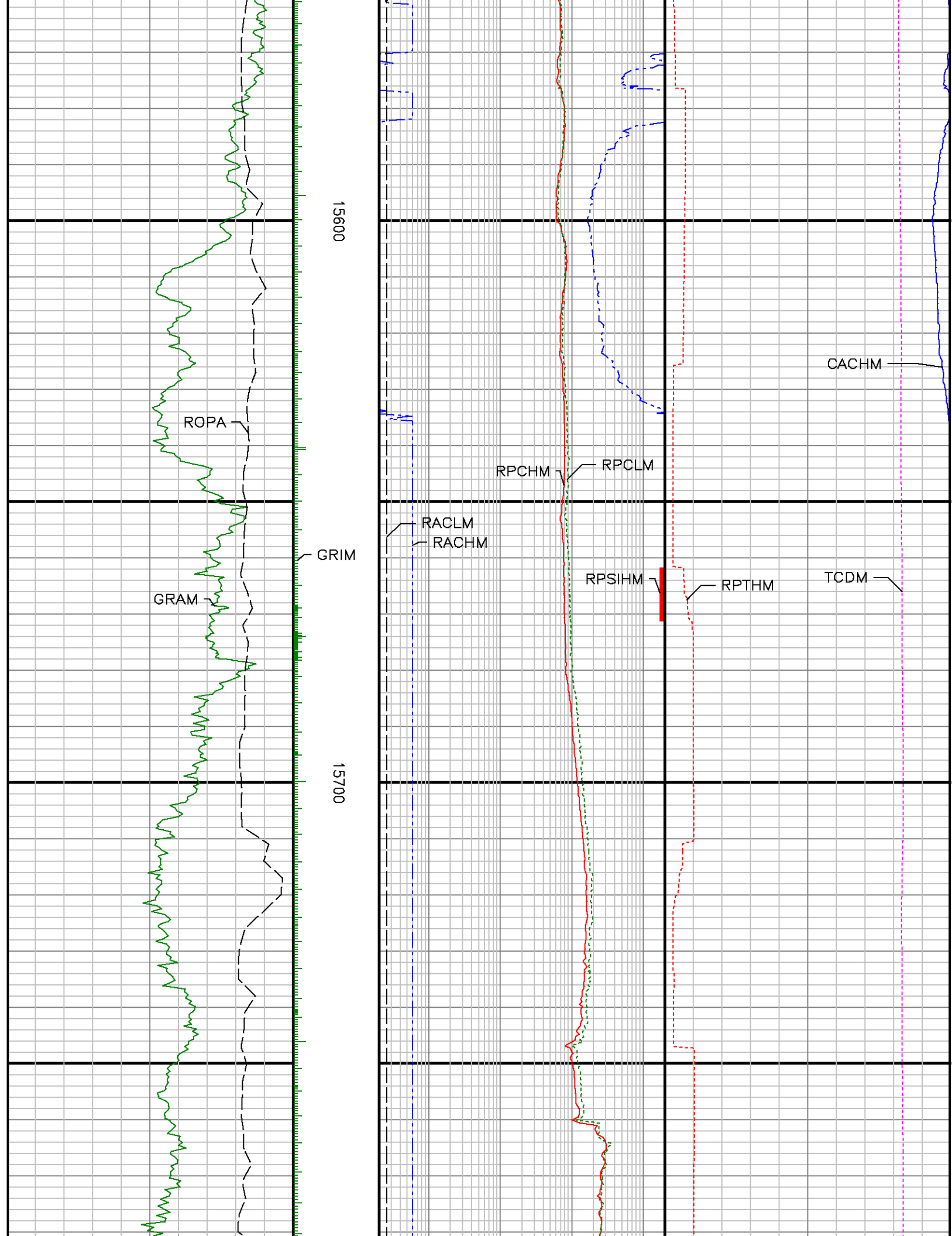


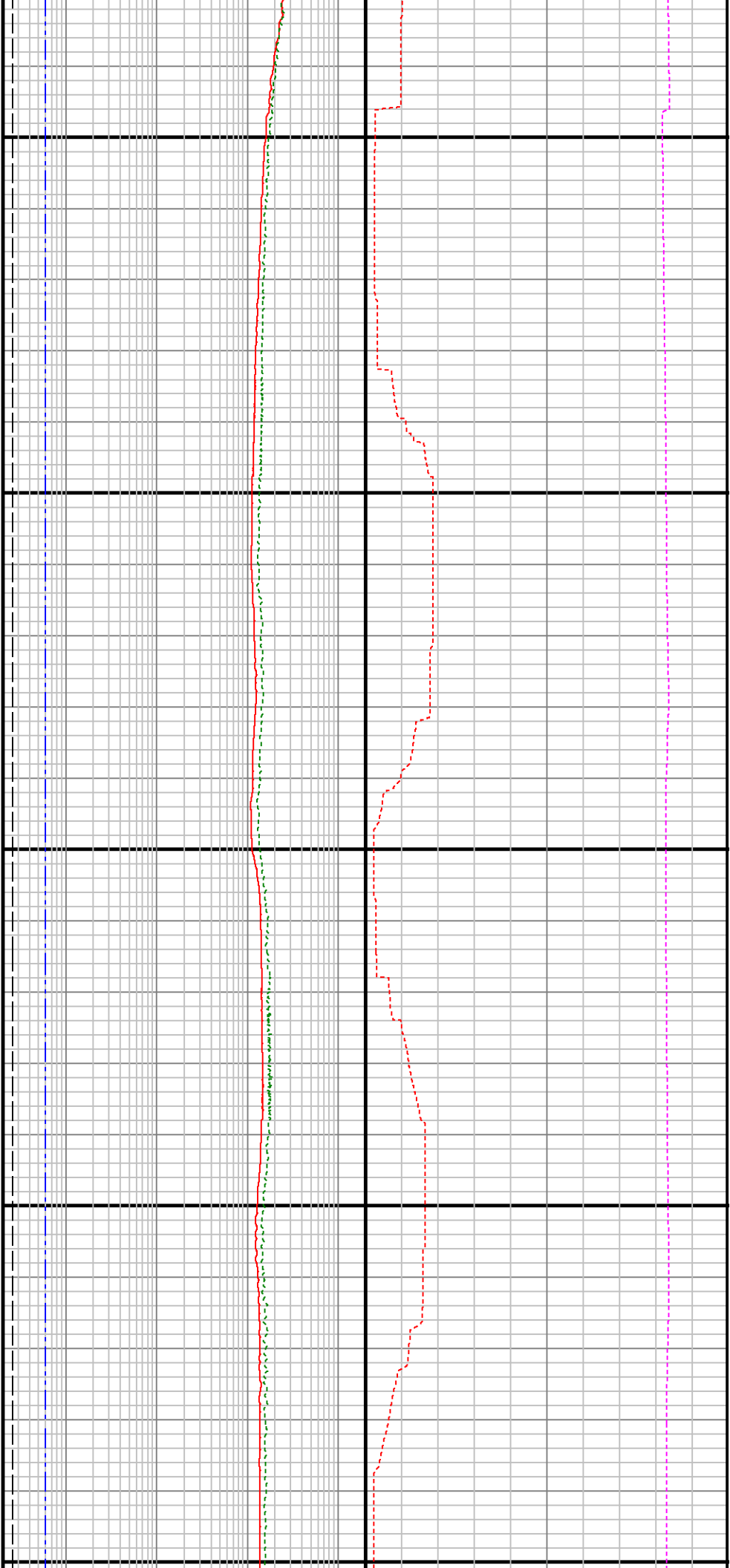


