

Company: EXXONMOBIL PRODUCTION CO

Well: PCU 197-34B8

Field: PICEANCE CREEK

County: RIO BLANCO

State: COLORADO

CORRELATION PRINT

GAMMA RAY / CCL

Field:	PICEANCE CREEK
Location:	SESE, 817' FSL & 955' FEL
Well:	PCU 197-34B8
Company:	EXXONMOBIL PRODUCTION CO
LOCATION	
SESE, 817' FSL & 955' FEL	Elev.: K.B. 6679.30 ft G.L. 6649.10 ft D.F. 6678.30 ft
Permanent Datum:	GROUND LEVEL
Log Measured From:	KELLY BUSHING
Drilling Measured From:	KELLY BUSHING
API Serial No.	Section 34
05-103-11082-0C	Township 1S
	Range 97W

PVT DATA			Run 1	Run 2	Run 3
Oil Density					
Water Salinity			400 ppm		
Gas Gravity					
Bo					
Bw					
1/Bg					
Bubble Point Pressure					
Bubble Point Temperature					
Solution GOR					
Maximum Deviation			10 deg		
CEMENTING DATA					
Primary/Squeeze			Primary		
Casing String No					
Lead Cement Type					
Volume					
Density			10.5 lbm/gal		
Water Loss					
Additives					
Tail Cement Type					
Volume					
Density			12 lbm/gal		
Water Loss					
Additives					
Expected Cement Top			4000 ft		

Logging Date	3-Nov-2009
Run Number	1
Depth Driller	8806 ft
Schlumberger Depth	8590 ft
Bottom Log Interval	8590 ft
Top Log Interval	300 ft
Casing Fluid Type	WBM
Salinity	400 ppm
Density	9.7 lbm/gal
Fluid Level	10 ft
BIT/CASING/TUBING STRING	
Bit Size	9.875 in
From	3900 ft
To	8806 ft
Casing/Tubing Size	7.000 in
Weight	26 lbm/ft
Grade	
From	30.2 ft
To	8806 ft
Maximum Recorded Temperatures	203 degF
Logger On Bottom	3-Nov-2009
Unit Number	2379
Location	VERNAL
Recorded By	Ryan Stewart
Witnessed By	Stacy Guyote

Logging Date	
Run Number	
Depth Driller	
Schlumberger Depth	
Bottom Log Interval	
Top Log Interval	
Casing Fluid Type	
Salinity	
Density	
Fluid Level	
BIT/CASING/TUBING STRING	
Bit Size	
From	
To	
Casing/Tubing Size	
Weight	
Grade	
From	
To	
Maximum Recorded Temperatures	
Logger On Bottom	
Unit Number	
Location	
Recorded By	
Witnessed By	

DEPTH SUMMARY LISTING

Date Created: 4-NOV-2009 2:08:52

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6195 Calibration Date: 22-OCT-2009 Calibrator Serial Number: 33 Calibration Cable Type: 7-46P Wheel Correction 1: -13 Wheel Correction 2: -11	Type: CMTD-B/A Serial Number: 8093 Calibration Date: 17-OCT-200 Calibrator Serial Number: 1 Number of Calibration Points: 9 Calibration RMS: 23 Calibration Peak Error: 41	Type: 7-46V XS Serial Number: 709025 Length: 30100 FT Conveyance Method: Wireline Rig Type: LAND

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	209.30 FT
Rig Up Length At Bottom:	208.60 FT
Rig Up Length Correction:	0.70 FT
Stretch Correction:	8.50 FT
Tool Zero Check At Surface:	0.40 FT

Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, z-chart used as secondary reference
3.
4.
5.
6.

DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: IBC/USIT	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool run as per tool sketch	
Tool run with 2 x gemcos and 2 x in-line centralizers	
Neutron run for gamma ray purpose only	
Transducer angle = 33 degrees	
Logs monitored real-time by remote service quaklity coach	
Vertical resolution = 6 inch	
Horizontal resolution = 5 degree	
Max temp = 209 degF	
UFAQO = -14	

IBC log stopped at 3500 ft as directed by client	

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
WITM (DTS)-A

DOWNHOLE EQUIPMENT

LEH-QT

LEH-QT

39.0

DTC-H

ECH-KC

DTCH0-A

DTCH1-A

CTEM

TelStatus

ToolStatu

HGNS HTEM

HMCA

36.1

35.2

33.1

33.1

33.1

32.4

HILTH-FTB

HGNSD-H

HMCA-H

HGNH

HACCZ-H 3577

HCNT-H

HGR

HGNS Gamm

HGNS Neut

HGNS Neut

HGNS sens

23.7

26.5

26.0

23.7

AH-107

AH-107

23.7

USIT-D

ECH-MRA

USIC-D

USIS-A

USSC-B

IBCS_B-100158202

Top Transducer

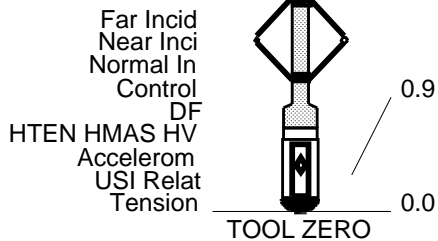
Middle Top Transducer

Middle Bottom Transducer

Bottom Transducer

21.7

The diagram illustrates the downhole equipment layout. It features a vertical column of tools with depth markers on the right side. The tools are labeled on the left, and their corresponding depths are listed on the right. The tools include: LEH-QT (39.0), DTC-H (36.1), ECH-KC (35.2), DTCH0-A (33.1), DTCH1-A (33.1), HILTH-FTB (33.1), HGNSD-H (32.4), HMCA-H, HGNH, HACCZ-H 3577, HCNT-H, HGR, HGNS Gamm, HGNS Neut (26.5), HGNS Neut (26.0), HGNS sens (23.7), AH-107 (23.7), and USIT-D (21.7). The tools are represented by various symbols: a small rectangle for the top tool, a larger rectangle for the middle tools, and a circle for the bottom tool.



MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client: EXXONMOBIL PRODUCTION CO

Drawing Date: 11/4/2009

Well: PCU 197-34B8

API #: 05-103-11082-00

Field: PICEANCE CREEK

Rig Name: Mast

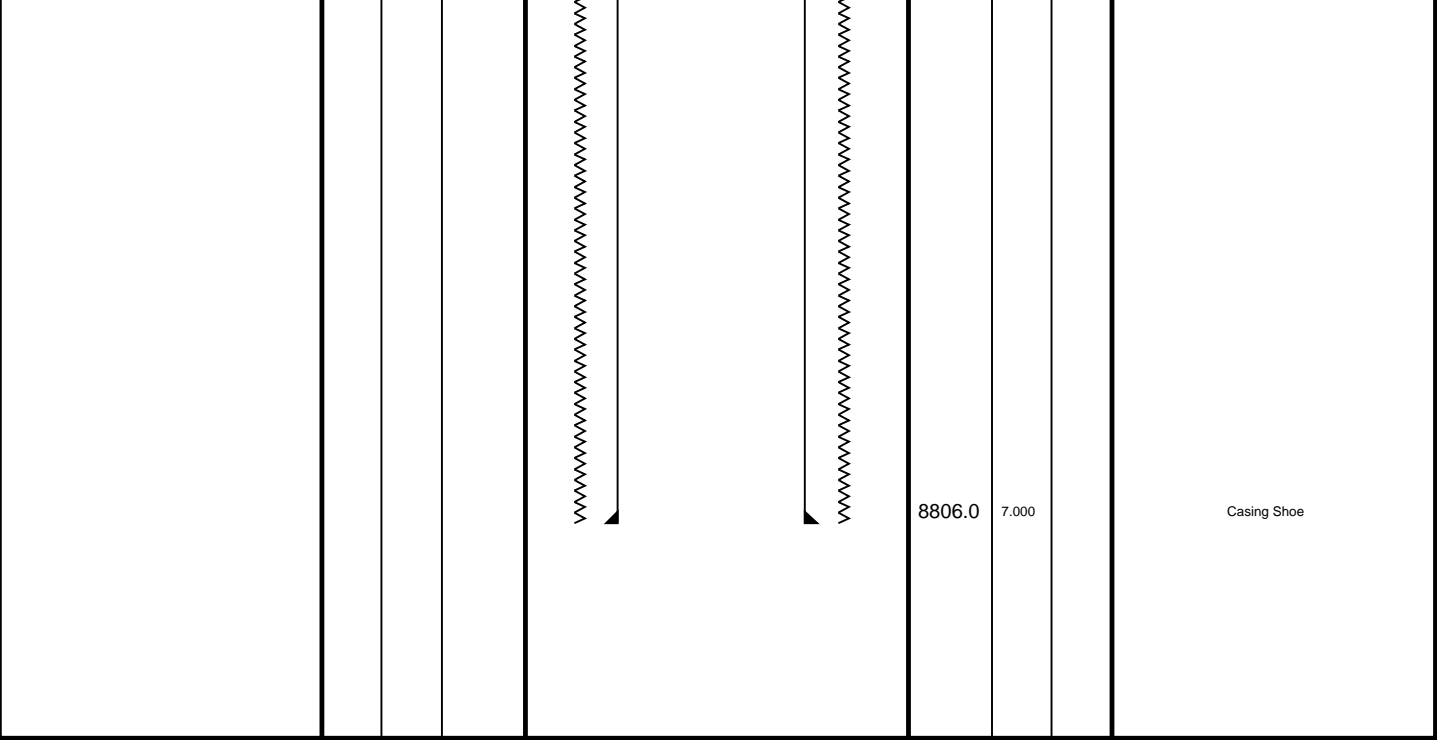
State: COLORADO

Reference Datum: Kelly Bushing

Country: USA

Elevation: 6649.1 ft

Production String	(in)		(ft)	Well Schematic			(ft)			(in)			Casing String
	OD	ID					MD	OD	ID				
							30.2	10.000					Casing String
							3900.0	10.750					Casing Shoe
							3900.0	9.875					Borehole Segment



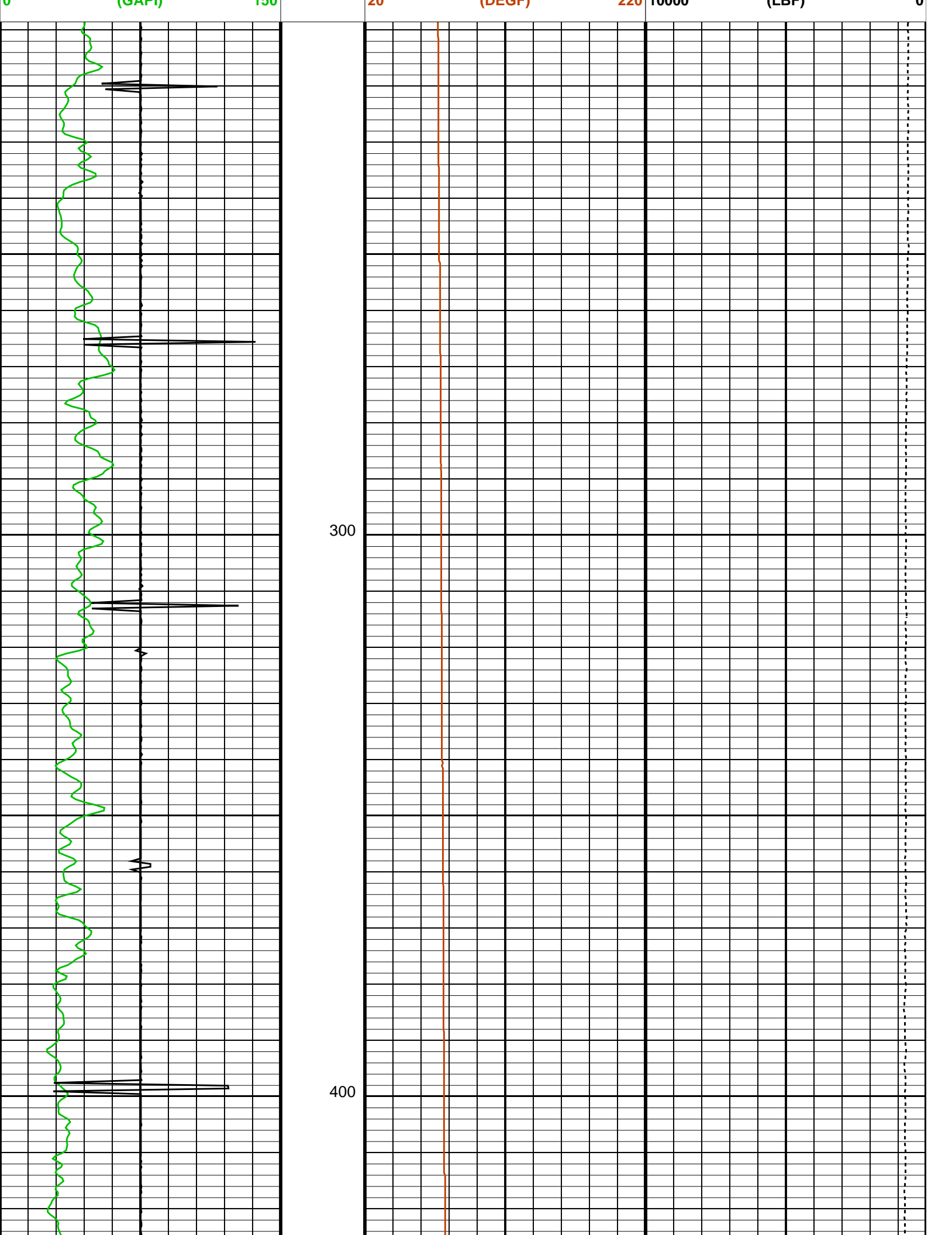
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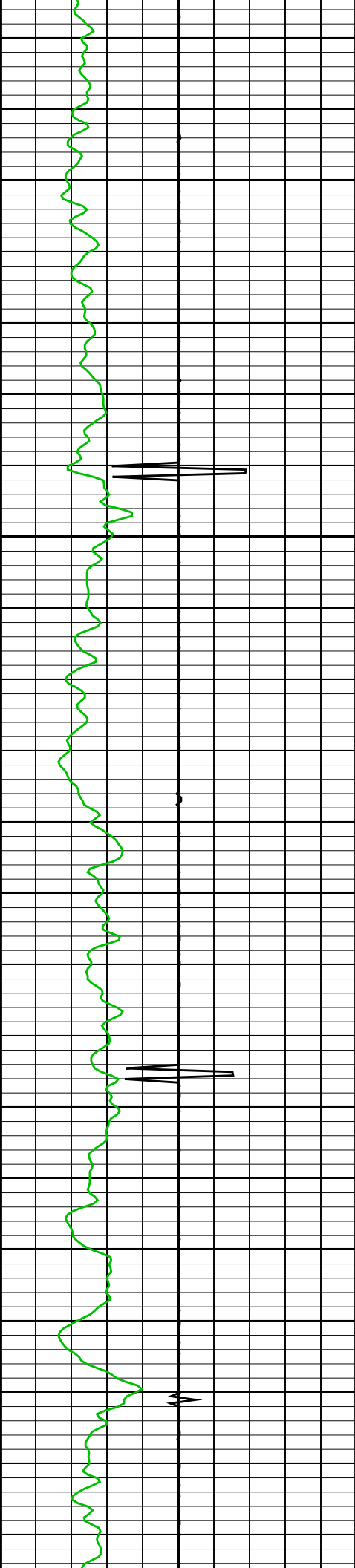
MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO Well: PCU 197-34B8

Input DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03-Nov-2009 20:55	8590.5 FT	200.0 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04-Nov-2009 02:02	8599.0 FT	208.5 FT
OP System Version: 17C0-154						
USIT-D DTC-H	SRPC-3779-Q1_2009_OP17_b 17C0-154	HILTH-FTB		SRPC-3779-Q1_2009_OP17_b		

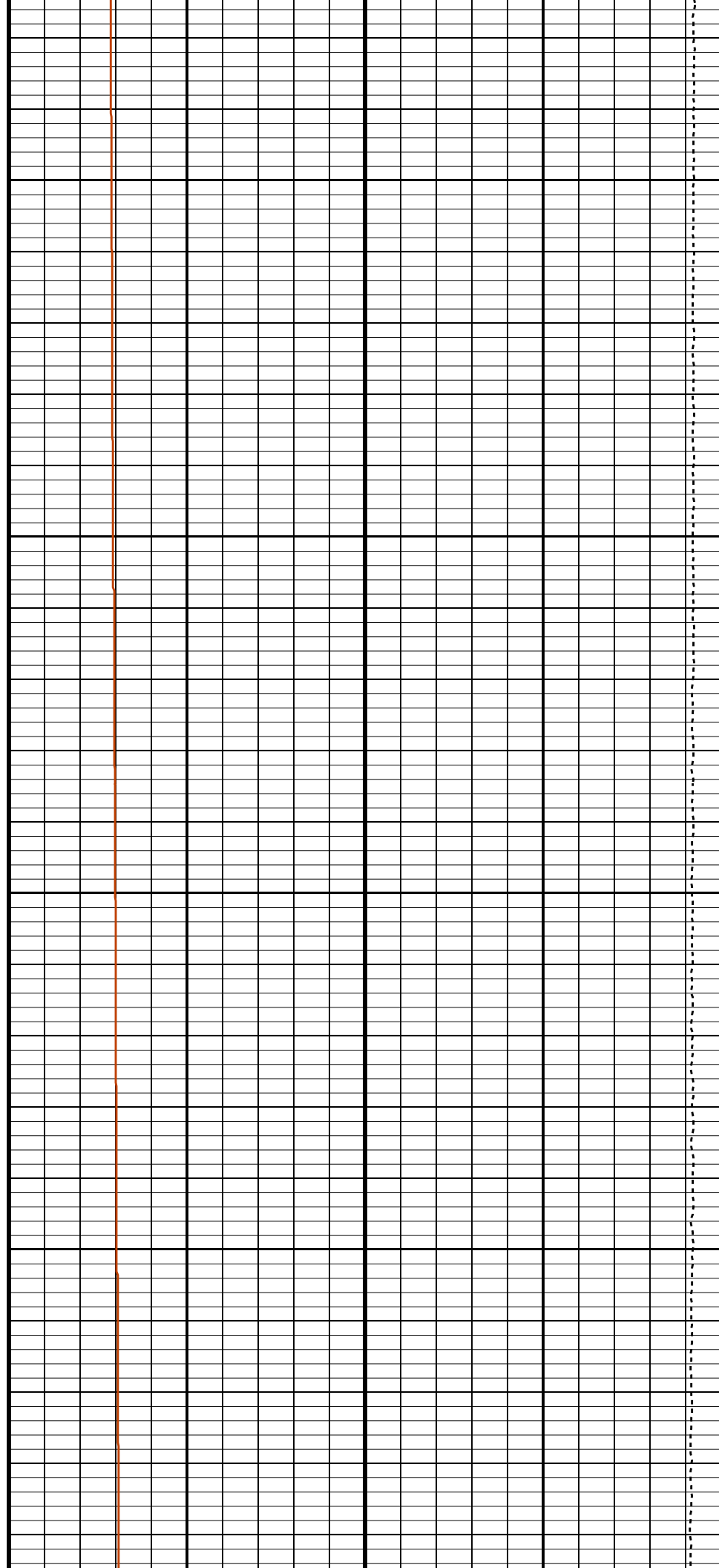
CCL (CCLU)		HTC Cartridge Temperature (HTEM)		Tension (TENS)	
-20	(----	20	(DEGE	220	10000
Gamma Ray (GR)					
0	(CAP)	150			

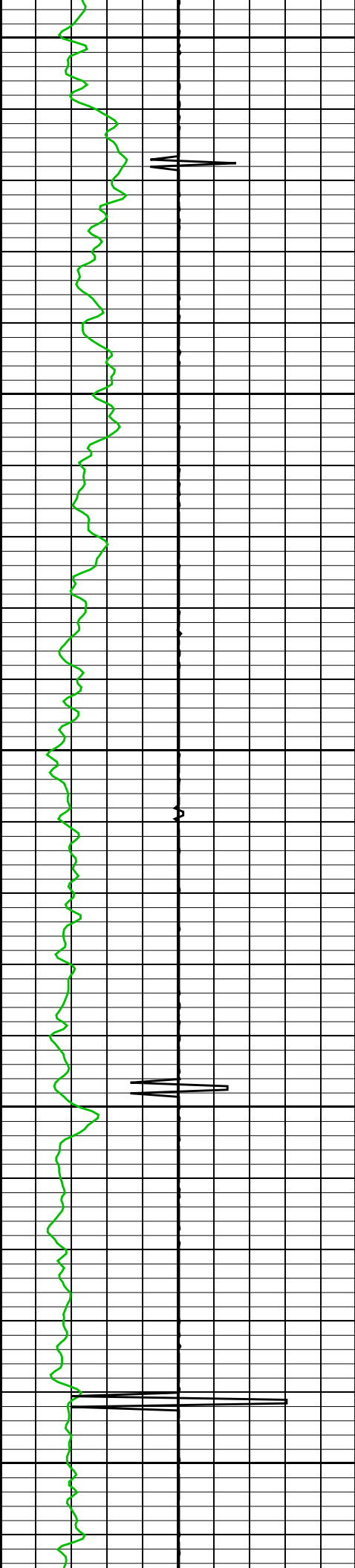




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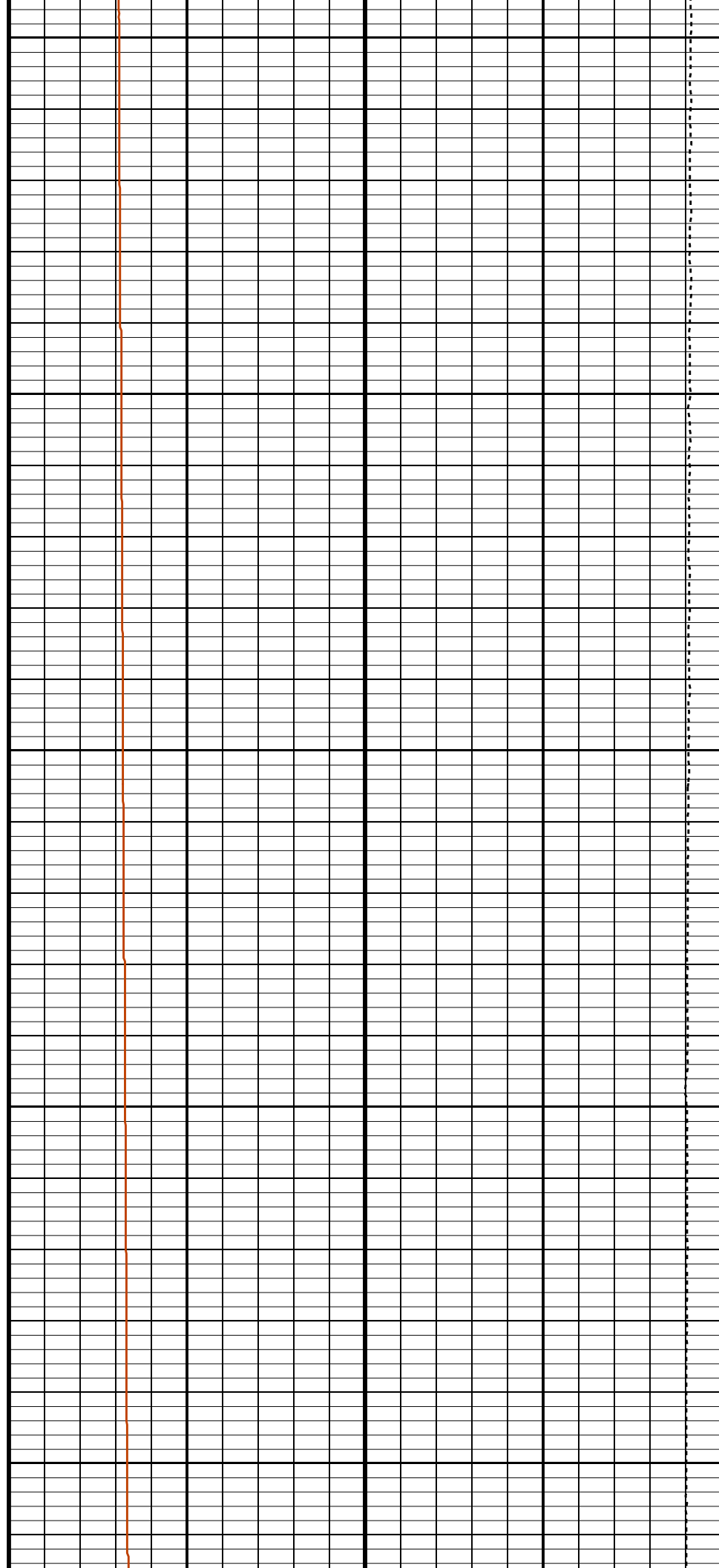
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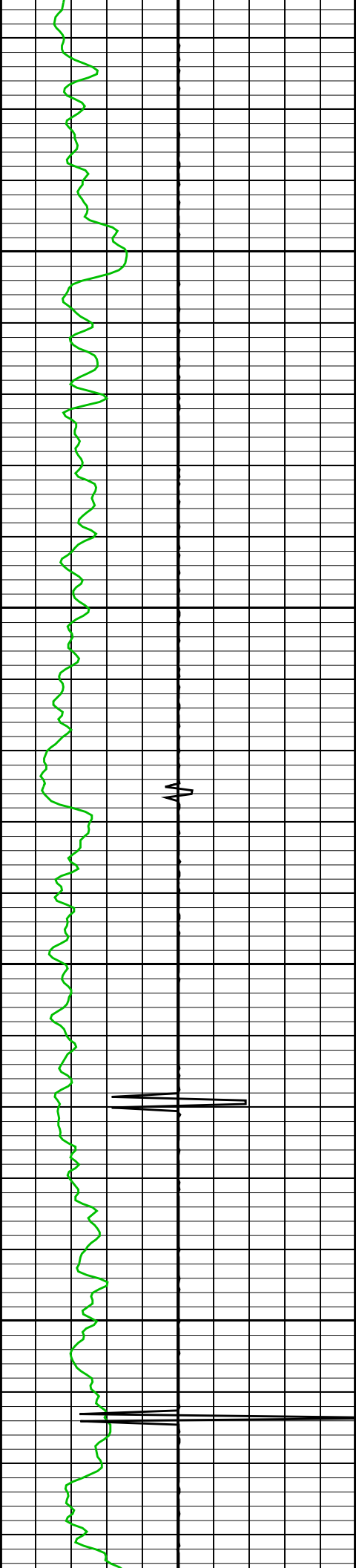




