



Natural Formation Evaluation  
Multiple Propagation Resistivity  
Gamma Ray

Realtime and Memory Log

Scale: 1:240

Company: Anadarko E&P

Well: JELTS 15C-19HZ

Field: Weld County

Region: Continental US Country: United States

Surface Location:

Latitude: 40° 02' 35.268" N

Longitude: 104° 55' 50.696" W

Other Services:

Directional  
VSS

Status: FIELD PRINT

API Number: 051233656700

Section: 19 TWN: 1N Range: 67W

Permanent Datum (P.D.): Ground Level Elevation: 5147.00 ft.

Log Measured From: Kelly Bushing 13.00 ft. Above P.D.

Depth Reference: Driller's Depth

Elevations: 5160.00 ft. N/A

KB: 5147.00 ft.

DF: N/A

GL: 5147.00 ft.

Interval Logged

Top: 7249.0 ft.

Bottom: 12345.0 ft.

Spud Date:

Dates

Date From: 23 Jun 2013

Date To: 01 Jul 2013

Total

Magnetic Field Reference

Dip Angle: 66.64°

Azi Reference North: True

Mag to Reference

Field Strength: 52650.3 nT North Correction: 8.71°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	925.0 ft.	9.625 in.	36.00 lb/ft	Surface	914.0 ft.
8.750 in.	925.0 ft.	7986.0 ft.	7.000 in.	26.00 lb/ft	Surface	8339.0 ft.
6.125 in.	7986.0 ft.	12390.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	12390.0 ft.	8.750 in.	Intermediate	0.8° / 19.9°	92.2° / 185.8°
			6.125 in.	Lateral	92.2° / 185.8°	89.7° / 180.2°
					/	/
					/	/
					/	/
					/	/
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					/	/
					/	/

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	2	8.750	PDC	2.000	Steerable	7249.0	7933.0	930.0	7987.0	23 Jun 2013 12:47	24 Jun 2013 01:41	35.5
2	2	3	8.750	Tri-cone	1.000	Steerable	7933.0	8300.0	7987.0	8349.0	24 Jun 2013 21:38	26 Jun 2013 04:47	31.9
3	3	4	6.125	PDC	1.000	Steerable	8300.0	12345.0	8350.0	12390.0	28 Jun 2013 05:30	01 Jul 2013 22:20	104.2

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Steven Cano	21 Jun 2013	30 Jun 2013	Matthew Dickey	21 Jun 2013	03 Jul 2013	Ian McCarrell	01 Jul 2013	03 Jul 2013

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 mg/l	K+ mg/l
23 Jun 2013	08:00	1	1024.0	Water Based	8.3	28	9.2	N/A	0/100	Flowline	300	N/A
24 Jun 2013	08:16	2	7983.0	Water Based	10.0	43	9.5	N/A	0/100	Flowline	800	N/A
25 Jun 2013	06:15	2	8120.0	Water Based	10.1	44	8.7	N/A	0/100	Flowline	600	N/A
26 Jun 2013	06:33	2	8349.0	Water Based	10.3	45	8.4	N/A	0/100	Flowline	700	N/A
27 Jun 2013	07:33	2	8349.0	Water Based	10.6	49	8.9	N/A	0/100	Flowline	800	N/A
28 Jun 2013	06:32	3	8349.0	Water Based	10.3	38	8.8	N/A	0/100	Flowline	700	N/A
28 Jun 2013	22:30	3	9351.0	Water Based	10.6	42	9.5	N/A	0/100	Flowline	1300	N/A
29 Jun 2013	22:30	3	10500.0	Water Based	10.8	44	9.0	N/A	0/100	Flowline	1500	N/A
30 Jun 2013	22:30	3	11690.0	Water Based	10.8	43	9.0	N/A	0/100	Flowline	1000	N/A
01 Jul 2013	23:01	3	12390.0	Water Based	11.5	44	8.5	N/A	0/100	Flowline	3000	N/A
02 Jul 2013	06:23	3	12390.0	Water Based	11.4	40	8.5	N/A	3.0 / 97.0	Flowline	3100	N/A

Mud Resistivity Record

				Surface				Downhole			
Date / Time		LWD Run No.	Measured Depth (ft.)	Surface Temp (deg F)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg F)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
28 Jun 2013	10:38	3	8349.0	80	0.93	N/A	N/A	201	0.38	N/A	N/A
29 Jun 2013	04:53	3	9948.0	77	0.90	N/A	N/A	223	0.32	N/A	N/A
30 Jun 2013	03:34	3	10746.0	66	1.20	1.20	1.20	212	0.39	0.39	0.39
01 Jul 2013	21:00	3	12252.0	69	1.24	1.24	1.24	225	0.40	0.40	0.40

Mnemonics

Curve	Description	Units
CACLM	Conductivity, Attenuation – 400kHz – LS – Compensated Borehole Corrected	mmoh/m
GRAM	Gamma Ray – Apparent, 0.5 ft. Avg.	API
GRAX	Gamma Ray – Apparent, 0.5 ft. Avg.	API
GRIM	Gamma Ray Point Indicator	Unitless
GRIX	Gamma Ray Point Indicator	Unitless
RACHM	Resistivity, Attenuation – 2MHz – LS – Compensated Borehole Corrected	ohm.m
RACLM	Resistivity, Attenuation – 400kHz – LS – Compensated Borehole Corrected	ohm.m
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
RPCHM	Resistivity, Phase Difference – 2 MHz – LS – Compensated Borehole Corrected	ohm.m
RPCLM	Resistivity, Phase Difference – 400kHz – LS – Compensated Borehole Corrected	ohm.m
RPSIHM	Resistivity Sliding Indicator	Unitless
RPTHM	Resistivity Time Since Drilled	min
TCDX	Downhole Temperature	deg F
TCDM	Downhole Temperature	deg F

Equipment and Service Data

LWD	Tool	Serial	Measurement	Bit	Max	Min
Tool	Tool	Serial	Measurement	Bit	Max	Min

Run		Number		Offset	O.D.	I.D.
No.				(ft.)	(in.)	(in.)
1	DIR	12323378	Directional	56.23	6.750	0.000
1	SRIG	12613296	Gamma	52.85	6.750	0.000
2	DIR	12323378	Directional	51.74	6.750	0.000
2	SRIG	12613296	Gamma	48.36	6.750	0.000
3	CS	10143098	-	77.30	5.070	1.750
3	BCPM	11696007	Telemetry	66.26	5.070	1.750
3	STAB	12401251	-	63.00	5.625	1.750
3	OTK	11827896	Directional	57.54	5.066	1.750
3	OTK	11827896	Resistivity	44.36	7.031	2.165
3	APR	11827896	Resistivity	44.36	5.070	2.750
3	OTK	11827896	Gamma	52.86	7.031	2.165
3	OTK	11827896	Pressure	48.80	7.031	2.165
3	CS	12031348	-	37.18	5.070	1.750

Service and Tool Mnemonics

Mnemonic	Name	Description
APR	Resistivity	Azimuthal propagation resistivity, azimuthal propagation resistivity image
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

<p>1) Baker Hughes INTEQ run 1 utilized 6 1/2 inch NaviGamma services (Directional, Gamma Ray, and VSS) behind an 8 3/4 inch bit and steerable assembly from 925 to 7986 feet MD (925 to 7827 feet TVD).</p> <p>2) Baker Hughes INTEQ run 2 utilized 6 1/2 inch NaviGamma services (Directional, Gamma Ray, and VSS) behind an 8 3/4 inch bit and steerable assembly from 7986 to 8349 feet MD (7827 to 7873 feet TVD).</p> <p>3) Baker Hughes INTEQ run 3 utilized 4 3/4 inch OnTrak (Gamma Ray, Multiple Propagation Resistivity, and Directional) behind a 6 1/8 inch bit and steerable assembly from 8349 to 12390 feet MD (7873 to 7856 ft TVD).</p> <p>4) A sliding indicator is shown to the right edge of track 2 as a heavy line. The indicator has been depth-shifted to the resistivity sensor offset to correspond to resistivity data acquired while sliding.</p>
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Remarks

Number	Measured	Hole	LWD	Remark
	Depth	Section	Run No.	
	(ft)	(in.)		
1	7297	8.750	1	The interval from surface to 7249 feet MD (7228 feet TVD) was not logged since logging services began at the curve kick off point of 7297 feet MD.
2	7986	8.750	2	The interval from 7933 to 7986 feet MD (7797 to 7818 feet TVD) was logged up to 19.9 hours after being drilled due to a trip out of hole to replace the motor and bit.
3	8349	6.125	3	The interval from 8300 to 8349 feet MD (7875 to 7873 feet TVD) was logged up to 65.4 hours after being drilled due to a trip out of hole to run casing, cement, and pick up lateral tools.



Company : Anadarko E&P

Well : JELTS 15C-19HZ

Interval : 7240.00 - 12410.00 feet

Created : 03/Jul/2013 2:14:24 PM

0	Gamma Ray Apparent 0.5 ft Avg [GRAX]	150
	API	
0	Gamma Ray Apparent 0.5 ft Avg [GRAM]	150
	API	
	Rate of Penetration 3.0 ft Avg [ROPA]	
1000		0
	ft/hr	

0.2	Res PD LS 400 kHz Corr RPCLM	200
	ohm.m	
0.2	Res AT LS 2MHz Corr RACHM	200
	ohm.m	
0.2	Res PD LS 2MHz Corr RPCHM	200
	ohm.m	
0.2	Res AT LS 400kHz Corr RACLM	200
	ohm.m	

100	Downhole Temperature [TCDX]	300
	degF	
100	Downhole Temperature [TCDM]	300
	degF	
0	Time Since Drilled [RPTHM]	600
	min	
	Con AT LS 400kHz Corr [CACLM]	
4000		0
	mmho/m	

