



Company: ExxonMobil Production Corp

Well: PCU 297-11C9

Field: Piceance Creek

County: Rio Blanco

State: Colorado

CORRELATION LOG

CCL / GAMMA RAY

1021' FNL & 894' FWL

Elev.: K.B. 6993.20 ft  
G.L. 6960.00 ft  
D.F. 6992.20 ft

Permanent Datum: \_\_\_\_\_  
Log Measured From: KELLY BUSHING  
Drilling Measured From: KELLY BUSHING

GROUND LEVEL \_\_\_\_\_  
Elev.: 6960.00 ft

33.20 ft above Perm. Datum

API Serial No. 05-103-11471-0C

Section 11

Township 2S

Range 97W

County: Rio Blanco

Field: Piceance Creek

Location: 1021' FNL & 894' FWL

Well: PCU 297-11C9

Company: ExxonMobil Production Corp

PVT DATA			
Oil Density	Run 1	Run 2	Run 3
Water Salinity	250 ppm		
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation			
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type			
Volume			
Density	11 lbm/gal		
Water Loss			
Additives			
Tail Cement Type			
Volume			
Density			
Water Loss			
Additives			
Expected Cement Top			

Logging Date 28-Apr-2010

Run Number 1

Depth Driller 8692 ft

Schlumberger Depth 8460 ft

Bottom Log Interval 8410 ft

Top Log Interval 4000 ft

Casing Fluid Type FRESH WATER

Salinity 250 ppm

Density 8.4 lbm/gal

Fluid Level 15 ft

BIT/CASING/TUBING STRING

Bit Size 9.875 in

From 0 ft

To 8692 ft

Casing/Tubing Size 7.000 in

Weight 26 lbm/ft

Grade

From 0 ft

To 8692 ft

Maximum Recorded Temperatures 206 degF

Logger On Bottom 28-Apr-2010

Unit Number 2276

Location

Recorded By KATIE WALSH

Witnessed By JOHN WOOD

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

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: 28-APR-2010 14:35:56

### Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46A XS
Serial Number:	6195	Serial Number:	2527	Serial Number:	7232
Calibration Date:	12-APR-2010	Calibration Date:	11-APR-201	Length:	20090 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100518	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	7-46P	Number of Calibration Points:	10		
Wheel Correction 1:	-9	Calibration RMS:	18		
Wheel Correction 2:	-8	Calibration Peak Error:	27		

### Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	105.90 FT
Rig Up Length At Bottom:	105.60 FT
Rig Up Length Correction:	0.30 FT
Stretch Correction:	4.00 FT
Tool Zero Check At Surface:	0.30 FT

### Depth Control Remarks

1. This is the first run in hole and therefore the reference for all subsequent logs
2. IDW used as primary depth control; Z-chart used as secondary
3. All Schlumberger depth control policies followed
4.
5.
6.

#### DISCLAIMER

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OTHER SERVICES1 OS1: IBC OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool run as per tool sketch	
Tool run centralized using 2x GEMCO's and 2x in-line centralizers	
Neutron run for GR only	
UFAO = -1	
Logged at 1800'/hr max	
Expected casing thickness = 0.362" / Observed = 0.366"	
Expected internal radius = 3.13" / Observed = 3.16"	
Expected flexural attenuation in free pipe = 55dB / Observed = 57.8 dB	

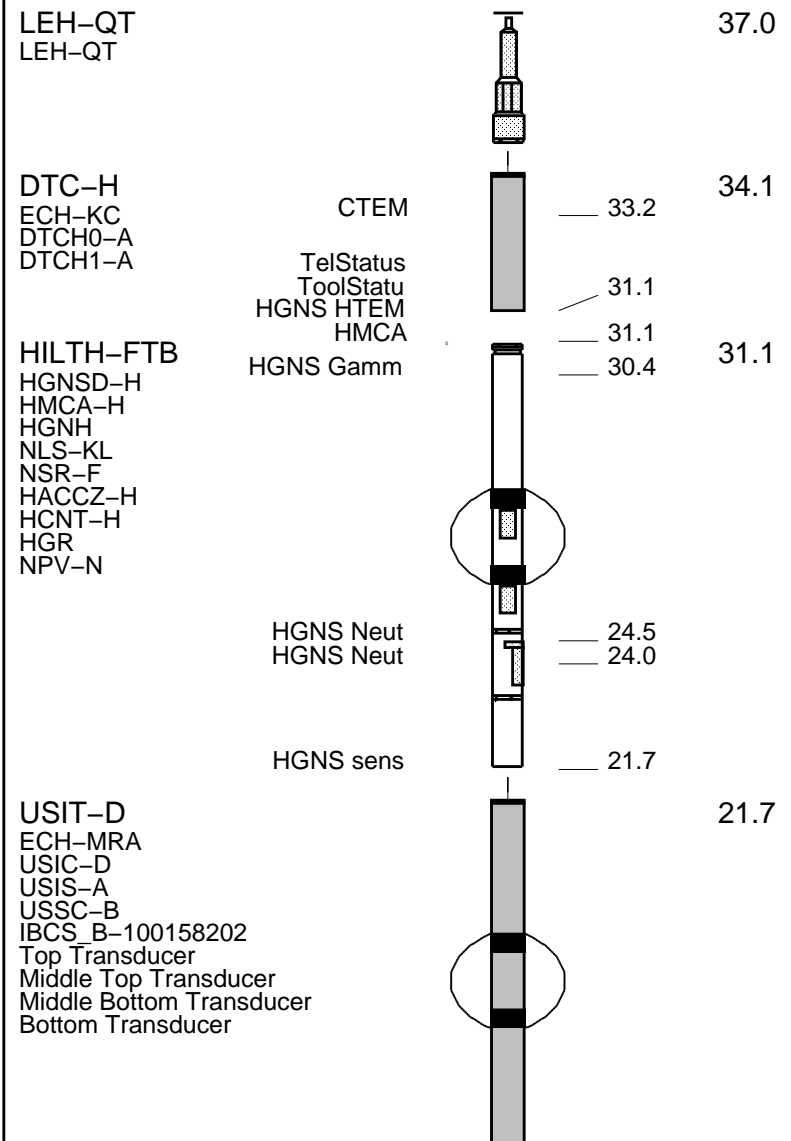
Expected flexural attenuation in free pipe = 55dB / Observed = 37.0 dB	
Log monitored by real-time virtual SQC	
Anomaly observed at 7250'	

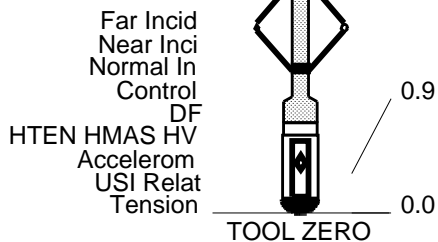
RUN 1			RUN 2		
SERVICE ORDER #:		B49A-00051	SERVICE ORDER #:		
PROGRAM VERSION:		17C0-154	PROGRAM VERSION:		
FLUID LEVEL:		15 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		

SURFACE EQUIPMENT	
WITM (DTS)-A	
GSR-U/Y	
NCT-B	
CNB-AB	
NCS-VB	

DOWNHOLE EQUIPMENT	
LEH-QT	37.0
LEH-QT	
DTC-H	
ECH-KC	
DTCH0-A	
DTCH1-A	
HILTH-FTB	
HGNSD-H	
HMCA-H	
HGNH	
NLS-KL	
NSR-F	
HACCZ-H	
HCNT-H	
HGR	
NPV-N	
USIT-D	
ECH-MRA	
USIC-D	
USIS-A	
USSC-B	
IBCS_B-100158202	
Top Transducer	
Middle Top Transducer	
Middle Bottom Transducer	
Bottom Transducer	





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

**Schlumberger**

## CORRELATION

MAXIS Field Log

Company: ExxonMobil Production Corp

Well: PCU 297-11C9

### Input DLIS Files

DEFAULT	SPLICE_USI_TLD_MCFL_028	FN:1	PRODUCER	28-Apr-2010 17:05	8419.0 FT	56.1 FT
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### Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_030PUP	FN:27	PRODUCER	28-Apr-2010 17:10	8423.0 FT	60.5 FT
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### OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

CCL (CCLU)

-20 (----) 20

Gamma Ray (GR)

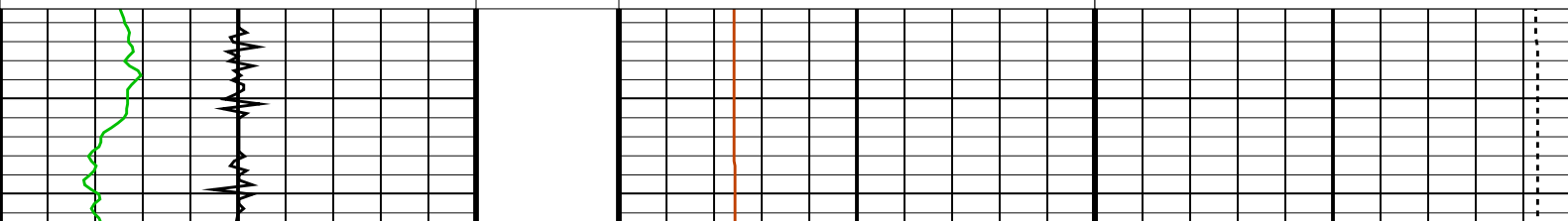
0 (GAPI) 150

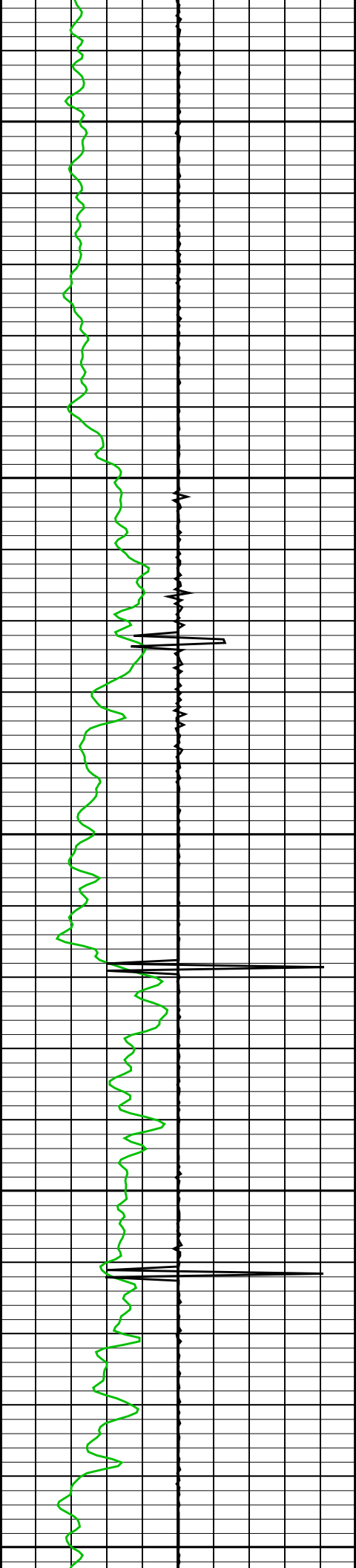
HTC Cartridge Temperature (HTEM)

20 (DEGF) 220

Tension (TENS)