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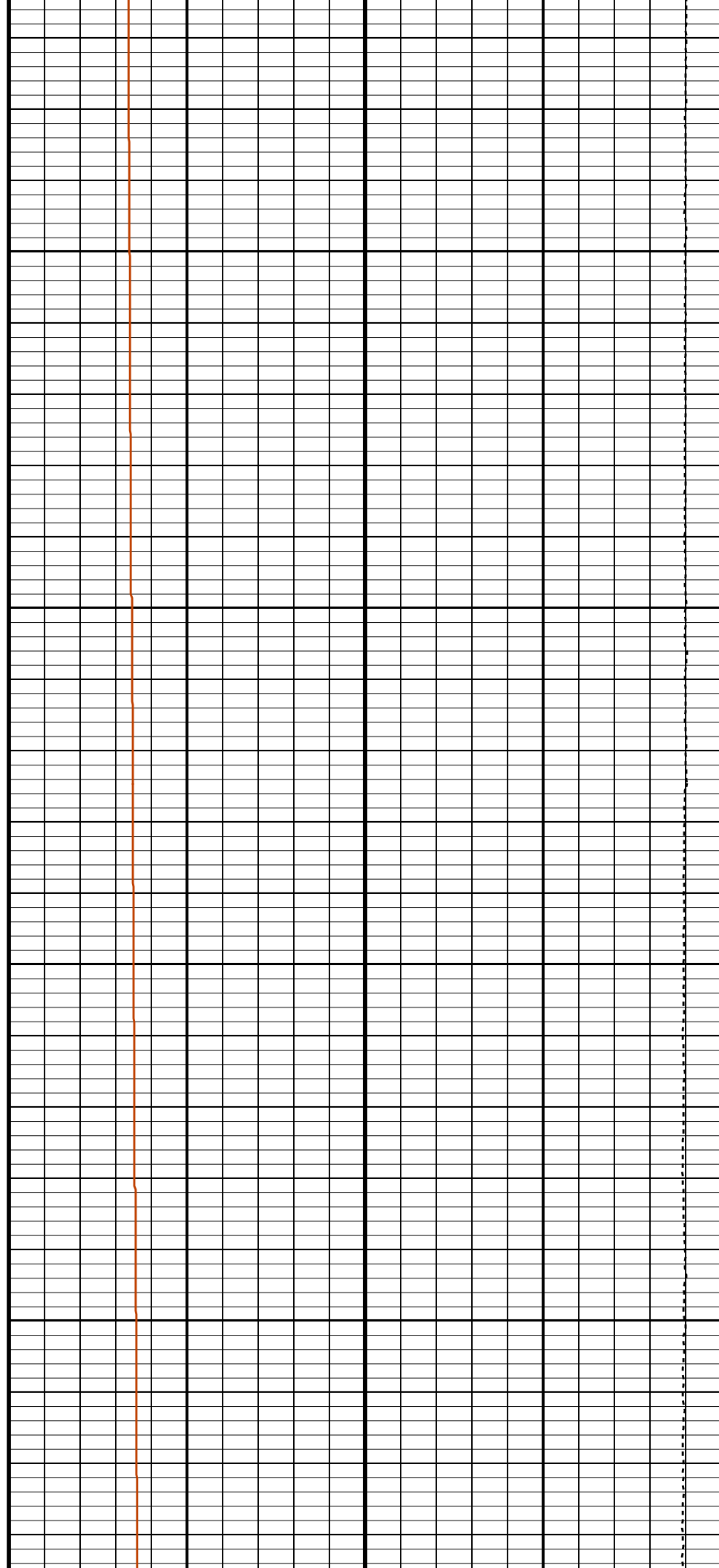
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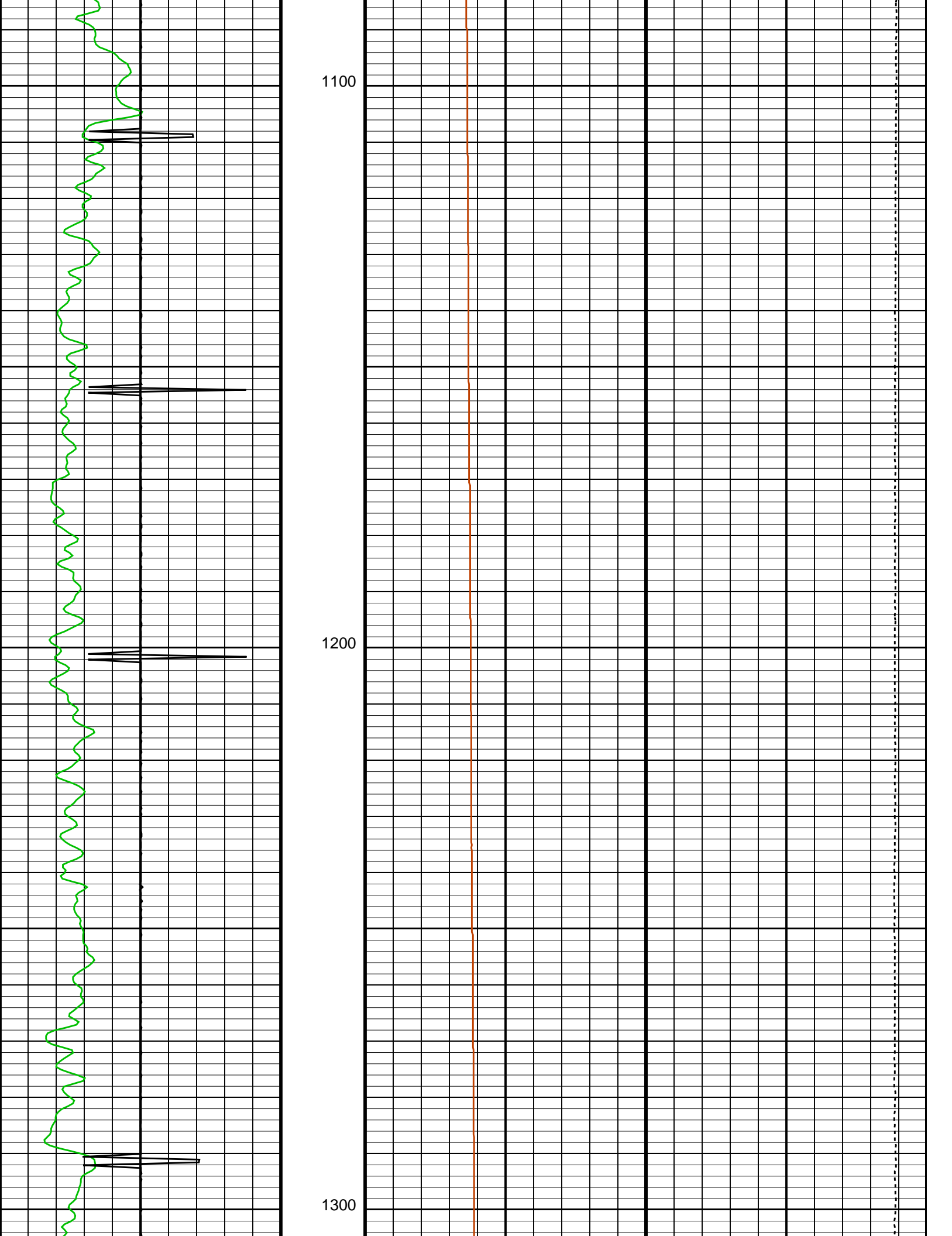


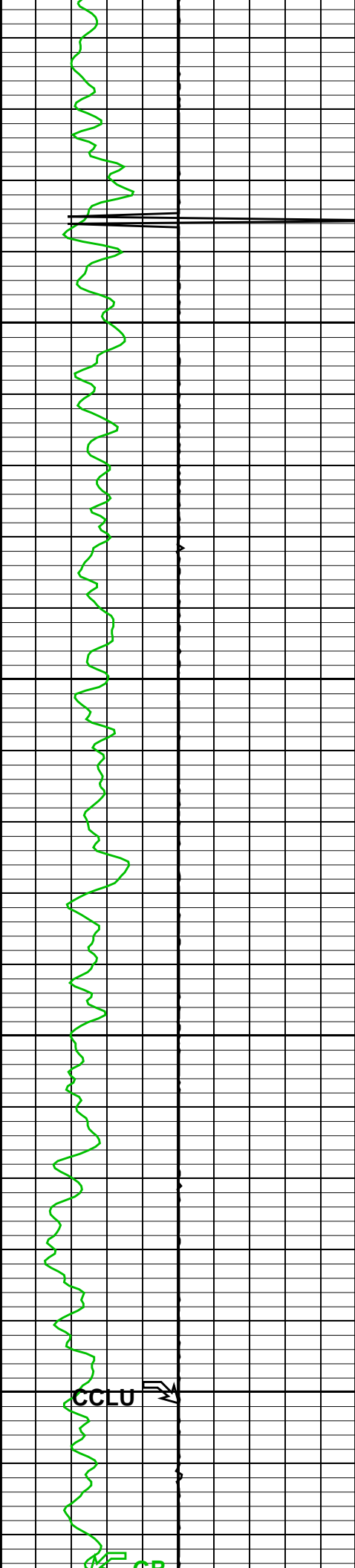


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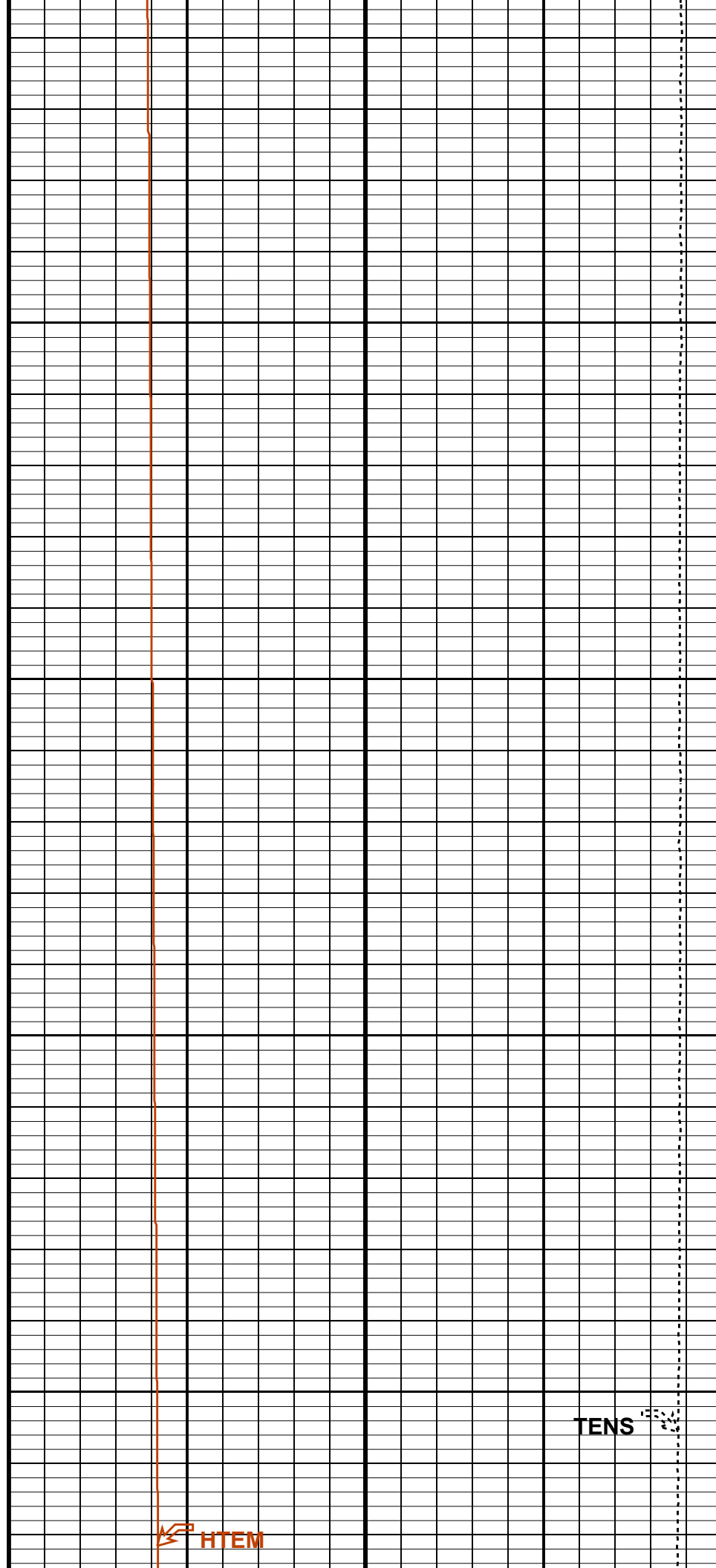






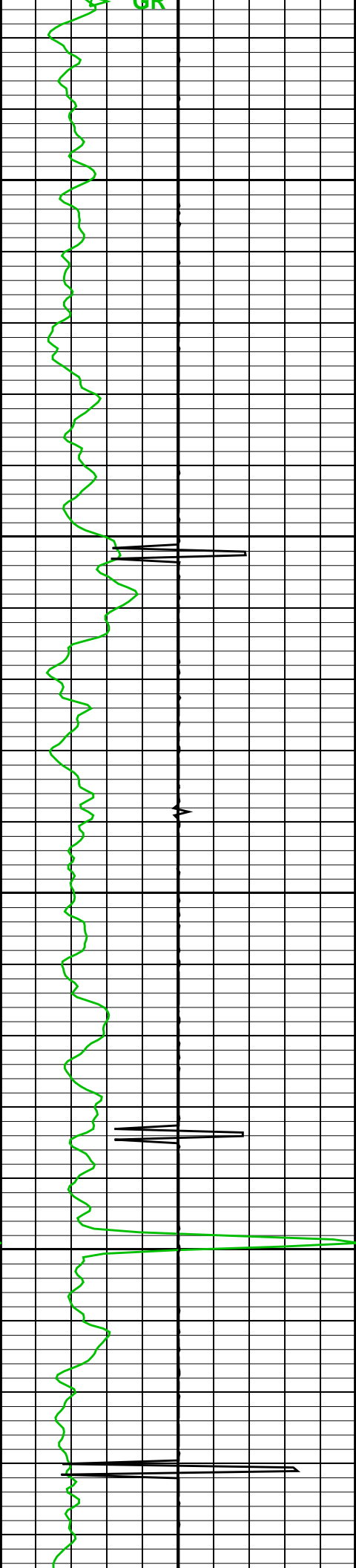
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1500



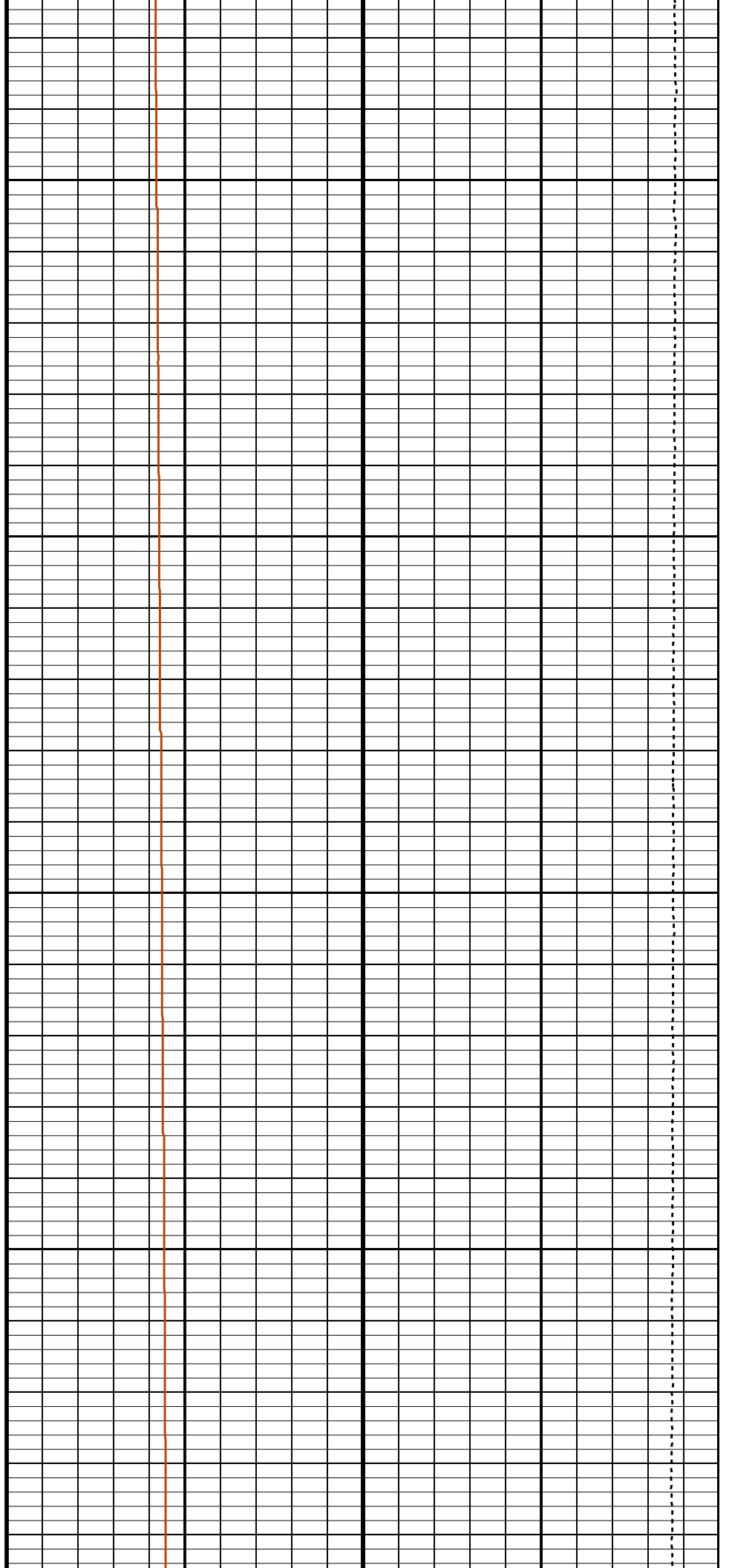
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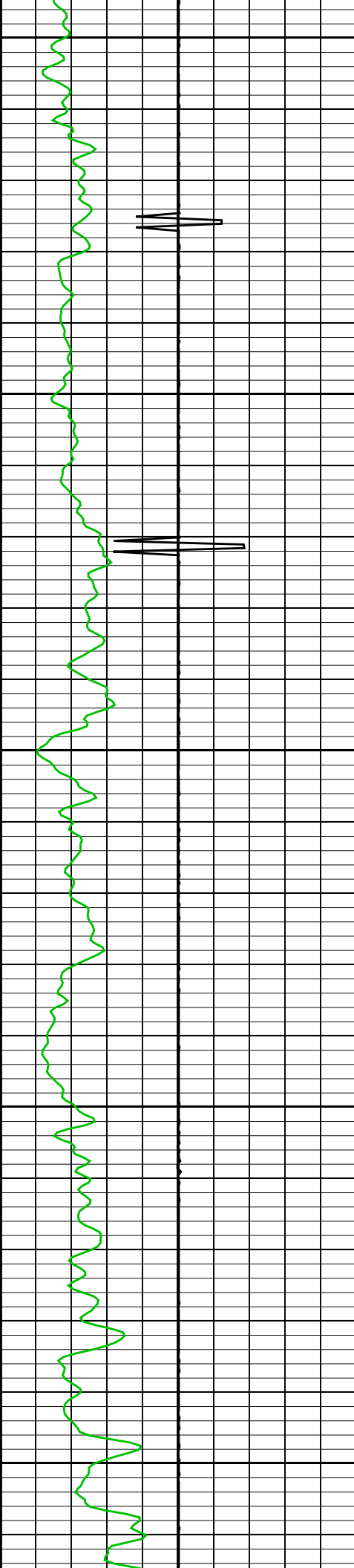
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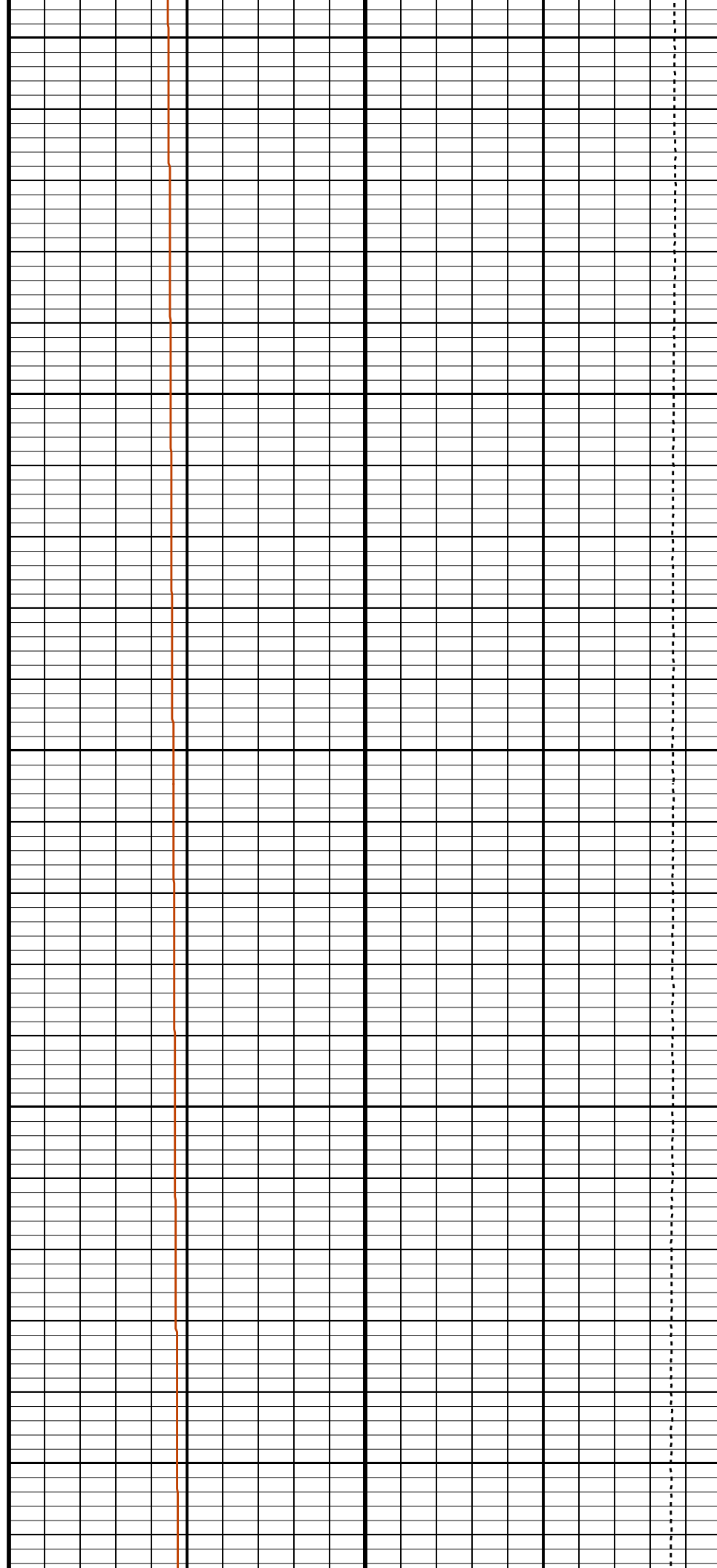
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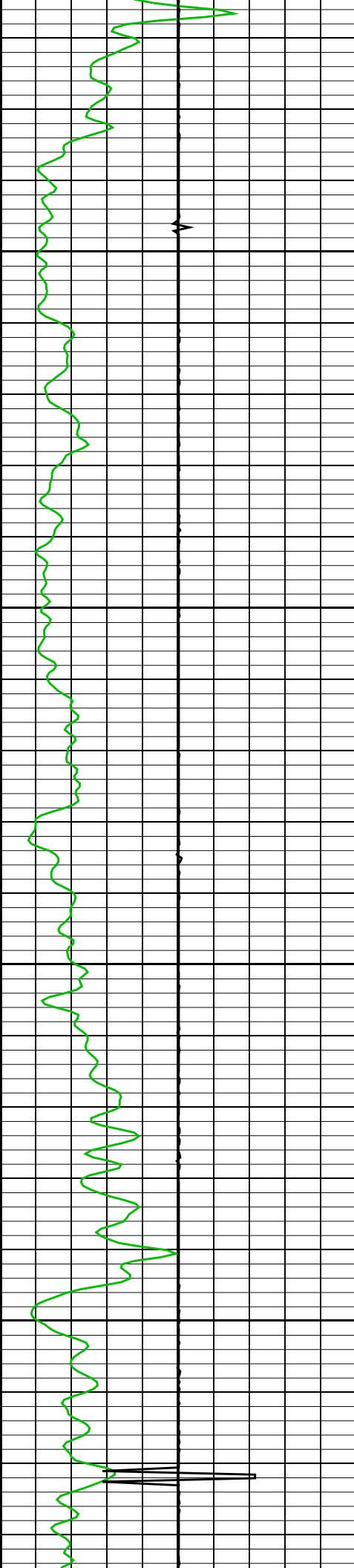