GRAX

> Run 1

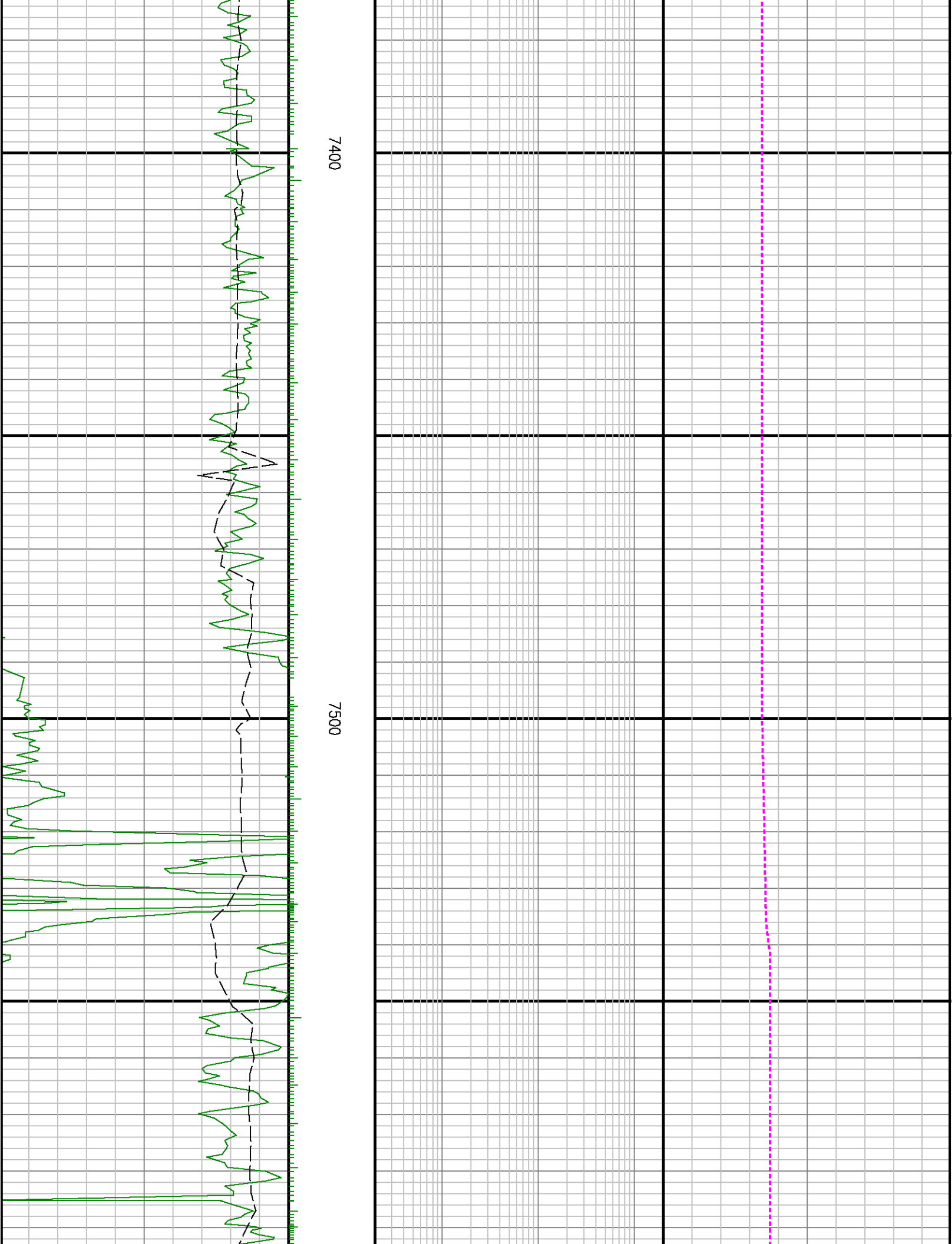
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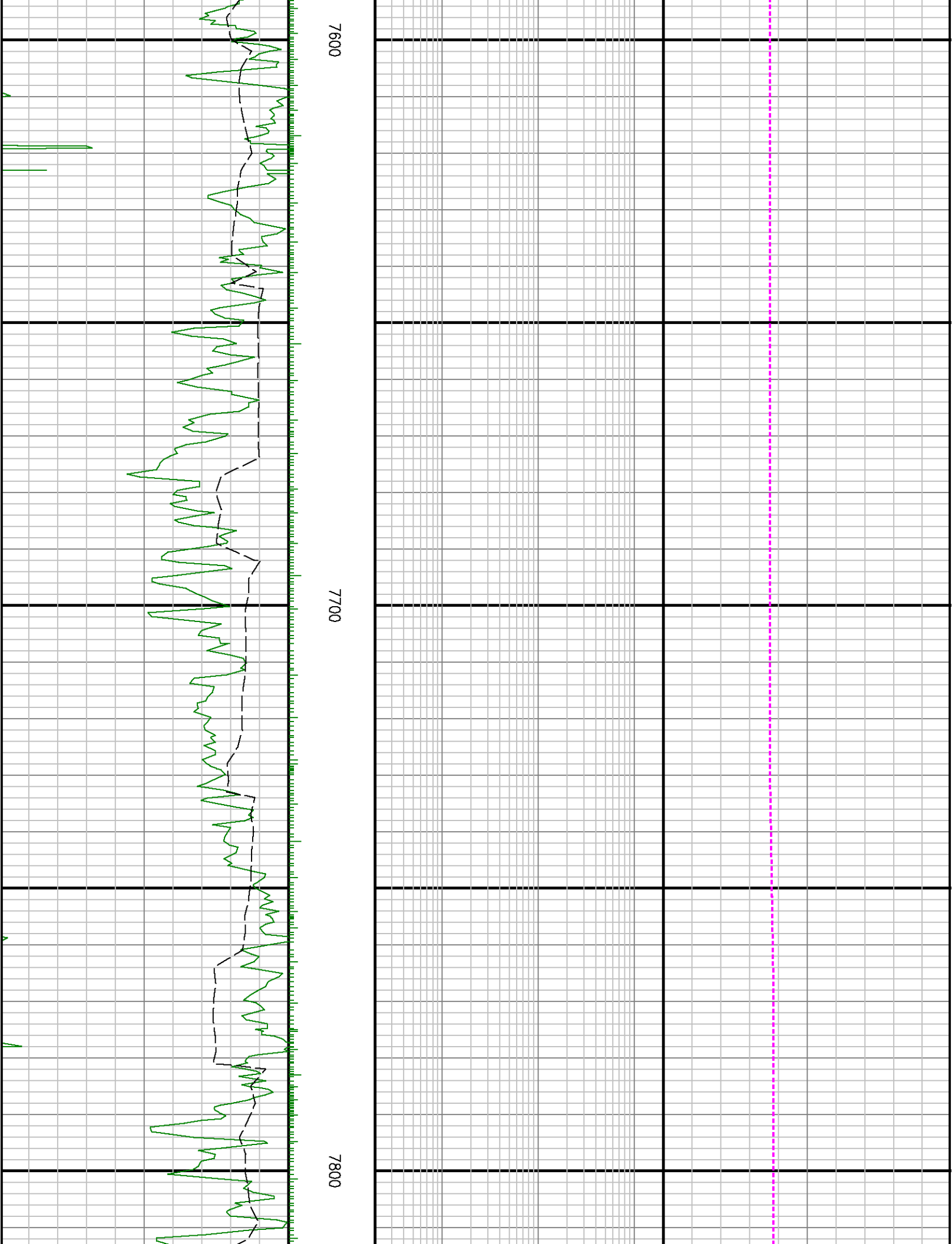
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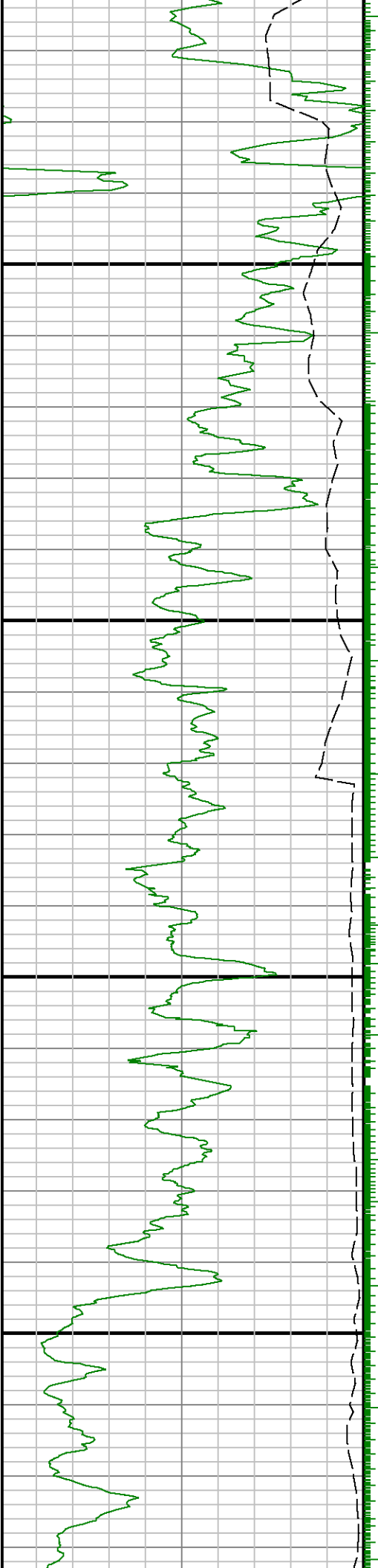
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GRIX

TCDX







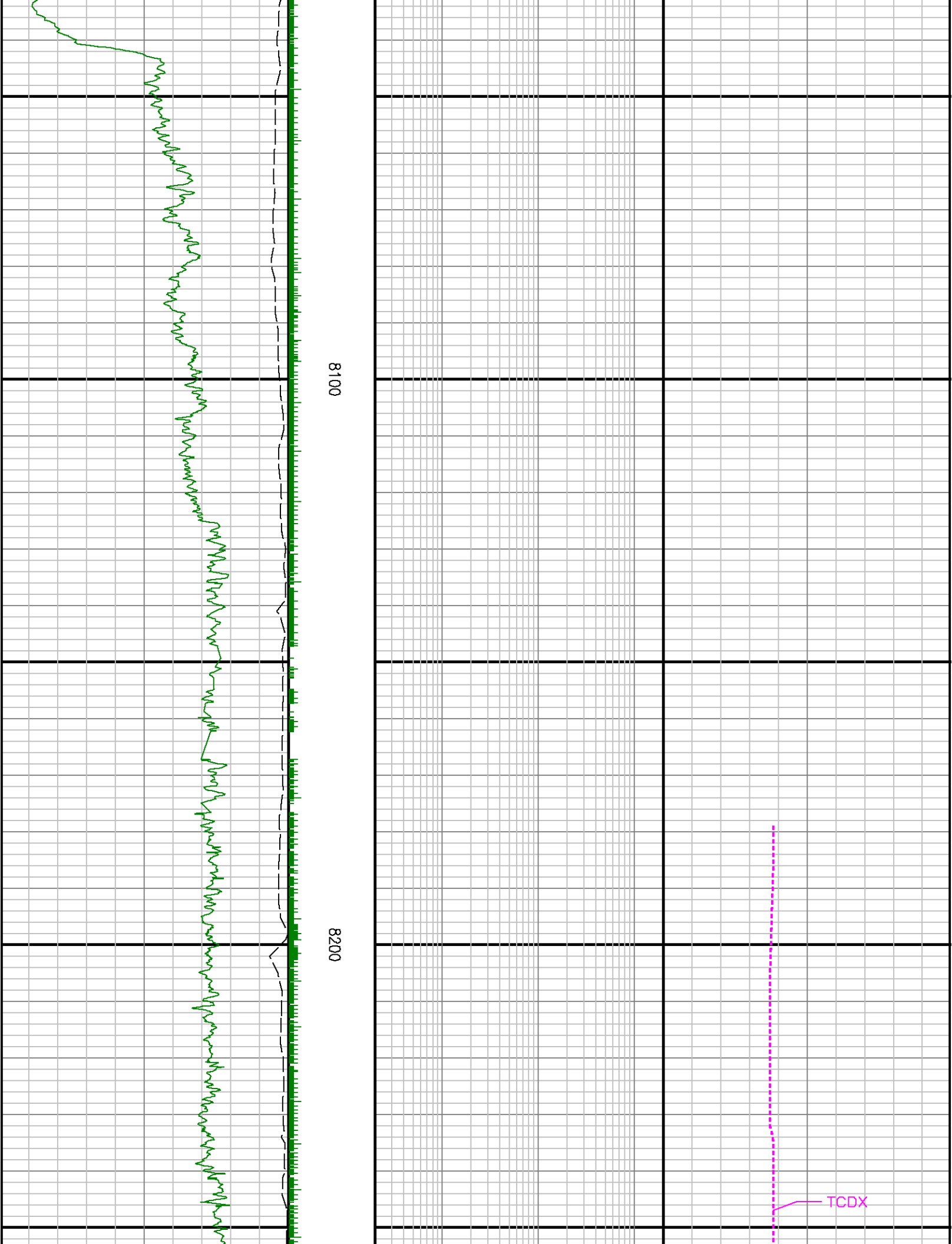
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Run 1 ◇ Run 2

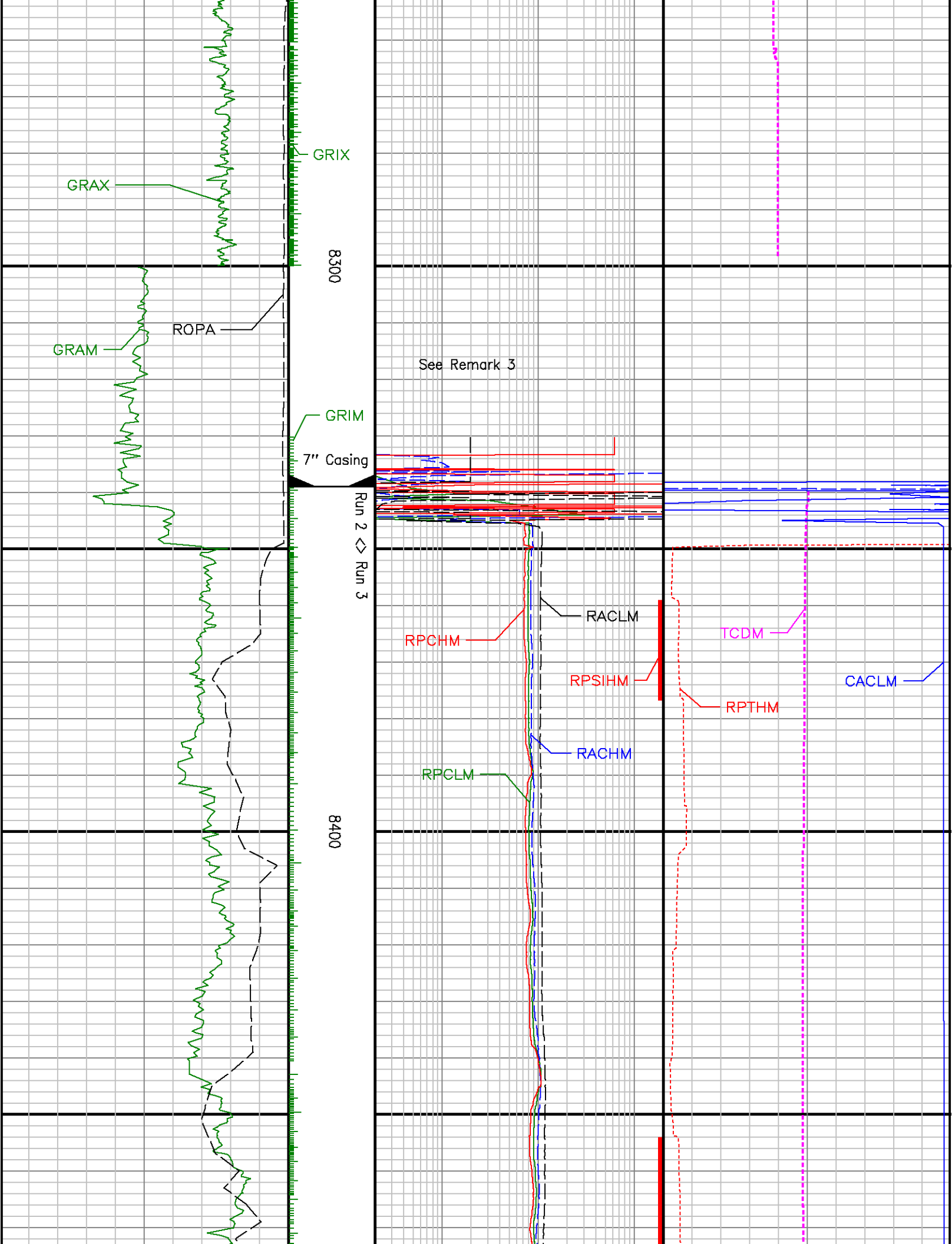
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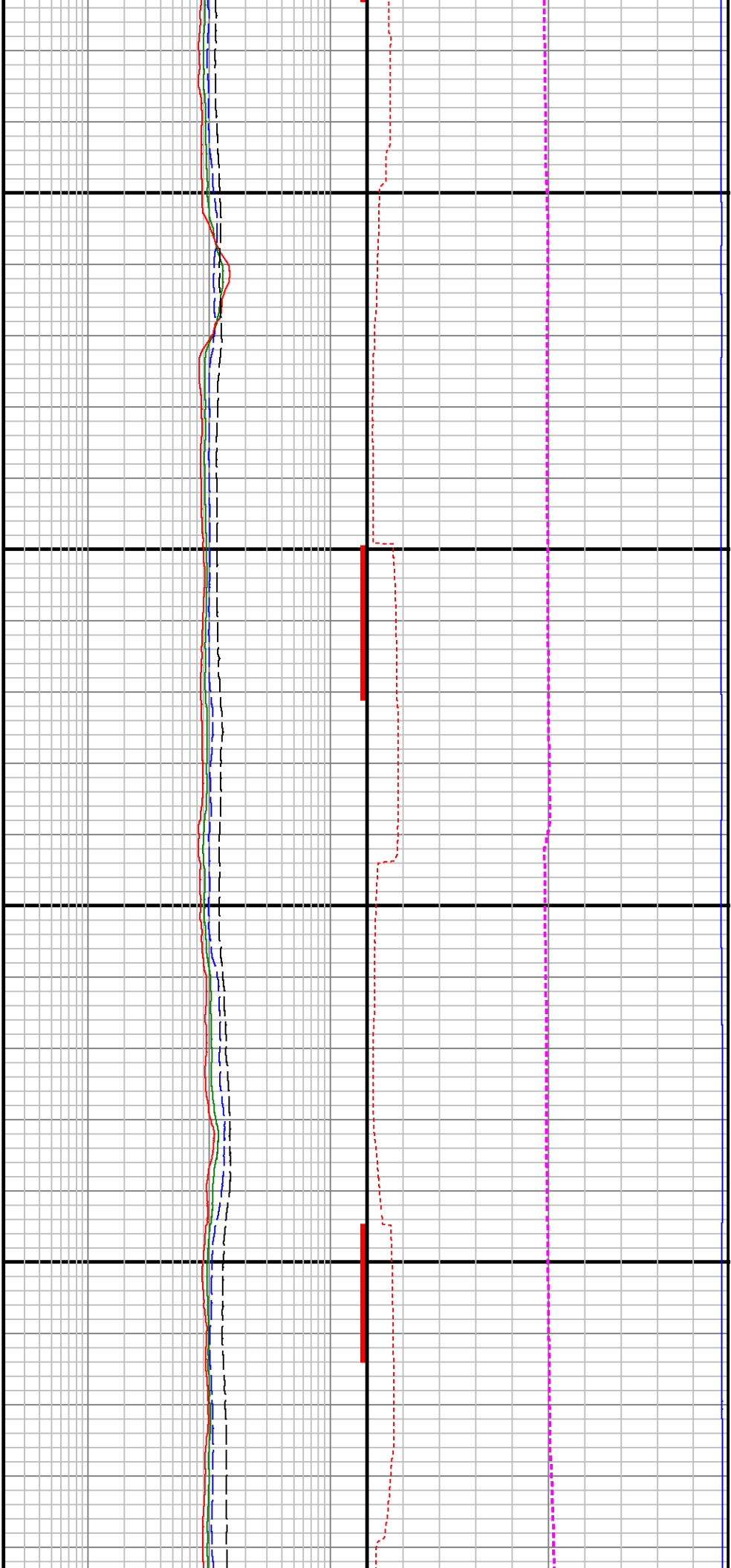
See Remark 2