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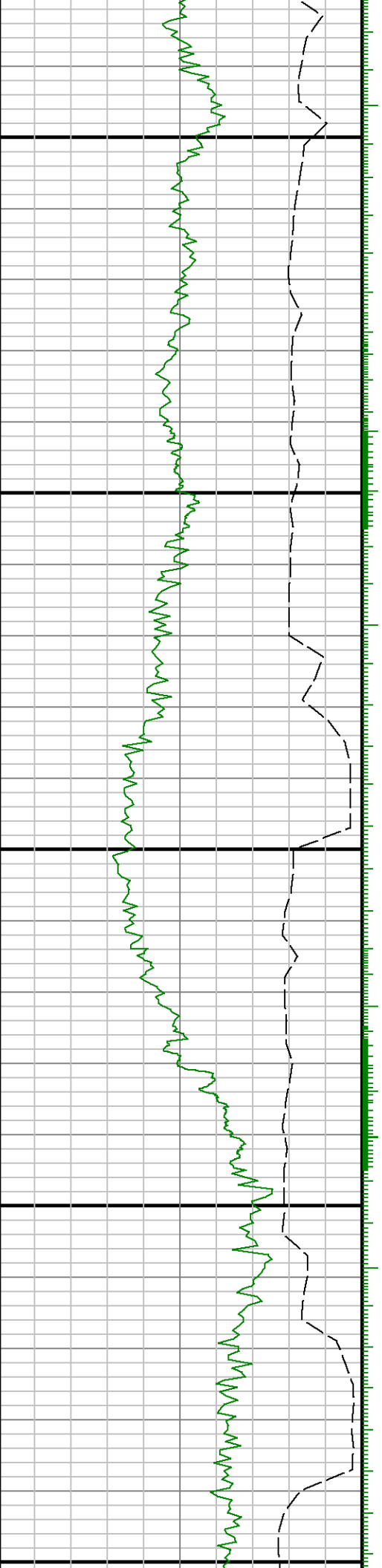