10000 (LBF) 0

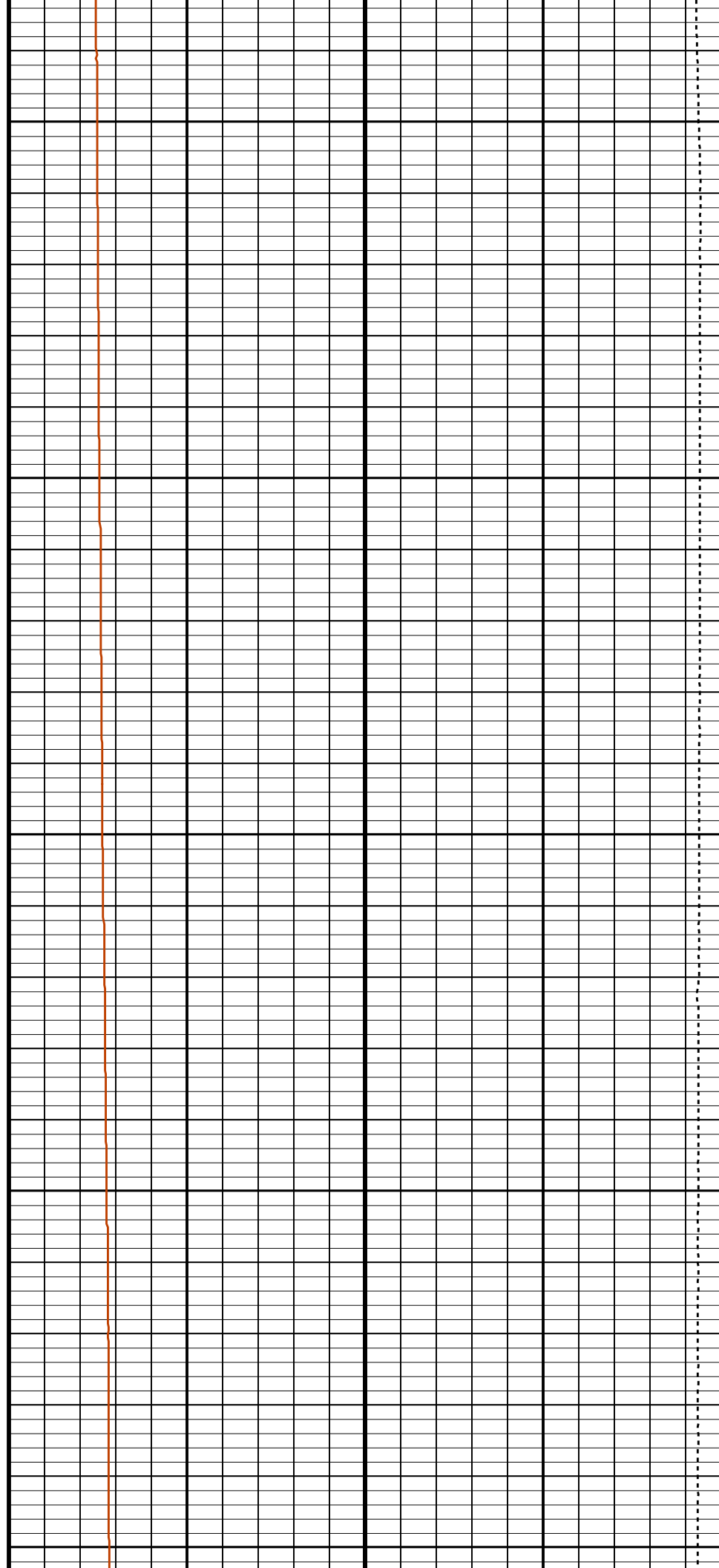


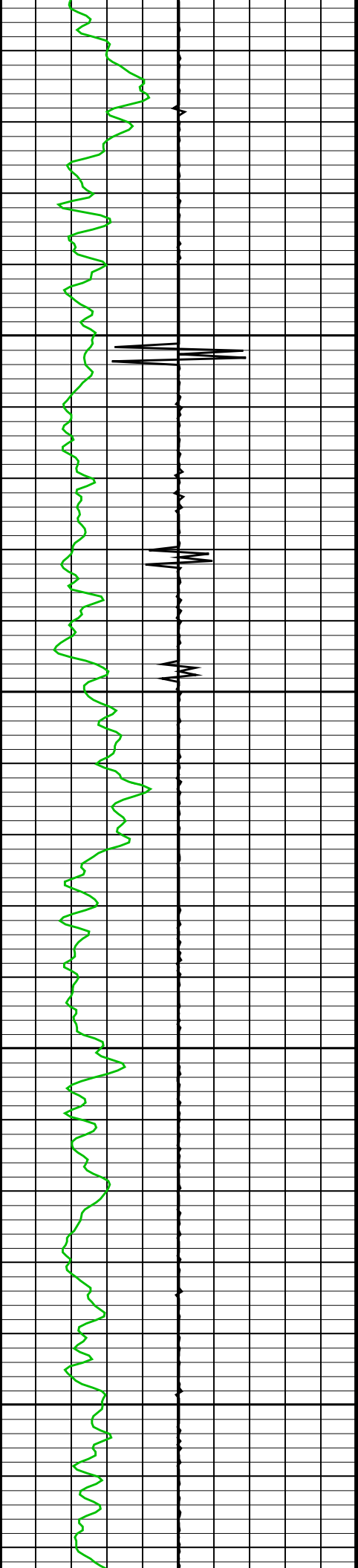


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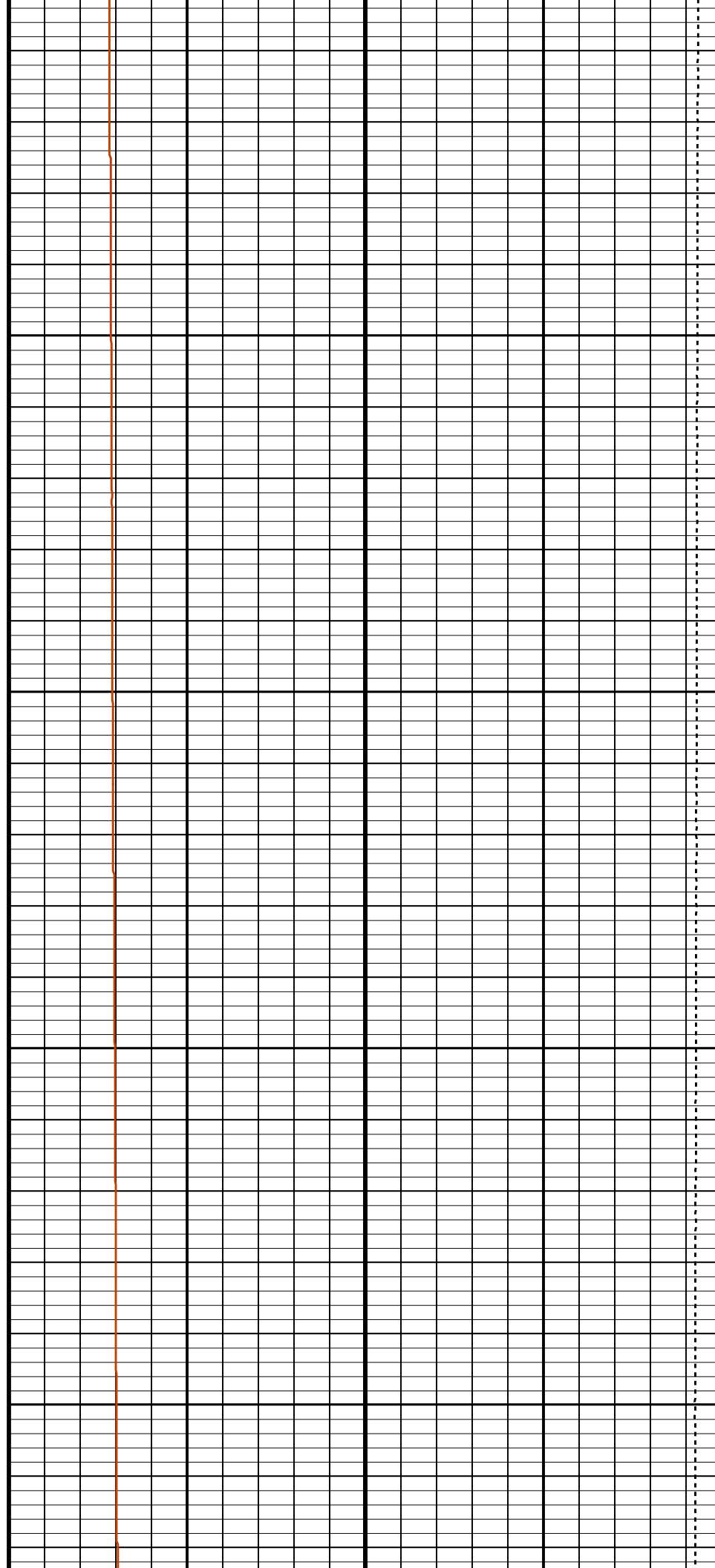
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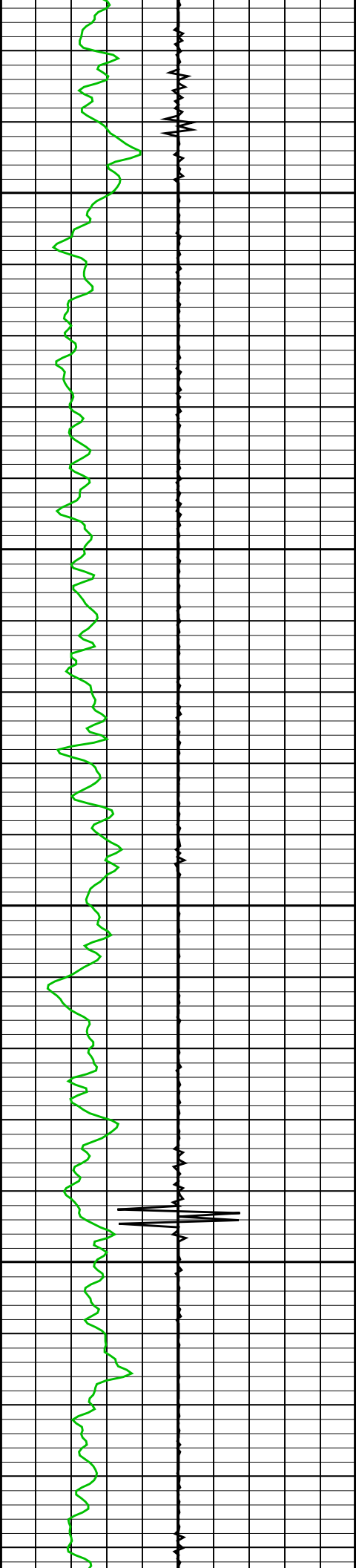




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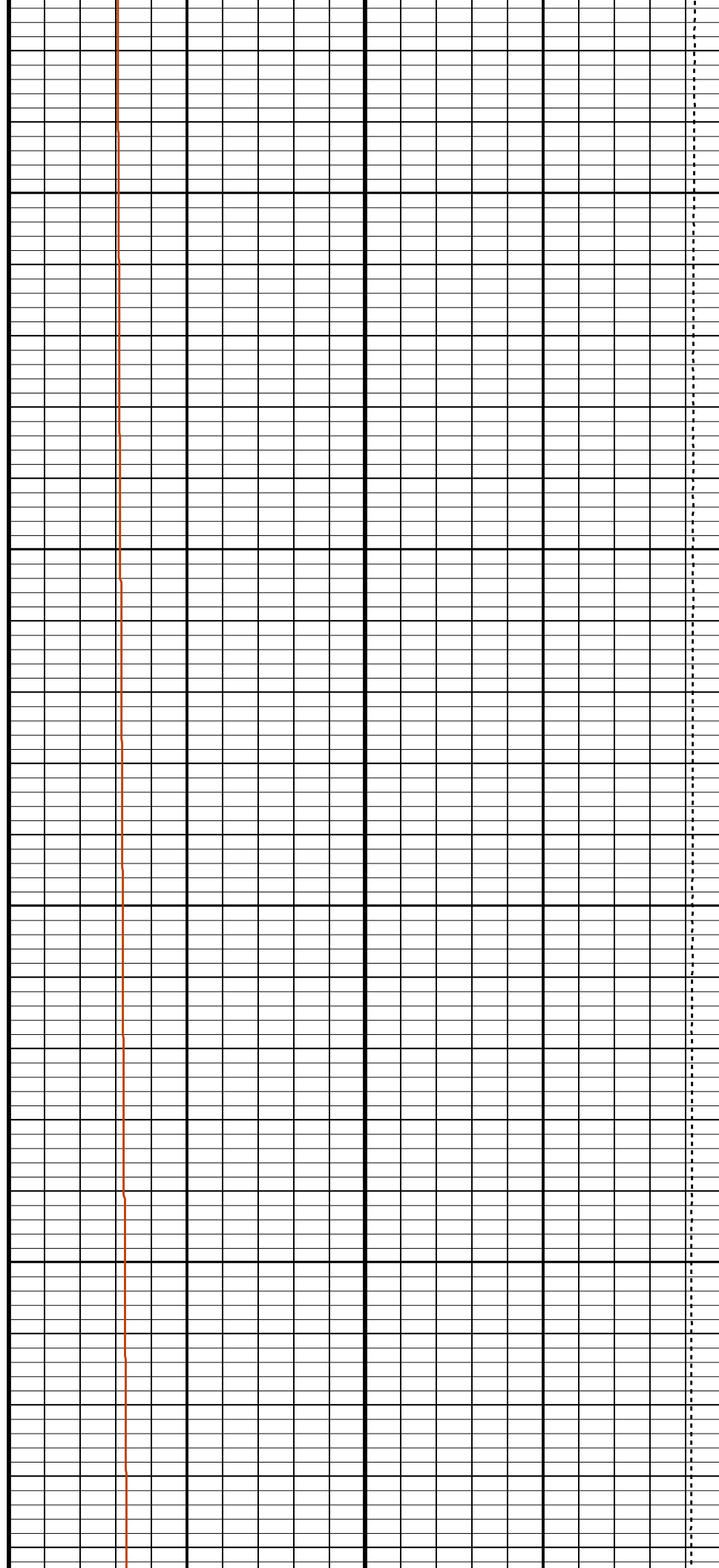
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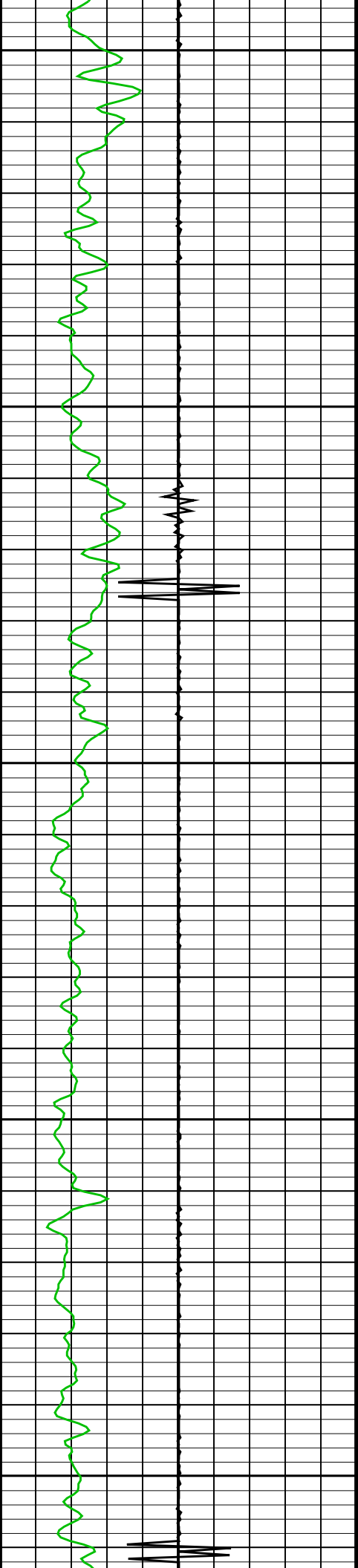


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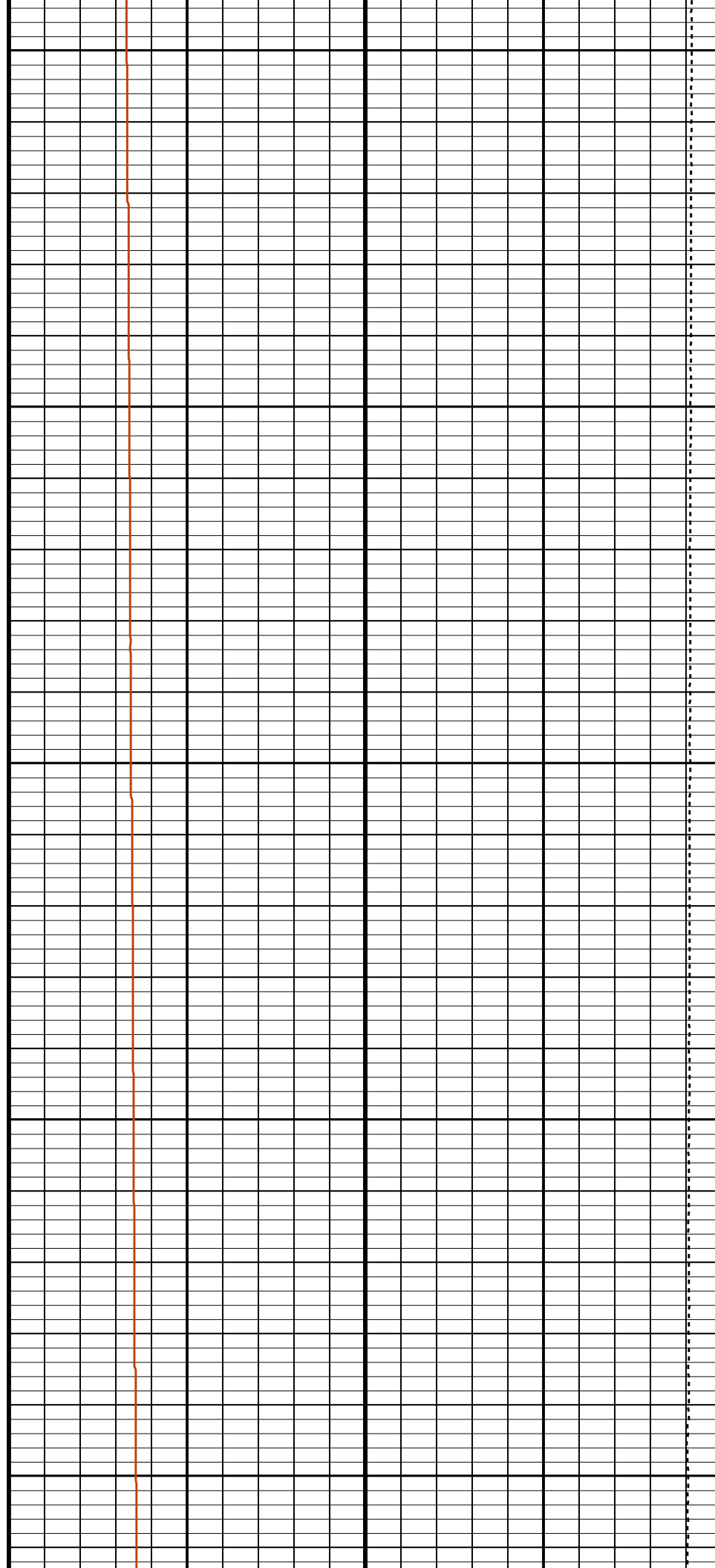