Vertical dashed magenta line



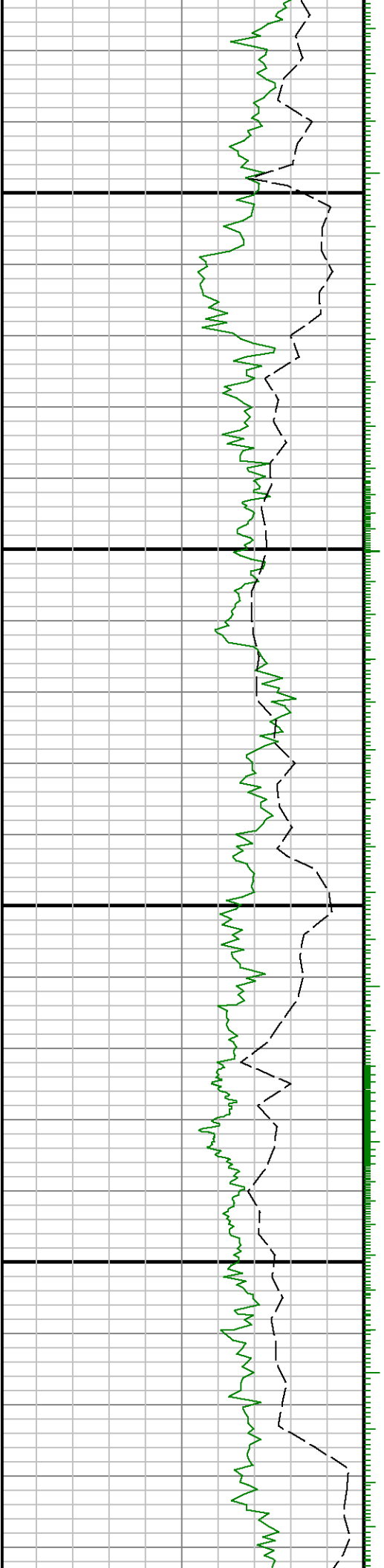


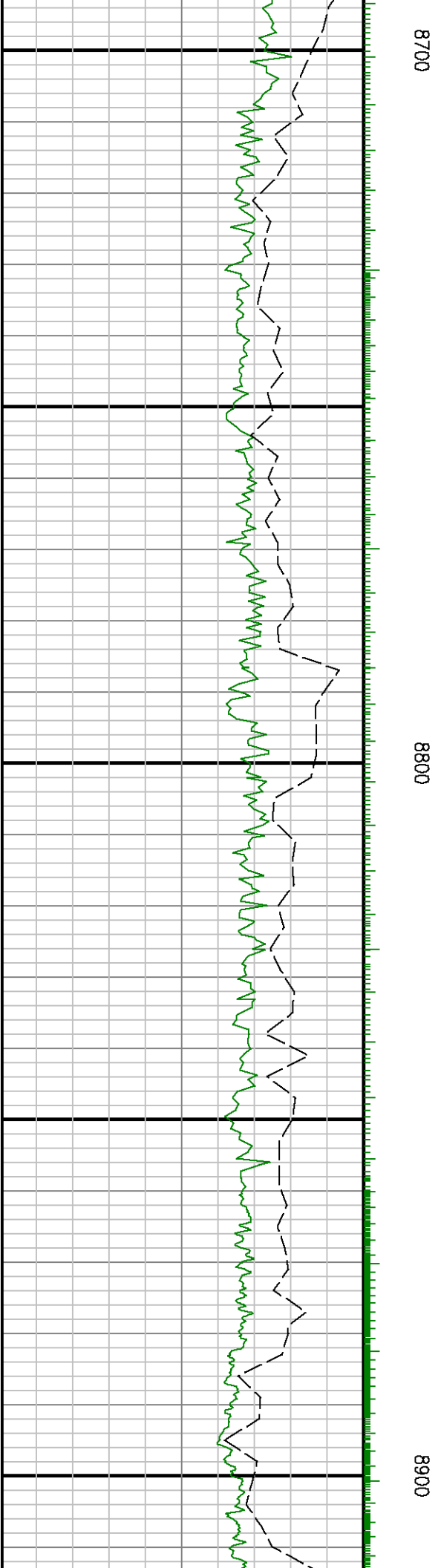
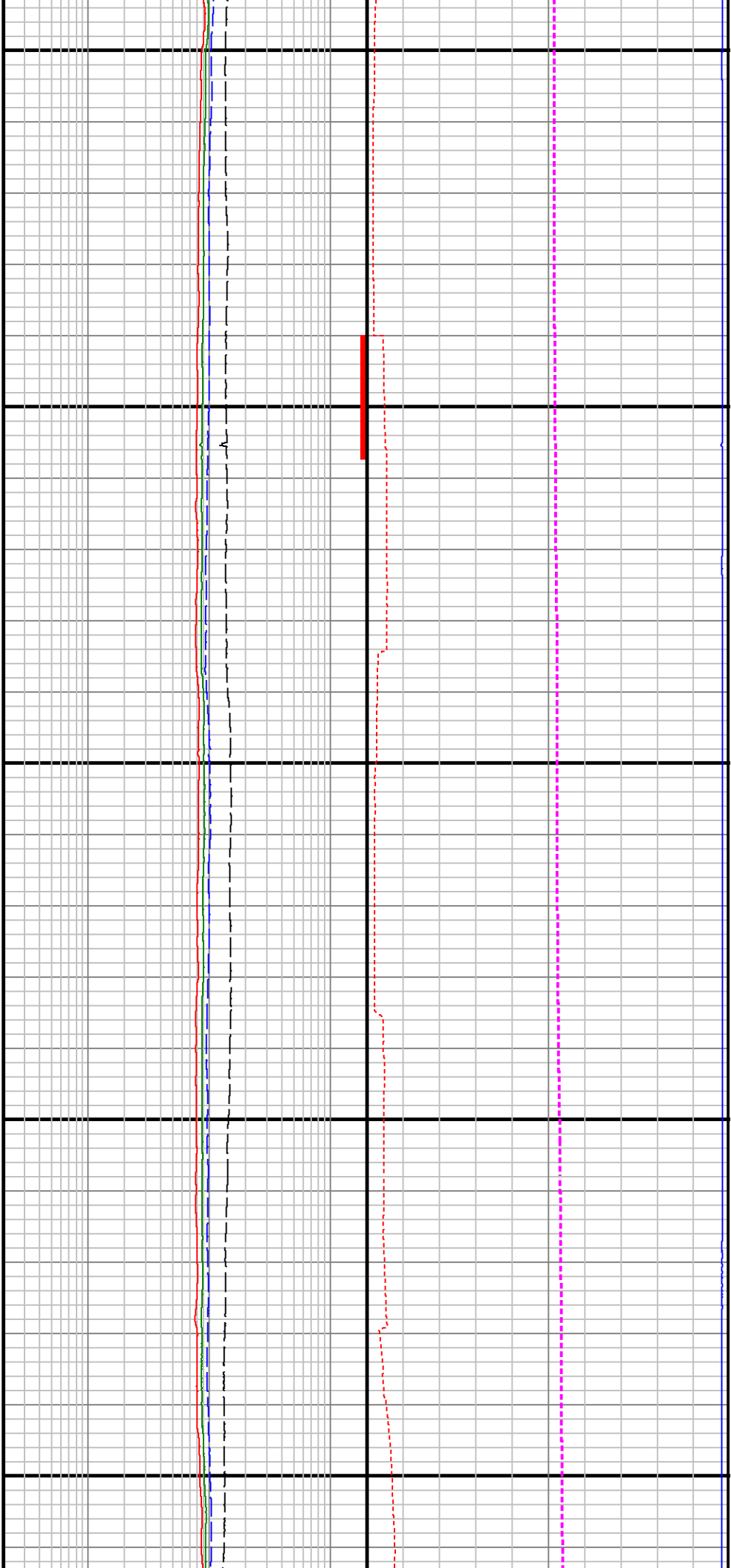


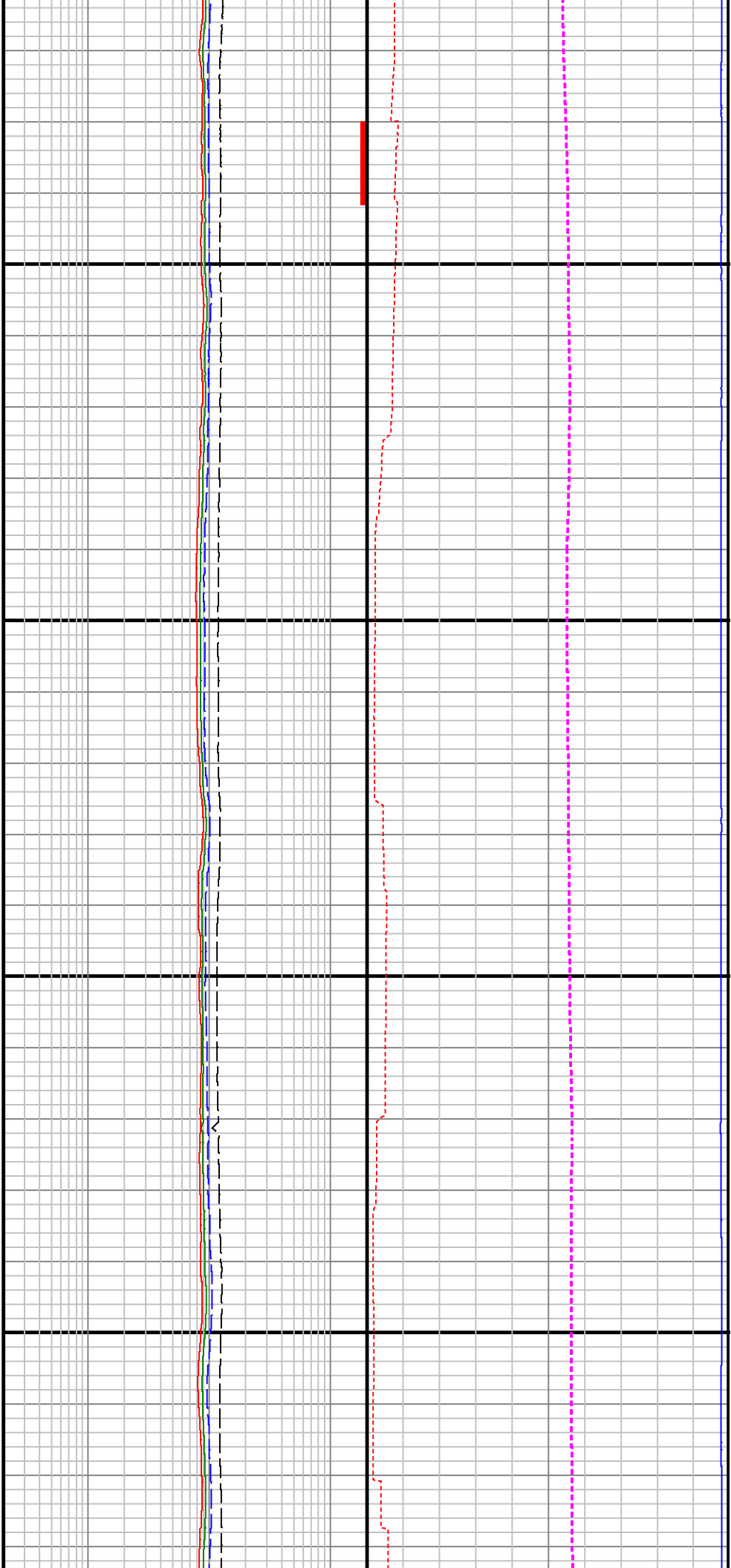


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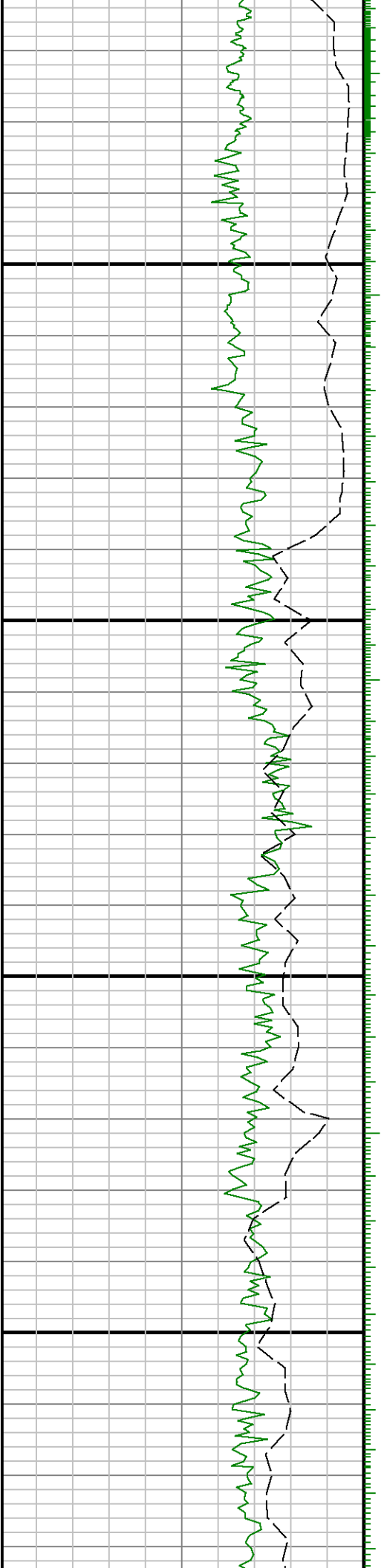