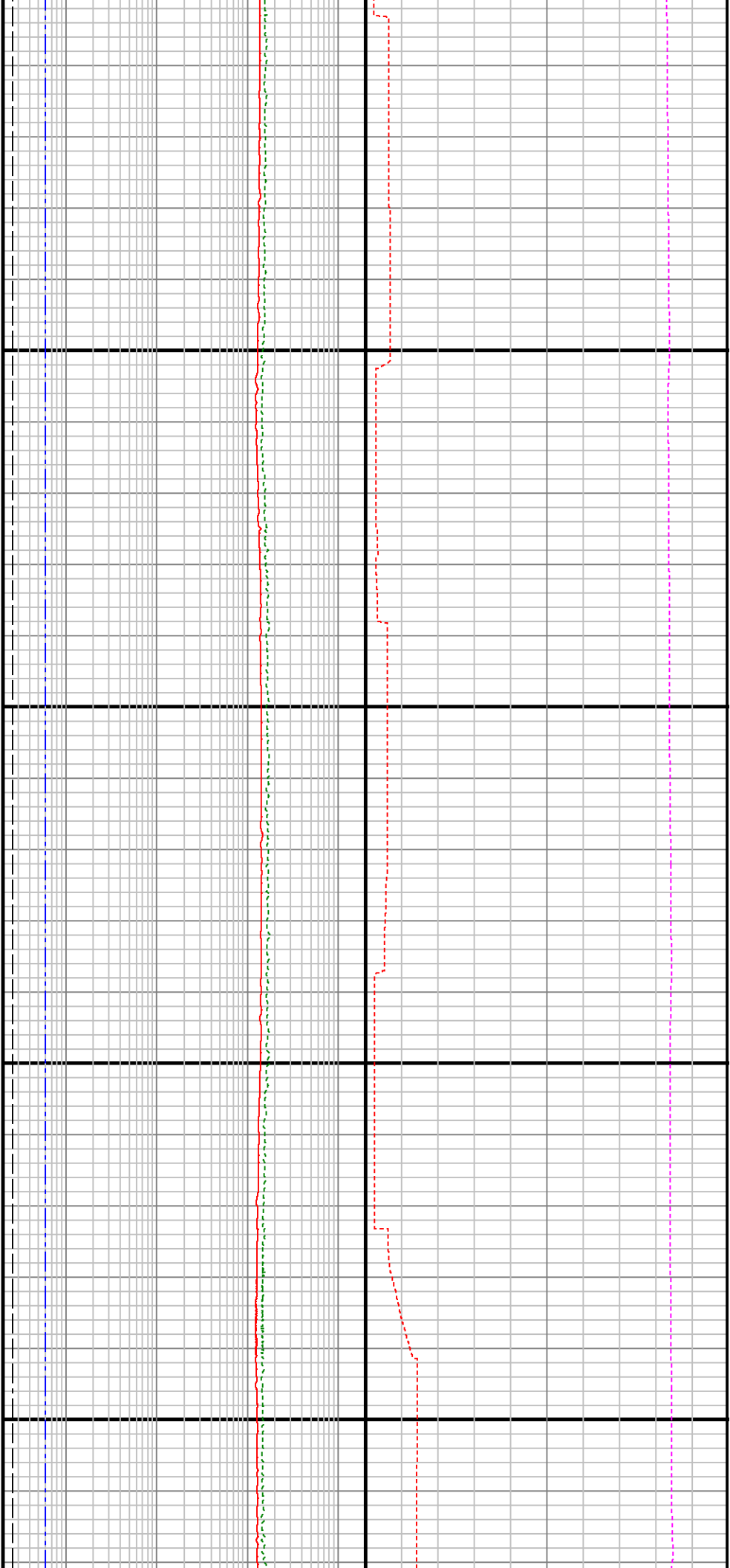


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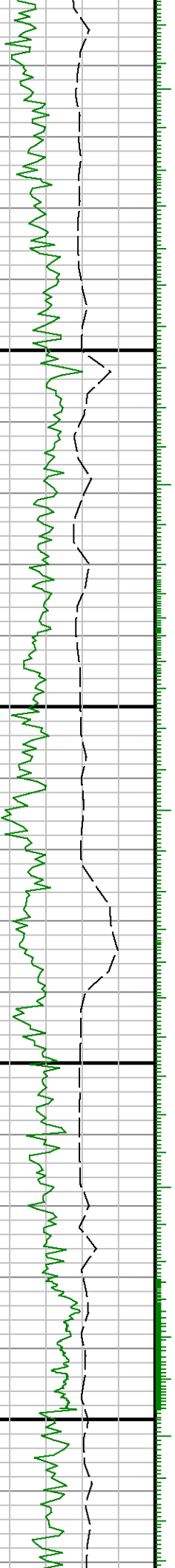