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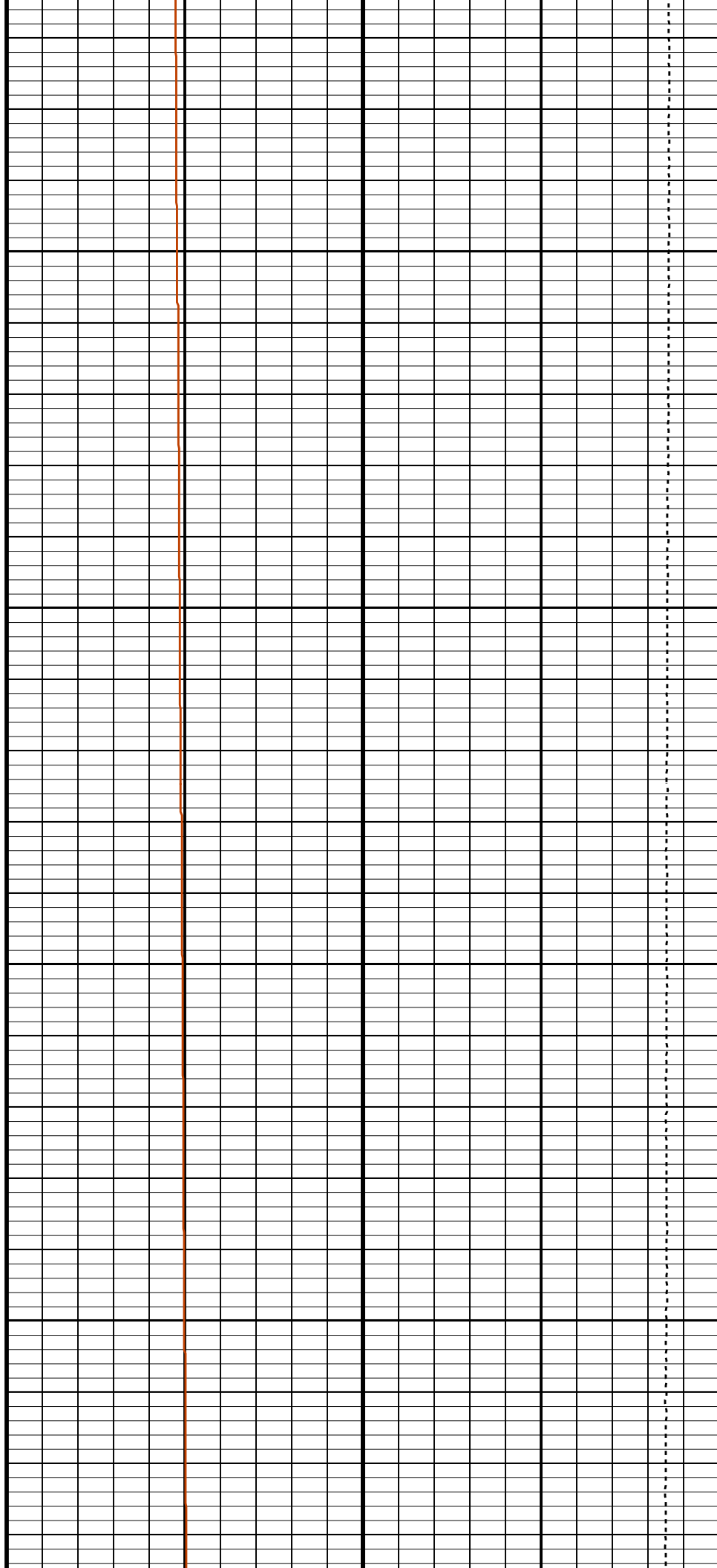
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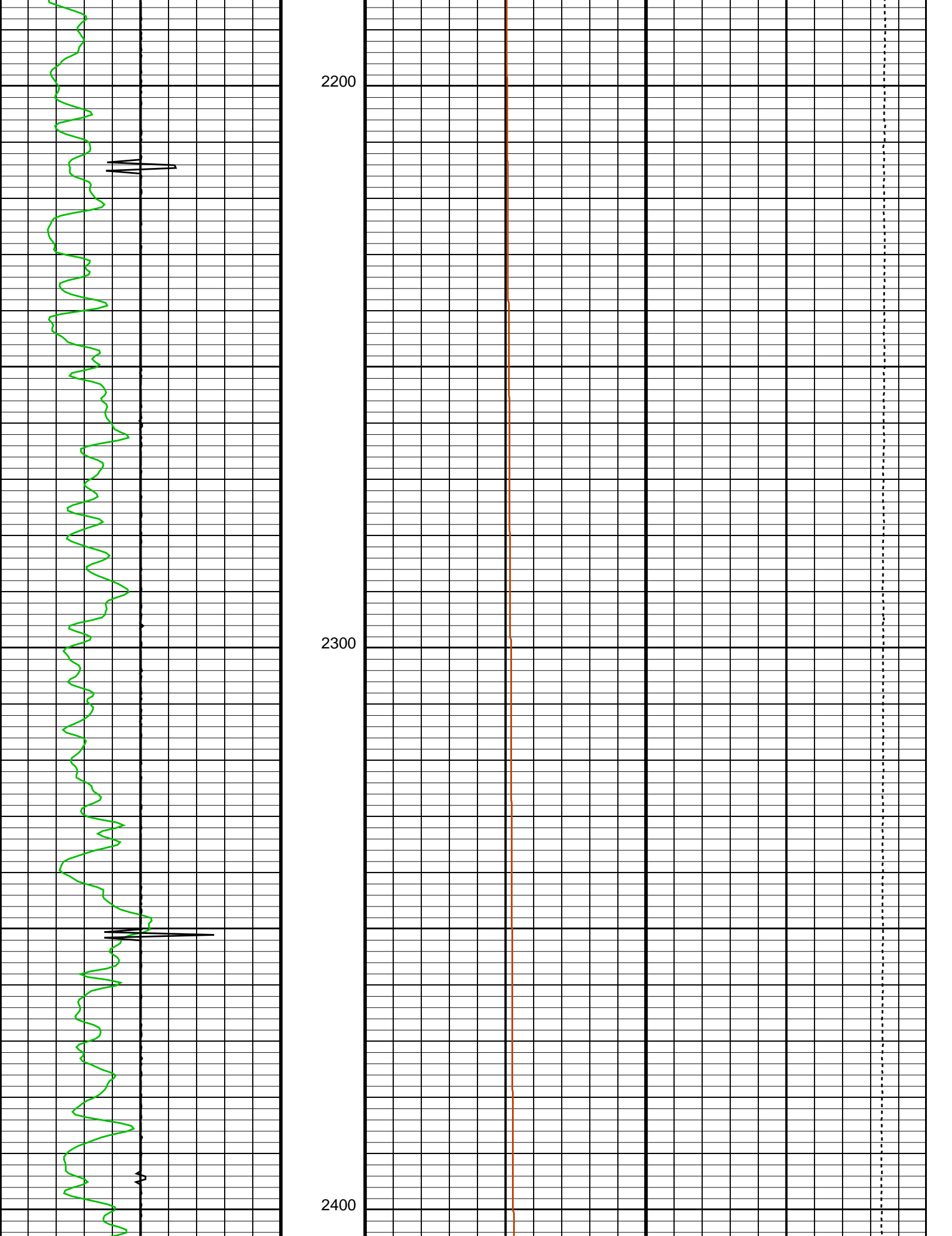


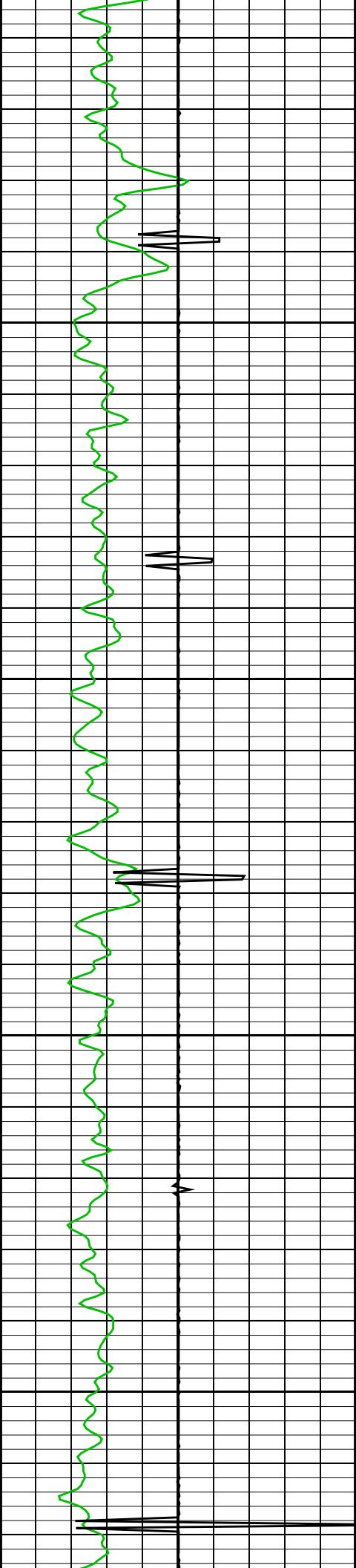


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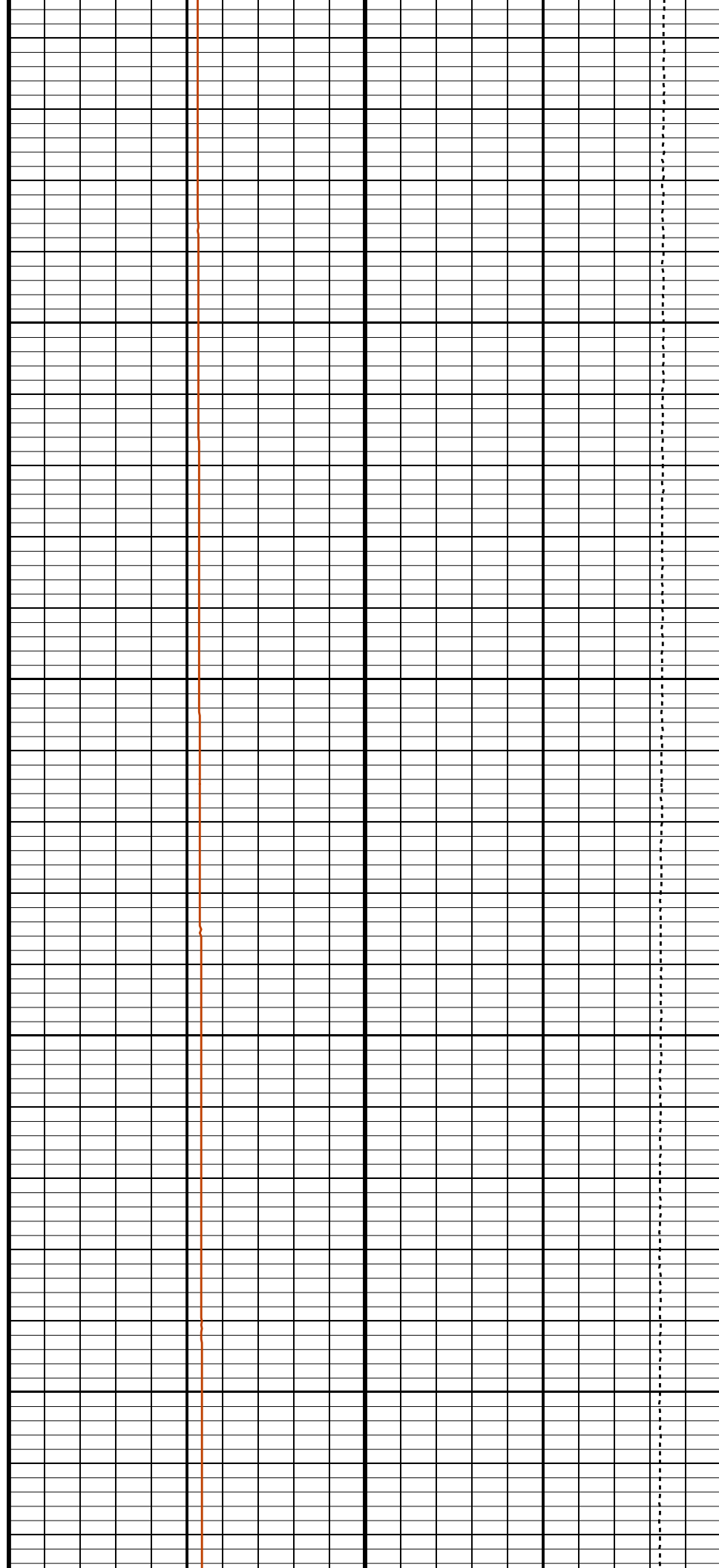


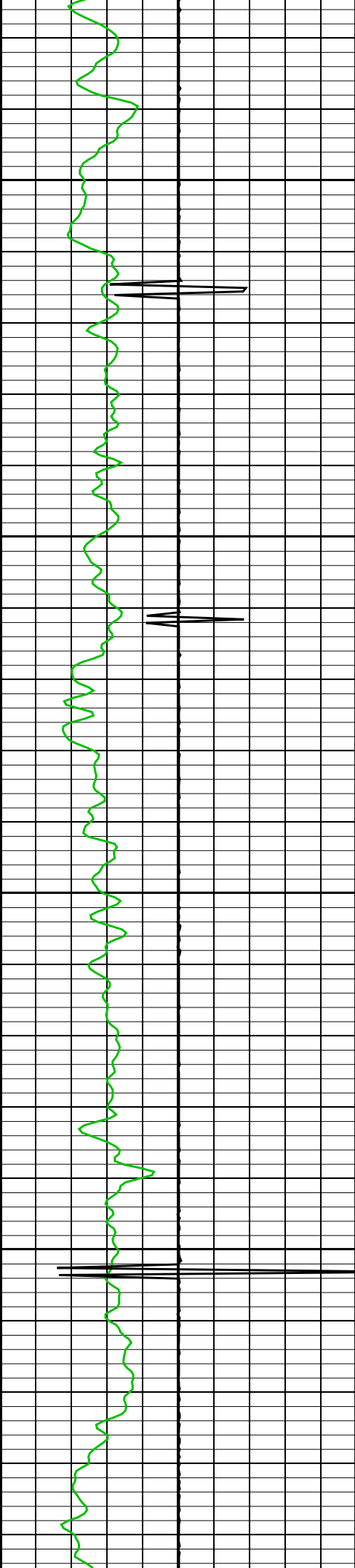




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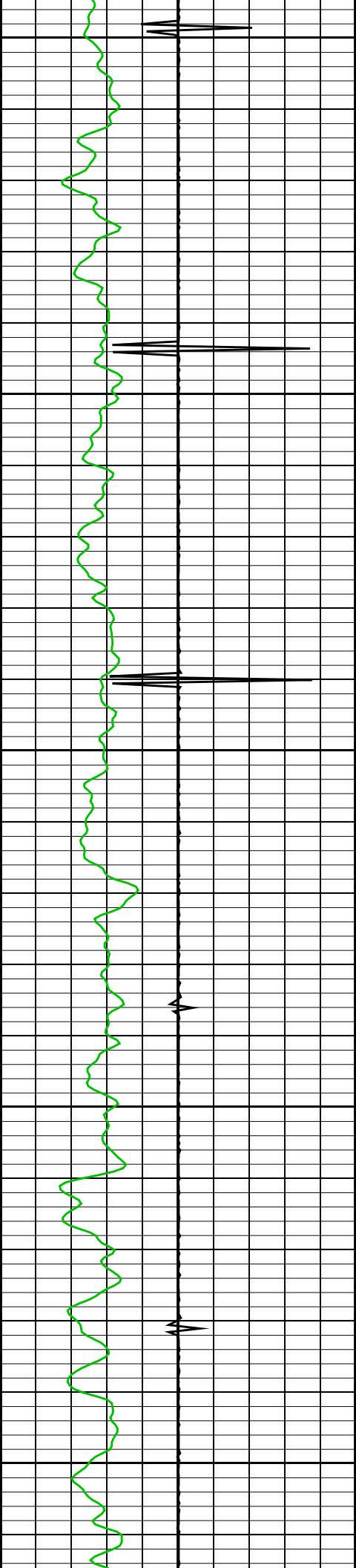
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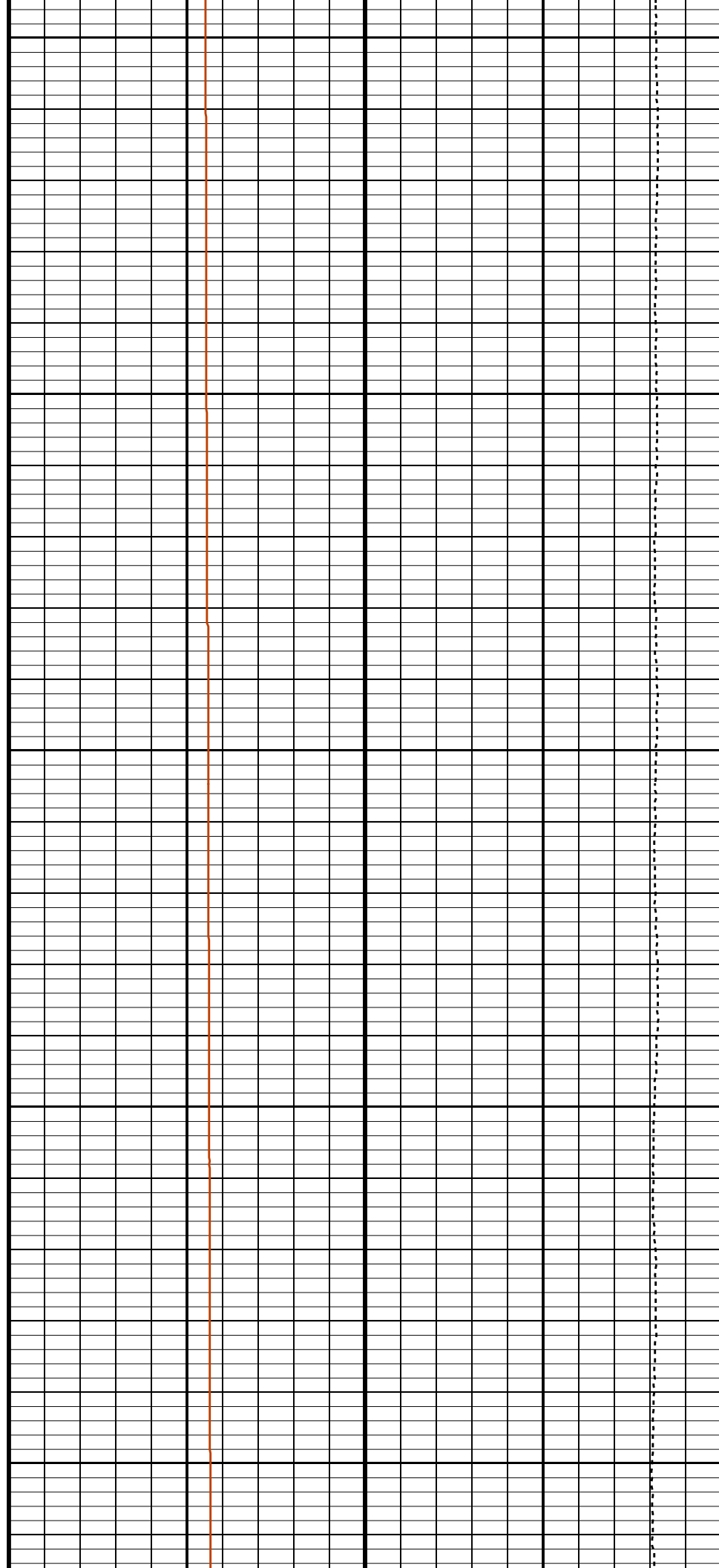
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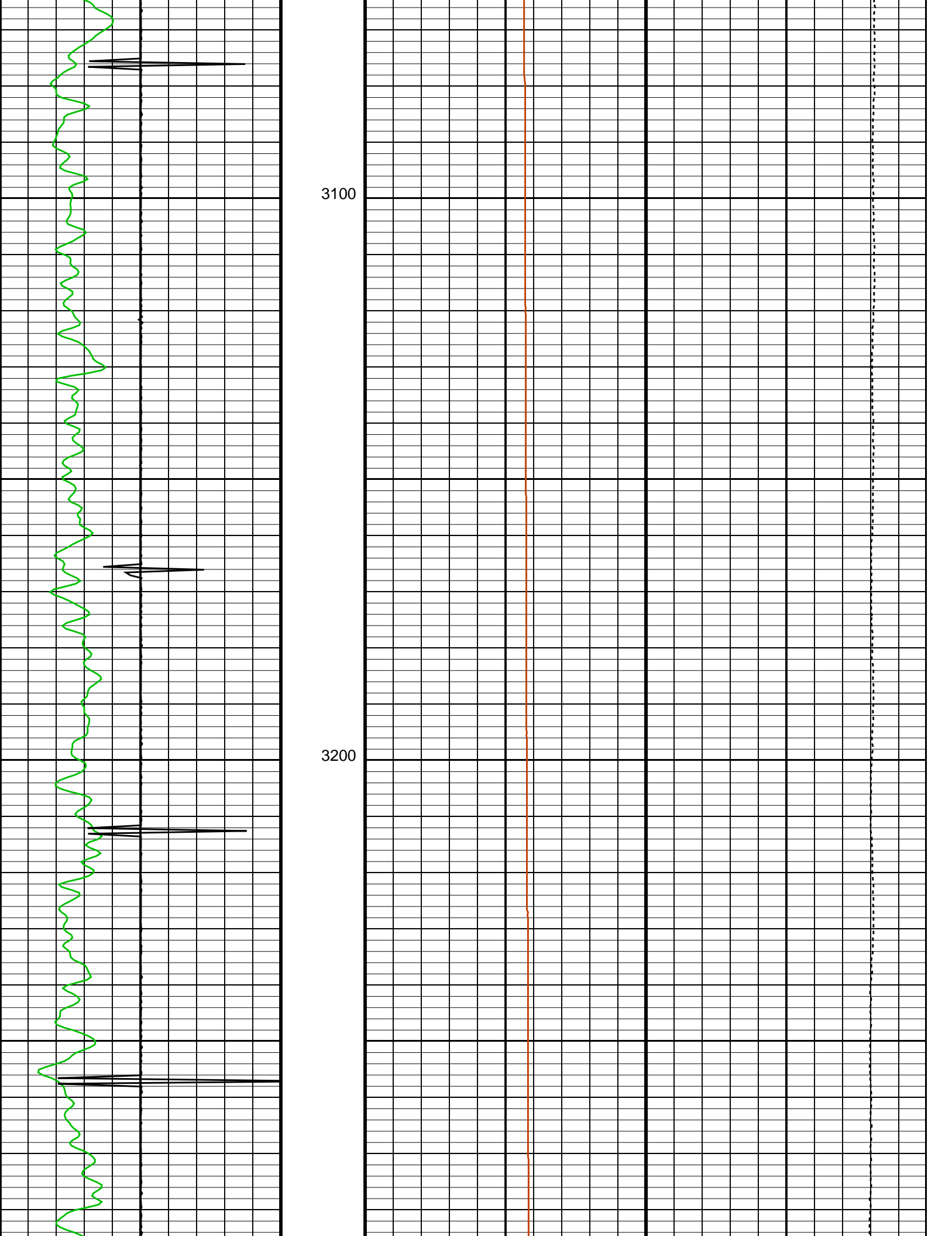
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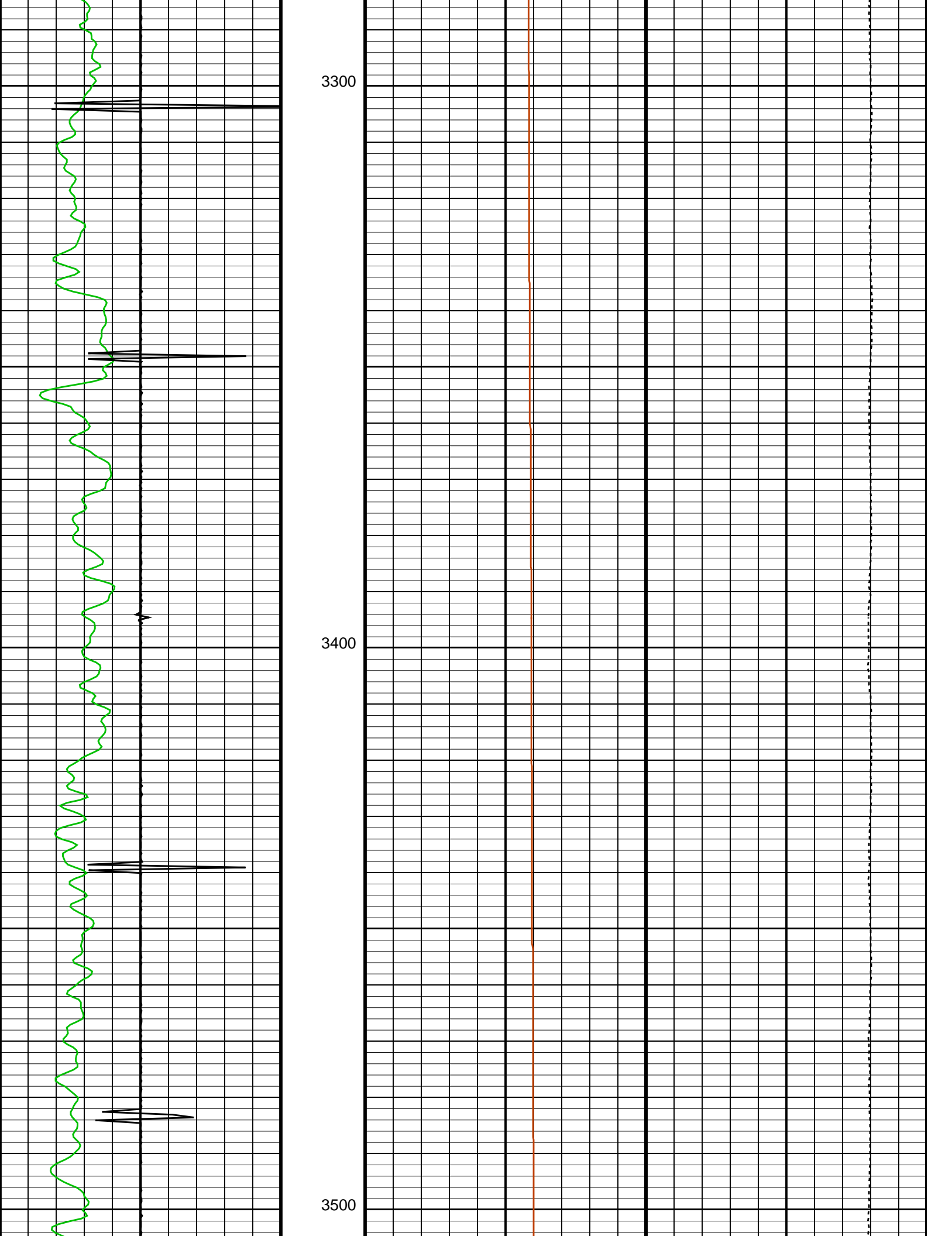