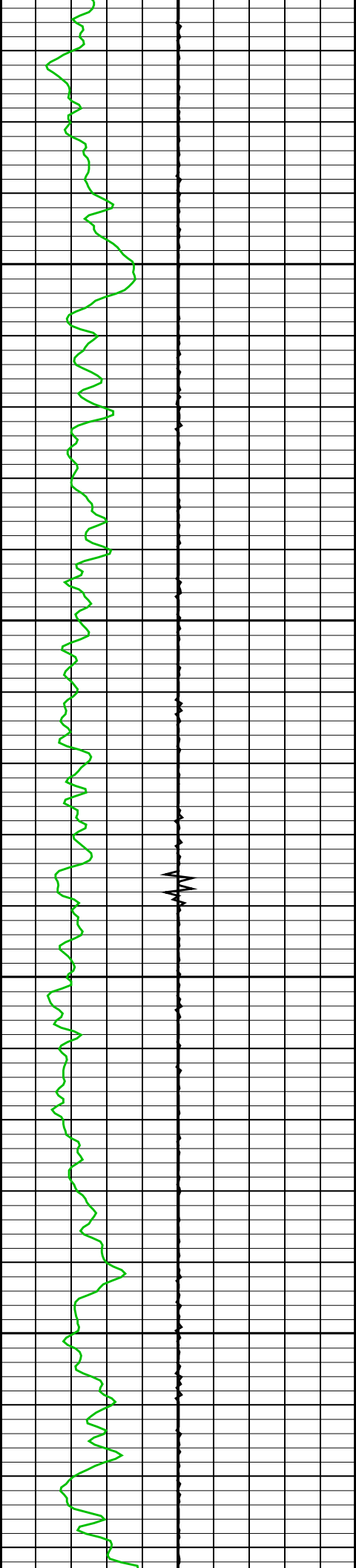




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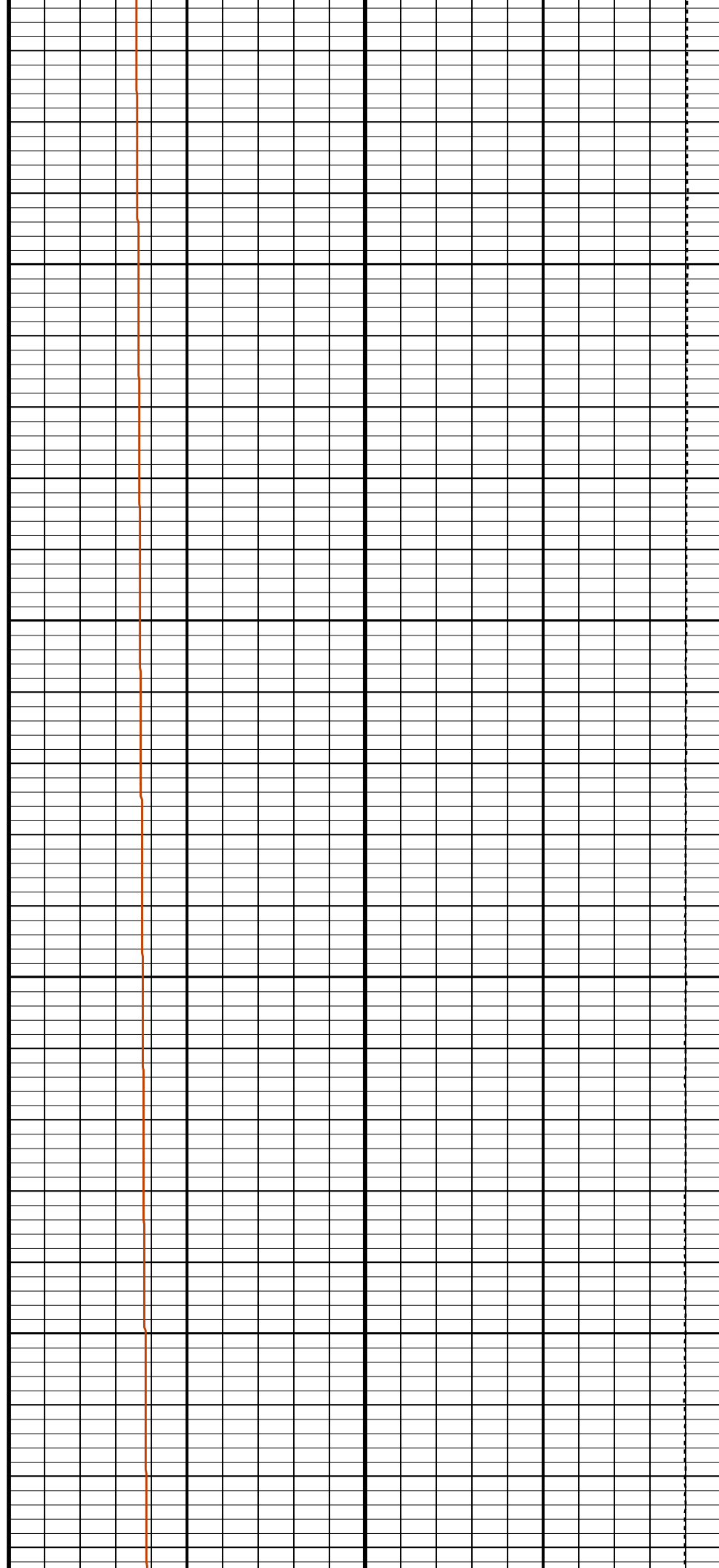
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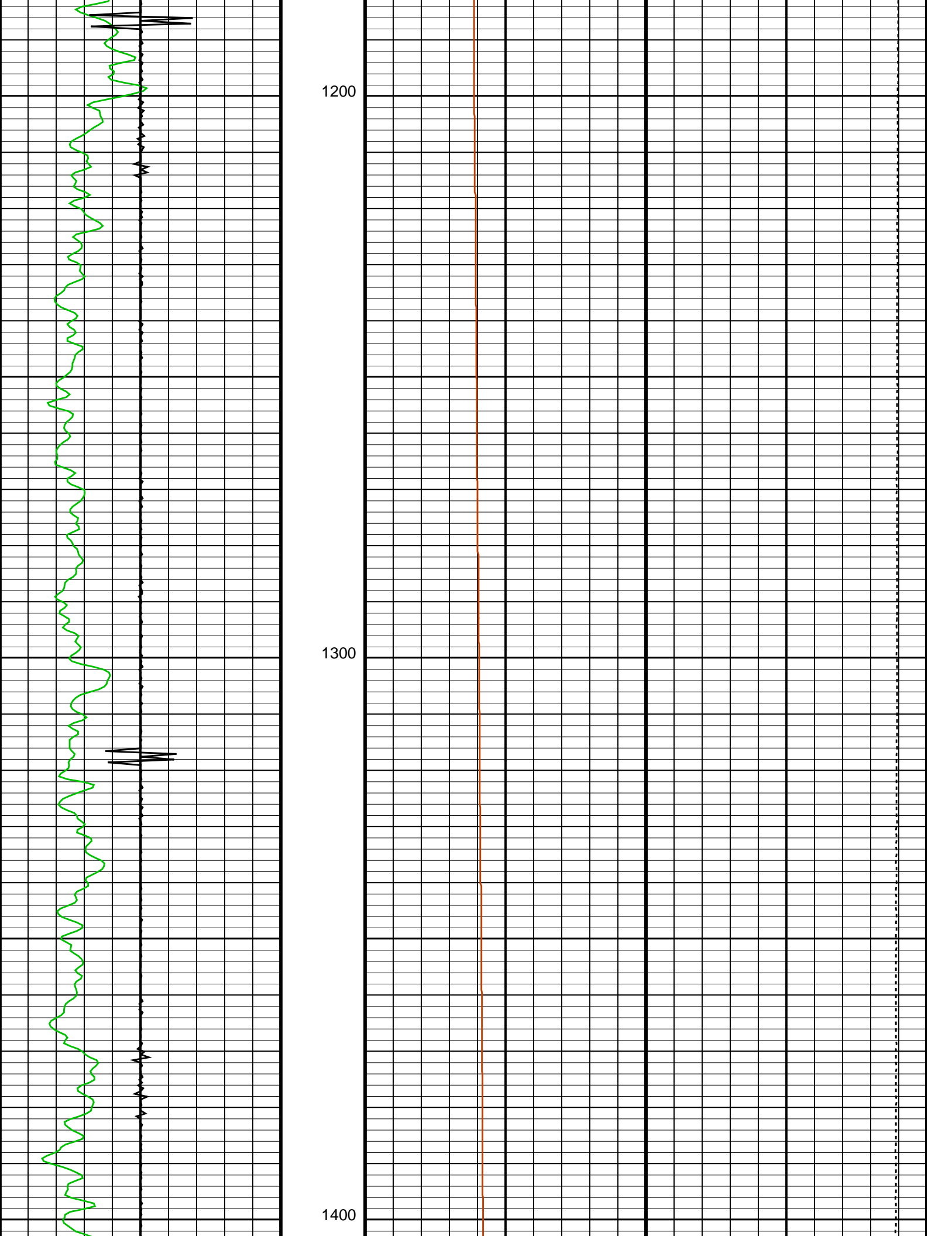


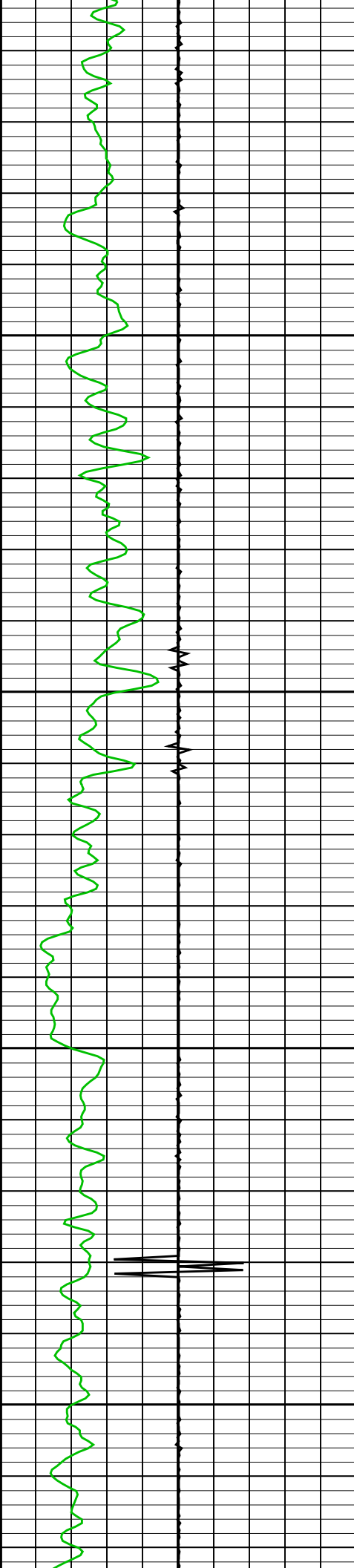


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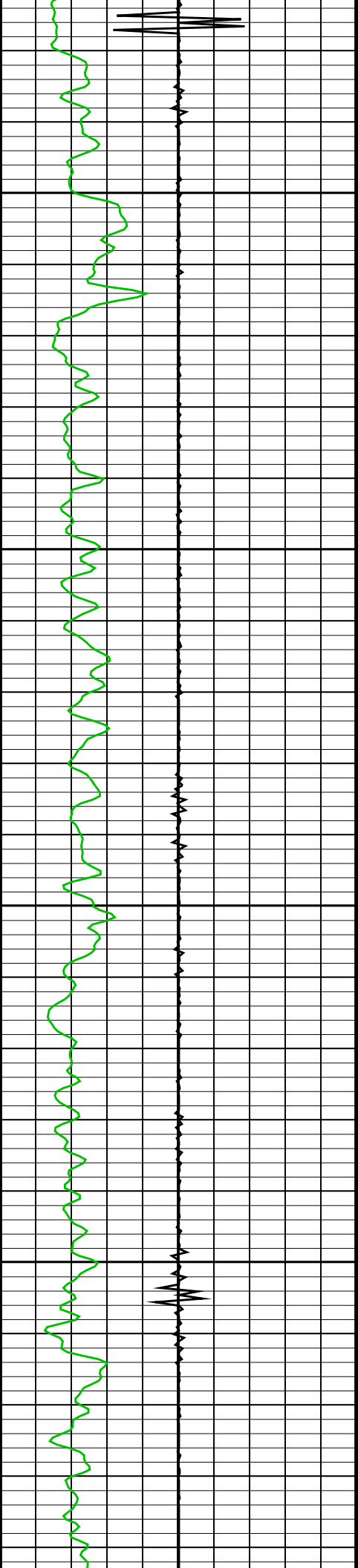