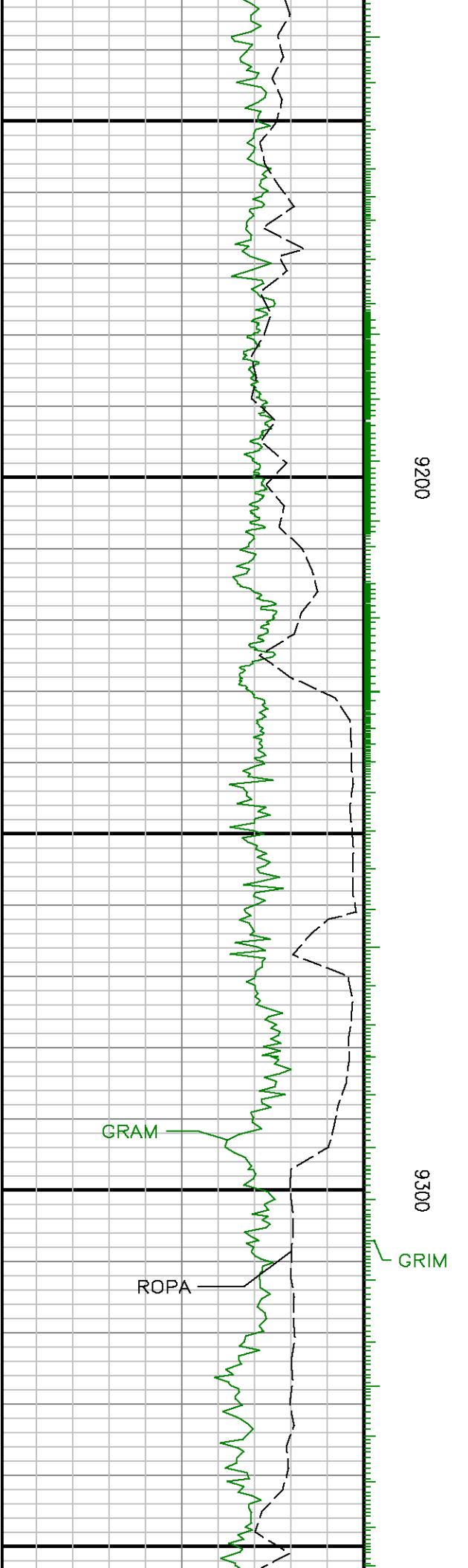


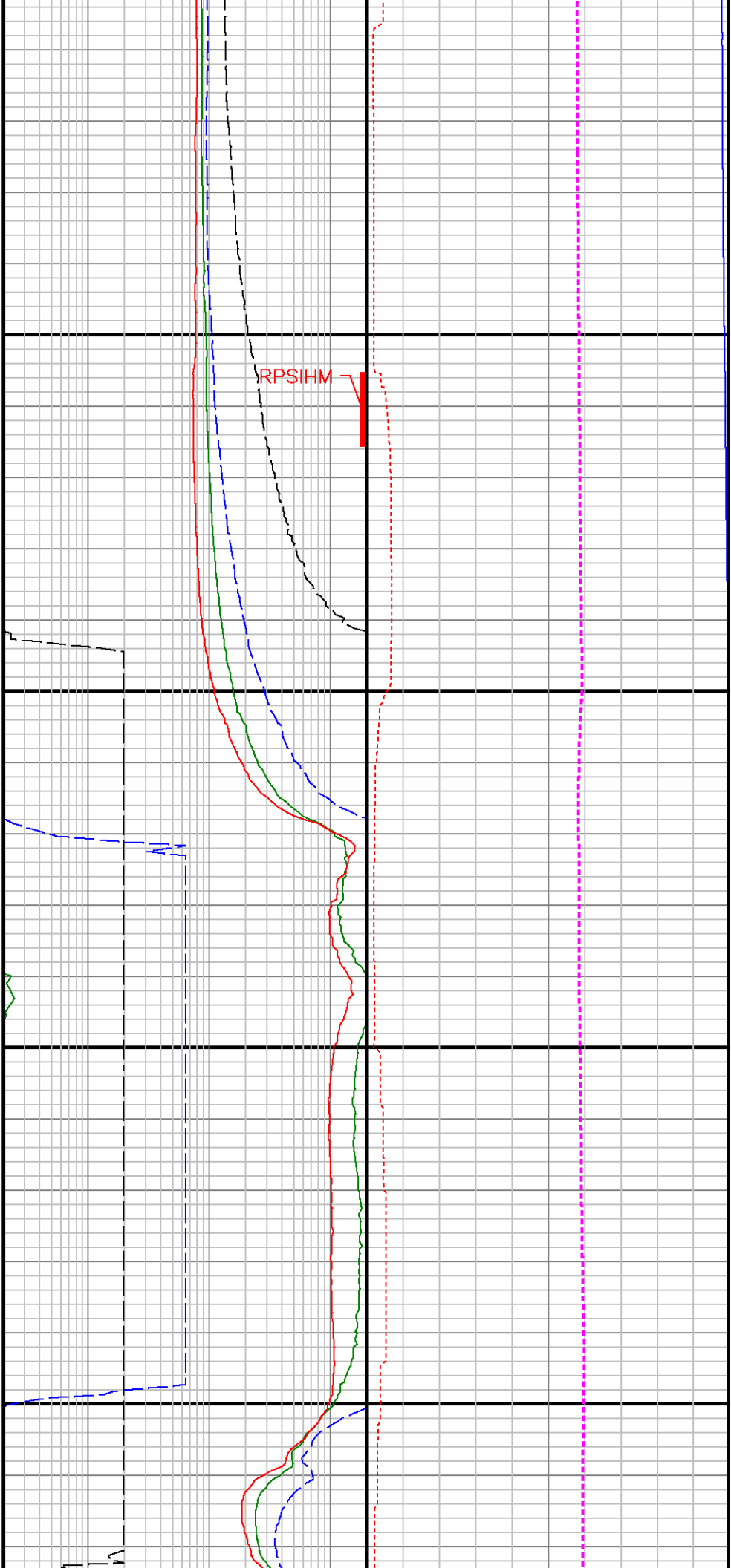


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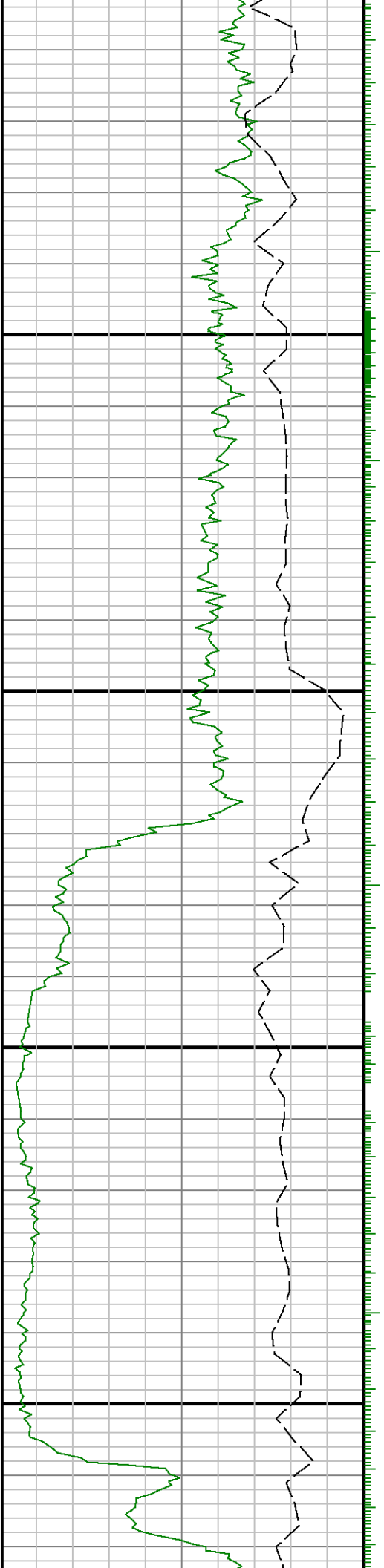