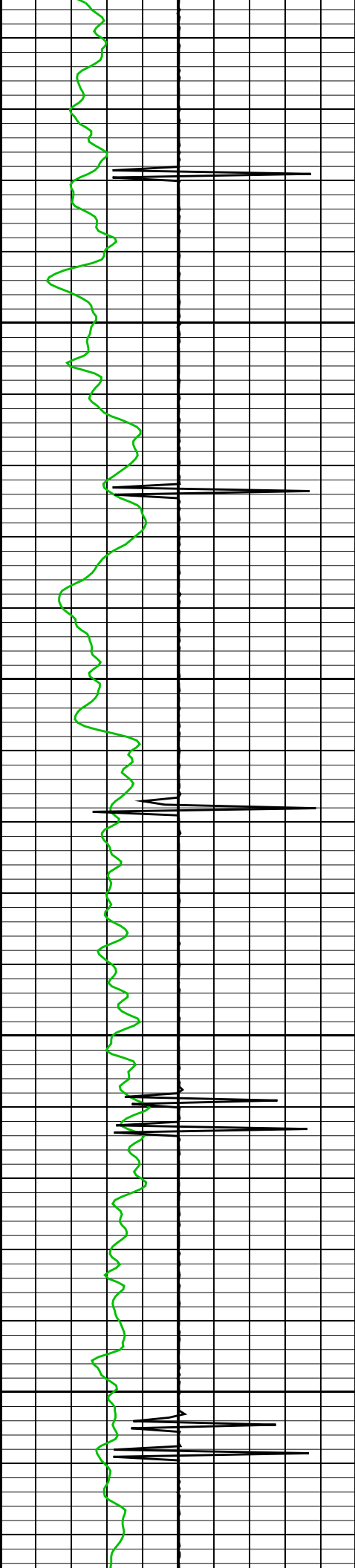
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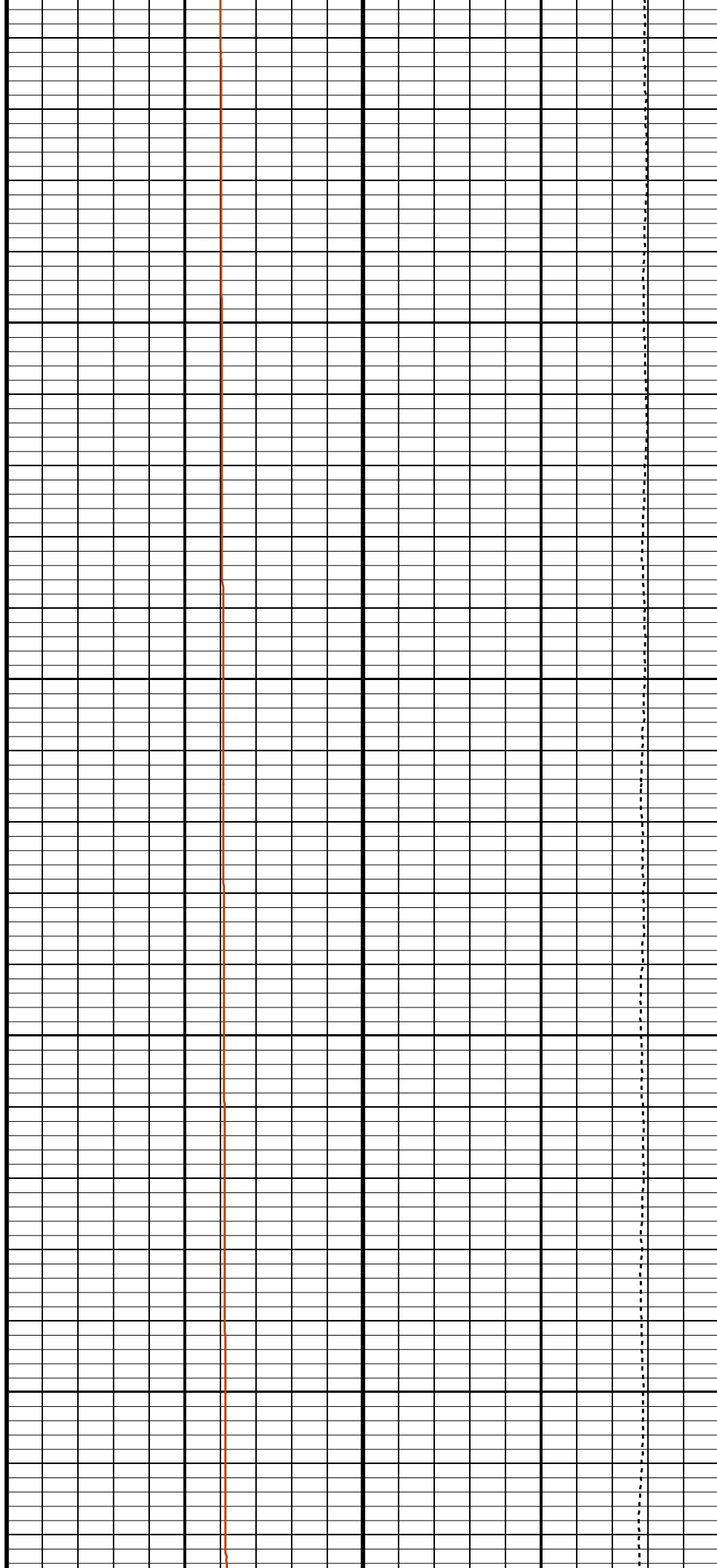


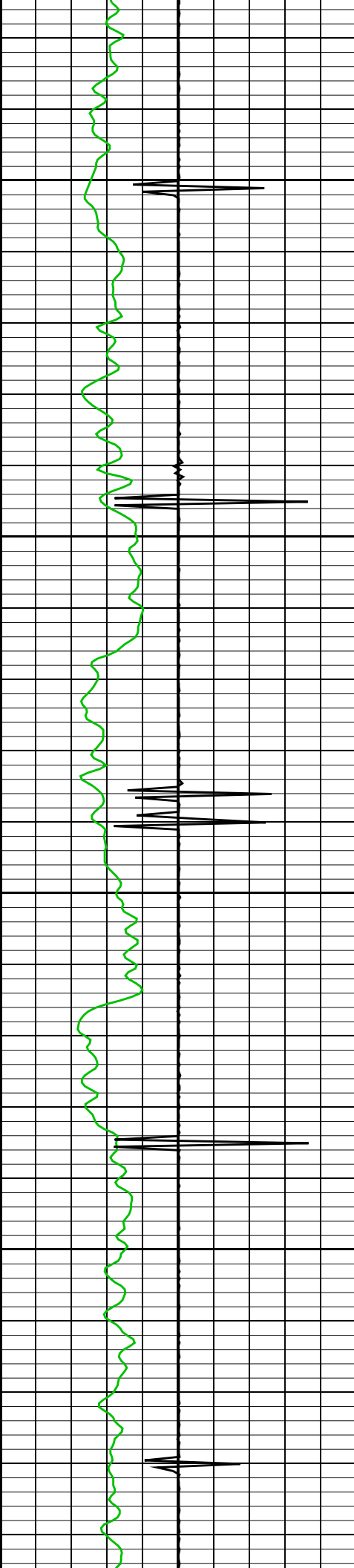




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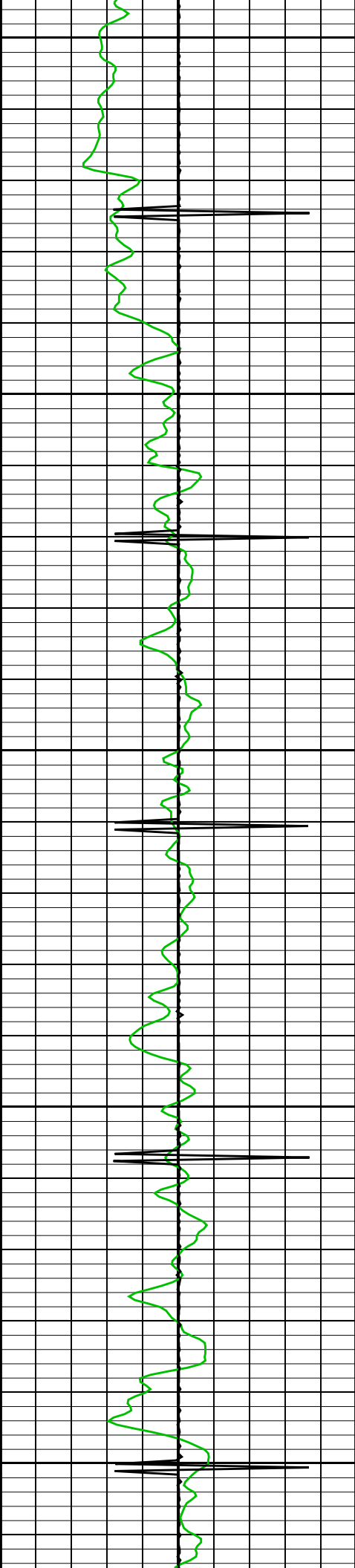
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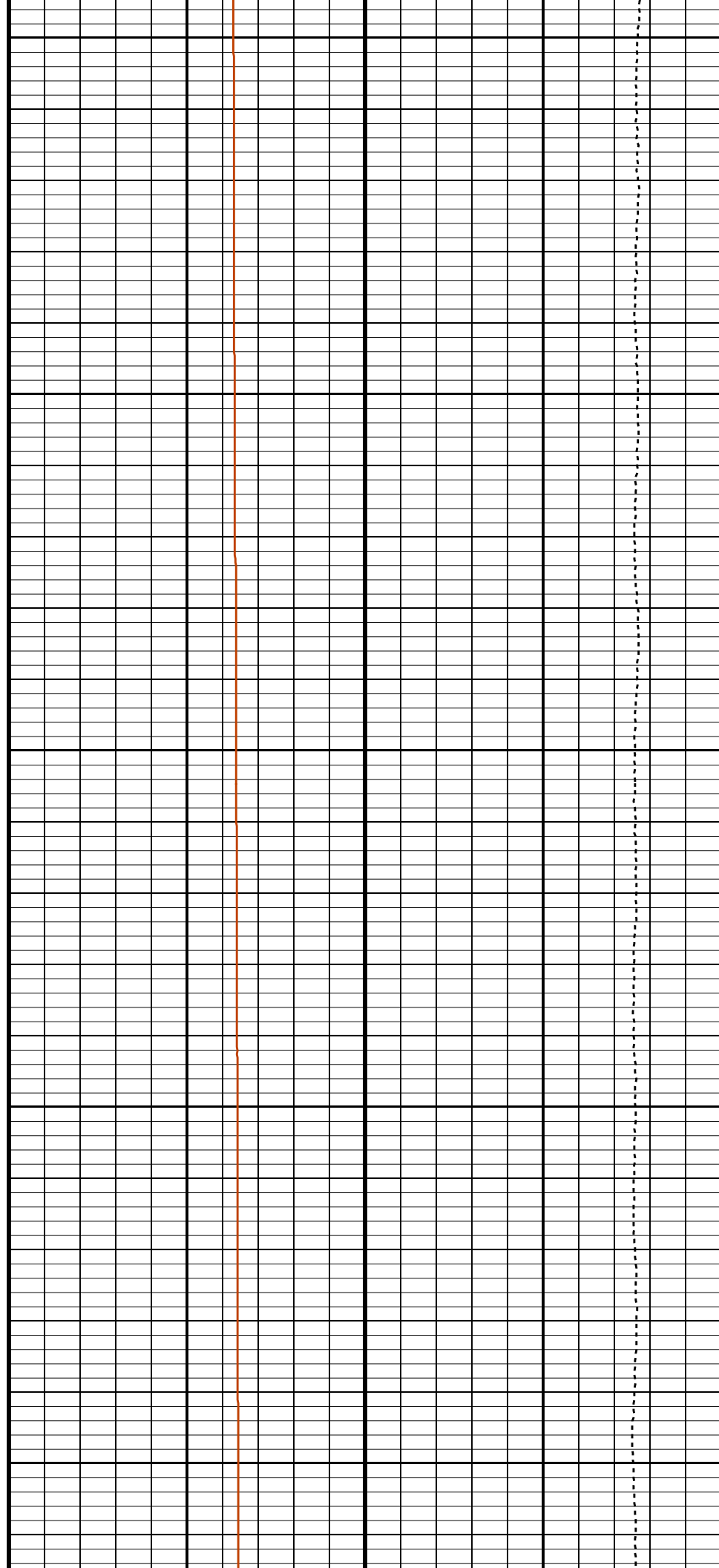
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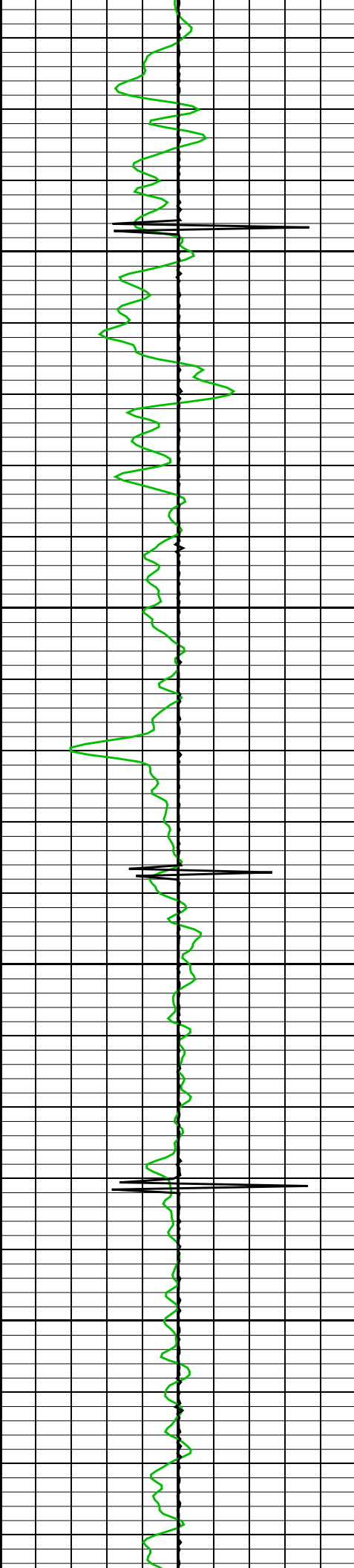
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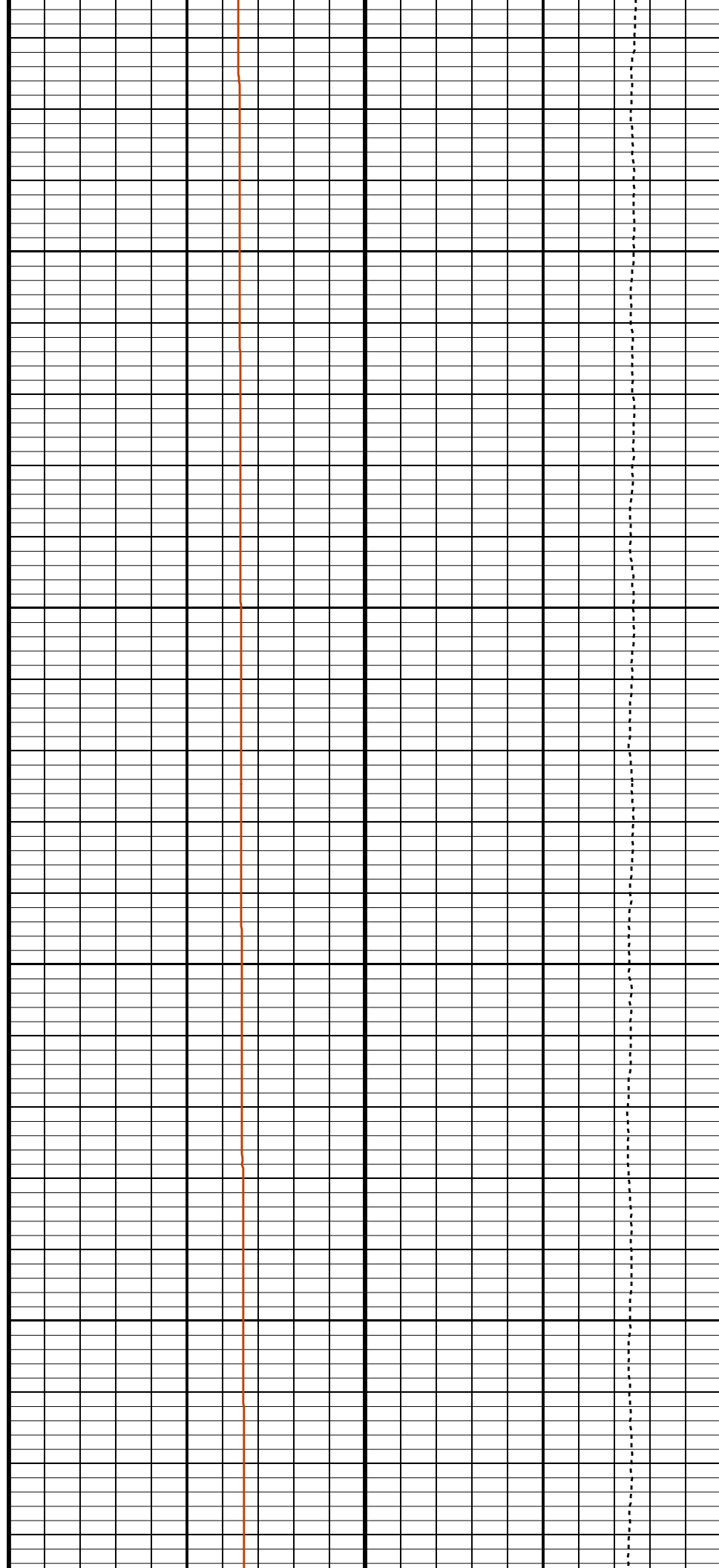
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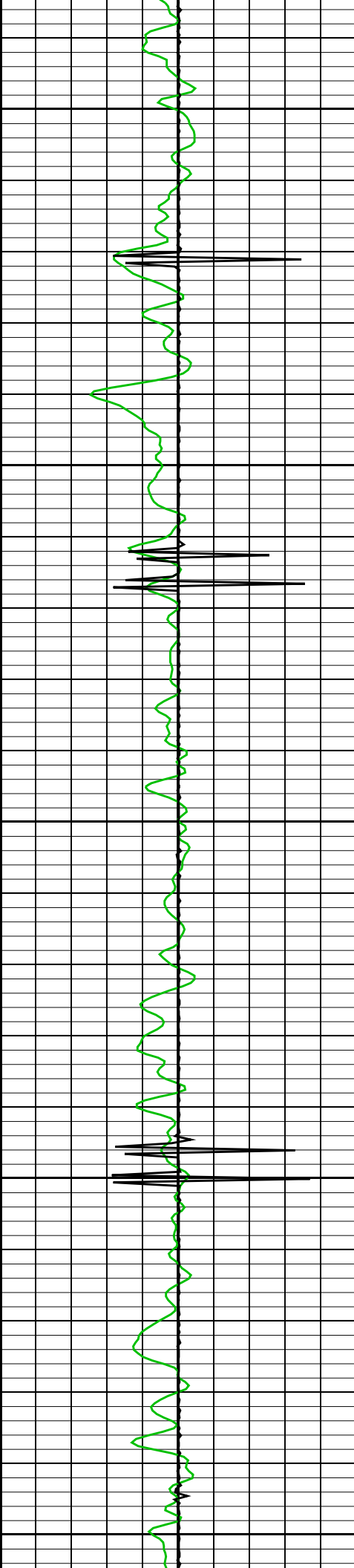




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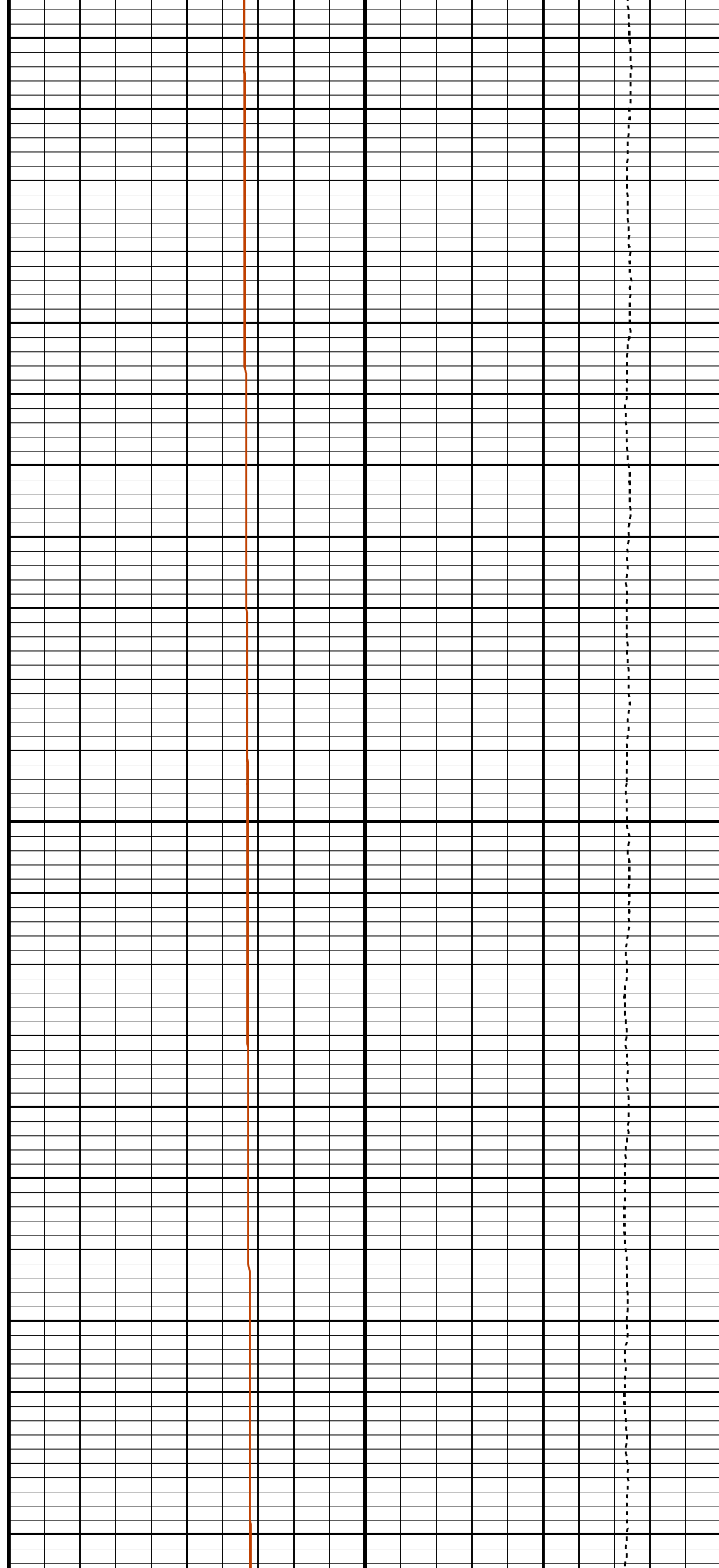


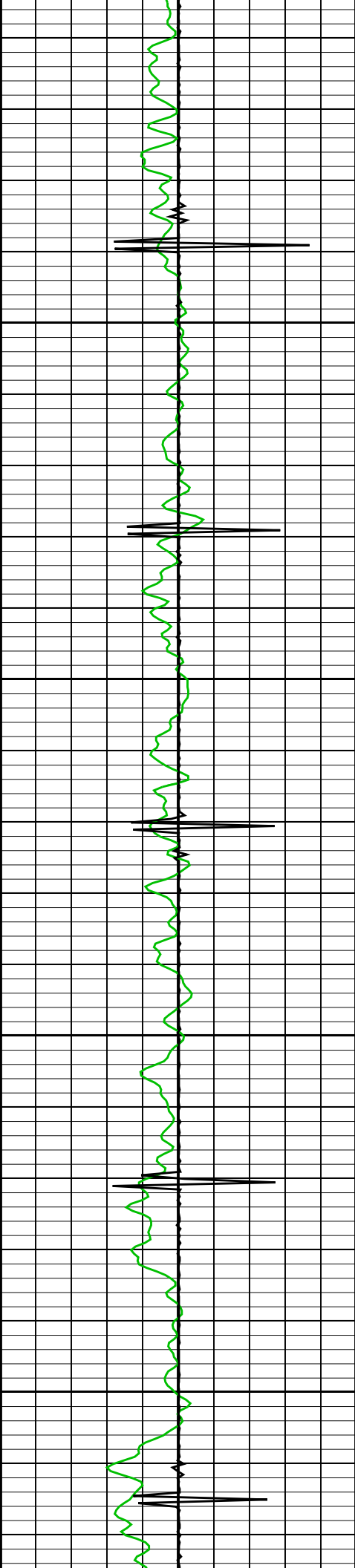


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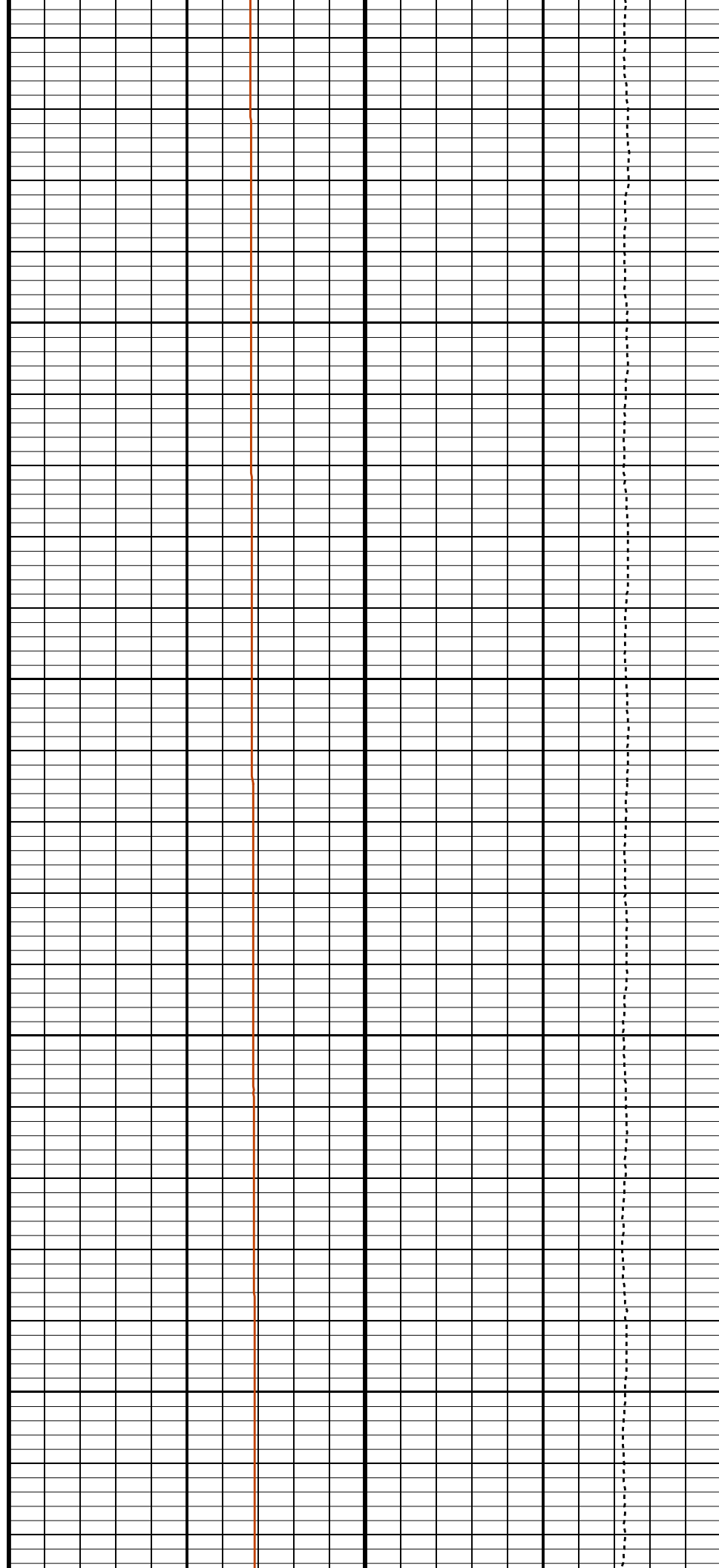
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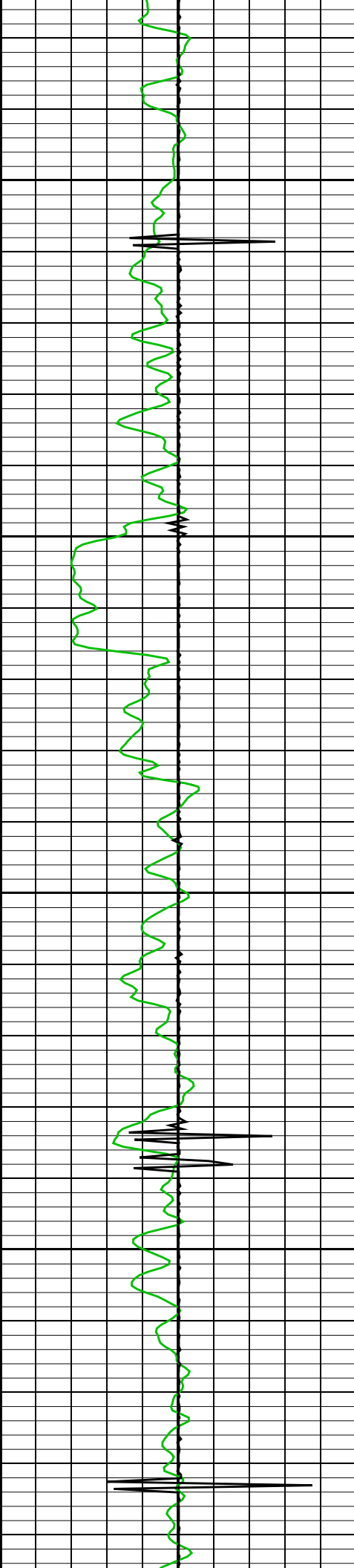