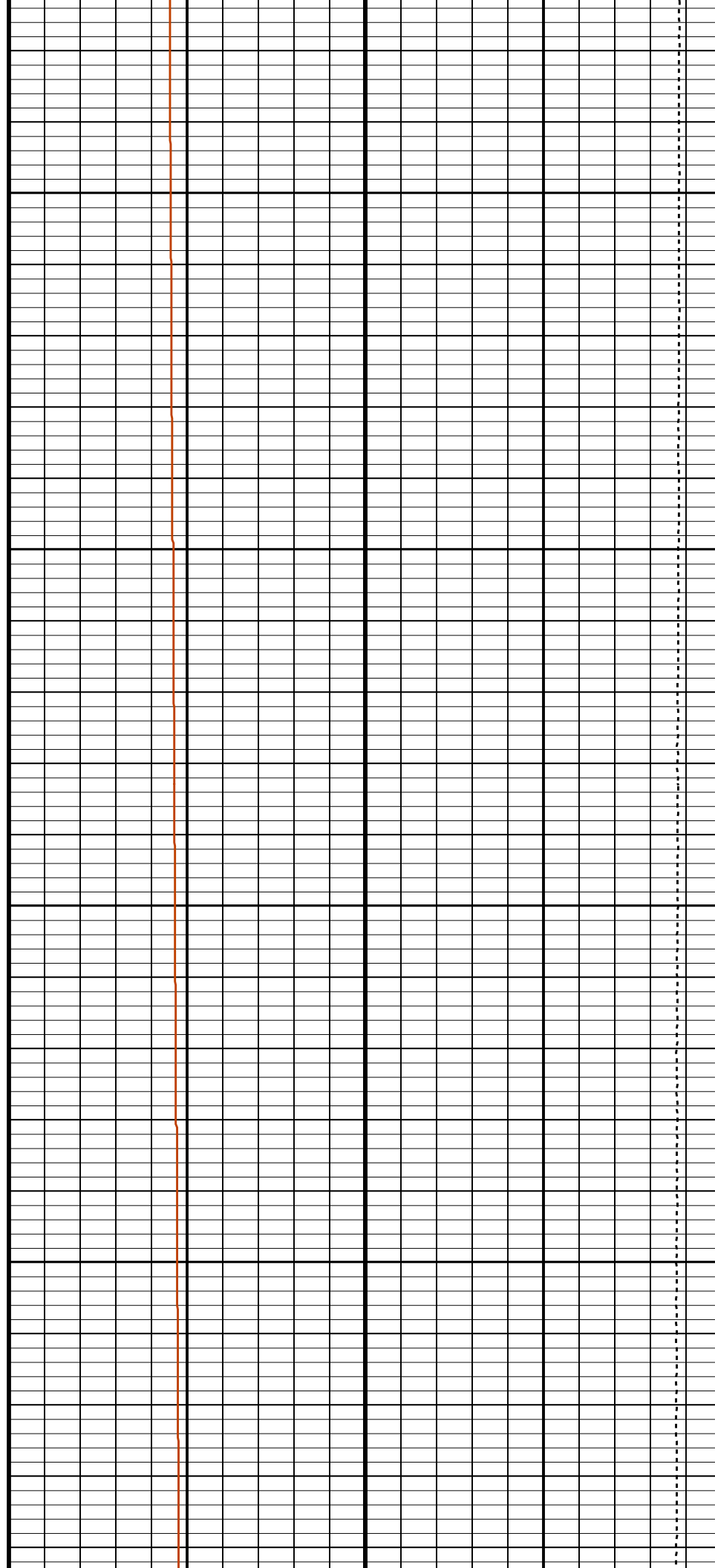
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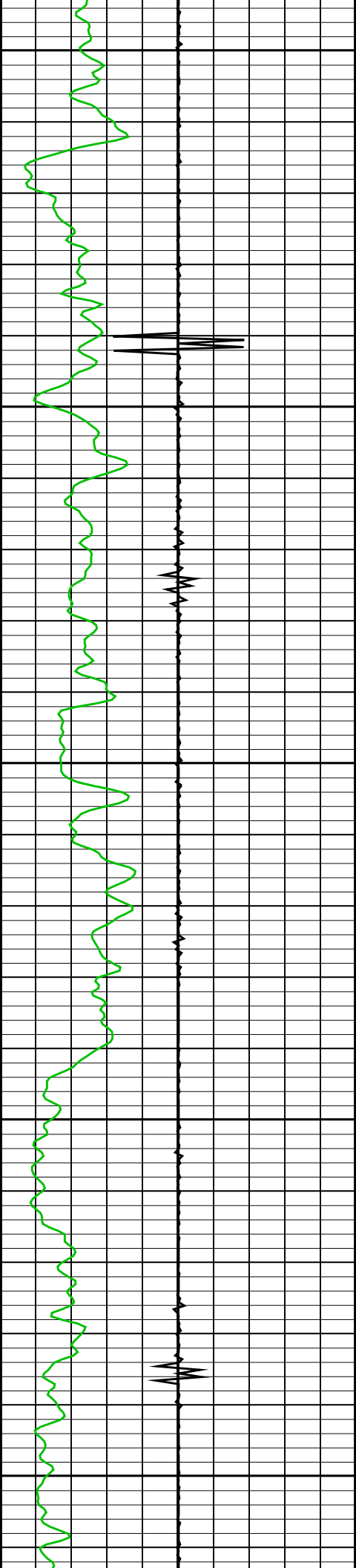
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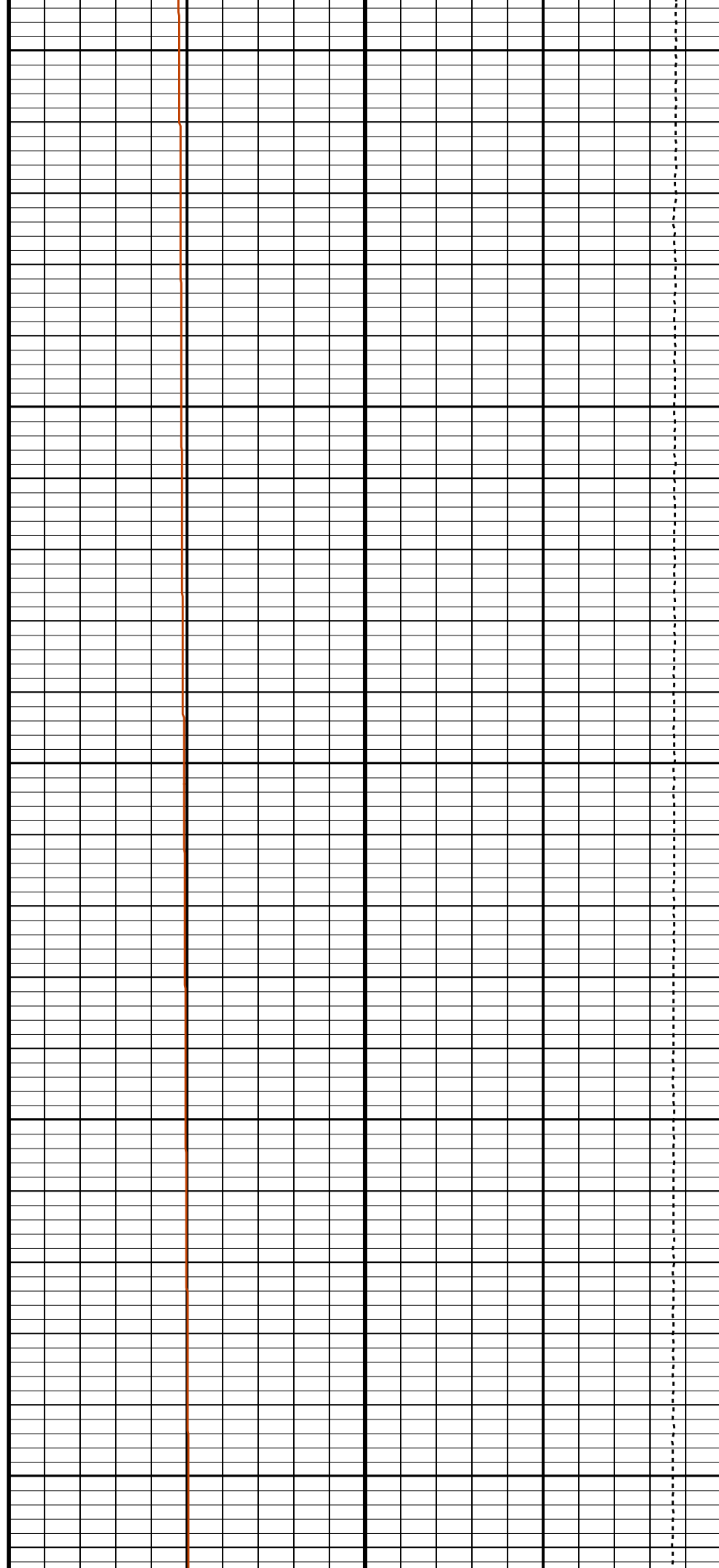
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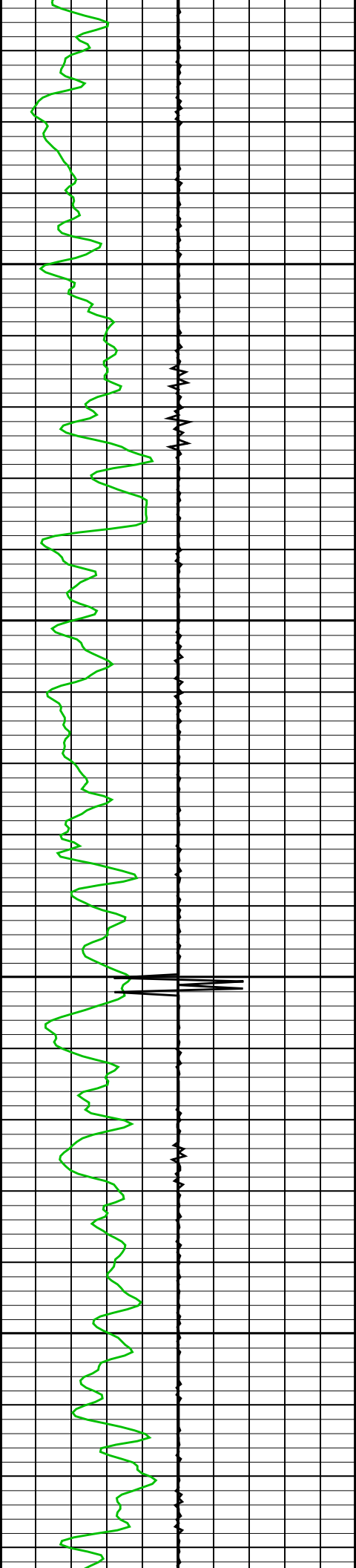




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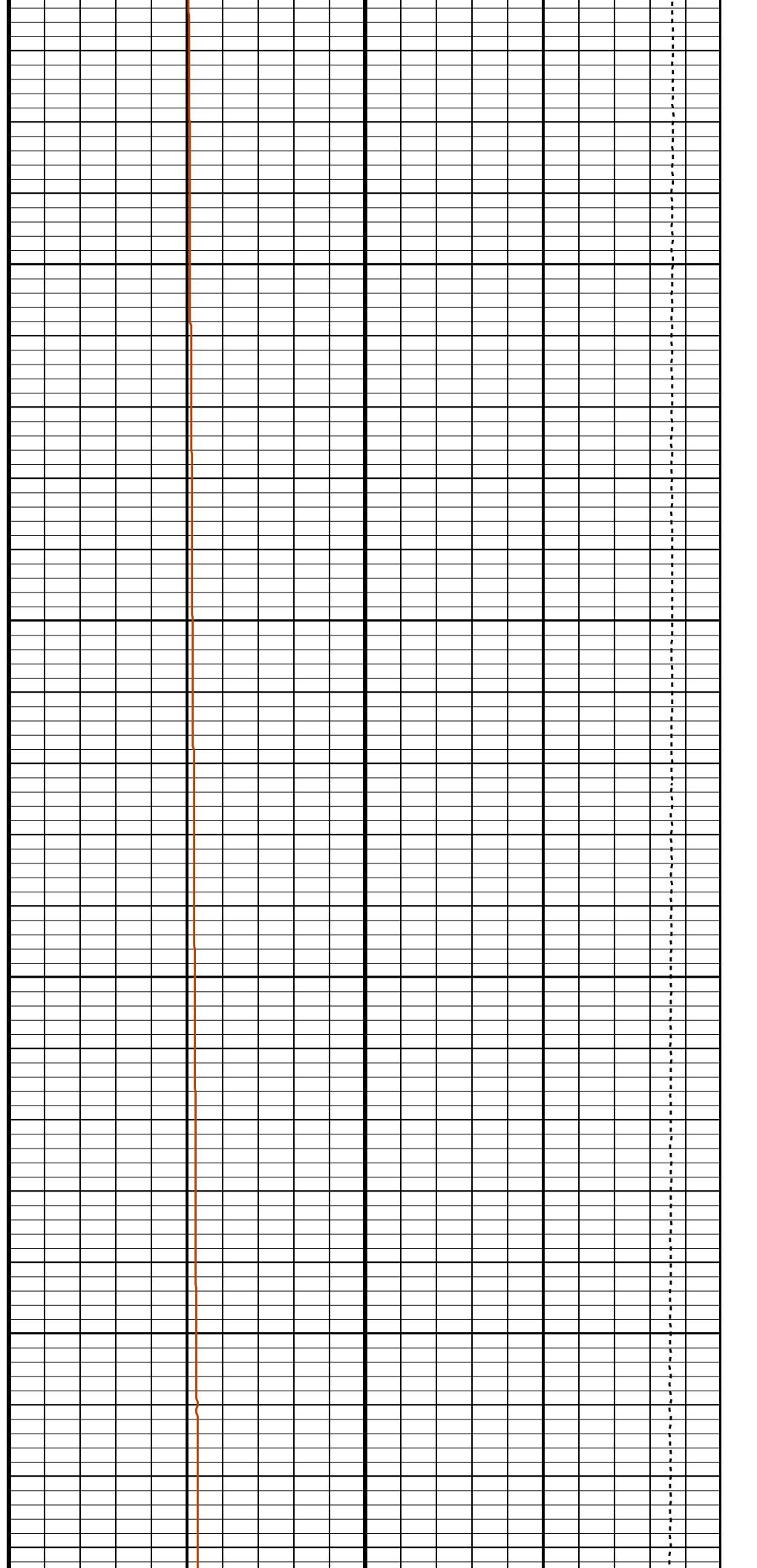
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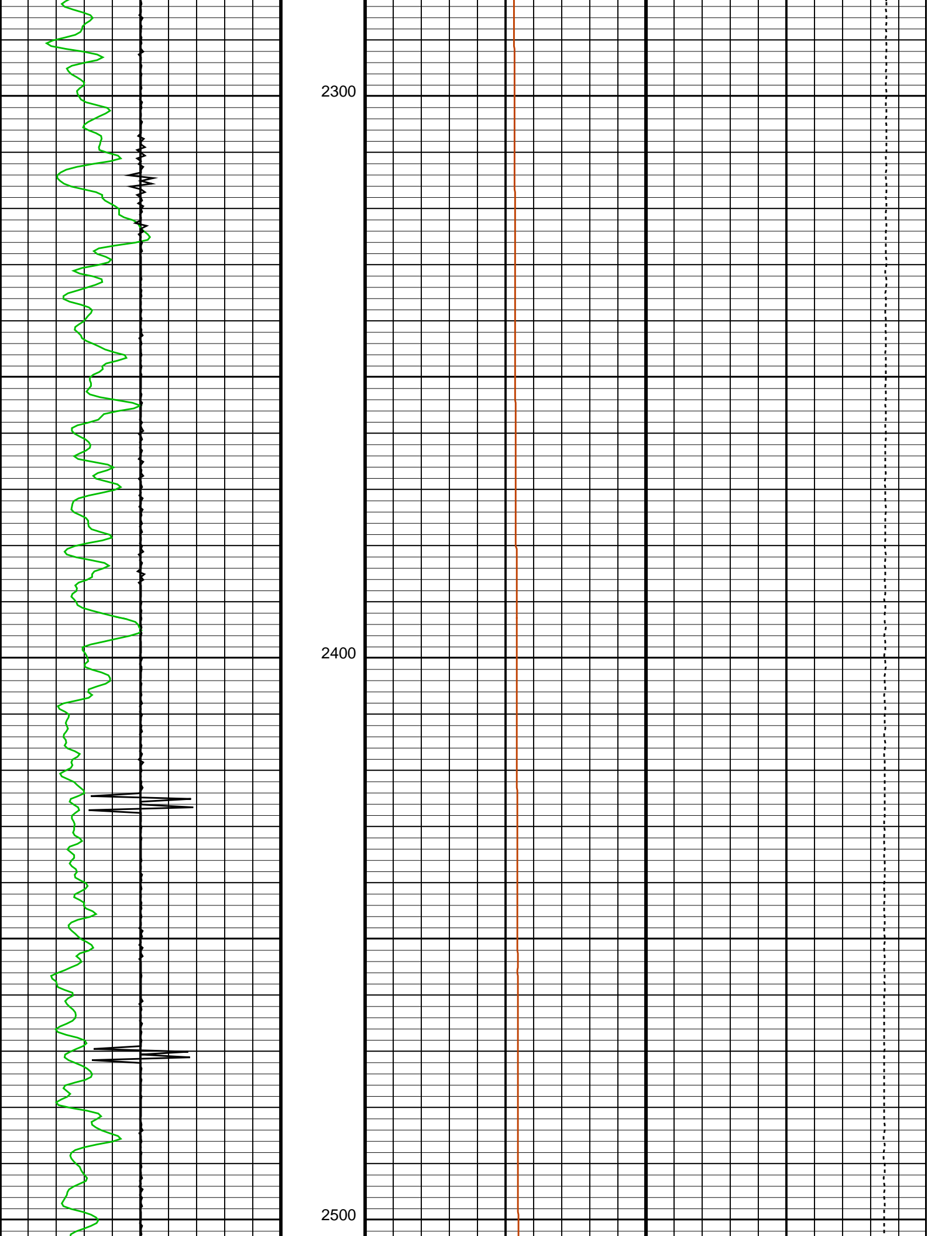