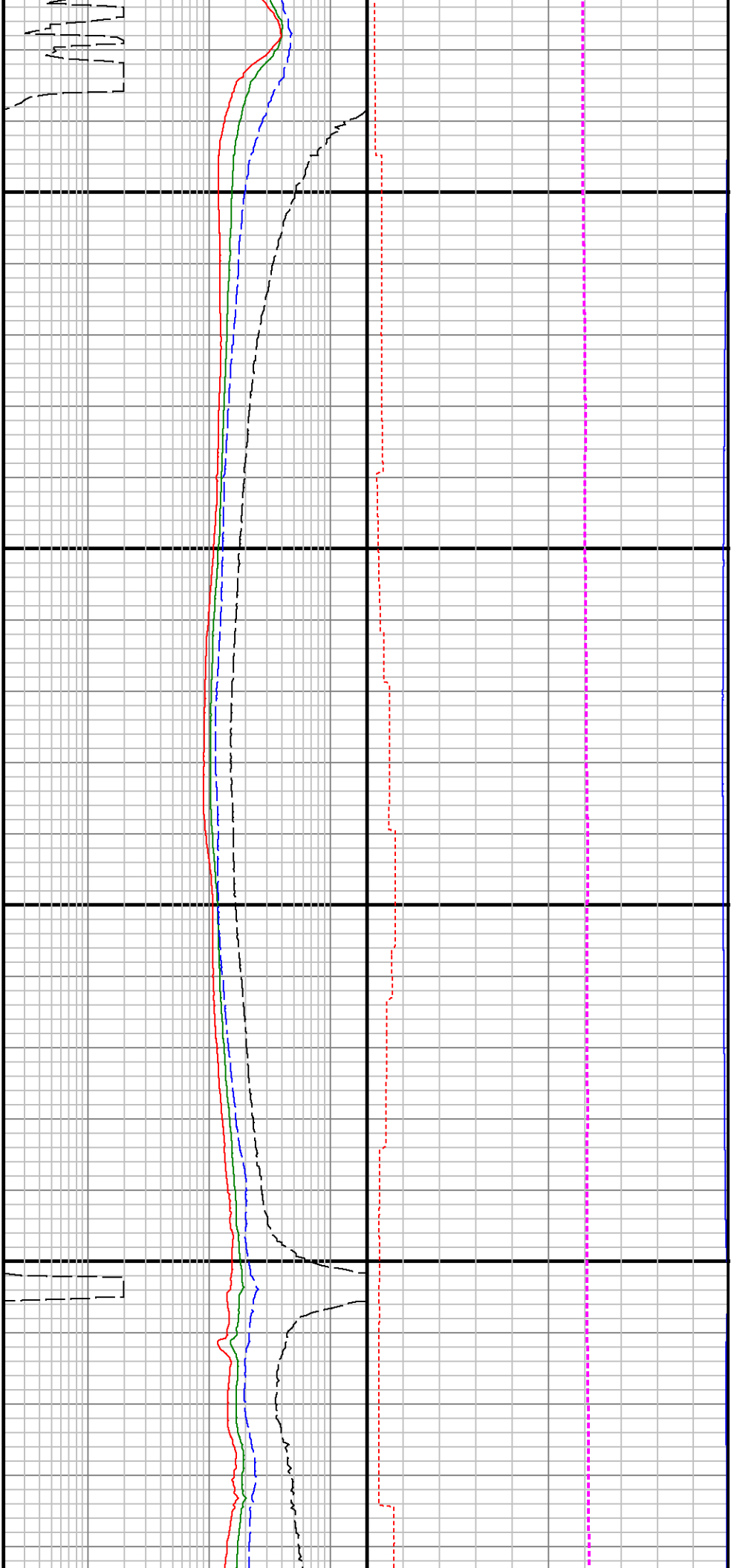




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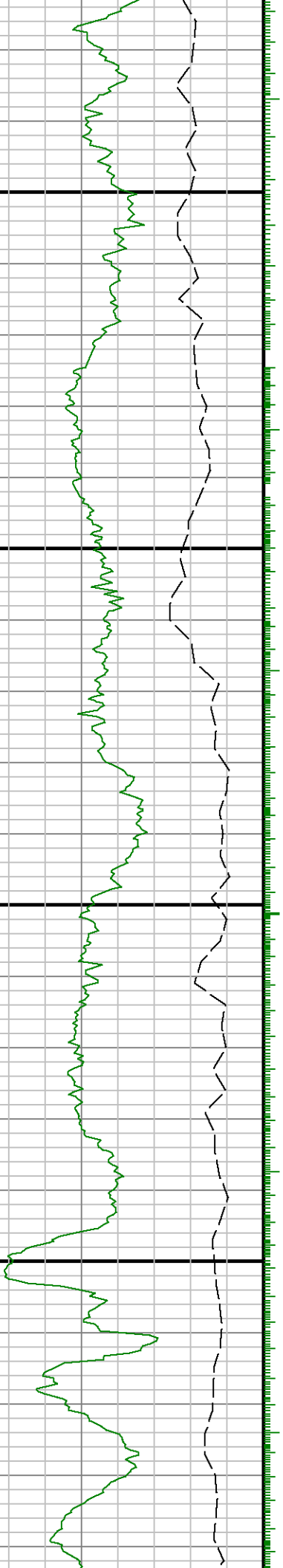
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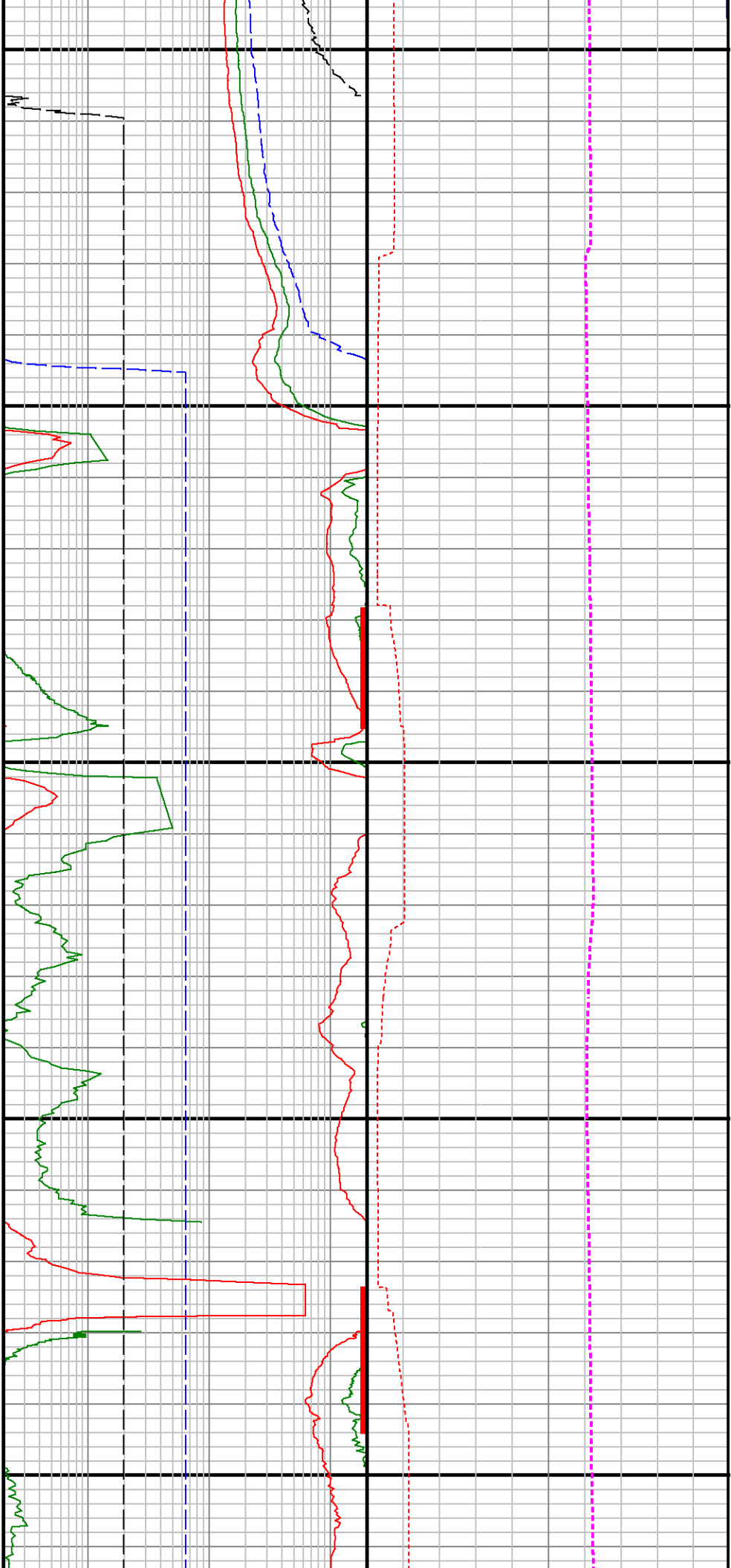




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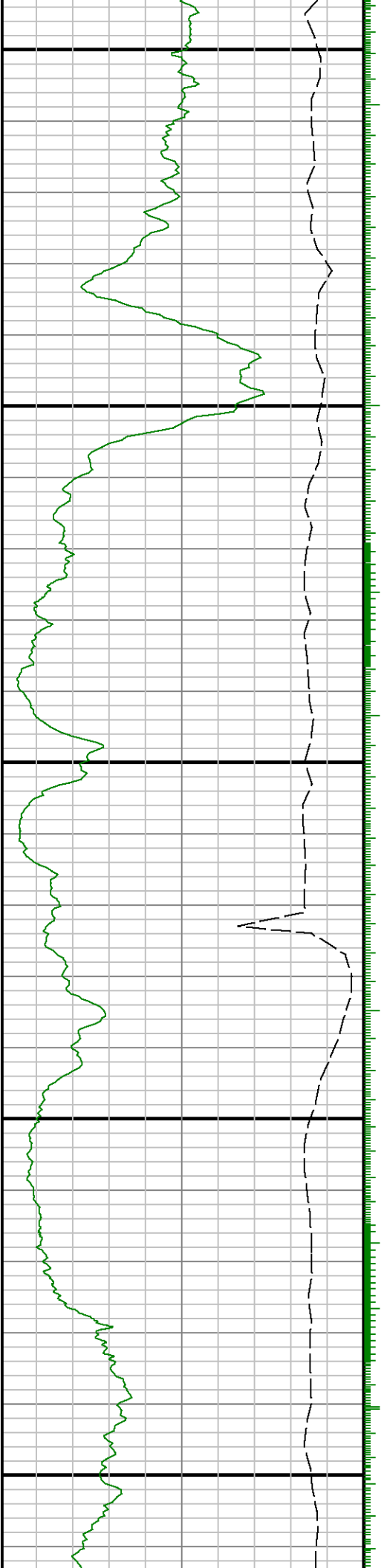