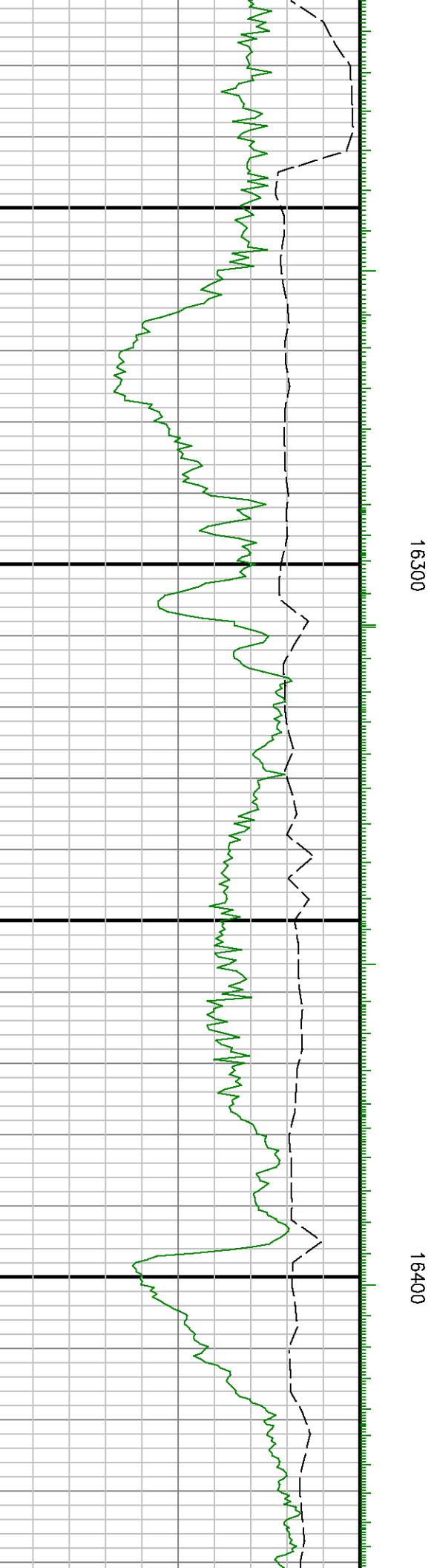
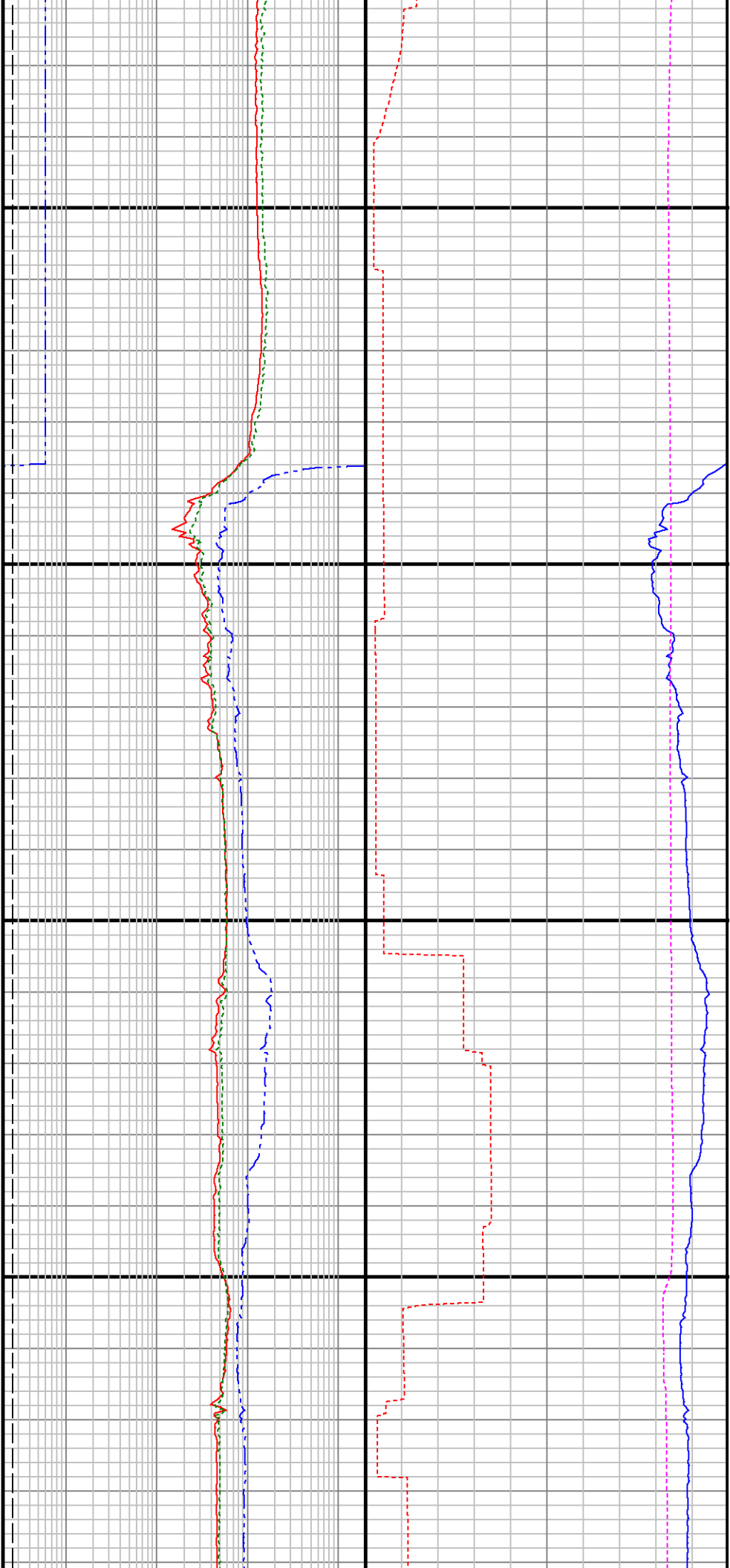