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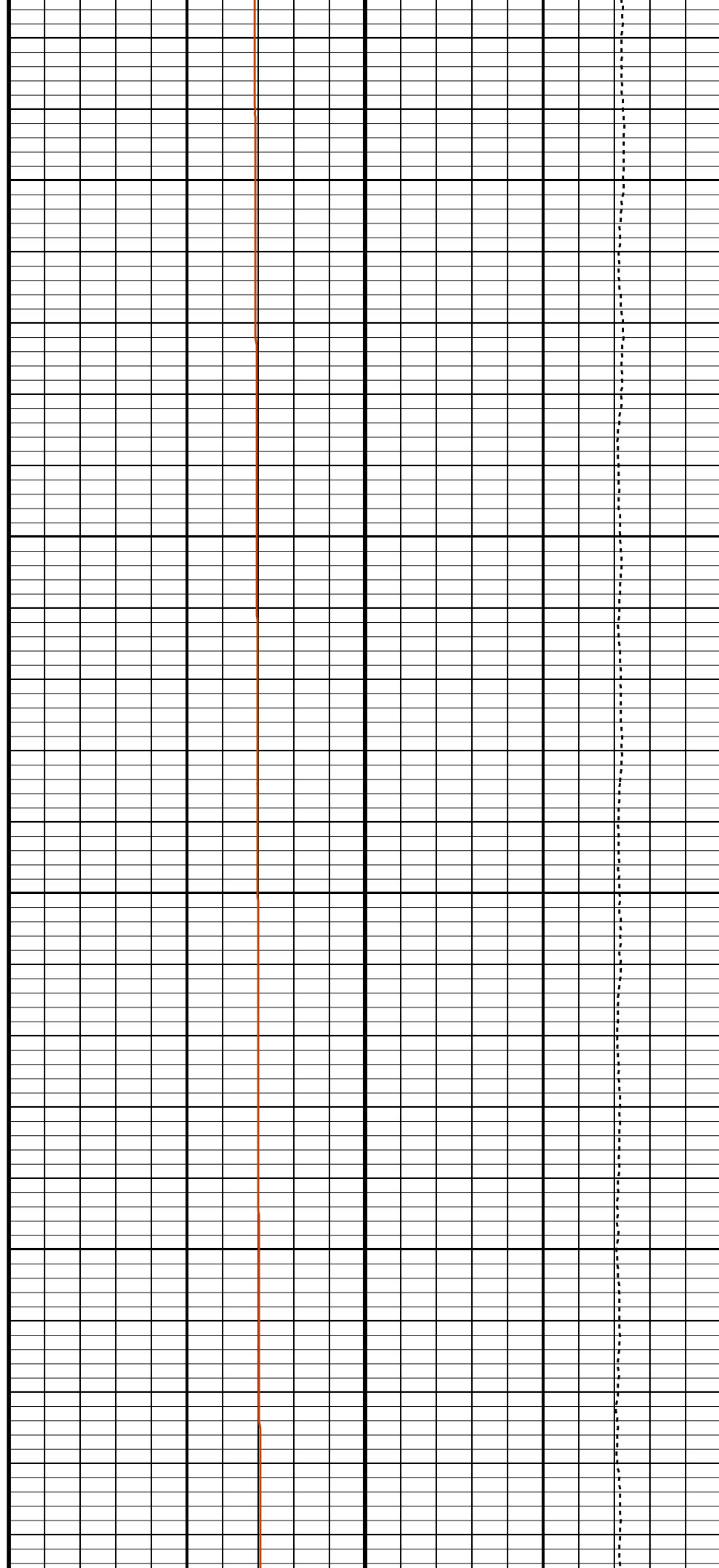
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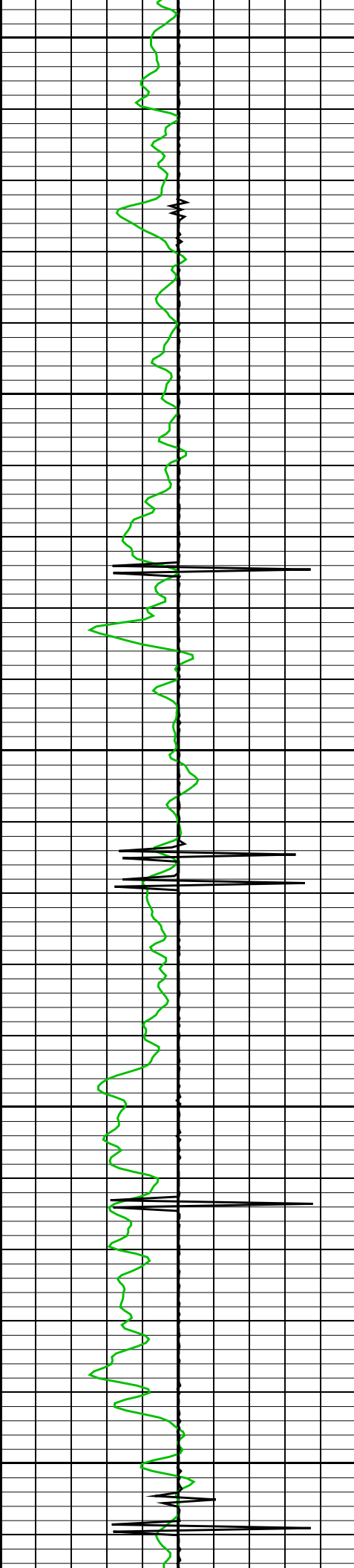




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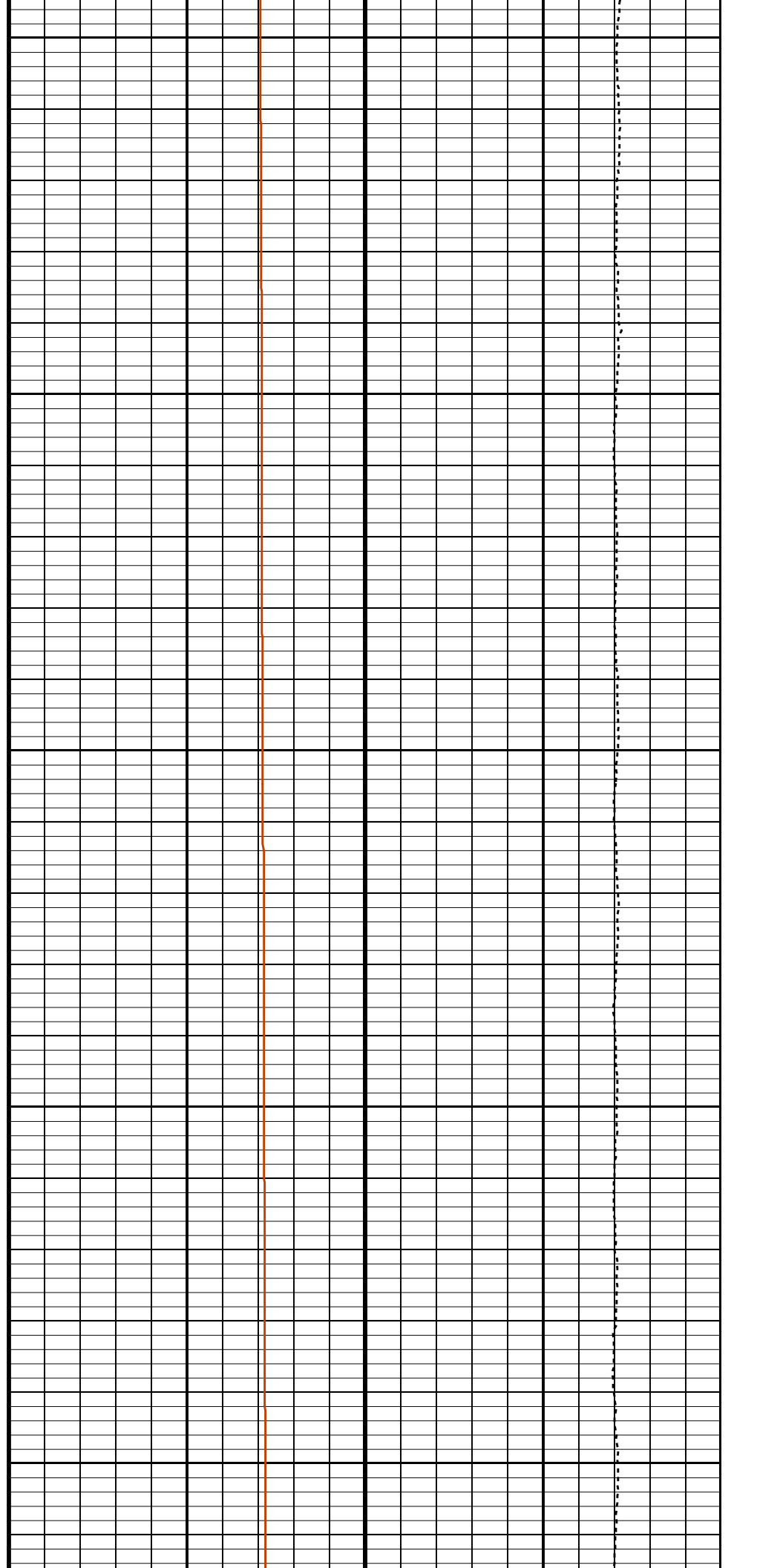
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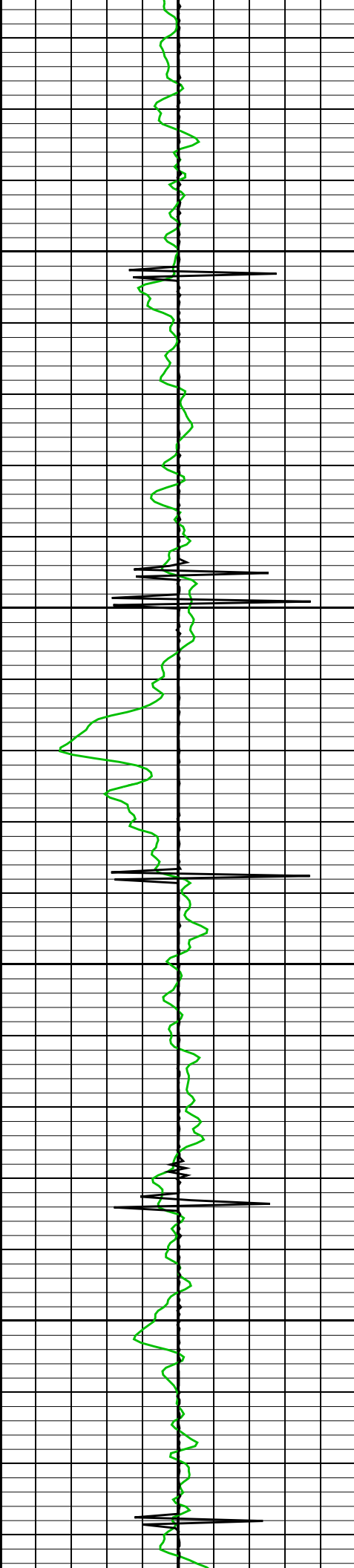




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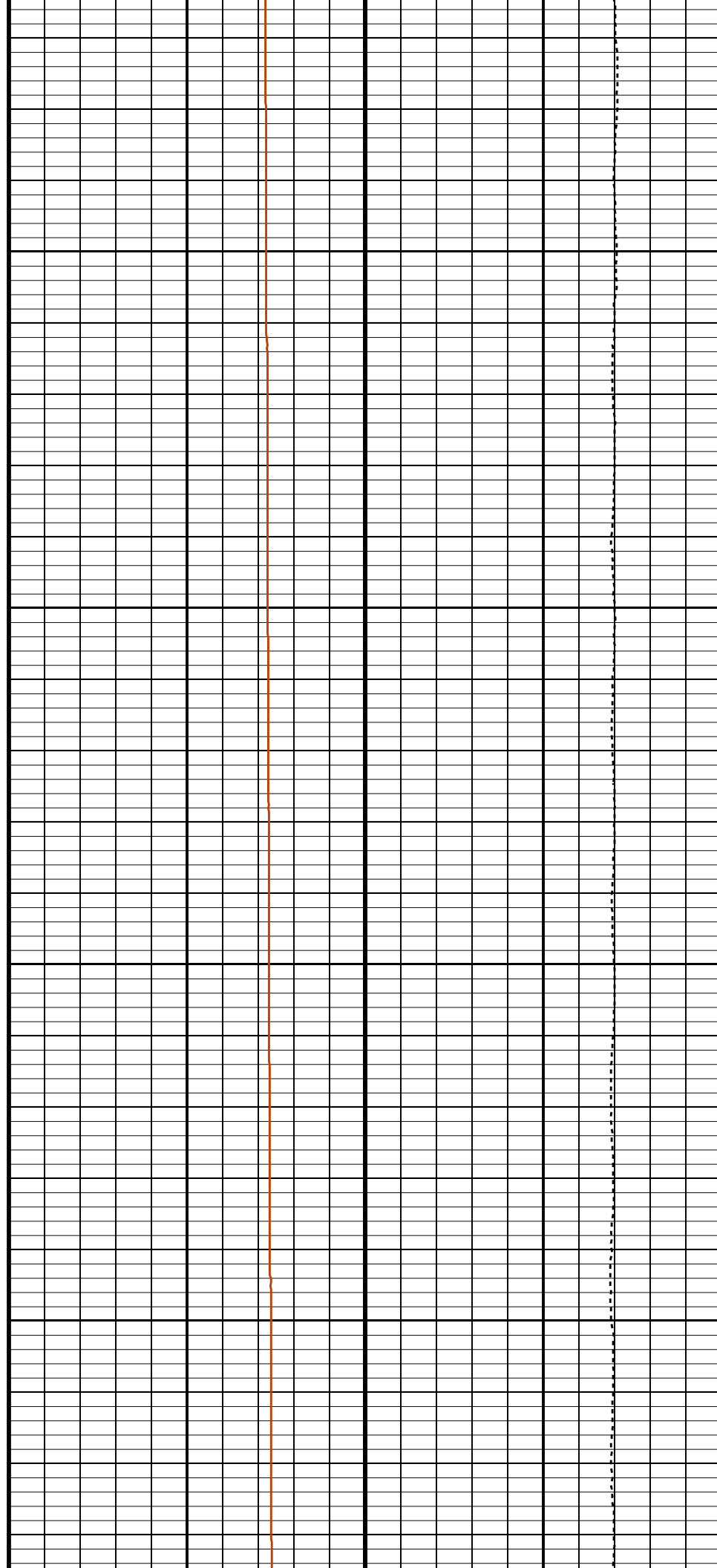
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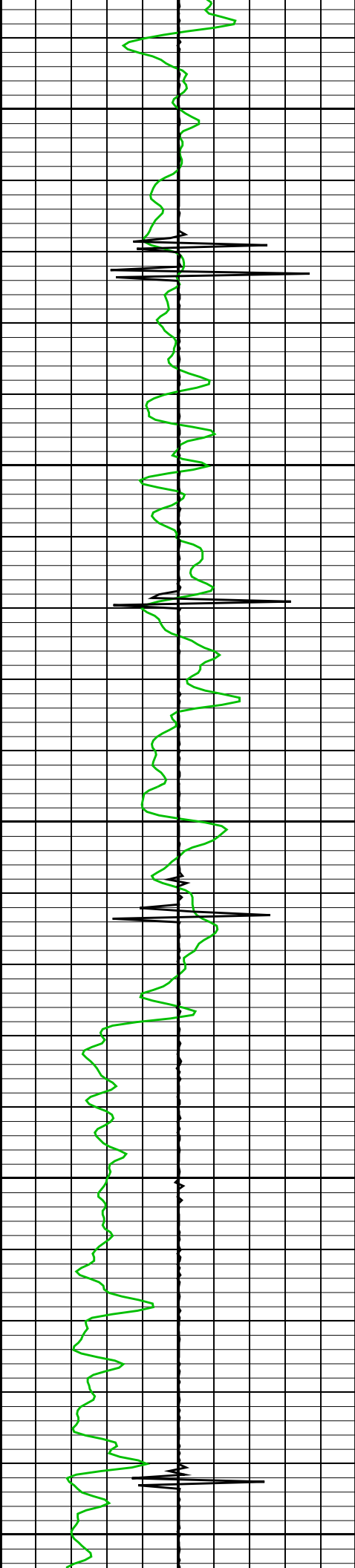




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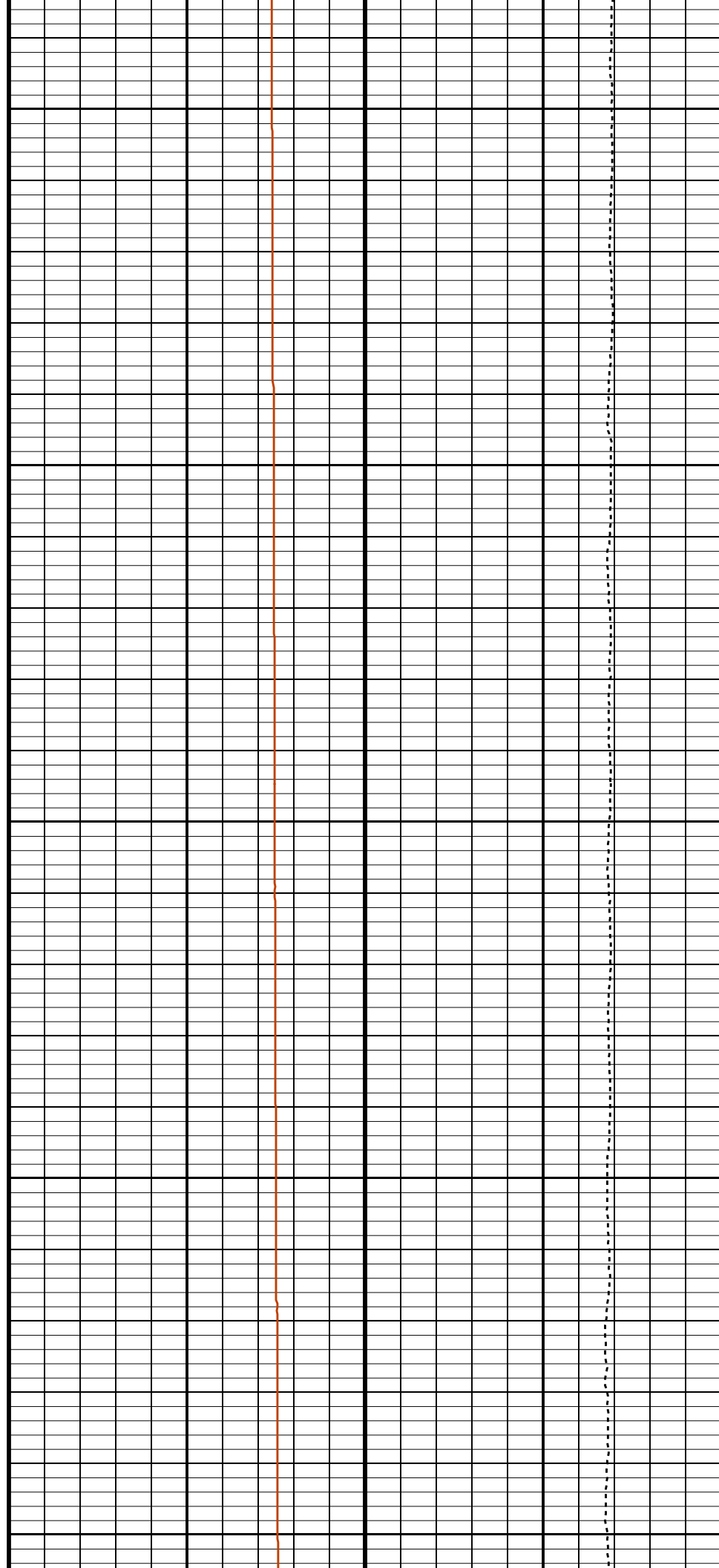


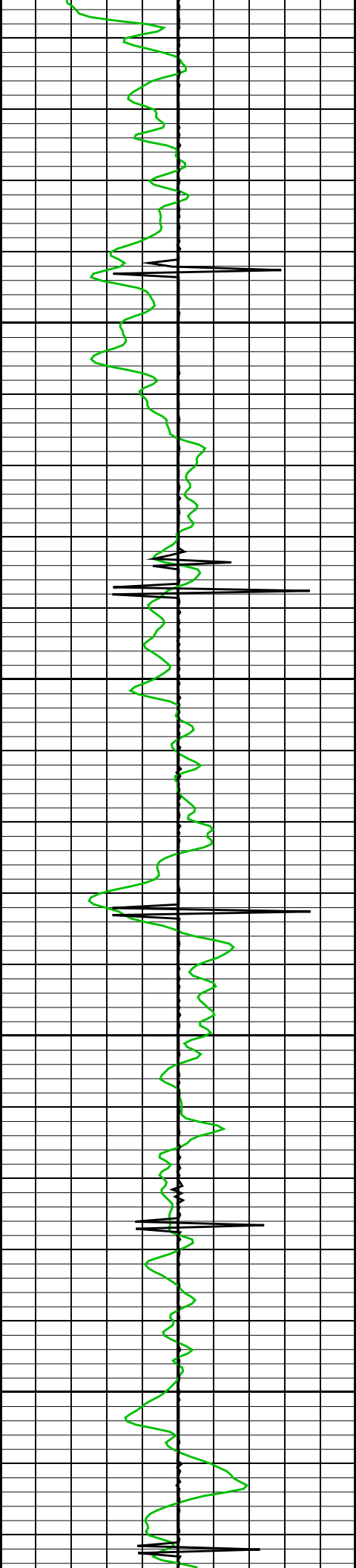


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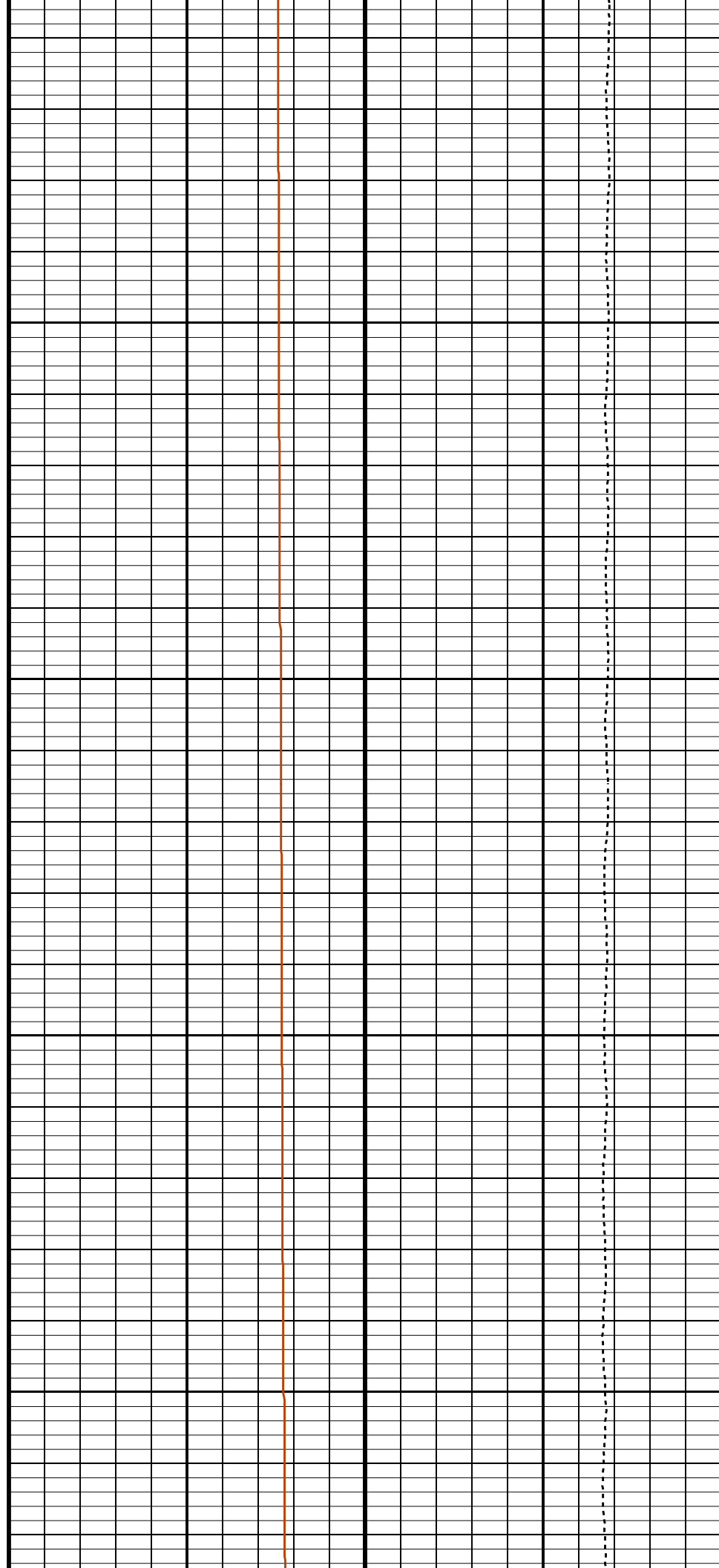
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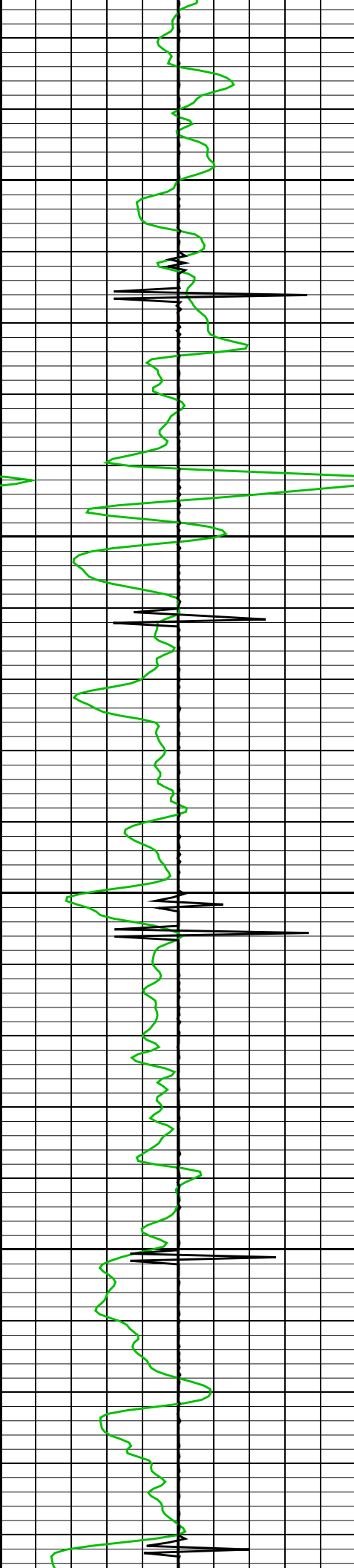