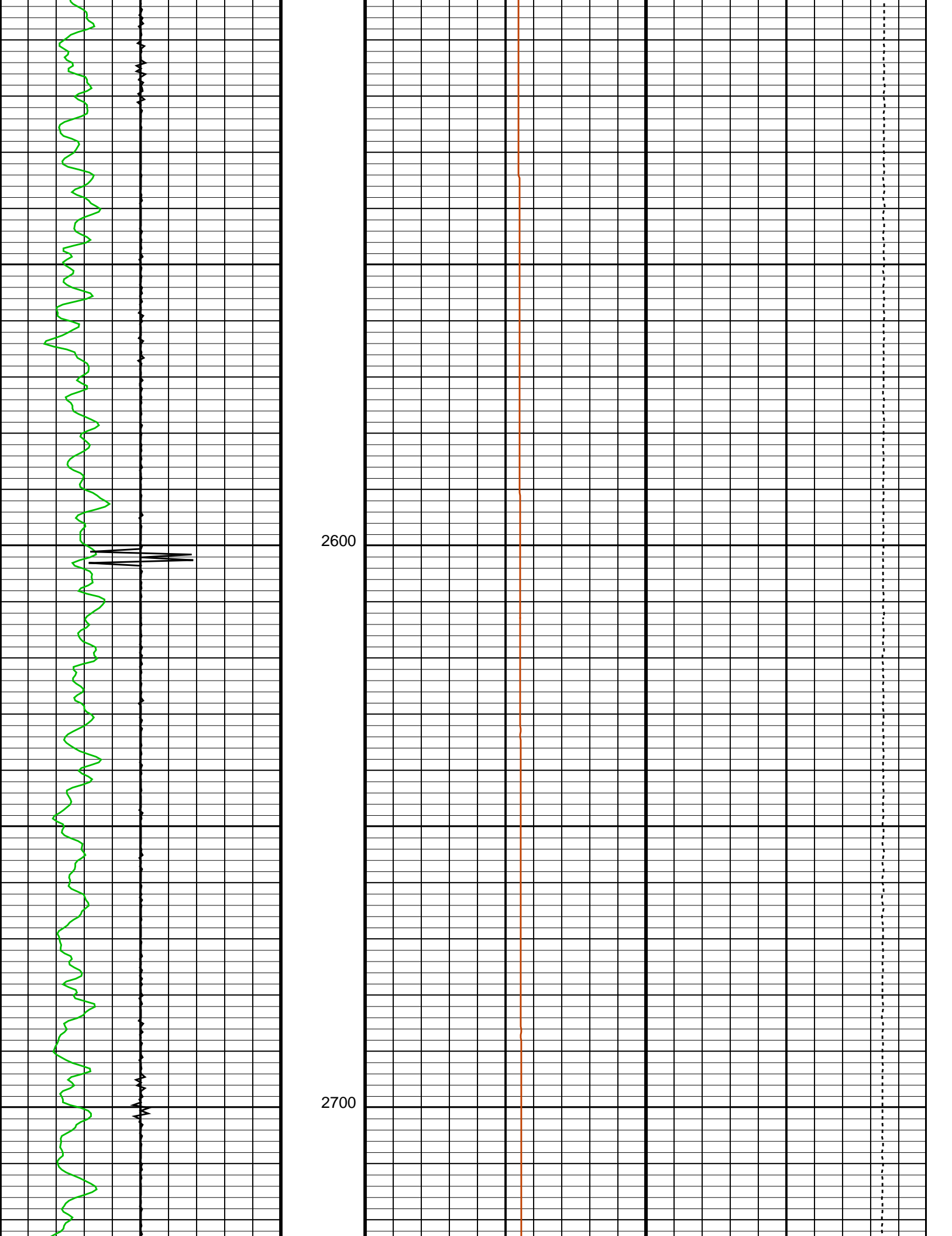
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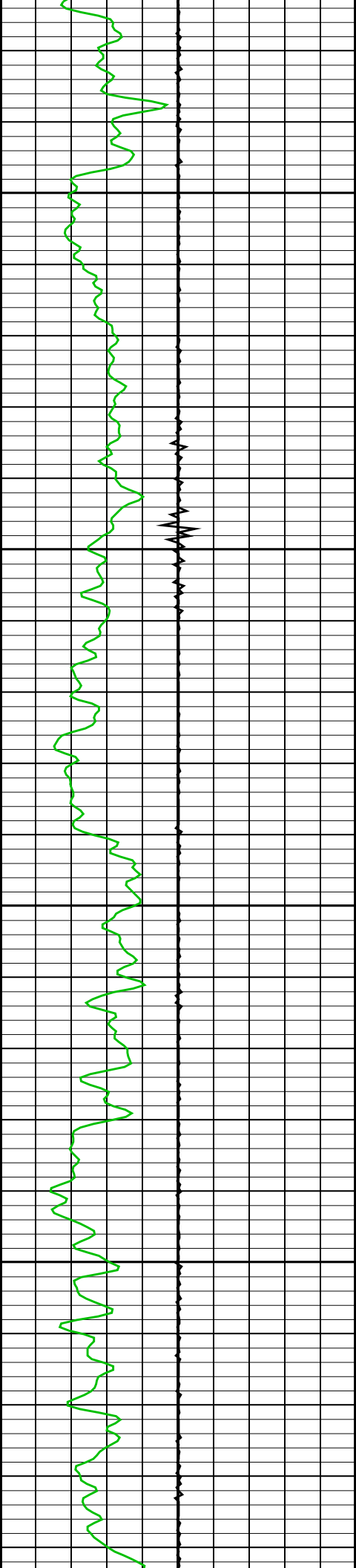
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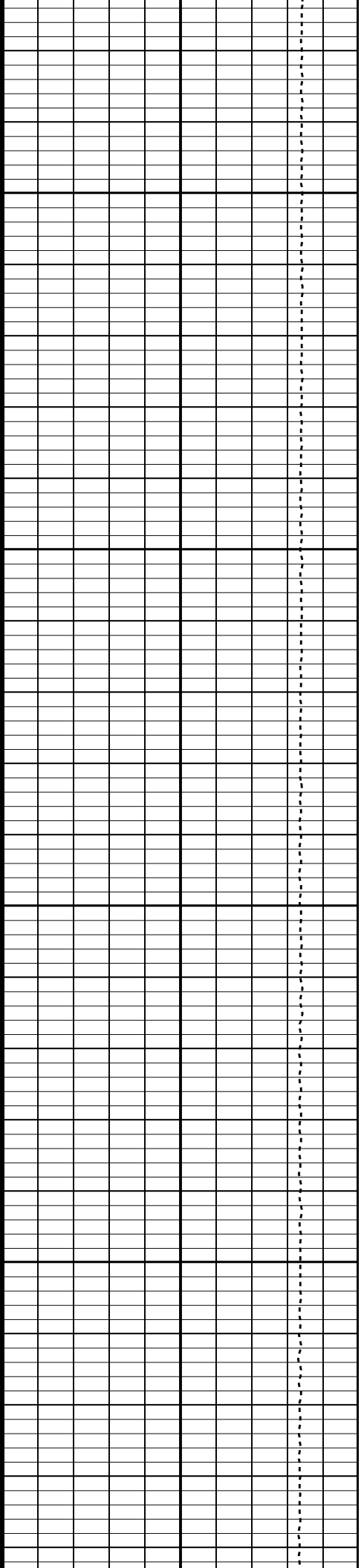
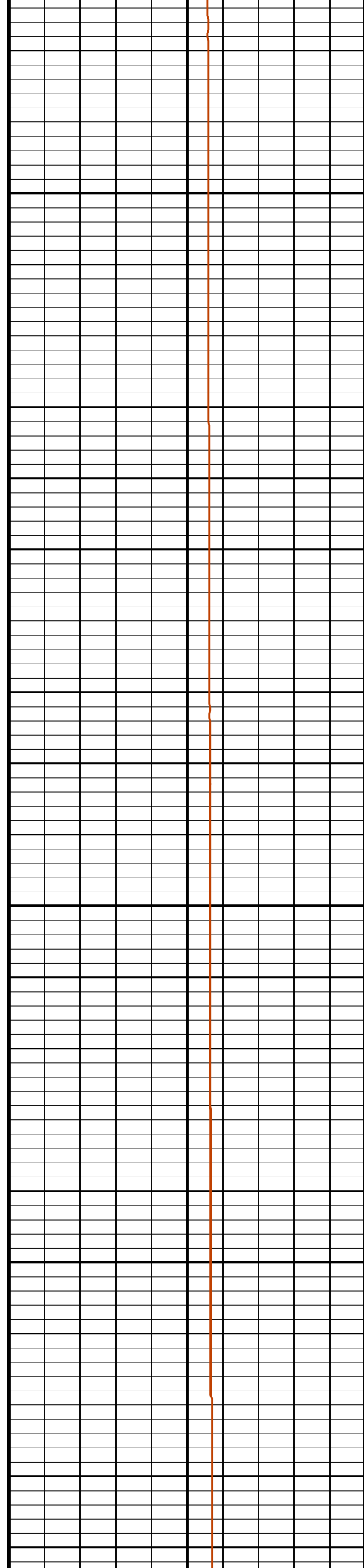