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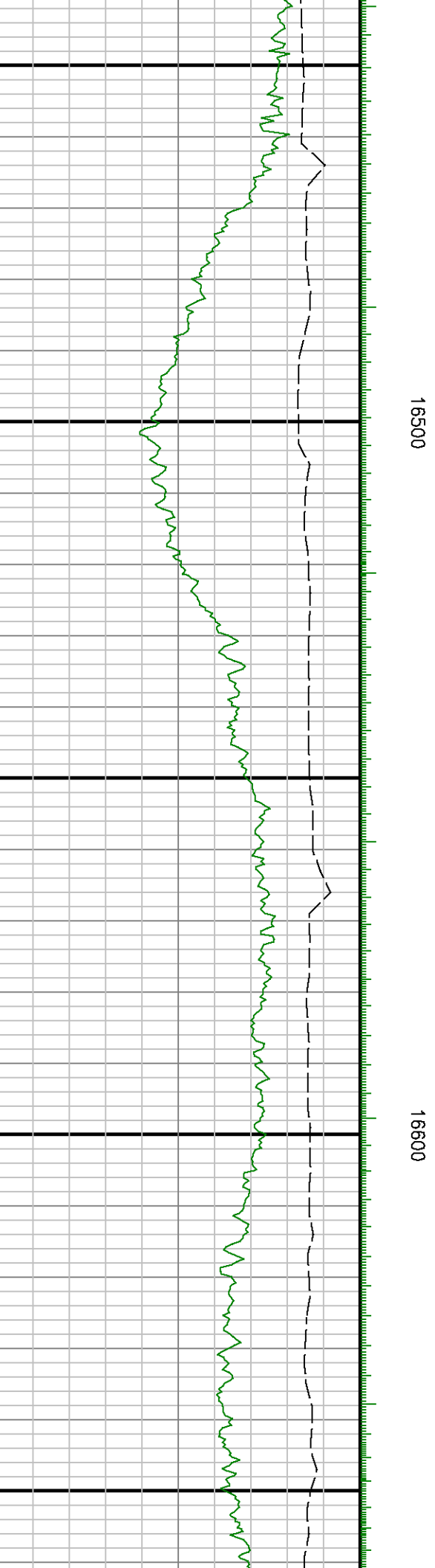