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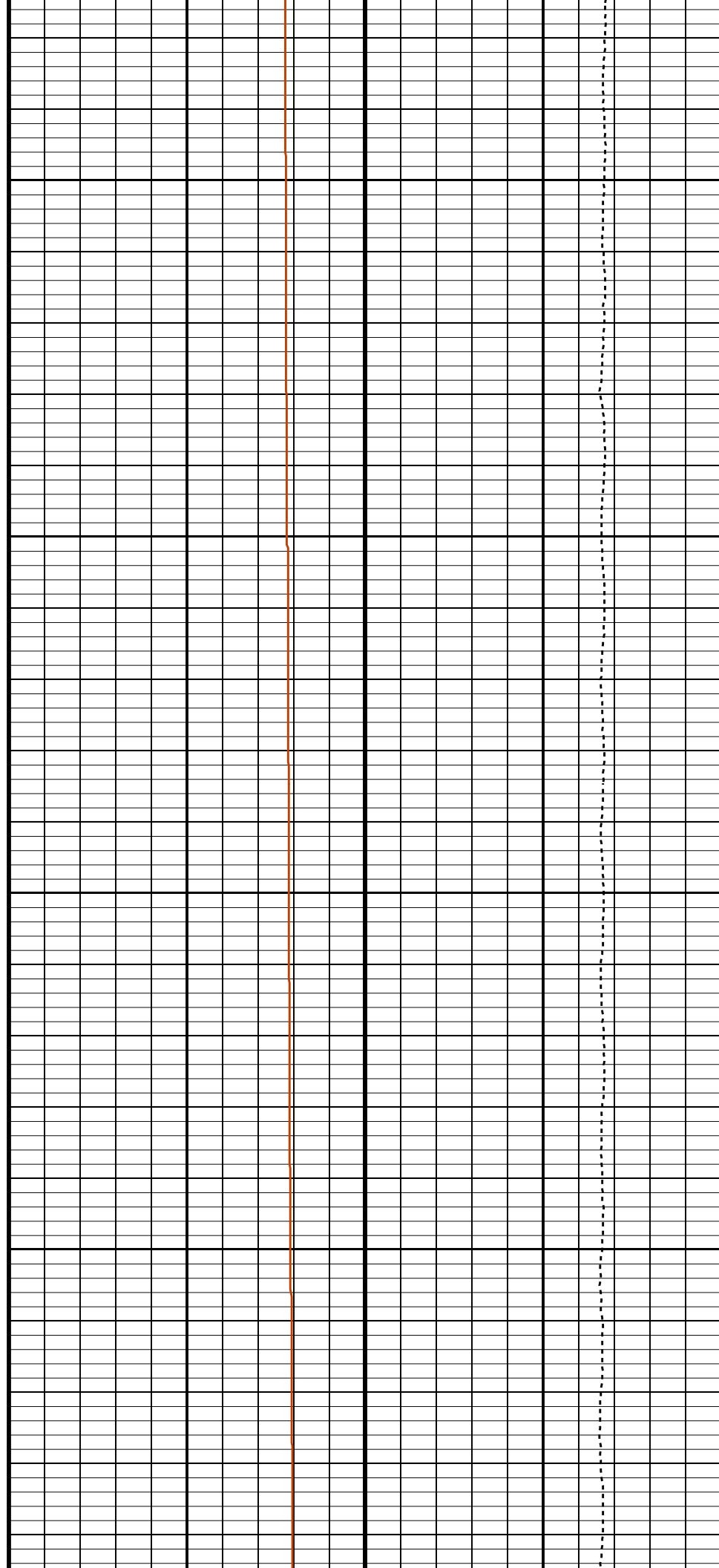
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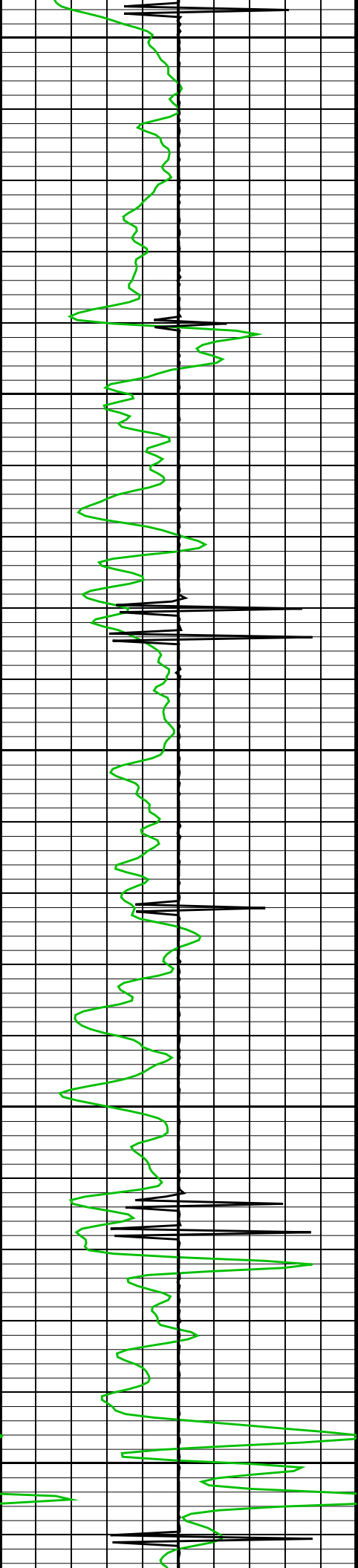




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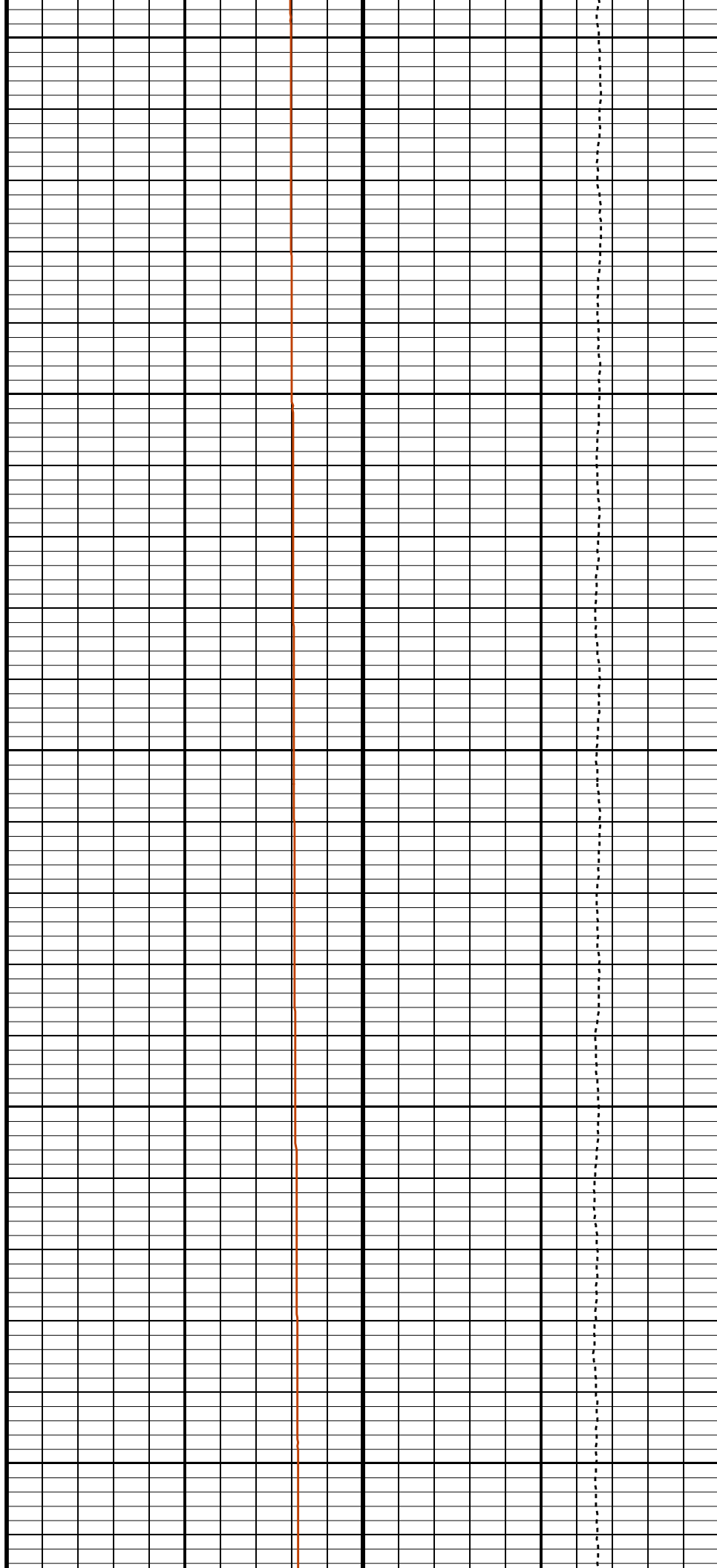
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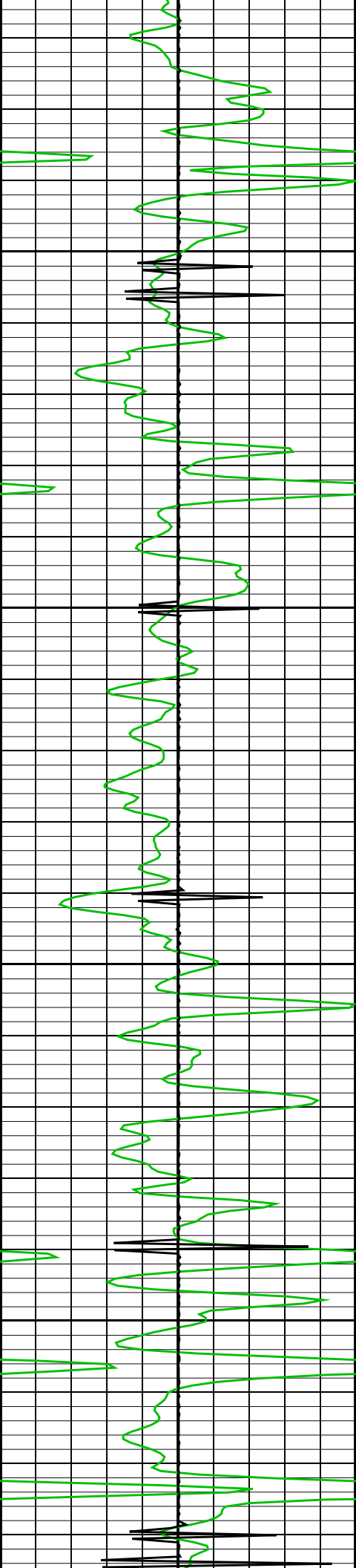




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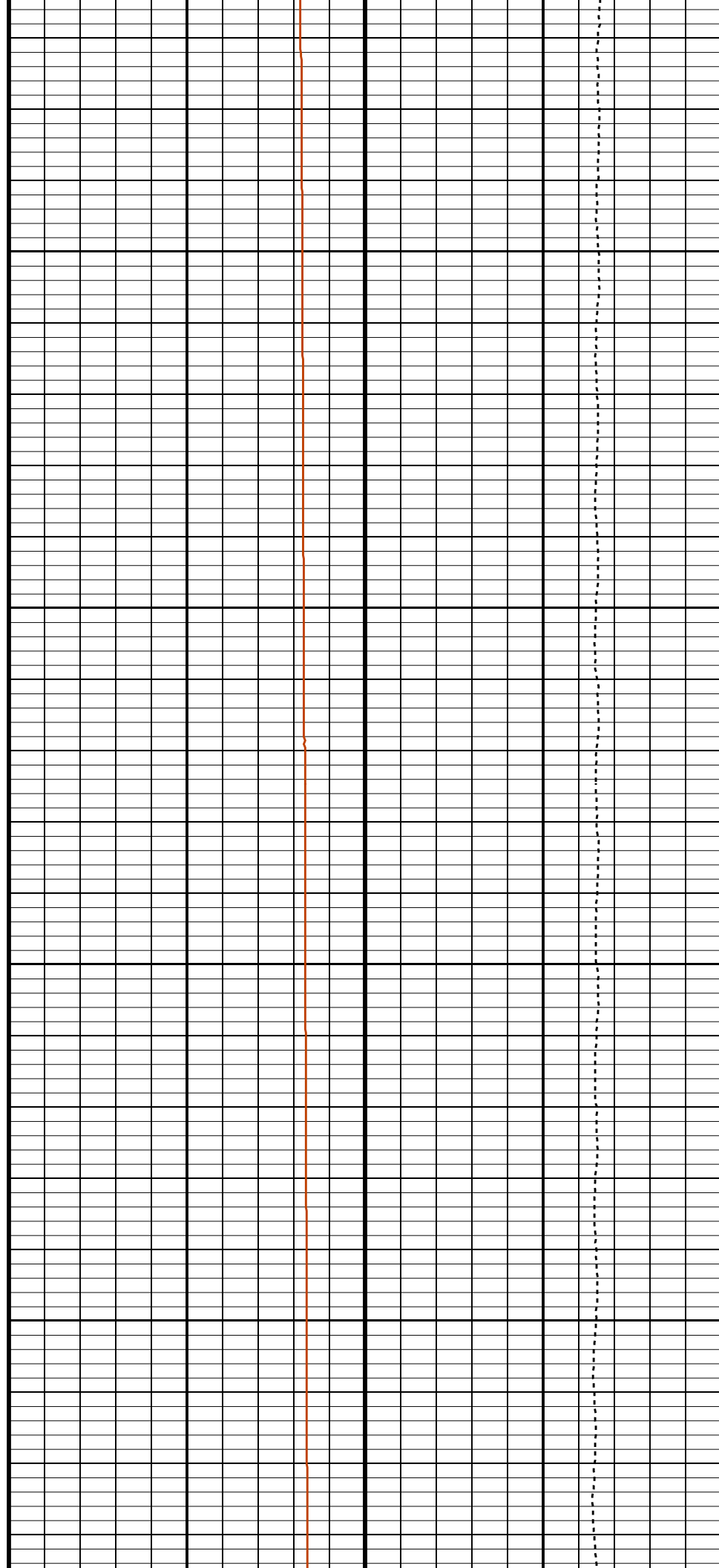
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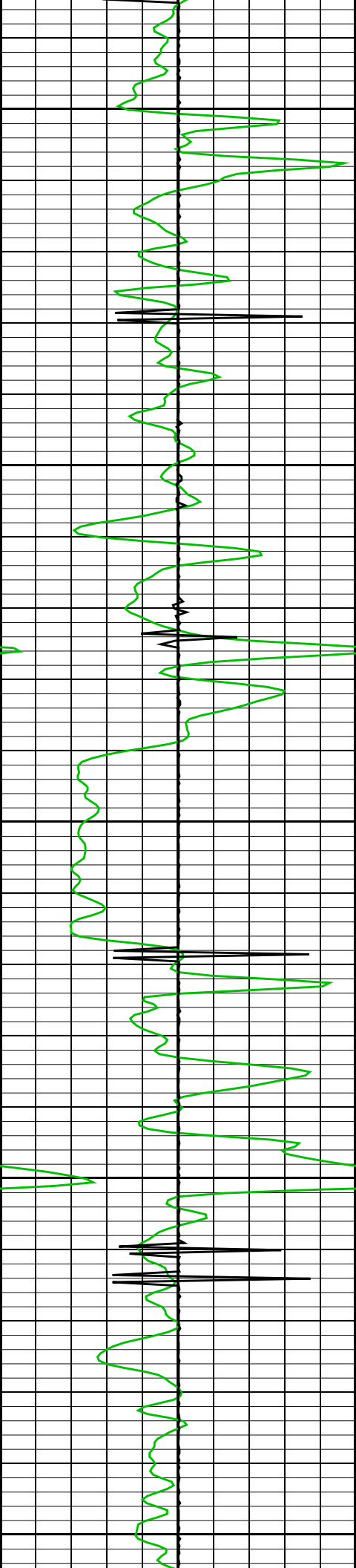




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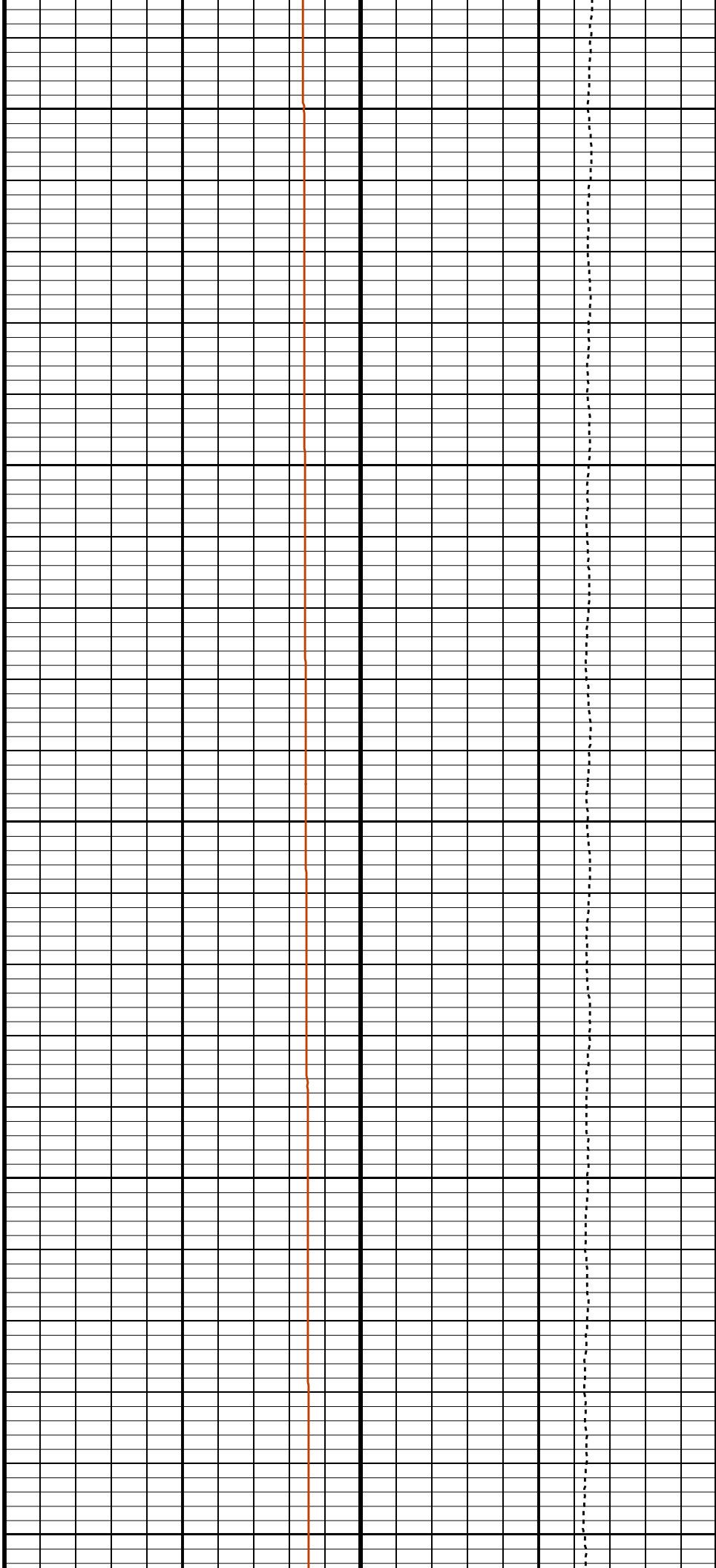


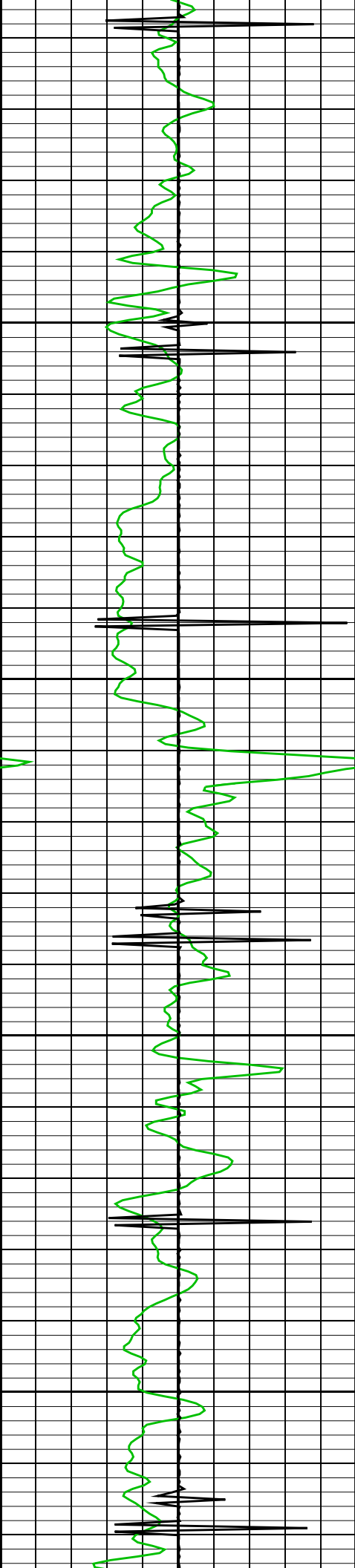


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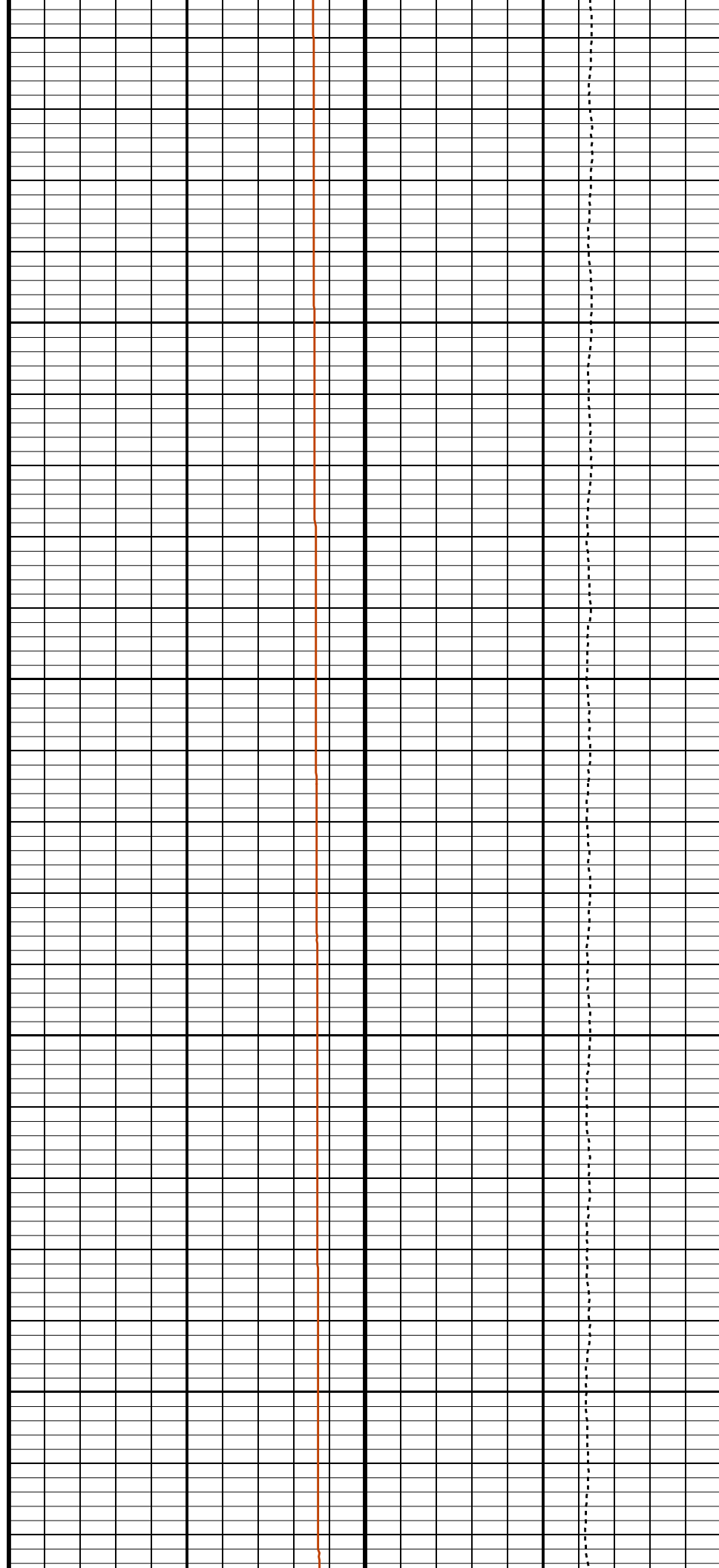
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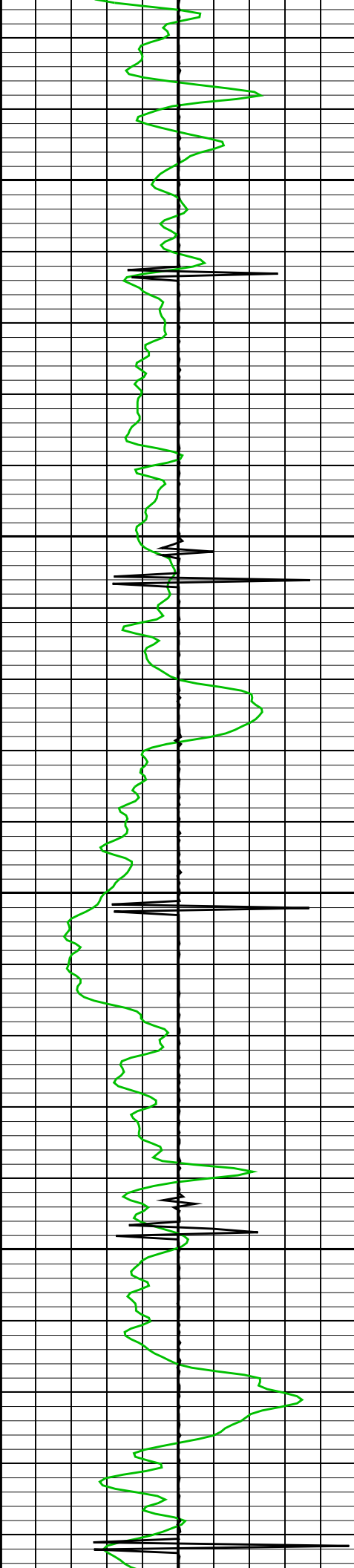