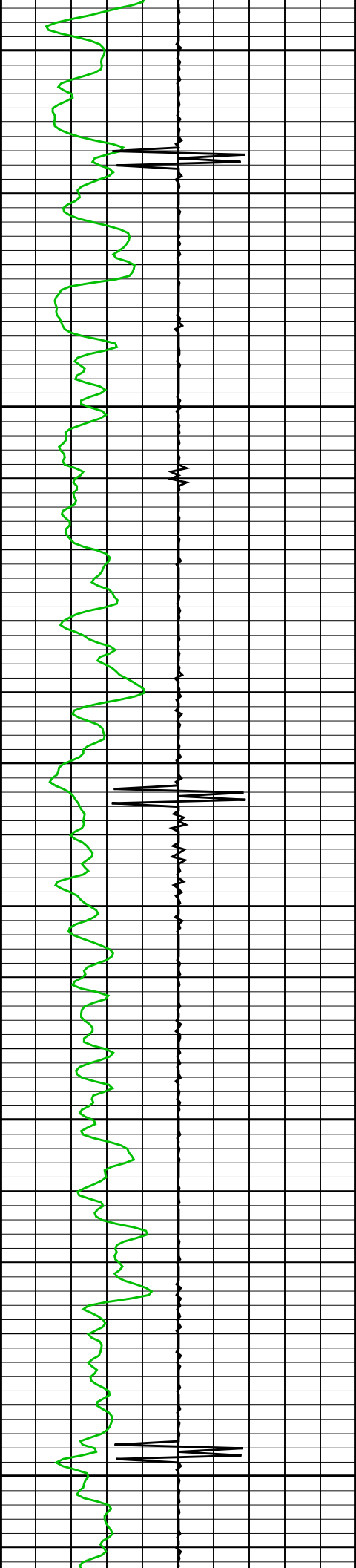




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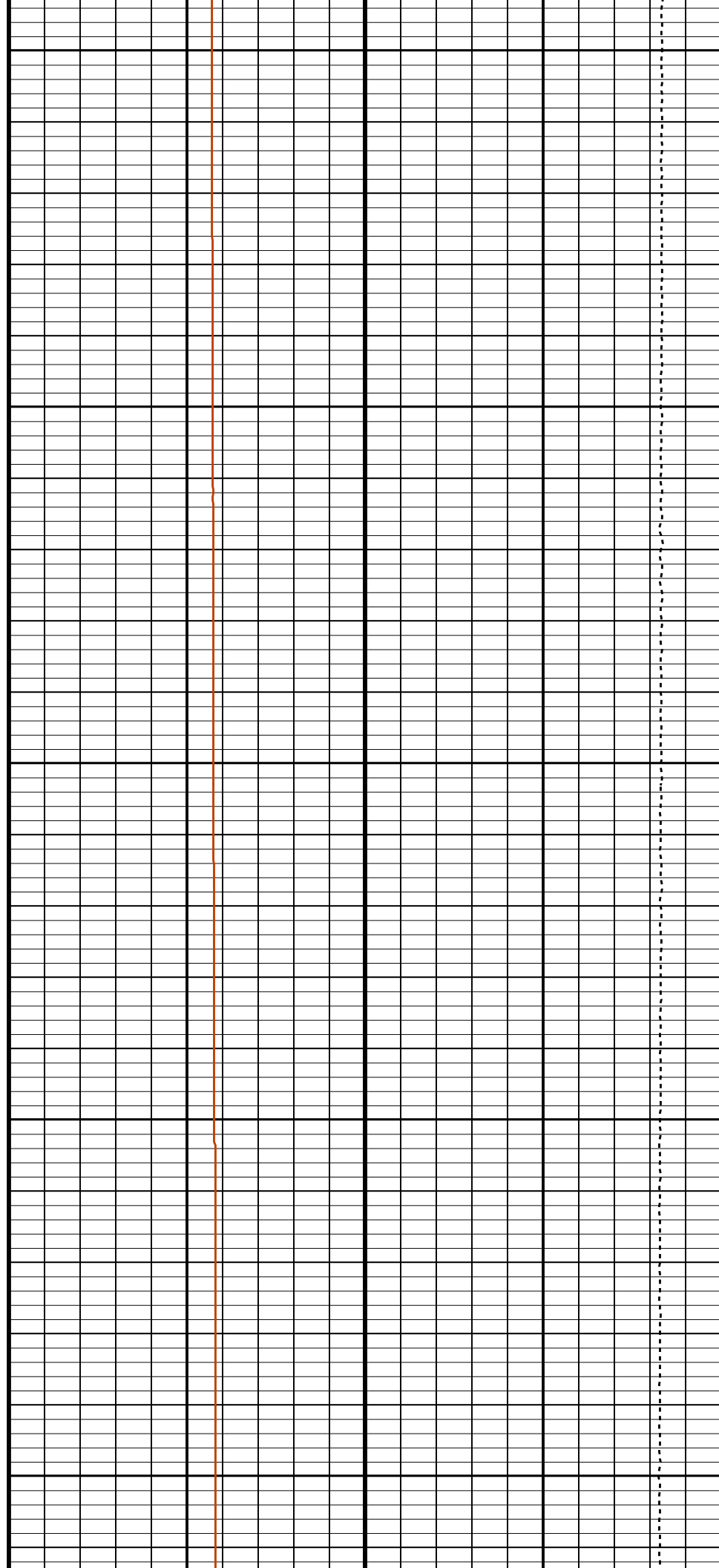
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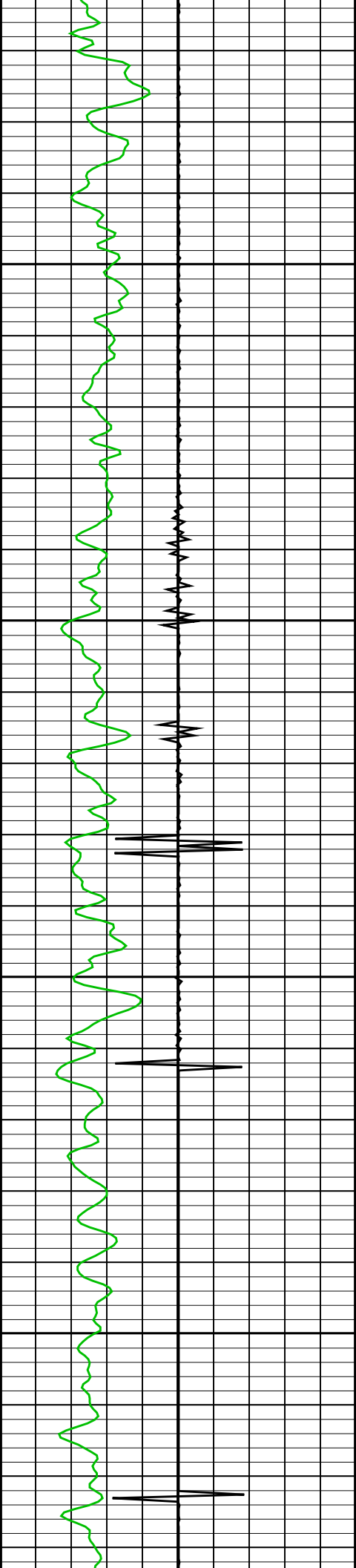




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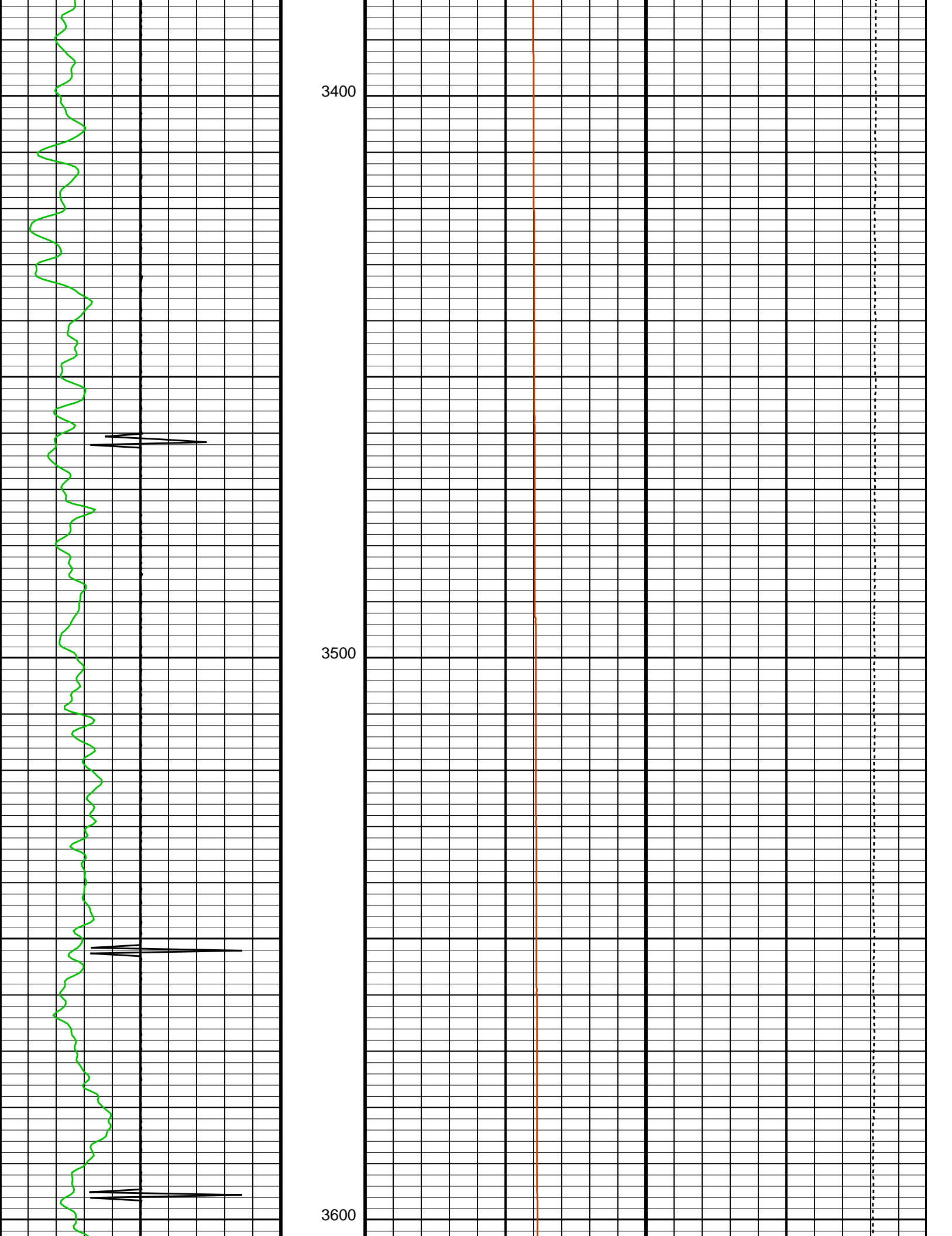
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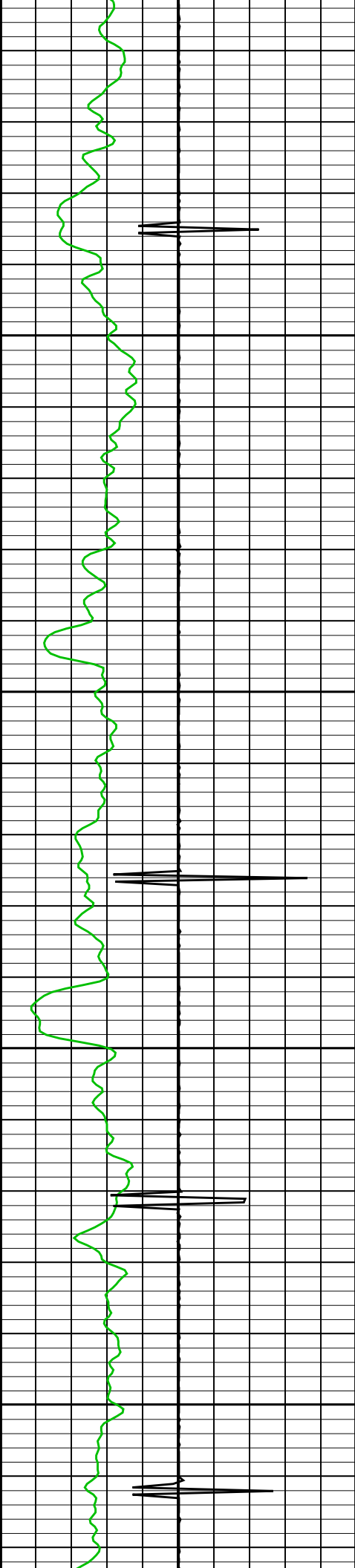




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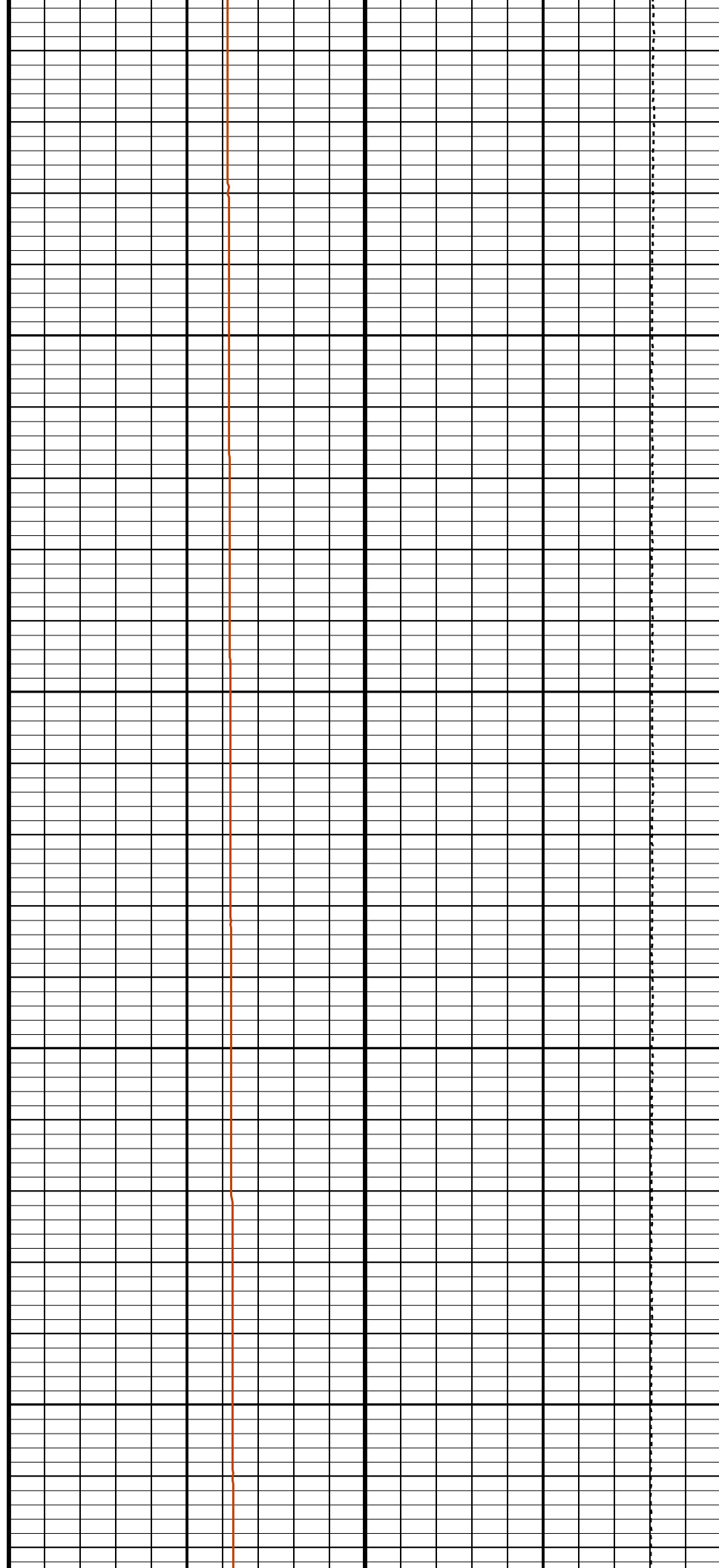
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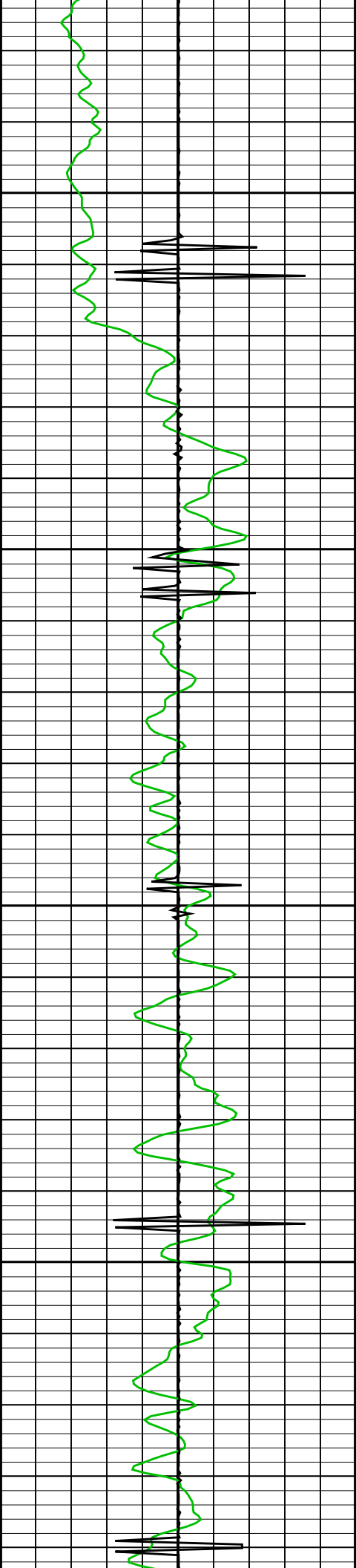