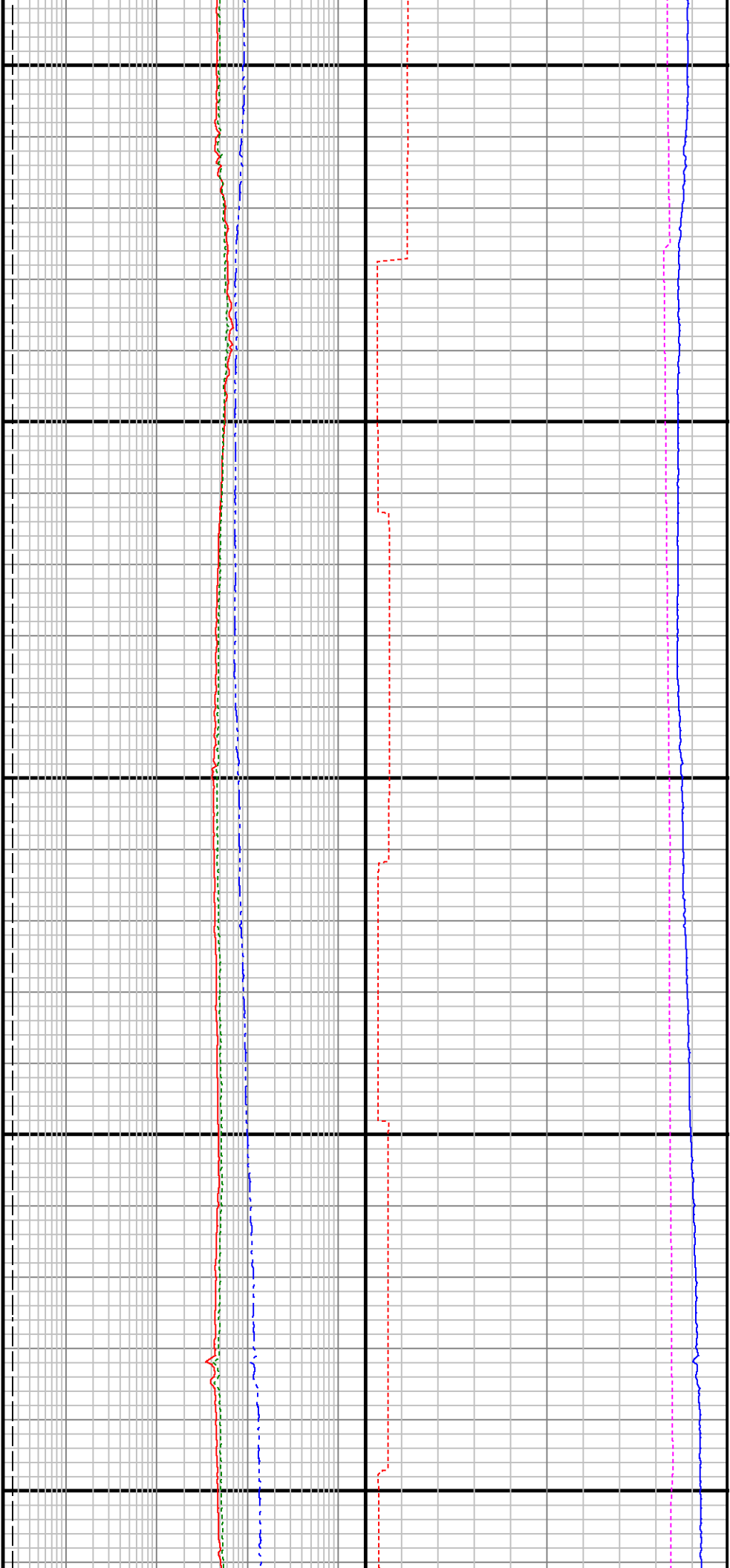
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