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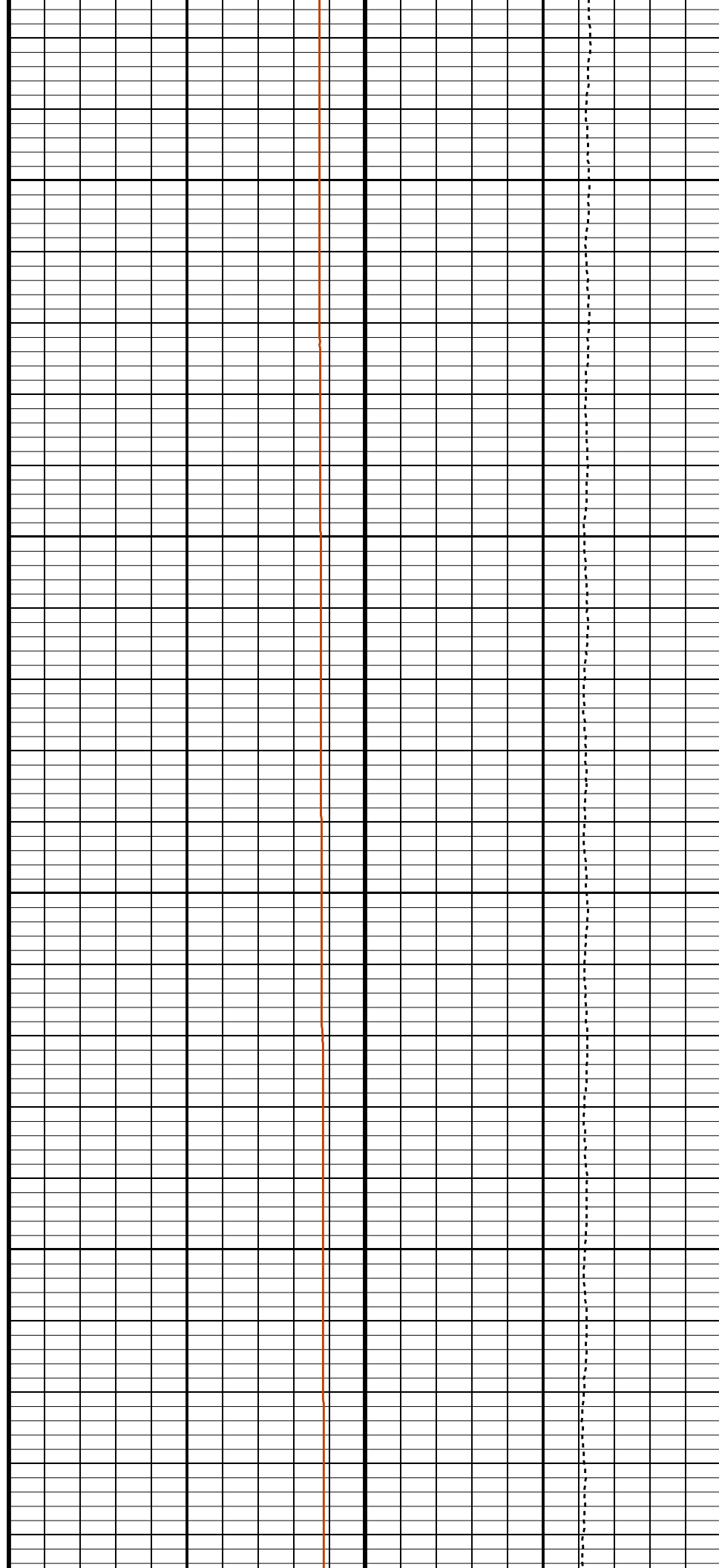
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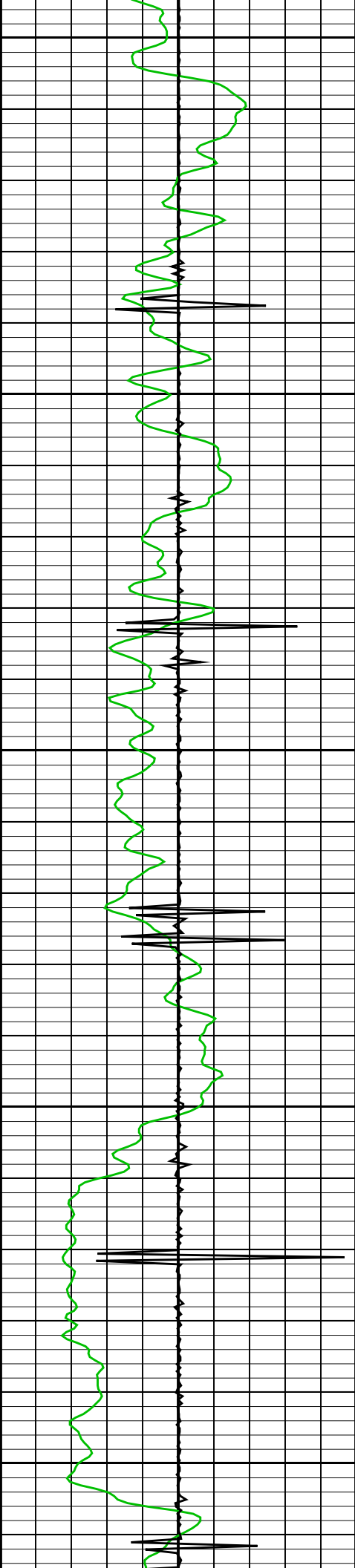




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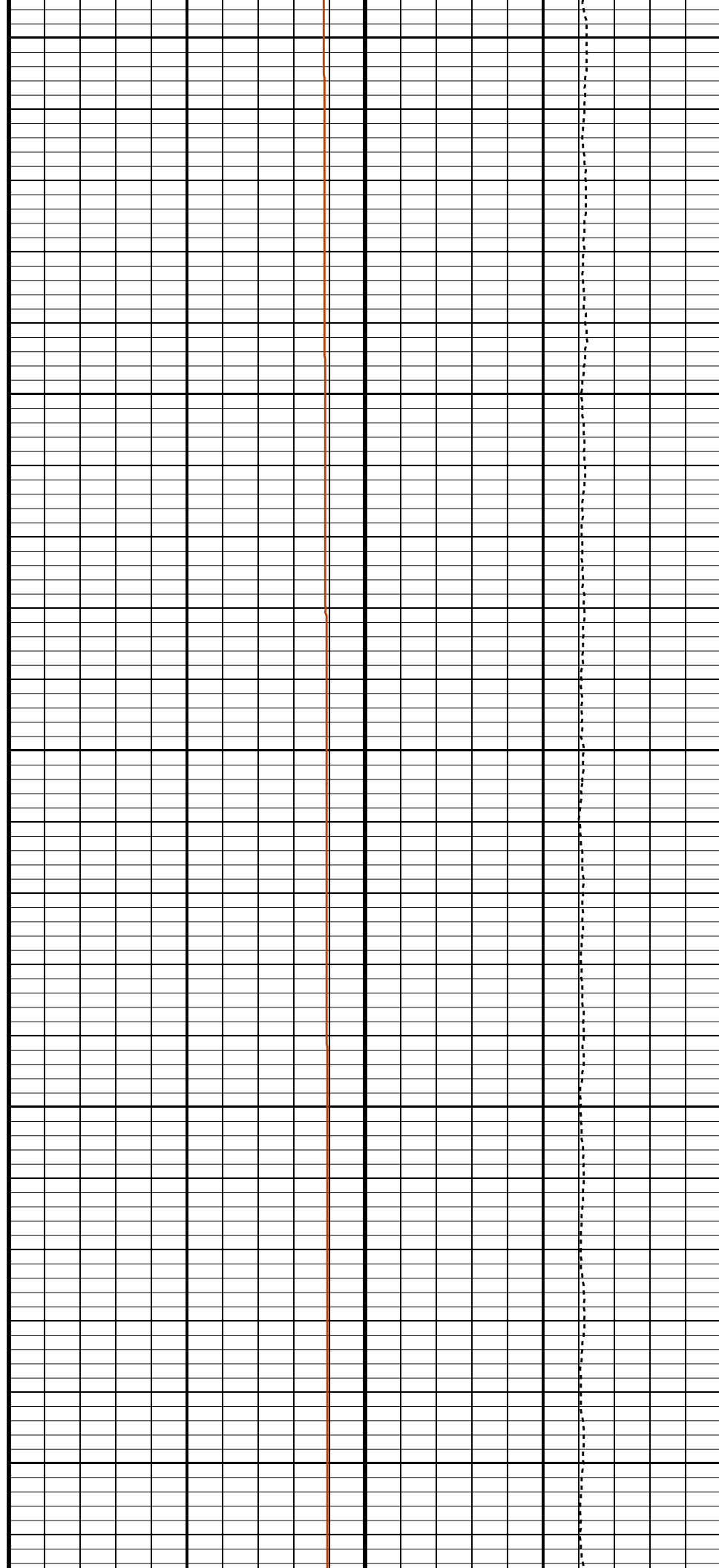
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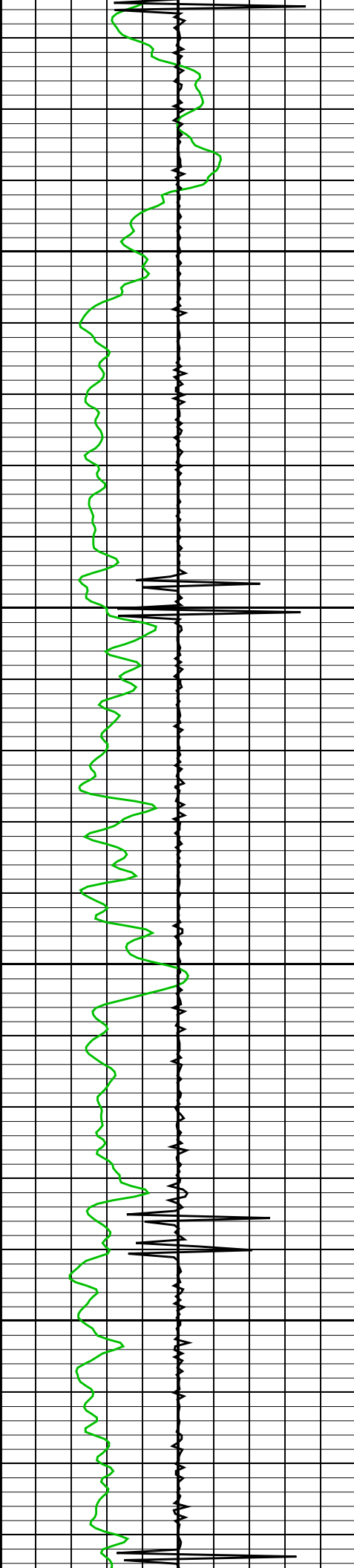




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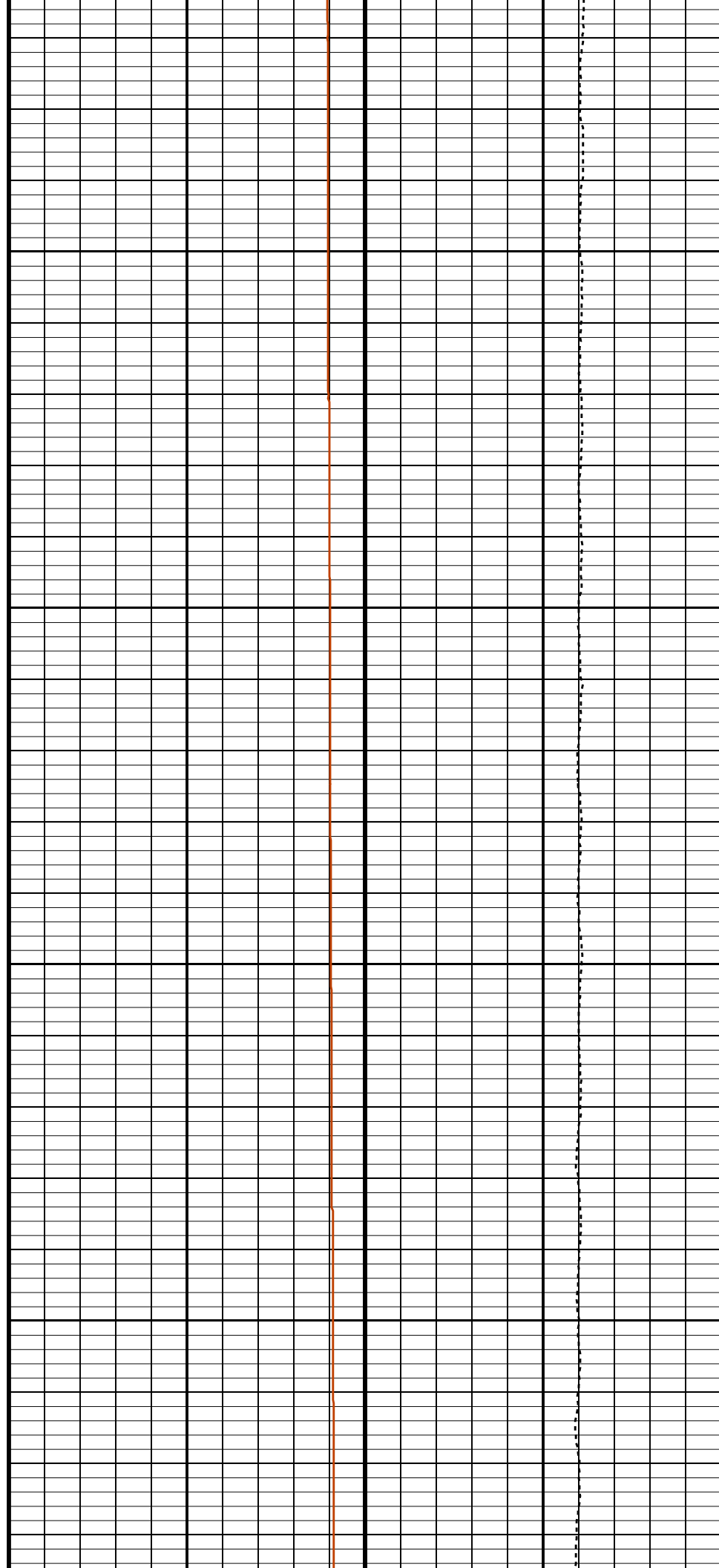
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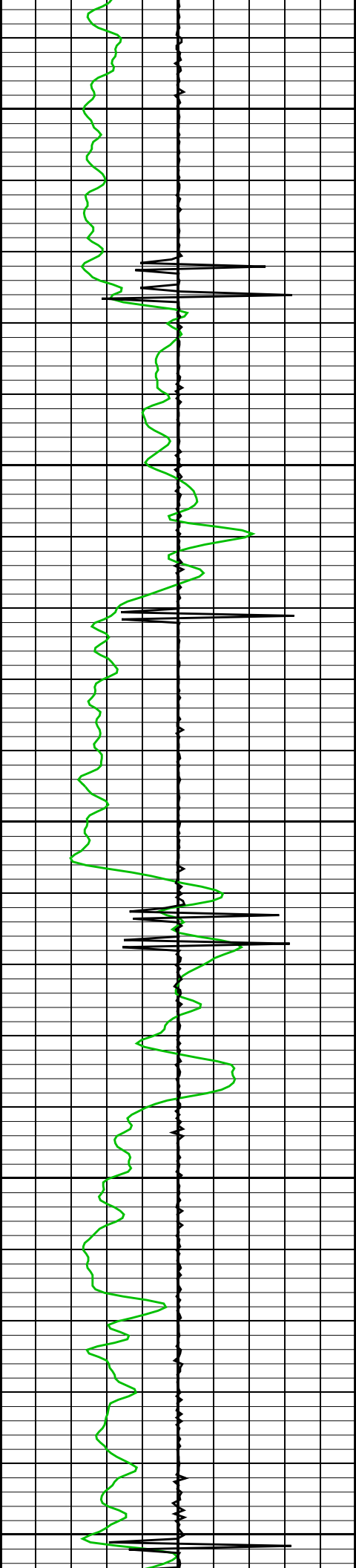