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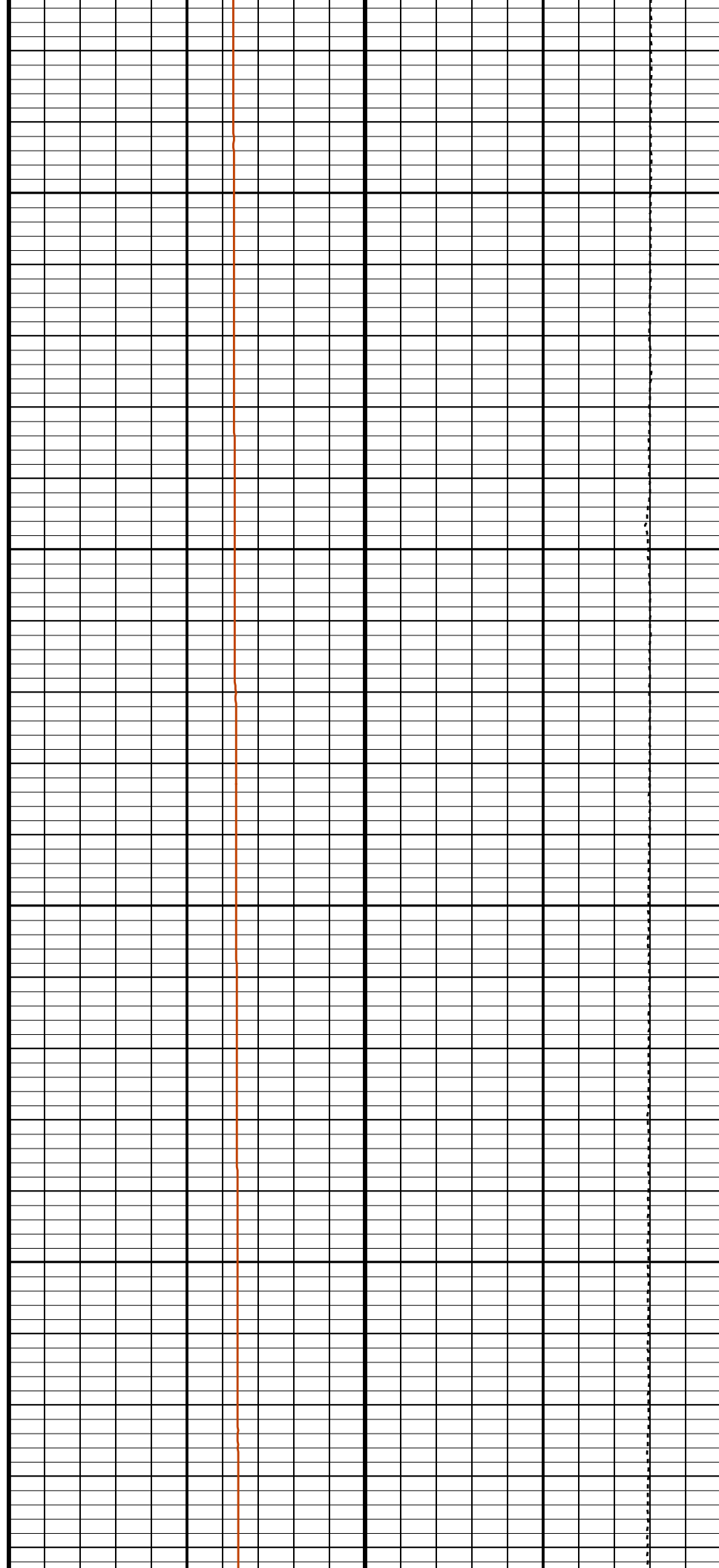
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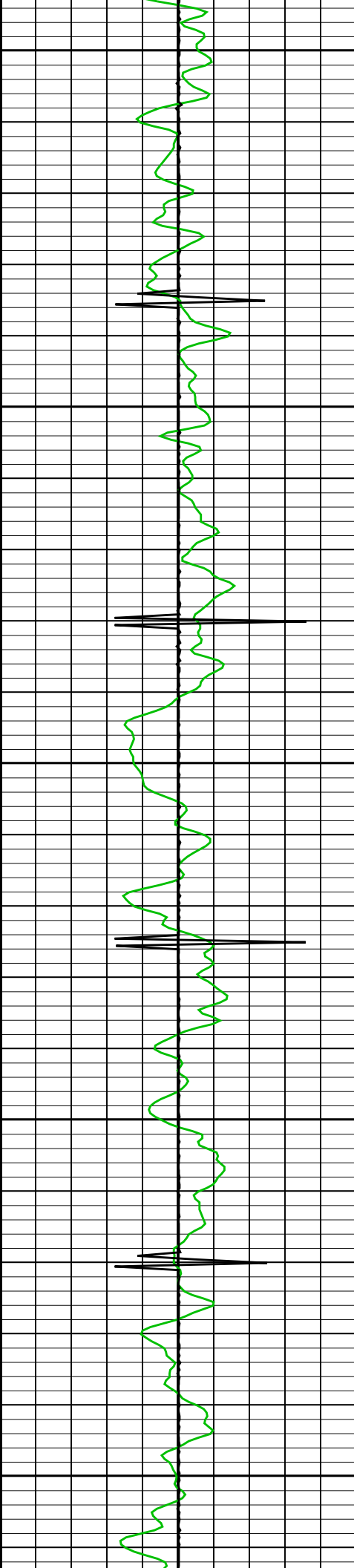




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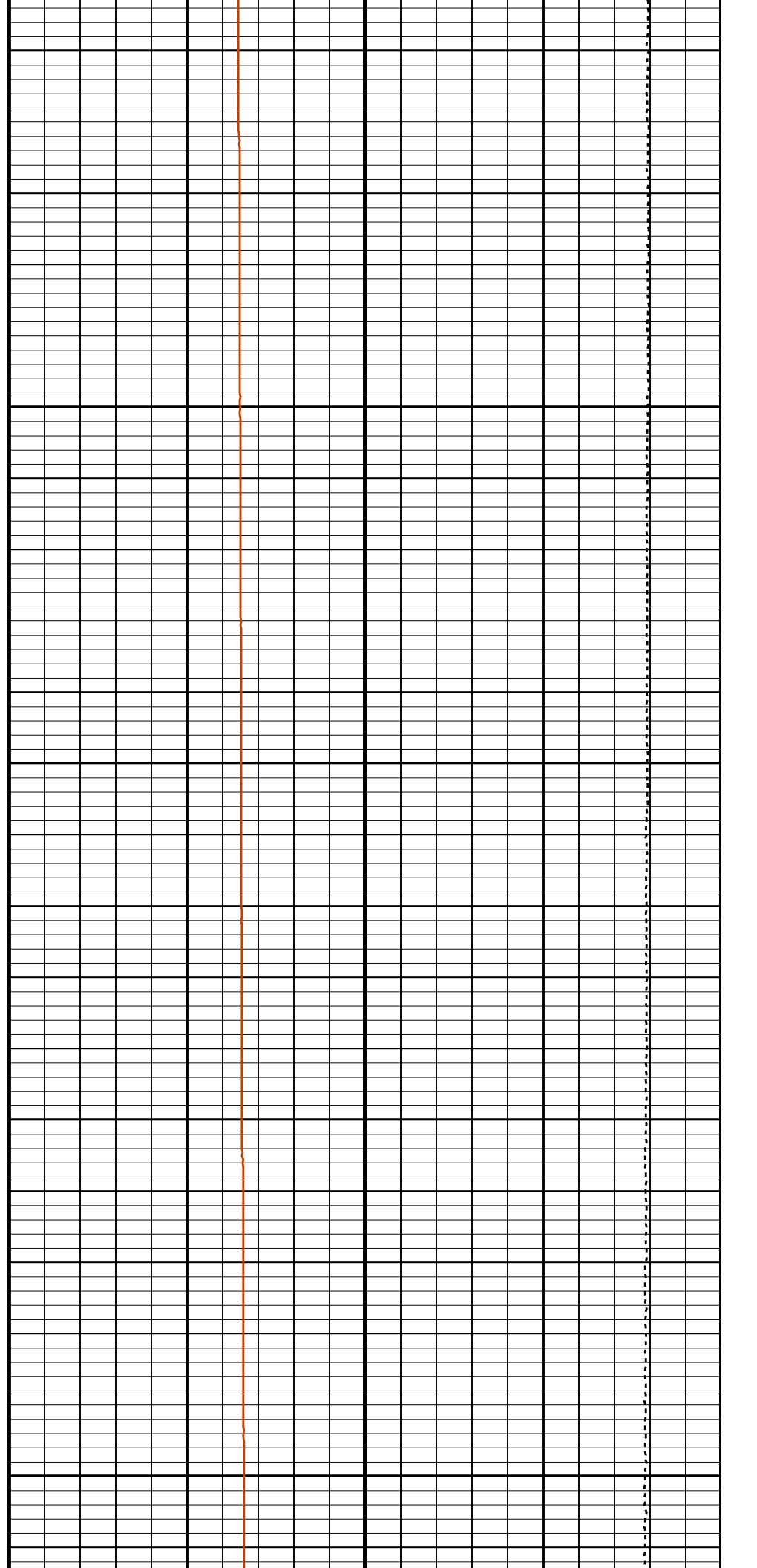
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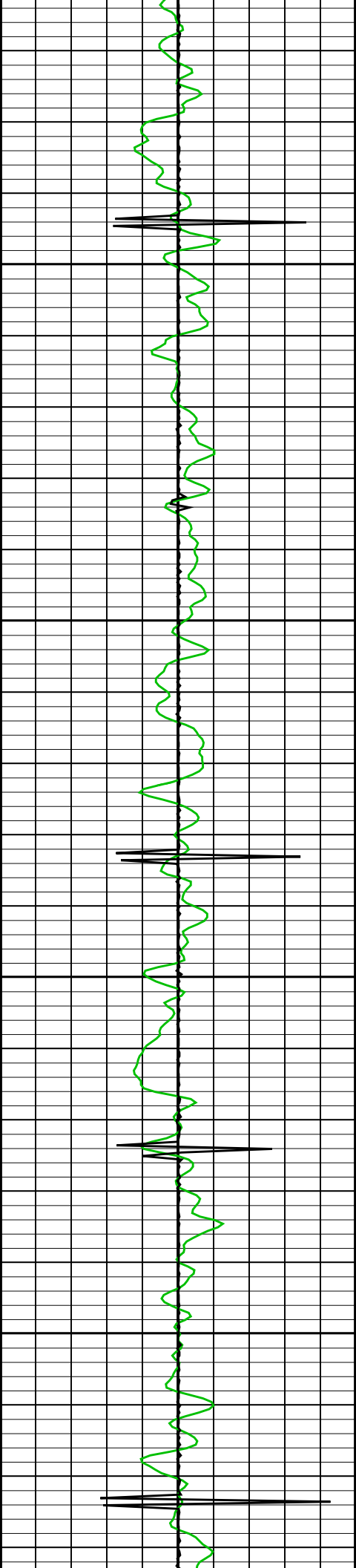


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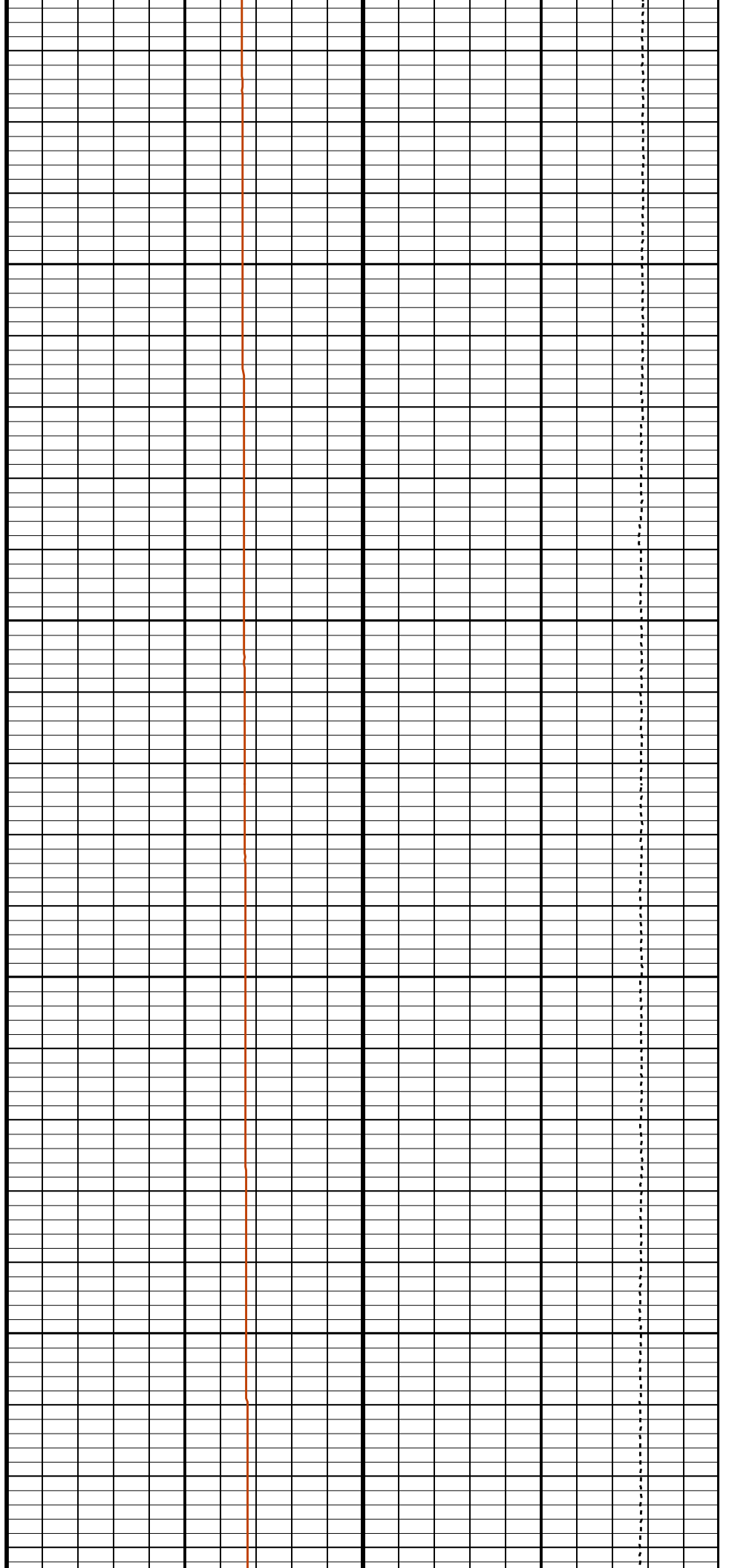