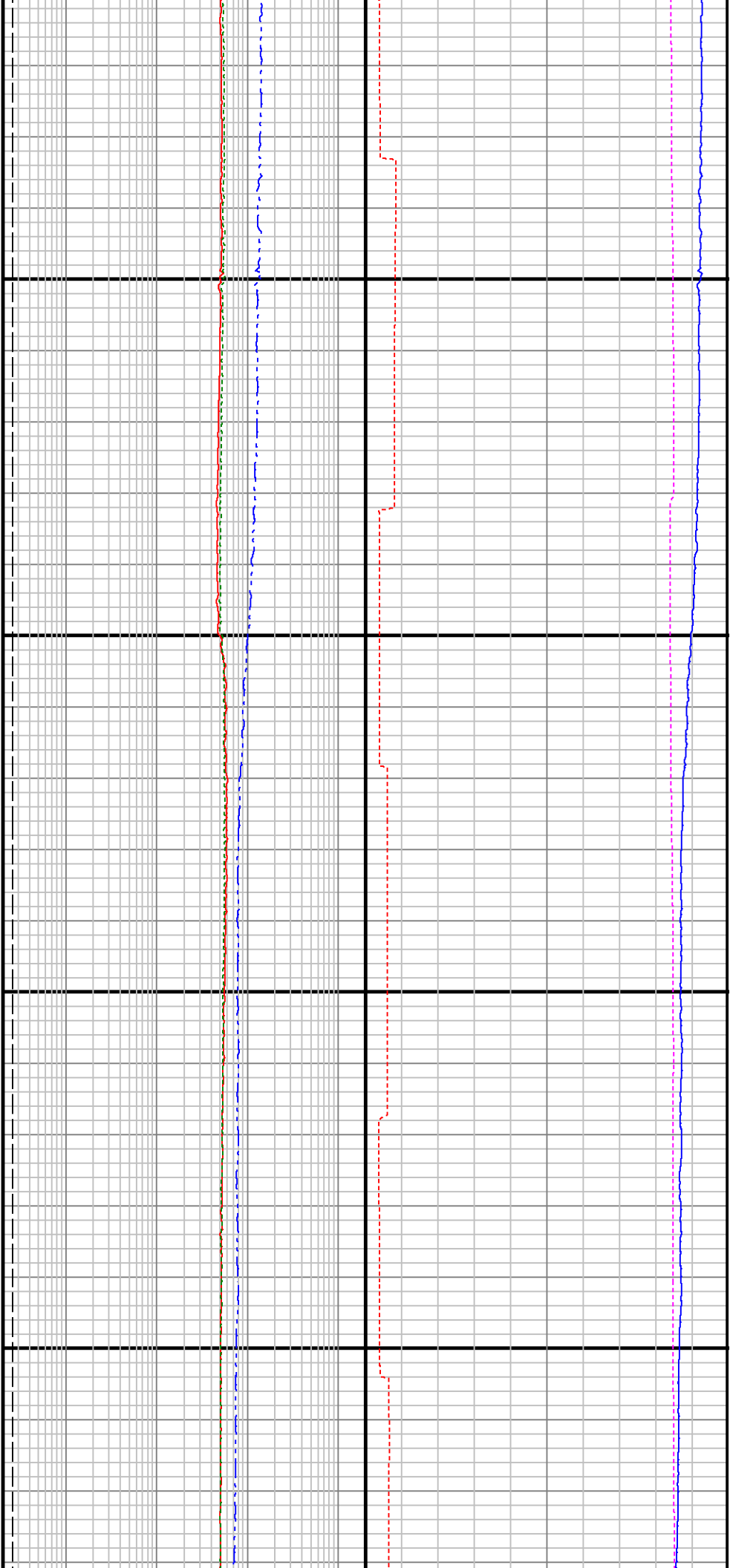
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16700

16800