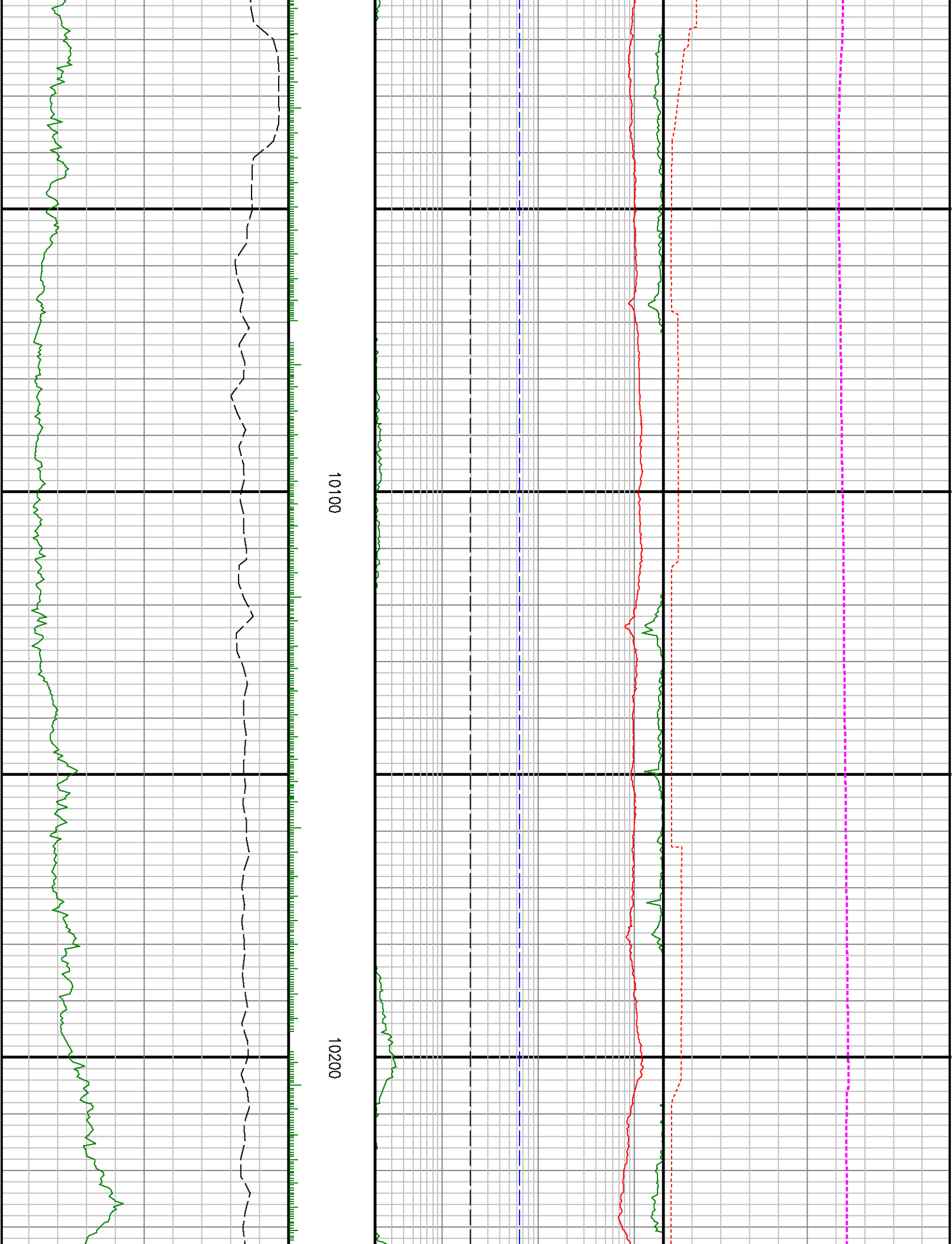
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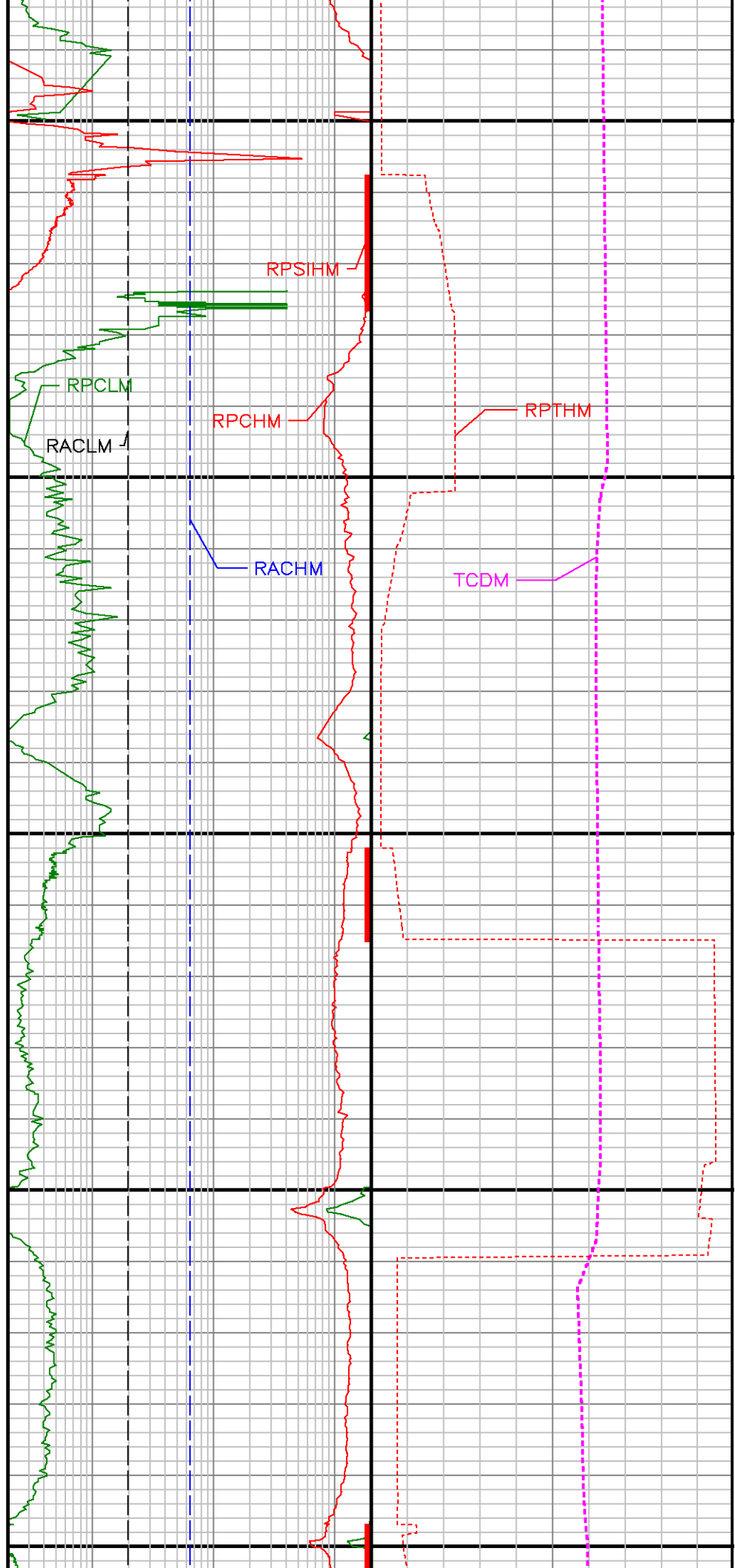
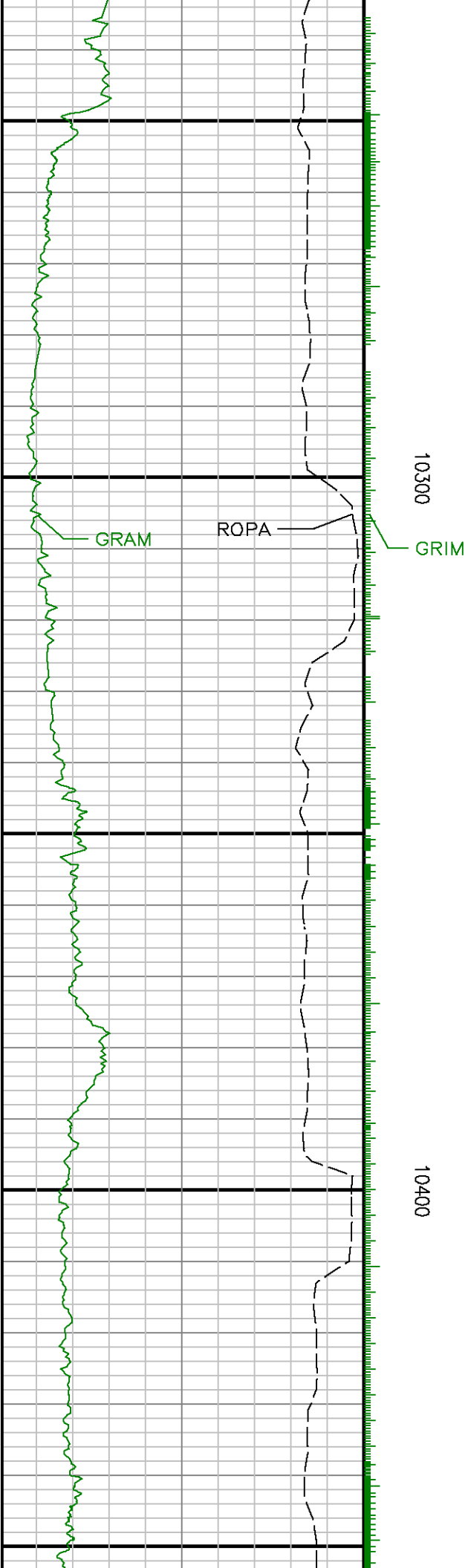
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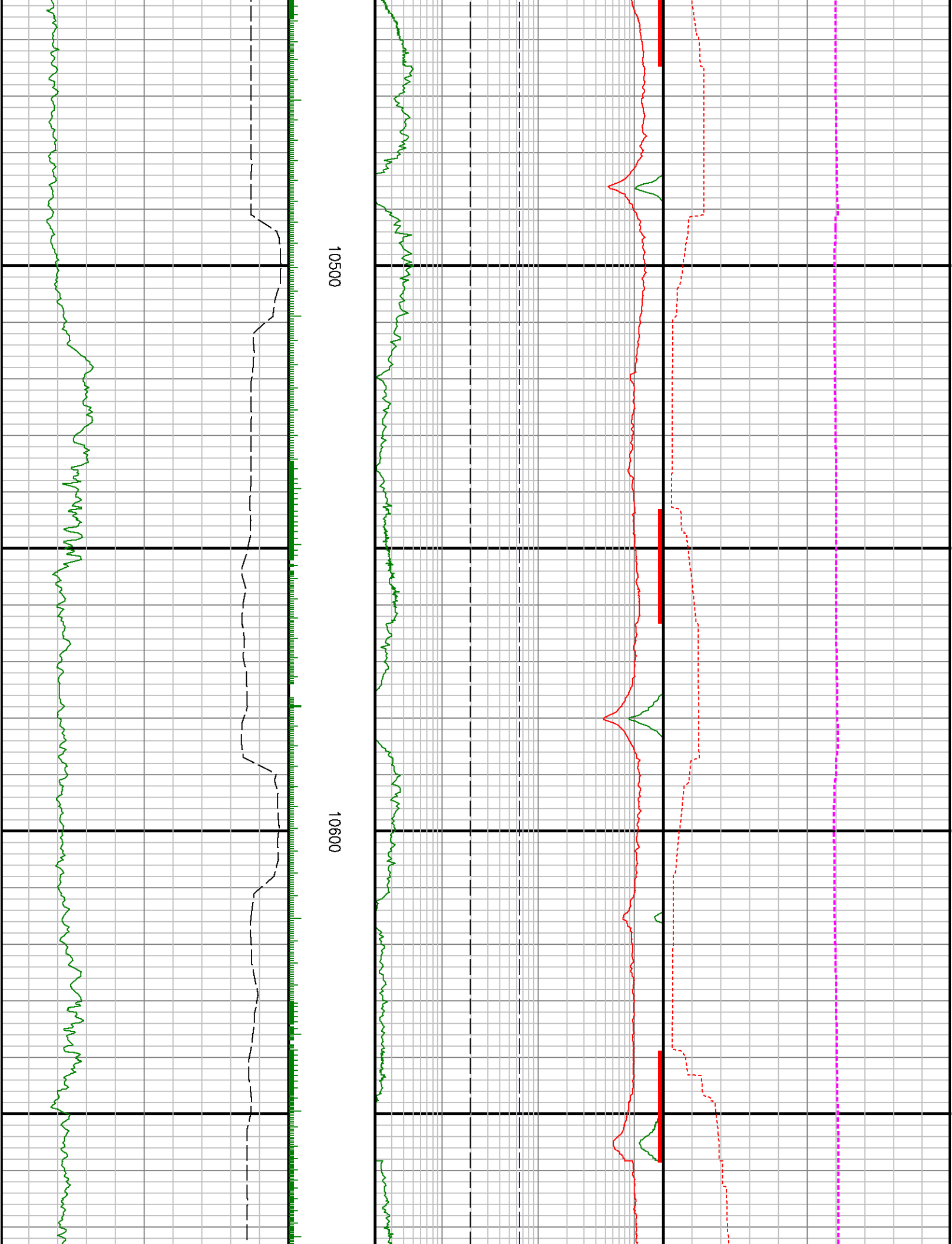
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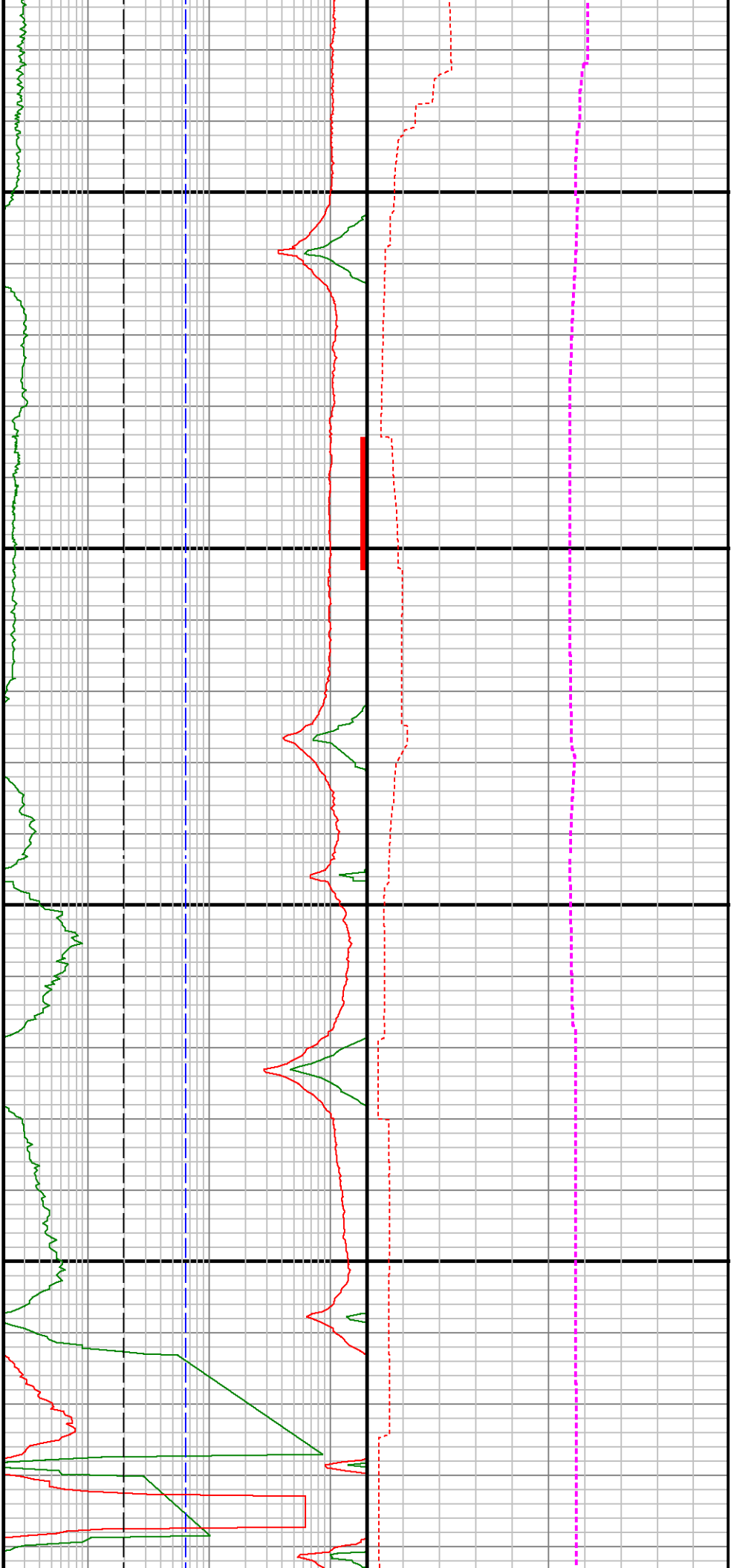






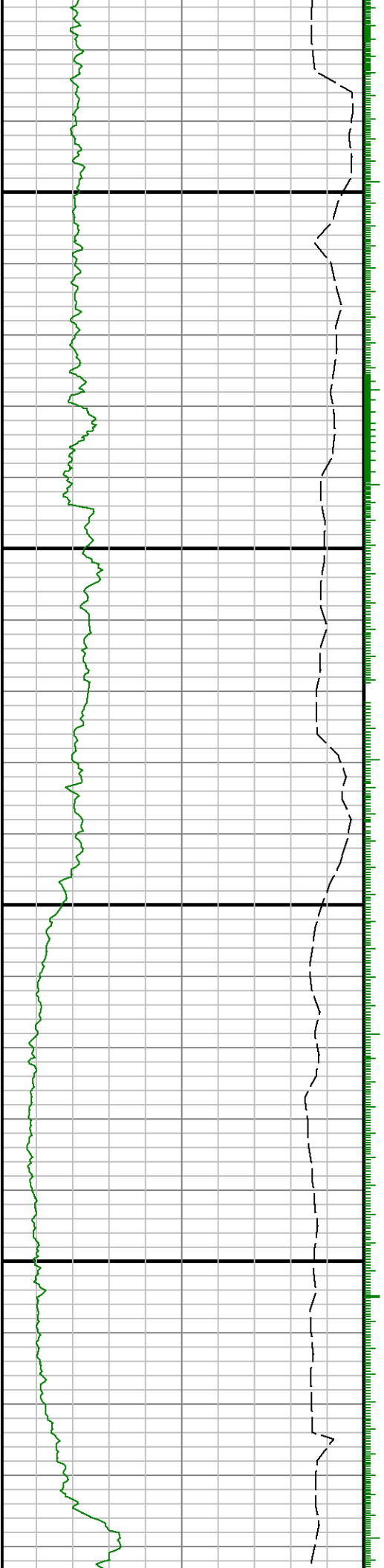


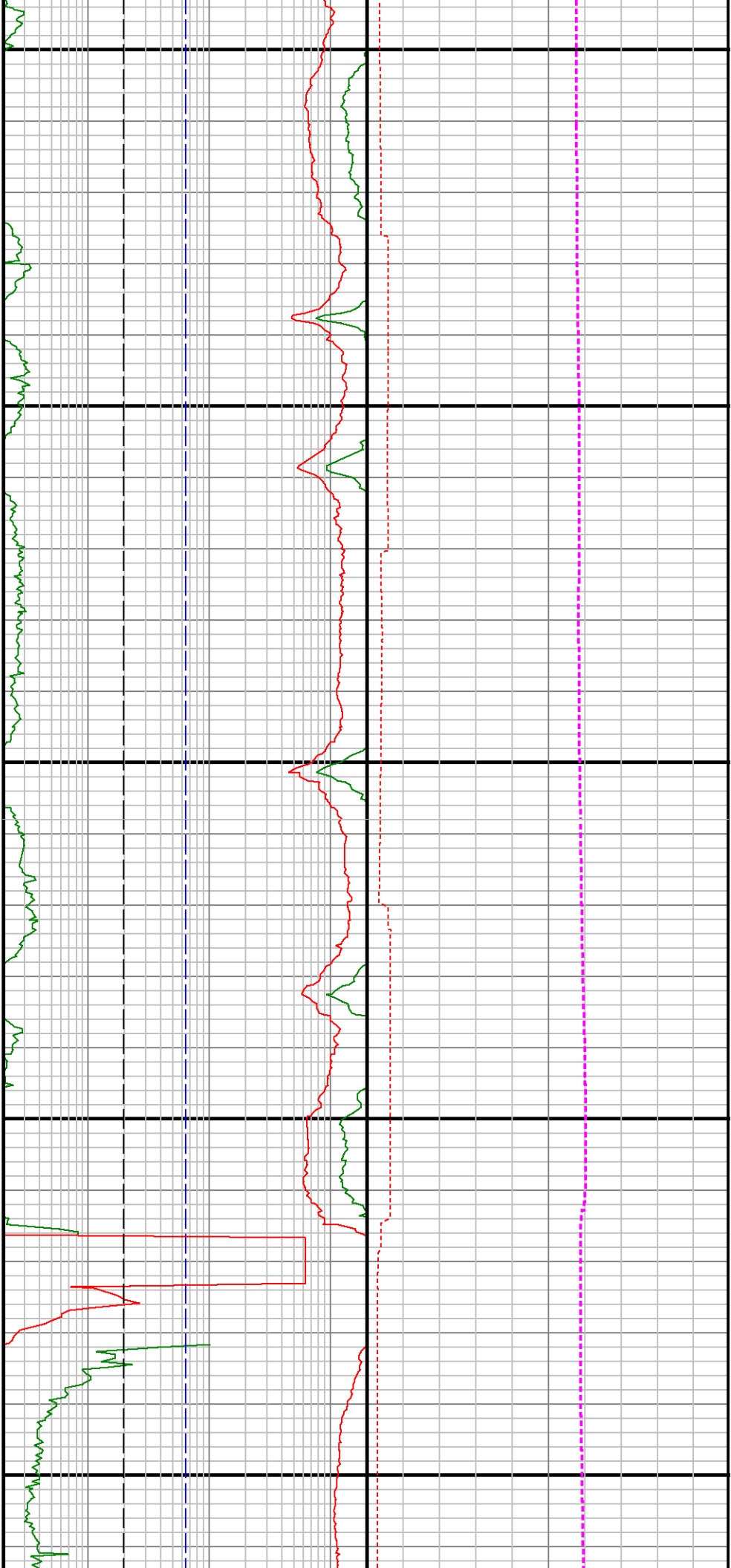




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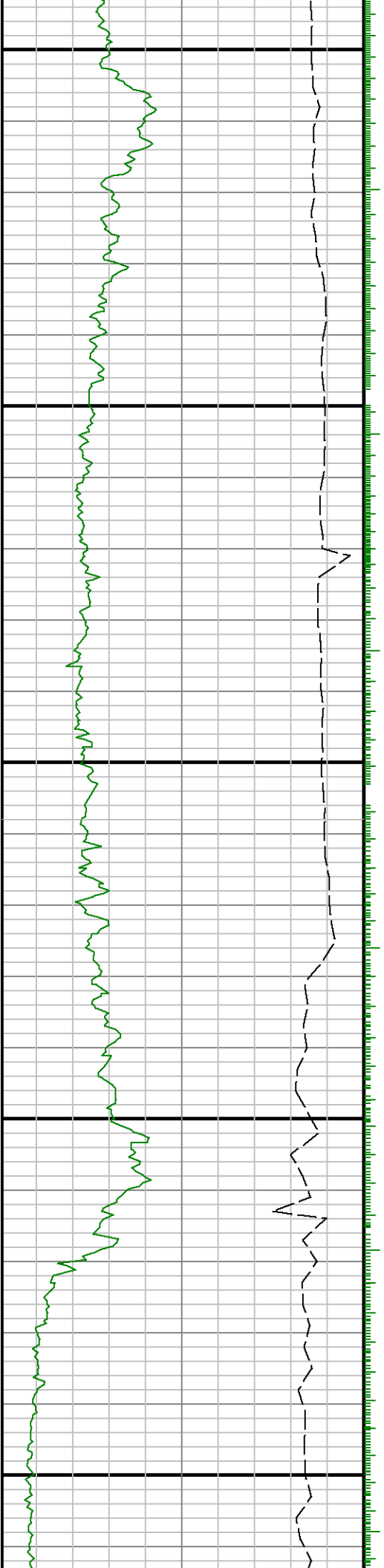