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7600

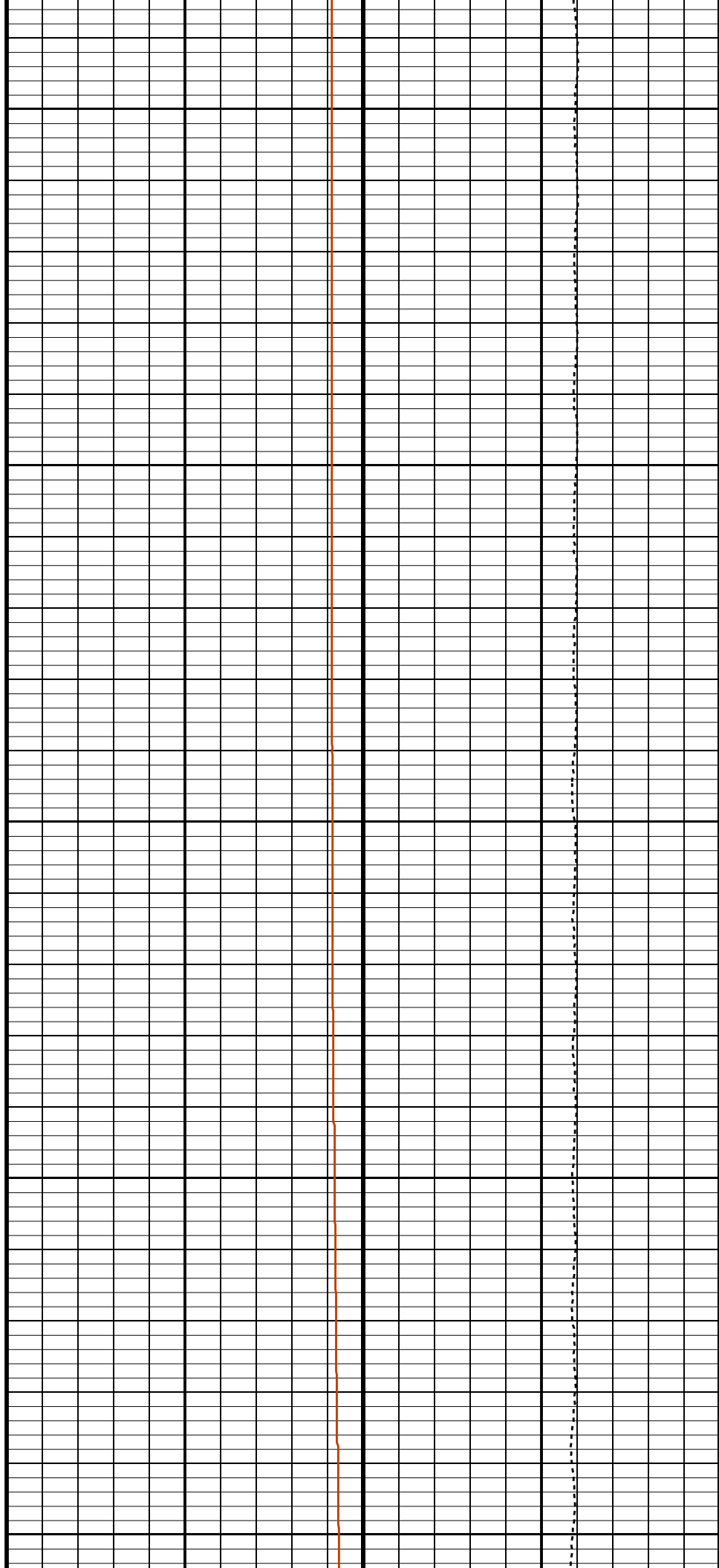


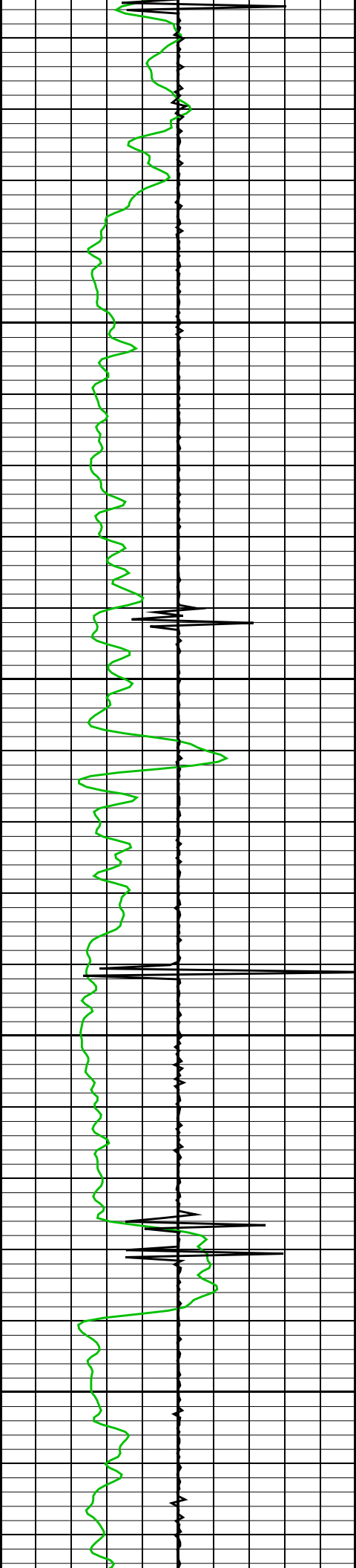


7700

7800

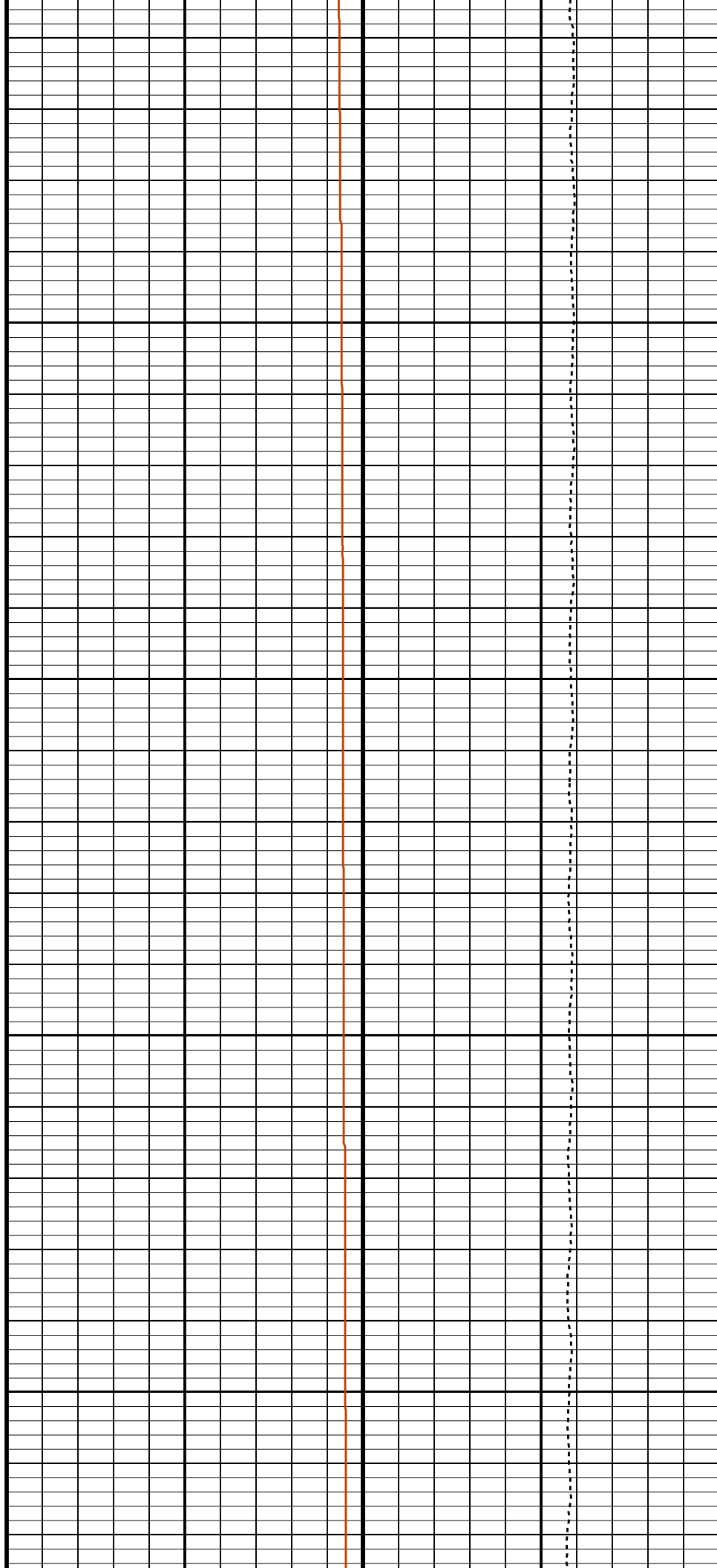
7900

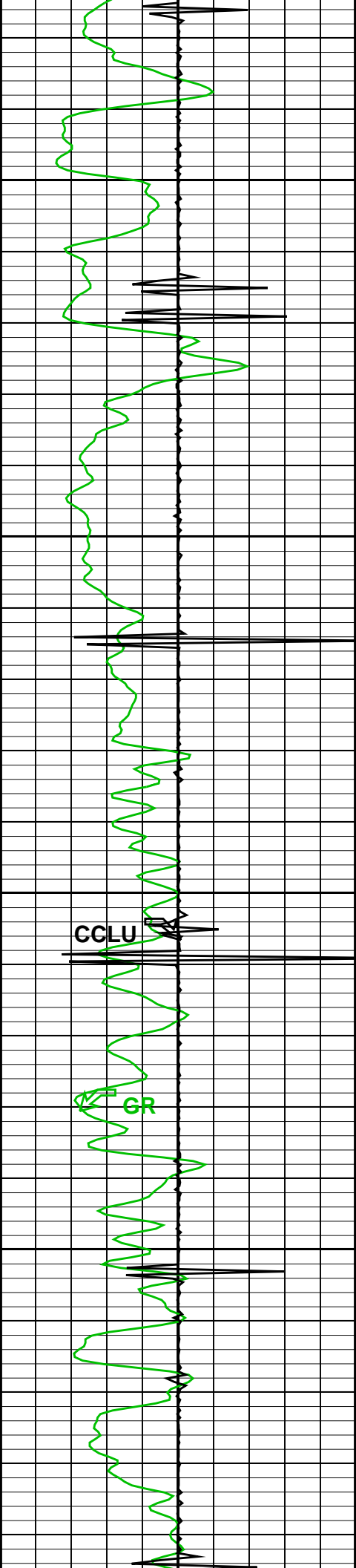




8000

8100





8200

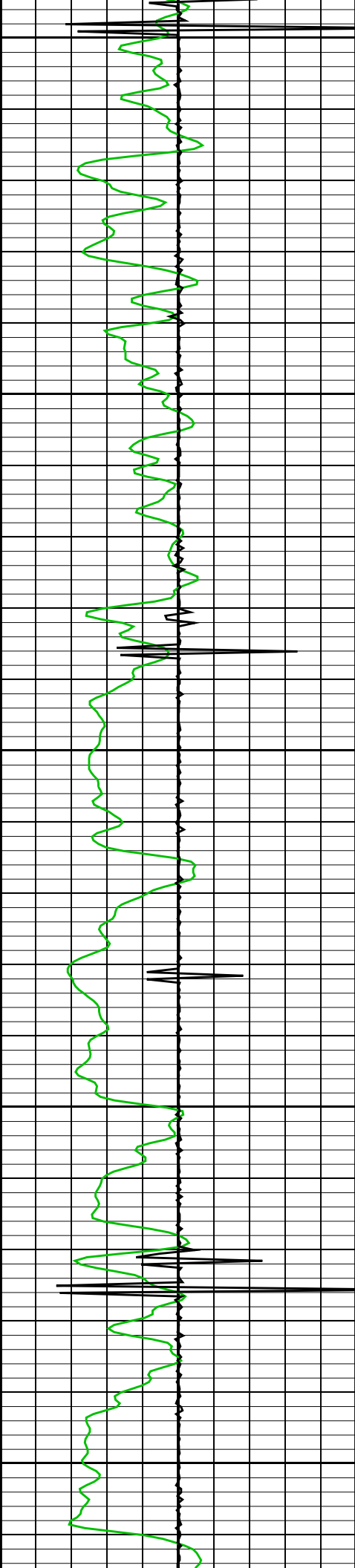
CCLU

GR

8300

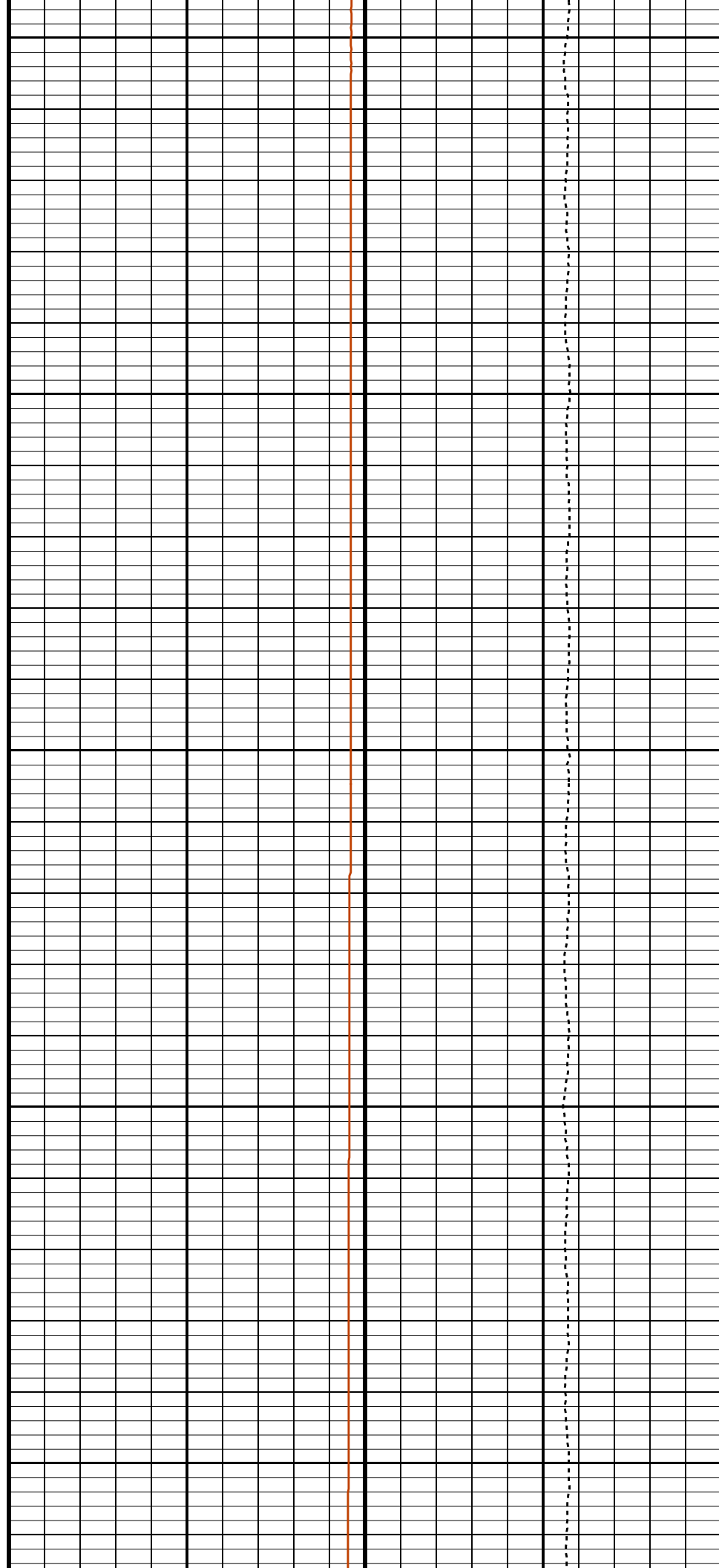
HTEM

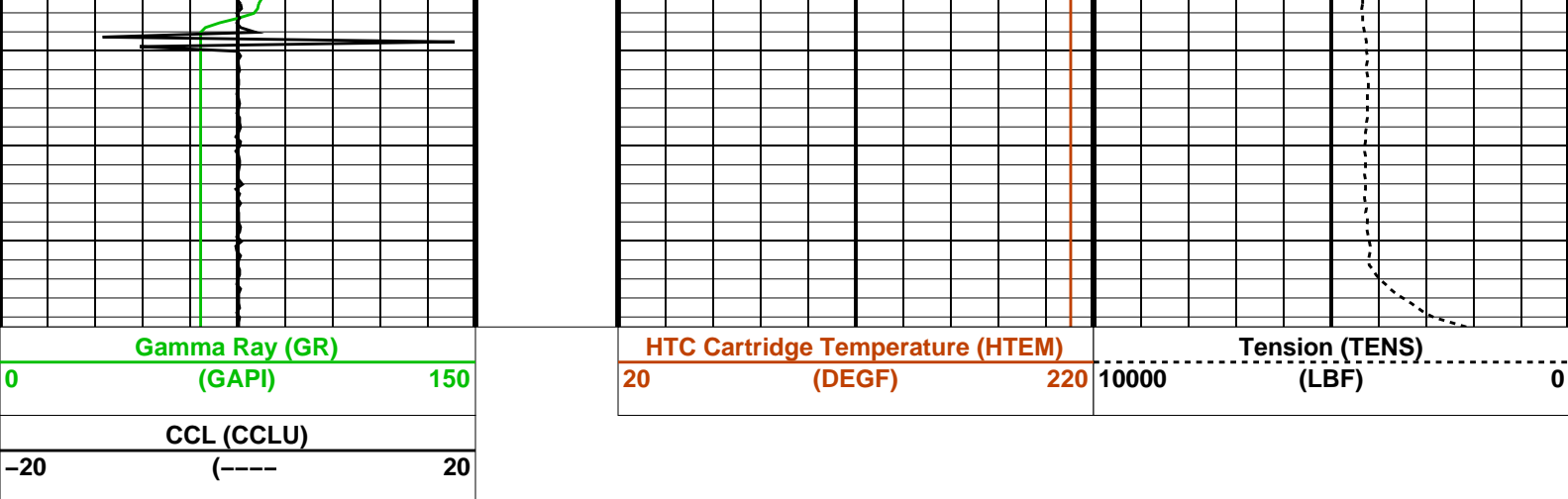
TENS



8400

8500





Parameters

DLIS Name	Description	Value
USIT-D: Ultrasonic Imaging - D		
AGMN	Minimum Gain of Cartridge	-4 DB
AGMX	Maximum Gain of Cartridge	20 DB
BERJ	Bad Echo Rejection	ON
CDIA	Casing Outer Diameter	7 IN
CSDE	Casing Density	486.94 LBCF
CSID	Casing Inner Diameter	6.276 IN
DFVL	Default Fluid Velocity	203 US/F
DOT	Diameter of Transducer Sensor	2.874 IN
EMXV	EMEX Voltage	100 V
MW	Mud Weight	9.7 LB/G
RCOD	Reference Calibrator Outer Diameter	7 IN
RCSO	Reference Calibrator Standoff	1.1811 IN
RCTH	Reference Calibrator Thickness	0.2952 IN
TCUB	T^3 Processing Level	Vax_Loop
THDH	Maximum Search Thickness (percentage of nominal)	130
THDL	Minimum Search Thickness (percentage of nominal)	70
THDP	Thickness Detection Policy	Fundamental
THNO	Nominal Thickness of Casing	0.362 IN
USTO	Ultrasonic Time Offset	-2 US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF
VCAS	Ultrasonic Transversal Velocity in Casing	51.4 US/F
WLEN	T^3 Processing Length	21.7078 US
ZCAS	Acoustic Impedance of Casing	46.25 MRAY
ZINI	Initial Estimate of Cement Impedance	-1 MRAY
ZMUD	Acoustic Impedance of Mud	2 MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6 MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3 MRAY
System and Miscellaneous		
CWEI	Casing Weight	26.00 LB/F
DO	Depth Offset for Playback	8.5 FT
DORL	Depth Offset for Repeat Analysis	0.0 FT
PP	Playback Processing	NORMAL

Format: CORRELATION Vertical Scale: 5" per 100' Graphics File Created: 04-Nov-2009 02:02

OP System Version: 17C0-154

USIT-D SRPC-3779-Q1_2009_OP17_b HILTH-FTB SRPC-3779-Q1_2009_OP17_b
DTC-H 17C0-154

Input DLIS Files

DEFAULT USI_TLD_MCFL_CNL_005LUP FN:4 PRODUCER 03-Nov-2009 20:55 8590.5 FT 200.0 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_009PUP FN:8 PRODUCER 04-Nov-2009 02:02

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO

Well: PCU 197-34B8

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03-Nov-2009 20:55	8590.5 FT	200.0 FT
DEFAULT	USI_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	04-Nov-2009 01:53	8598.0 FT	8289.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04-Nov-2009 02:02
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OP System Version: 17C0-154

USIT-D	SRPC-3779-Q1_2009_OP17_b	HILTH-FTB	SRPC-3779-Q1_2009_OP17_b
DTC-H	17C0-154		

USIT_CCLU_curve_REP Curve (CCLU_REP)

-20 (----) 20

GR_REP Curve (GR_REP)

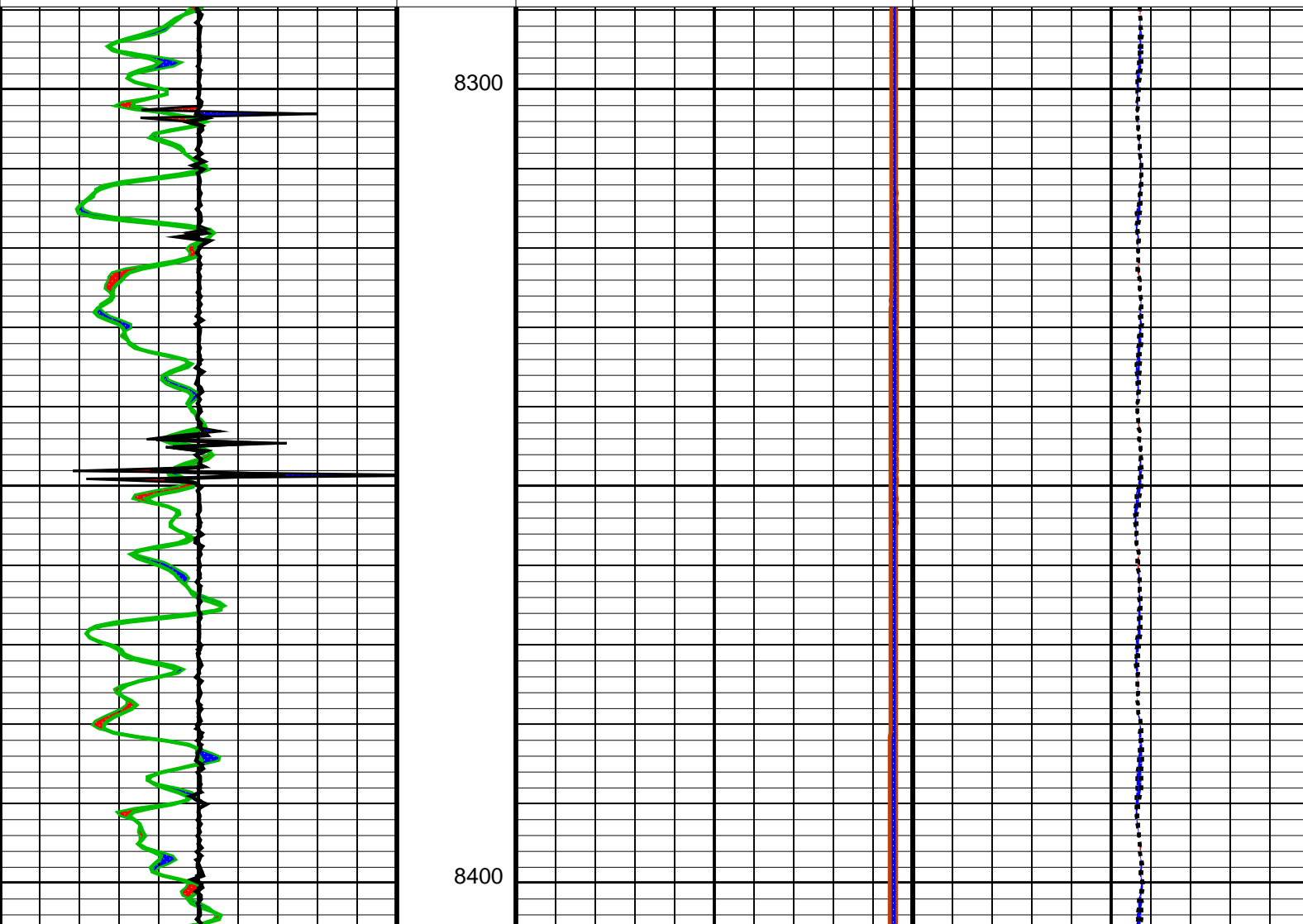
0 (GAPI) 150

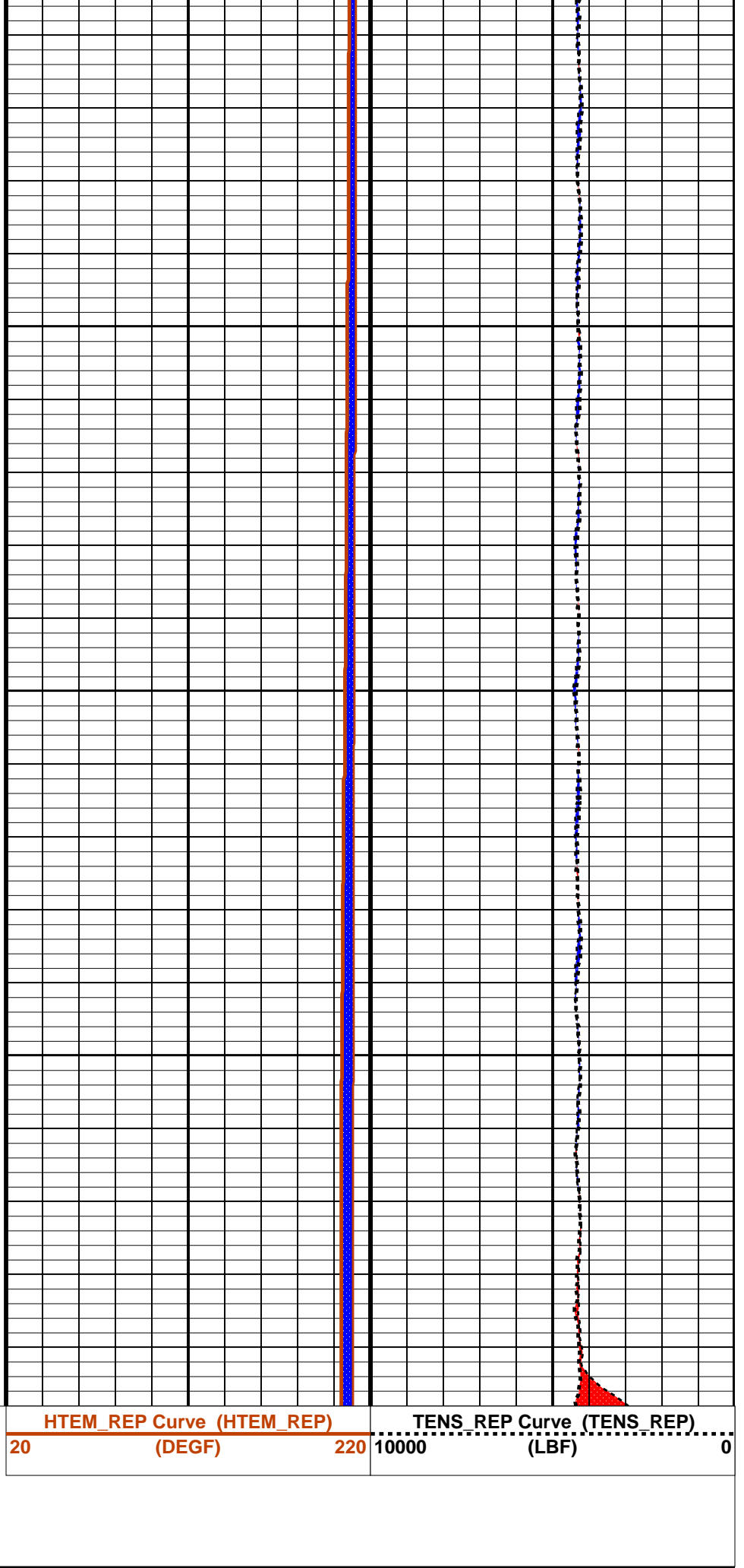
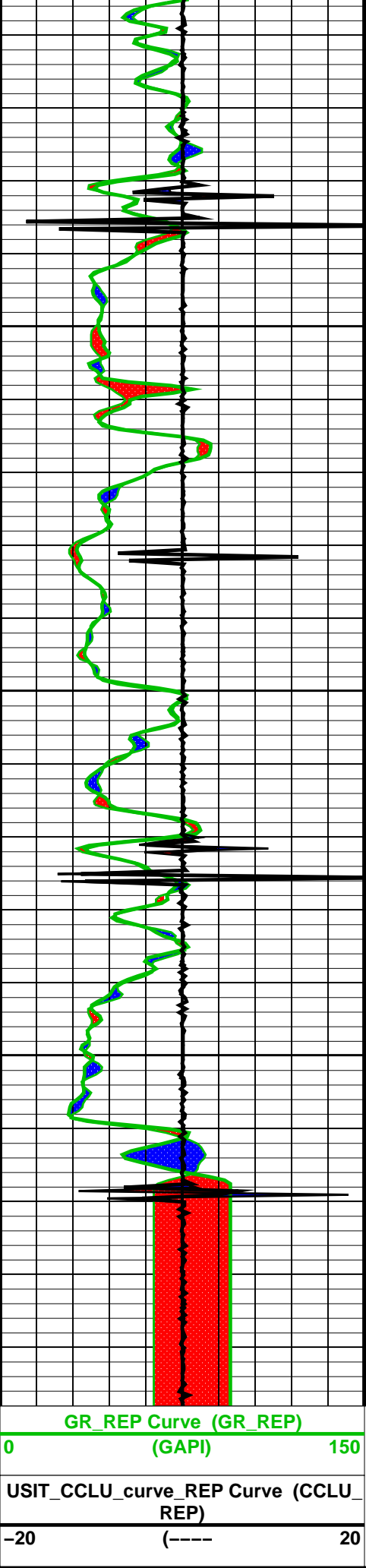
HTEM_REP Curve (HTEM_REP)

20 (DEGF) 220


TENS_REP Curve (TENS_REP)

10000 (LBF) 0





Parameters

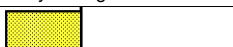

Parameters		
DLIS Name	Description	Value
USIT-D: Ultrasonic Imaging – D		
AGMN	Minimum Gain of Cartridge	–4 DB
AGMX	Maximum Gain of Cartridge	20 DB
BERJ	Bad Echo Rejection	ON
CDIA	Casing Outer Diameter	7 IN
CSDE	Casing Density	486.94 LBCF
CSID	Casing Inner Diameter	6.276 IN
DFVL	Default Fluid Velocity	203 US/F
DOT	Diameter of Transducer Sensor	2.874 IN
EMXV	EMEX Voltage	100 V
MW	Mud Weight	9.7 LB/G
RCOD	Reference Calibrator Outer Diameter	7 IN
RCSO	Reference Calibrator Standoff	1.1811 IN
RCTH	Reference Calibrator Thickness	0.2952 IN
TCUB	T^3 Processing Level	Vax_Loop
THDH	Maximum Search Thickness (percentage of nominal)	130
THDL	Minimum Search Thickness (percentage of nominal)	70
THDP	Thickness Detection Policy	Fundamental
THNO	Nominal Thickness of Casing	0.362 IN
USTO	Ultrasonic Time Offset	–2 US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF
VCAS	Ultrasonic Transversal Velocity in Casing	51.4 US/F
WLEN	T^3 Processing Length	21.7078 US
ZCAS	Acoustic Impedance of Casing	46.25 MRAY
ZINI	Initial Estimate of Cement Impedance	–1 MRAY
ZMUD	Acoustic Impedance of Mud	2 MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6 MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3 MRAY
System and Miscellaneous		
CWEI	Casing Weight	26.00 LB/F
DO	Depth Offset for Playback	8.5 FT
DORL	Depth Offset for Repeat Analysis	0.0 FT
PP	Playback Processing	NORMAL
Format: CORRELATION_REP		Vertical Scale: 5" per 100'
		Graphics File Created: 04–Nov–2009 02:02
OP System Version: 17C0–154		
USIT–D	SRPC–3779–Q1_2009_OP17_b	HILTH–FTB
DTC–H	17C0–154	SRPC–3779–Q1_2009_OP17_b
Input DLIS Files		
DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4 PRODUCER 03–Nov–2009 20:55 8590.5 FT 200.0 FT
DEFAULT	USI_TLD_MCFL_CNL_007PUP	FN:6 PRODUCER 04–Nov–2009 01:53 8598.0 FT 8289.0 FT
Output DLIS Files		
DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8 PRODUCER 04–Nov–2009 02:02
<div><div></div><div>CALIBRATIONS</div></div> <div>MAXIS Field Log</div>		





Calibration and Check Summary




Measurement	Nominal	Master	Before	After	Change	Limit	Units
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Before: 31–Oct–2009 13:26							
Gamma Ray Background	30.00	N/A	15.63	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	168.9	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 14–Aug–2009 10:31 Before: 1–Nov–2009 17:29							
CNTC Background	27.70	27.70	27.61	N/A	N/A	4.155	CPS
CFTC Background	32.32	32.32	36.17	N/A	N/A	4.848	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 14–Aug–2009 10:31							
Thermal Near Corr. (Tank)	5800	5240	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2150	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.437	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 31–Oct–2009 13:25							
Z–Axis Acceleration	32.19	N/A	32.14	N/A	N/A	N/A	F/S2
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	67.8	DEGF.					
Thermal Housing Size	3.374	IN.					
NSR–F serial number	0						


High resolution Integrated Logging Tool–DTS / Equipment Identification			
Primary Equipment:			
HILT Gamma–Ray Neutron Sonde–DTS	HGNS – H		
HGNS Gamma–Ray Device	HGR –		
HGNS Neutron Detector with Alpha Source	HCNT – H		
Z–Axis Accelerometer	HACC – H	3577	
Compensated Neutron Box	CNB – AB		
HTBC Communication Assembly DTS Mode	HMCA – H		
Auxiliary Equipment:			
Neutron Calibration Tank	NCT – B		
Gamma Source Radioactive	GSR – U/Y		
HGNS Housing	HGNH –		



High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Detector Calibration									
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkgd) GAPI			Value
Before				15.63	Before				168.9
0 (Minimum)			30.00 (Nominal)	120.0 (Maximum)	157.1 (Minimum)			165.0 (Nominal)	206.3 (Maximum)
Before: 31-Oct-2009 13:26									




High resolution Integrated Logging Tool–DTS Wellsite Calibration							
Zero Measurement							
Phase	CNTC Background	CPS	Value	Phase	CFTC Background	CPS	Value
Master			27.70	Master			32.32
Before			27.61	Before			36.17
5.000 (Minimum)			27.70 (Nominal)	5.000 (Minimum)			32.32 (Nominal)
			40.00 (Maximum)				40.00 (Maximum)
Master: 14-Aug-2009 10:31				Before: 1-Nov-2009 17:29			

High resolution Integrated Logging Tool–DTS Wellsite Calibration												
Ratio Measurement												
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)	Value		
Master			5240	Master			2150	Master		2.437		
4700 (Minimum)			5800 (Nominal)	6900 (Maximum)	1900 (Minimum)			2400 (Nominal)	2900 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 14–Aug–2009 10:31												

High resolution Integrated Logging Tool–DTS Wellsite Calibration	
Accelerometer Calibration	

Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before		32.14
	31.53 (Minimum)	32.19 (Nominal)
		32.84 (Maximum)
Before: 31-Oct-2009 13:25		

High resolution Integrated Logging Tool-DTS Master Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.70	Master		32.32
	5.000 (Minimum)	27.70 (Nominal)		5.000 (Minimum)	32.32 (Nominal)
		40.00 (Maximum)			40.00 (Maximum)
Master: 14-Aug-2009 10:31					

High resolution Integrated Logging Tool-DTS Master Calibration									
Tank Measurement									
Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value	
Master		5240	Master		2150	Master		2.437	
	4700 (Minimum)	5800 (Nominal)		1900 (Minimum)	2400 (Nominal)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 14-Aug-2009 10:31									

DTS Telemetry Tool / Equipment Identification	
Primary Equipment:	
DTC-H Auxiliary Cartridge	DTCH – A
DTC-H Telemetry Cartridge	DTCH – A
Auxiliary Equipment:	
DTCH Telemetry Cartridge Housing	ECH – KC

Company:	EXXONMOBIL PRODUCTION CO	Schlumberger
Well:	PCU 197-34B8	
Field:	PICEANCE CREEK	
County:	RIO BLANCO	
State:	COLORADO	
CORRELATION PRINT		
GAMMA RAY / CCL		