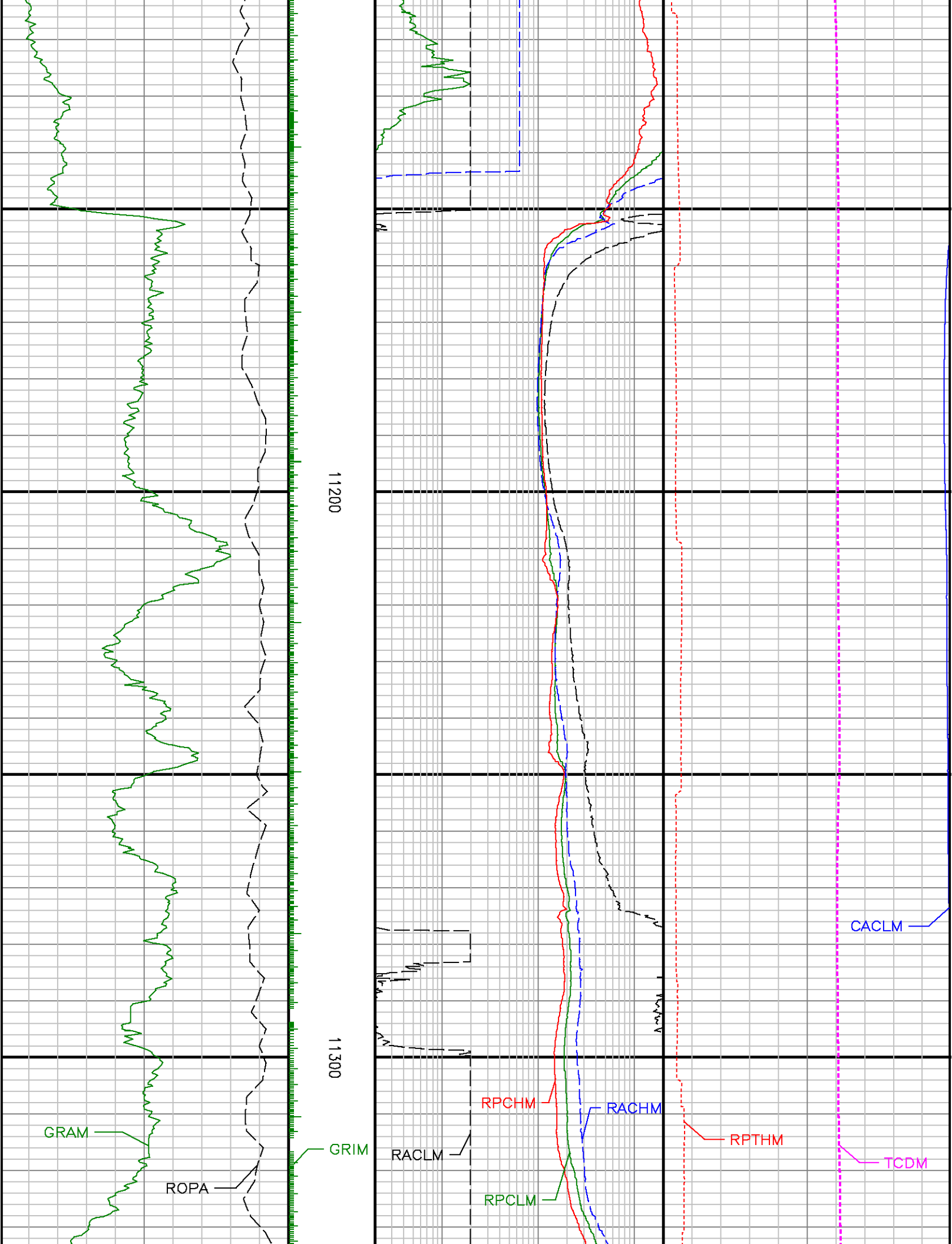


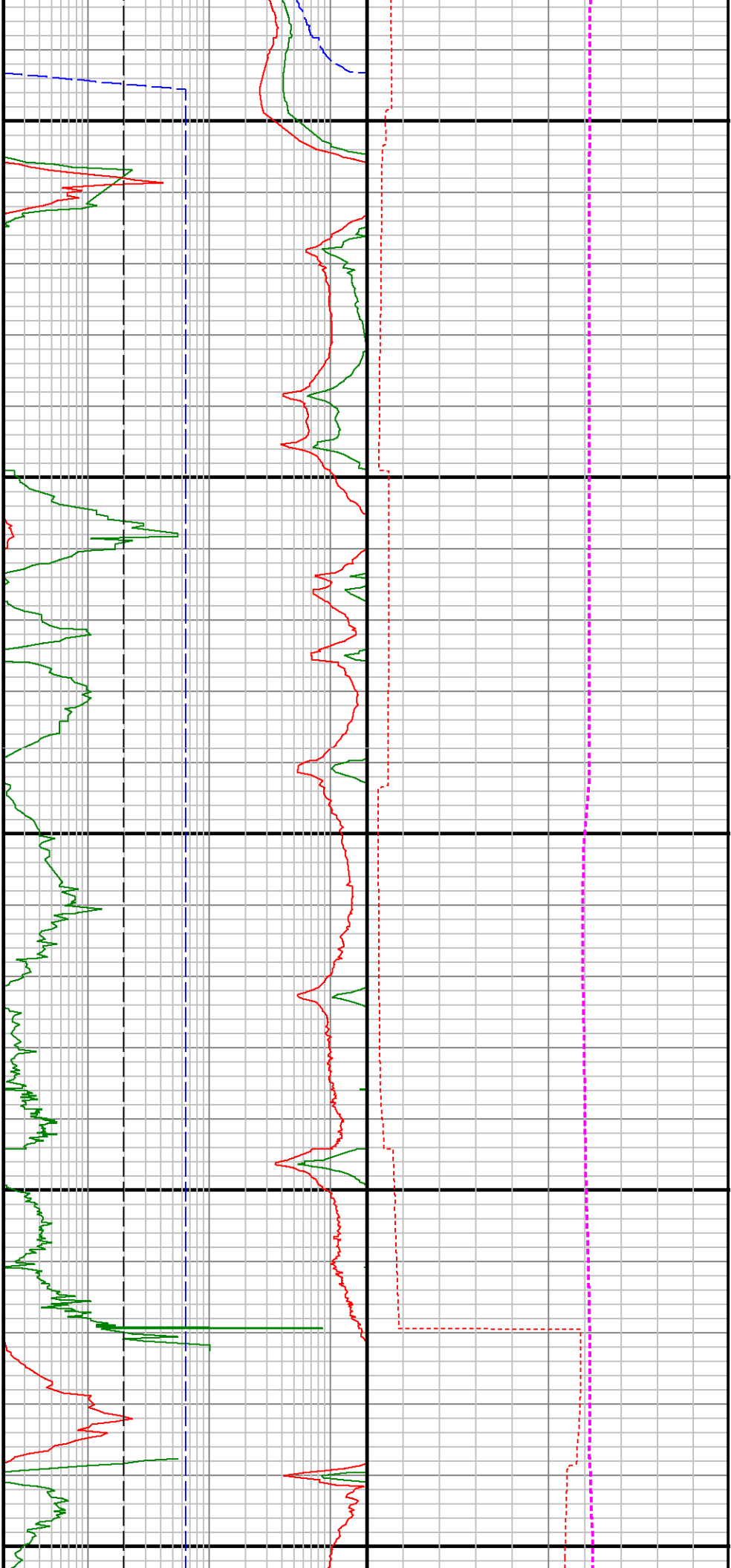
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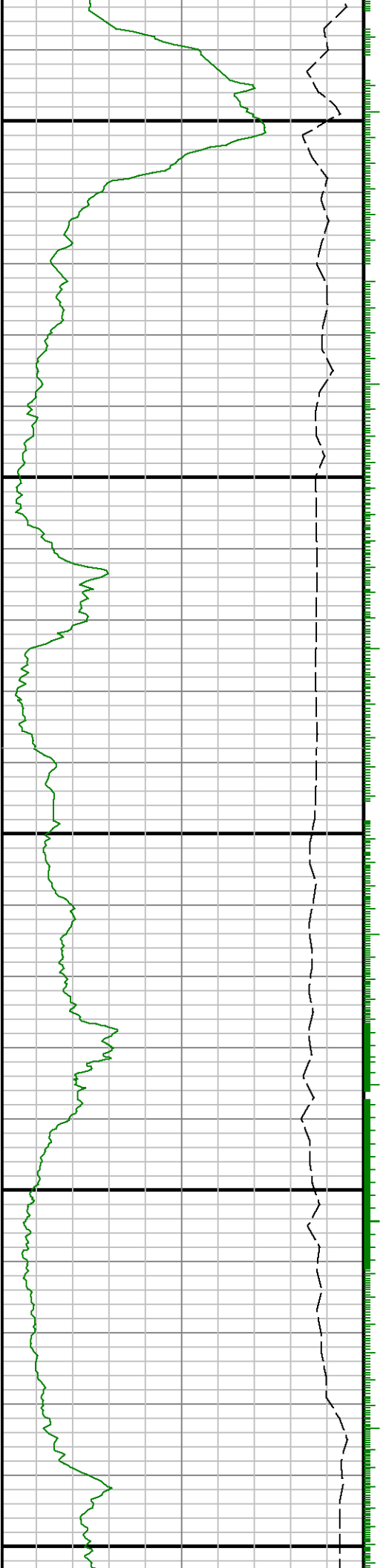


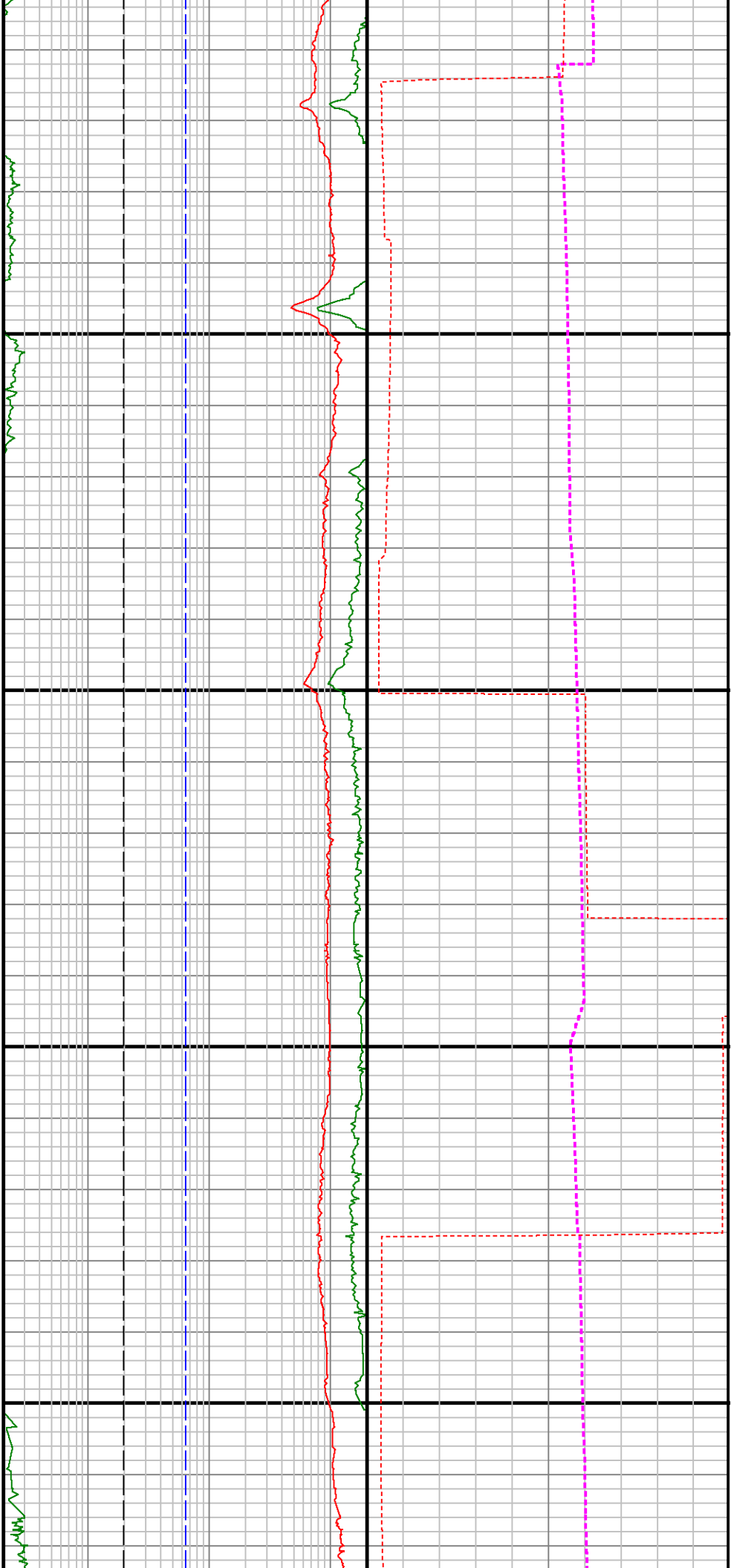




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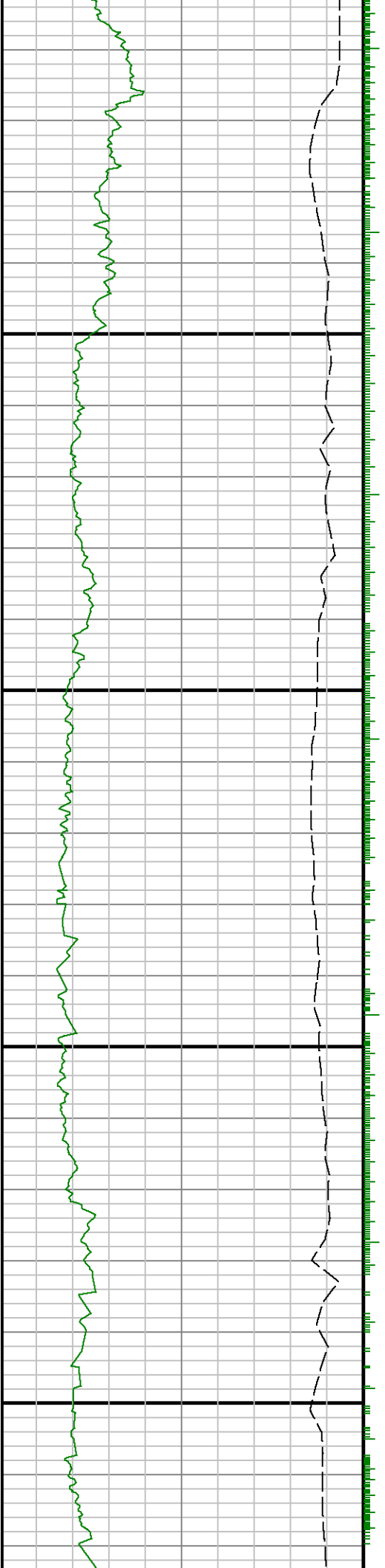
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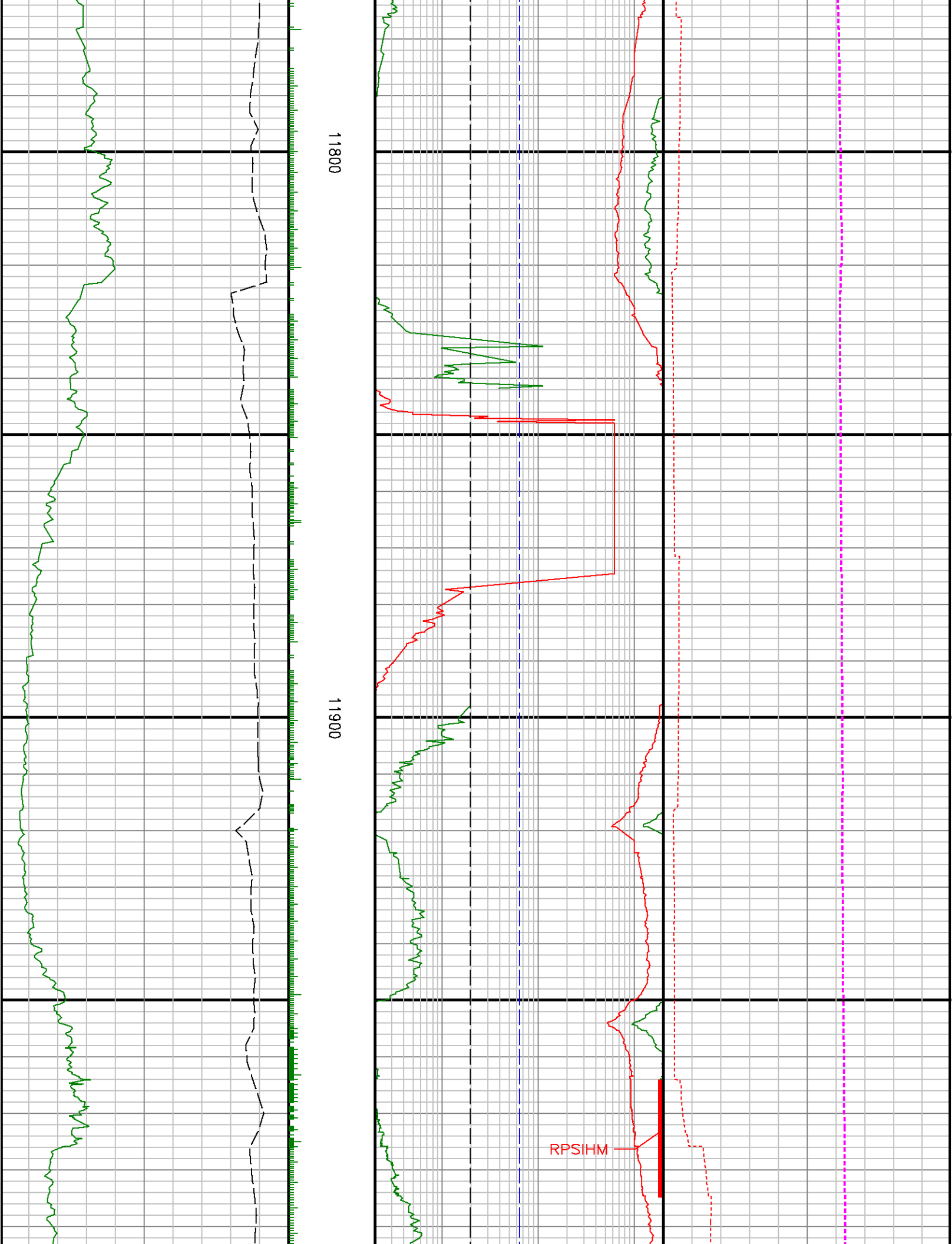


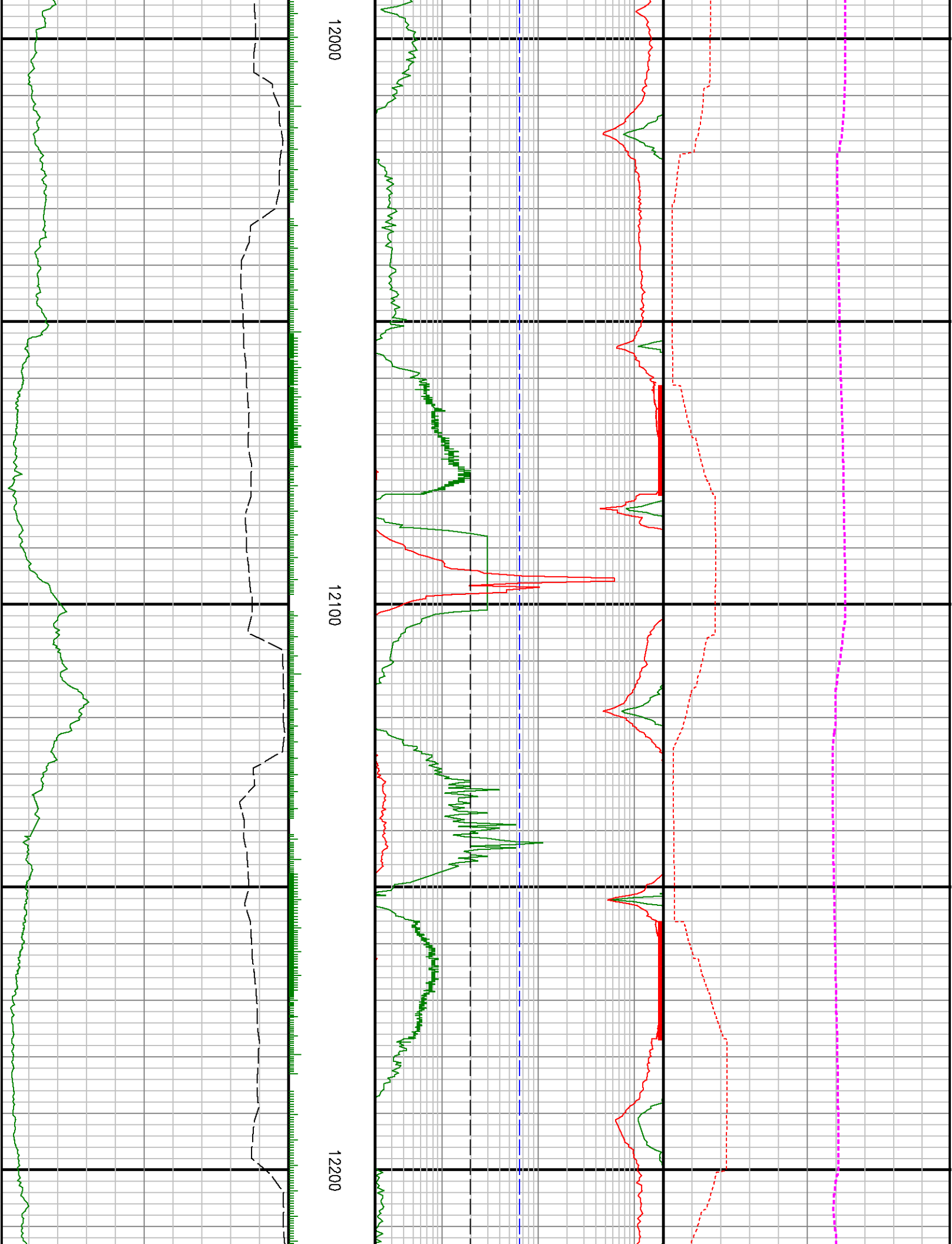
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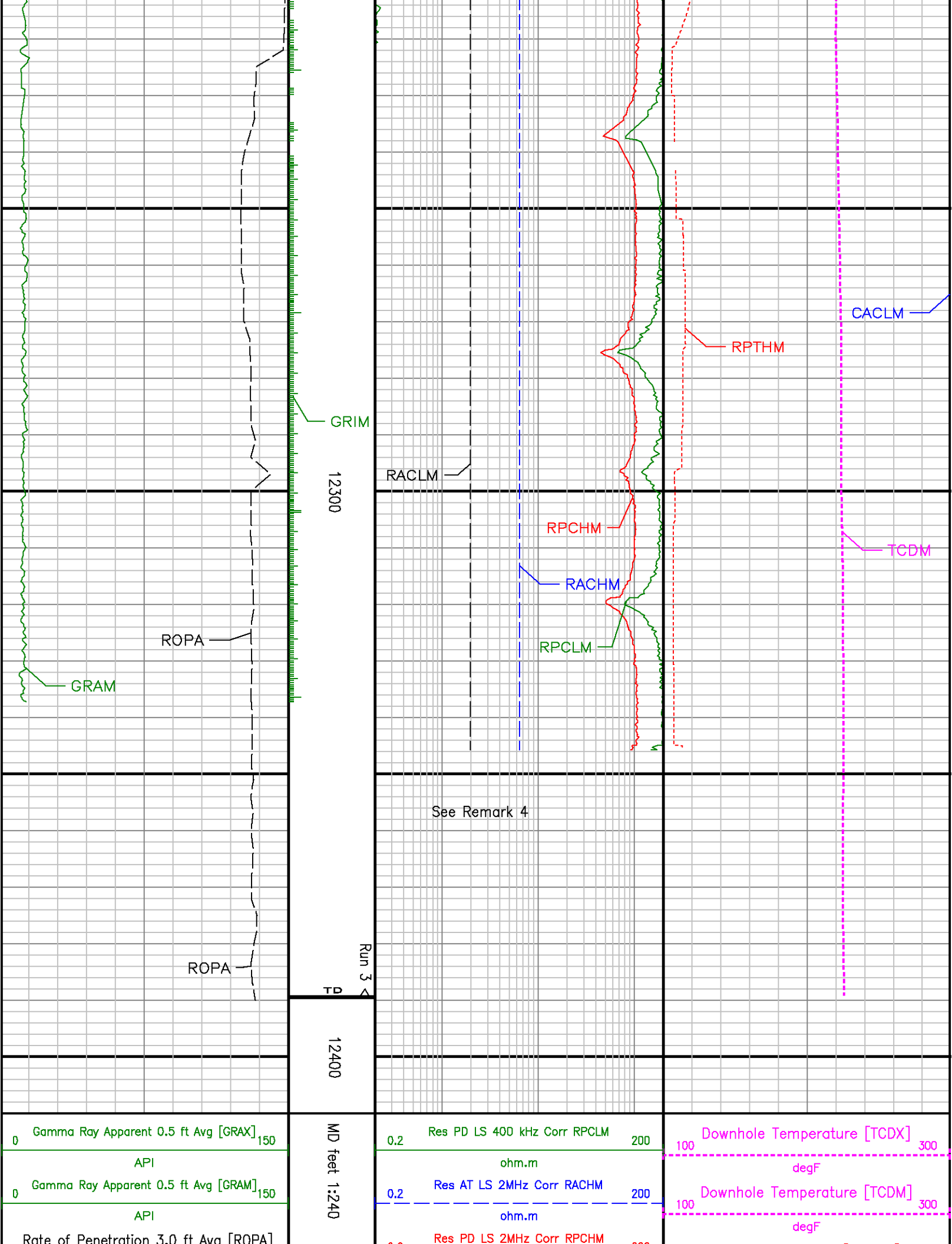
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Rate of Penetration (ft/hr) [RPHM]		0.2	200	Time Since Drilled [RPTHM]	0	600
1000	0	ohm.m		min		
ft/hr		0.2	Res AT LS 400kHz Corr RACLM	Con AT LS 400kHz Corr [CACLM]		
		ohm.m	200	4000	0	
				mmho/m		