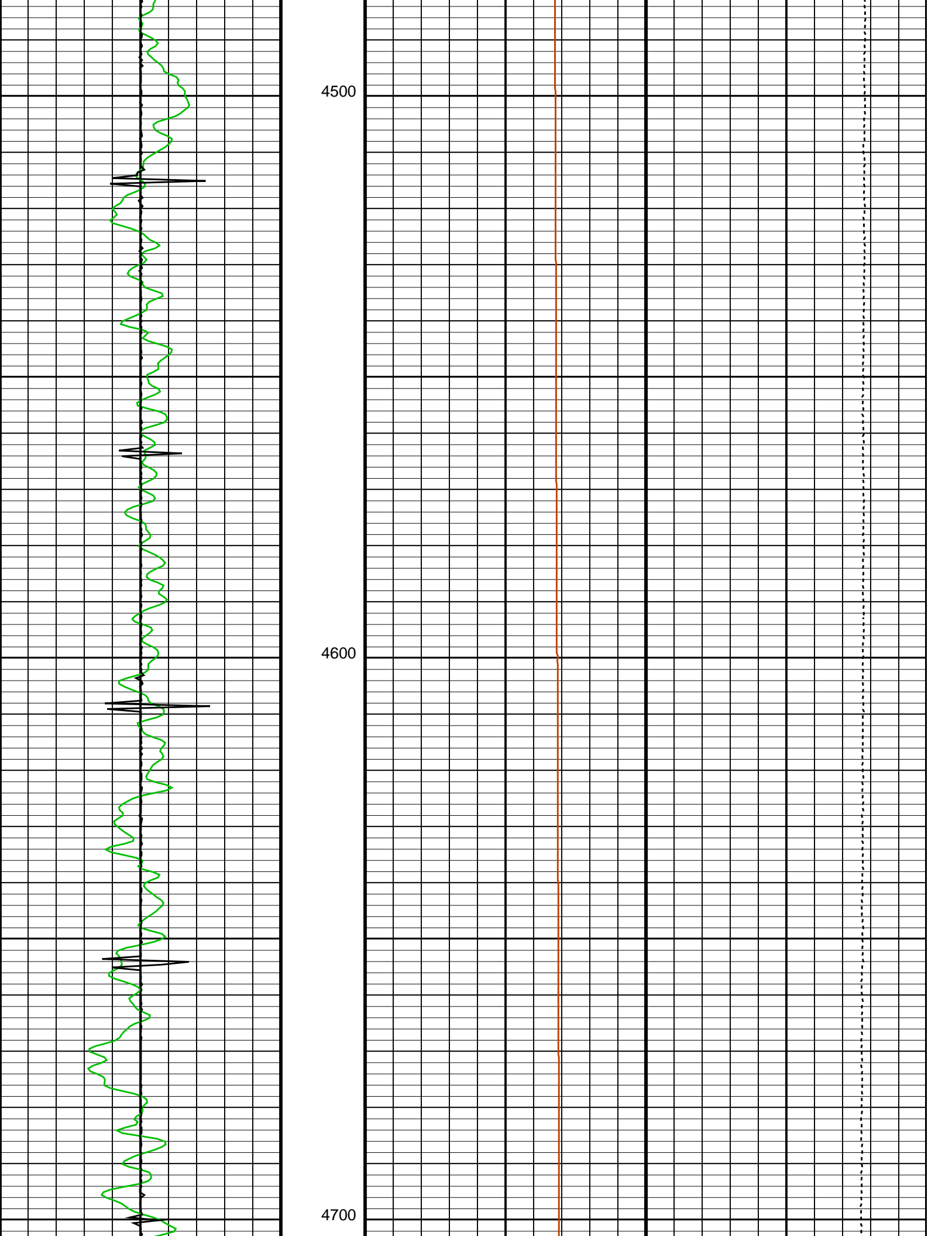


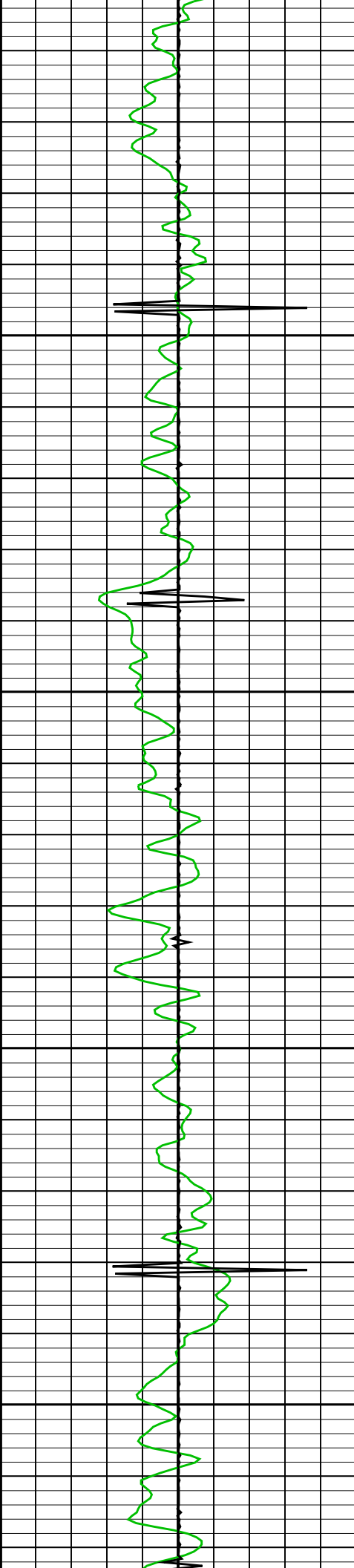


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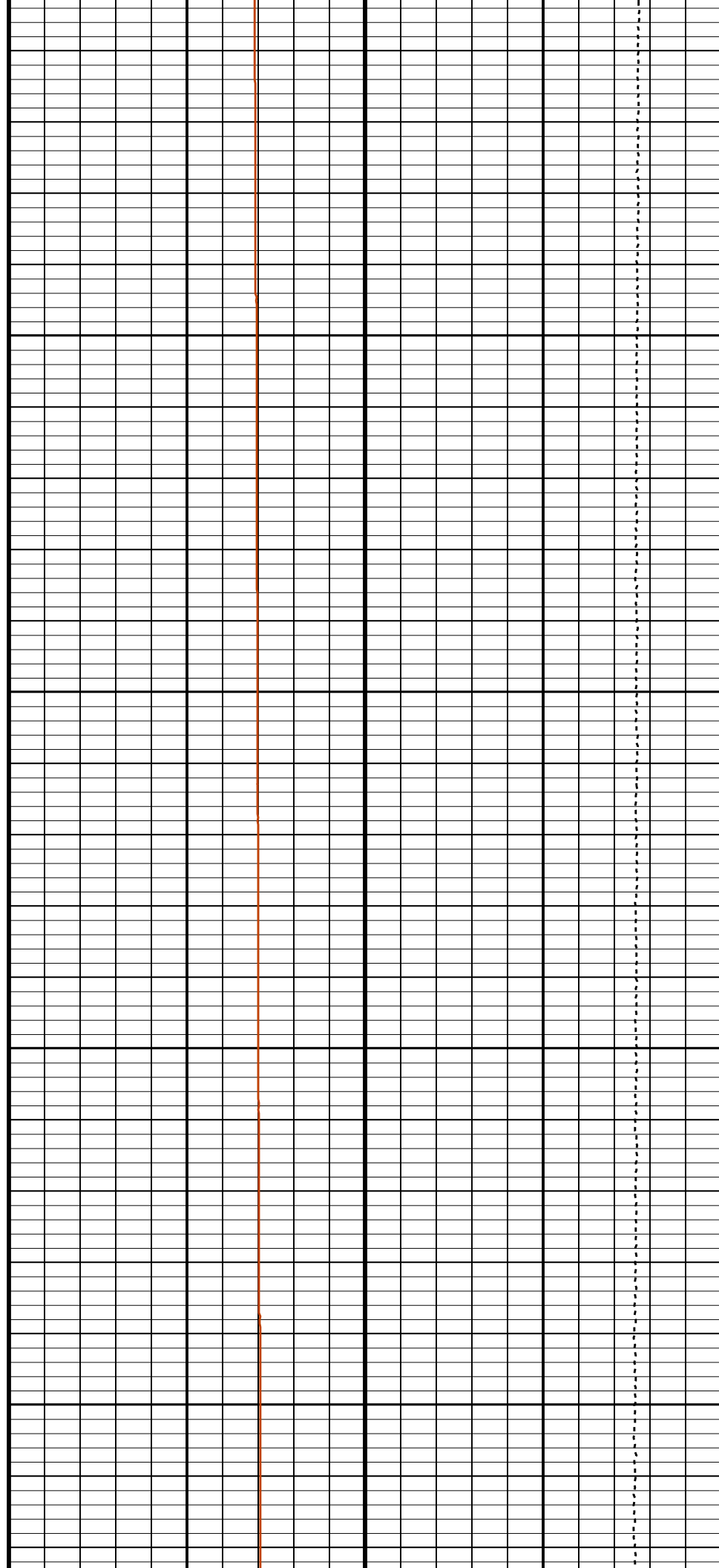


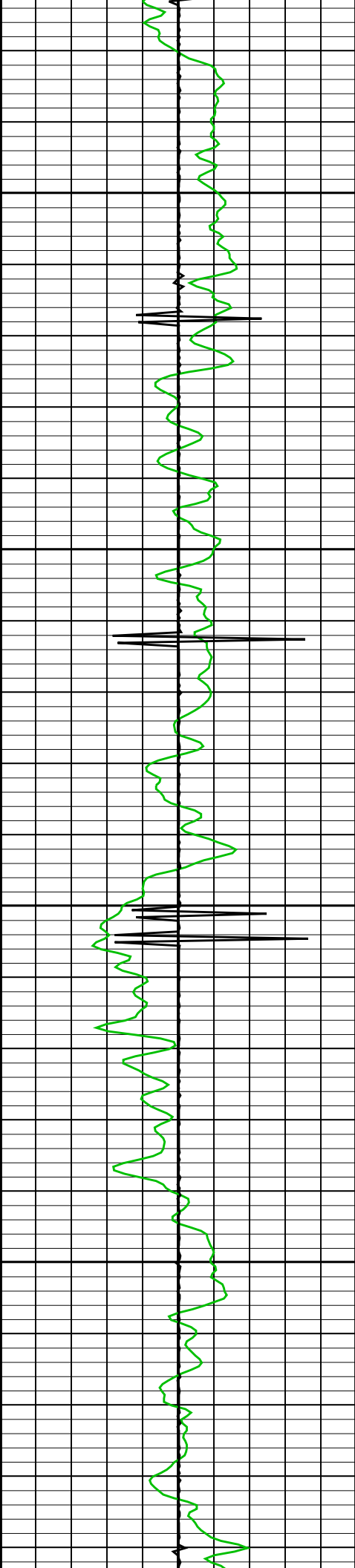




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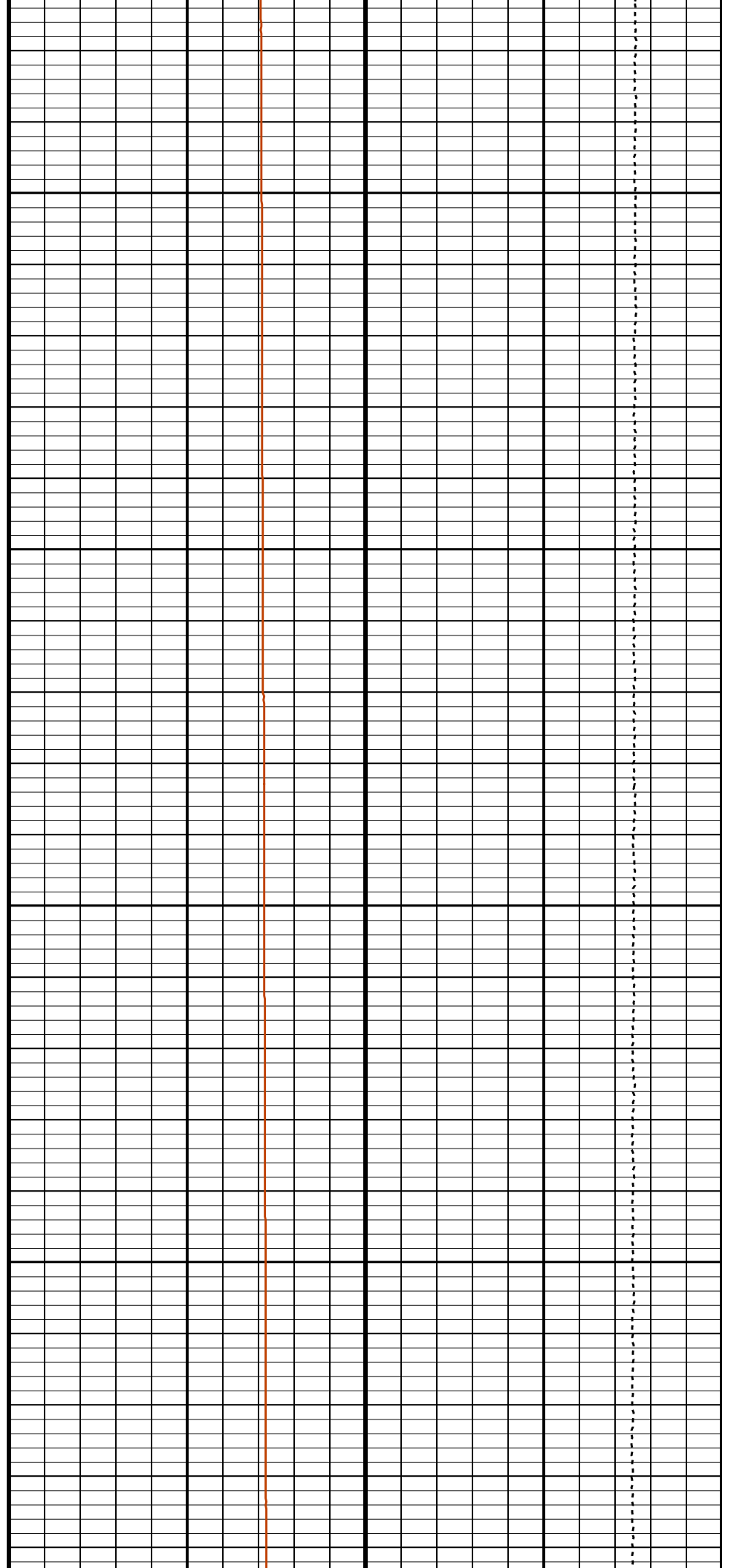
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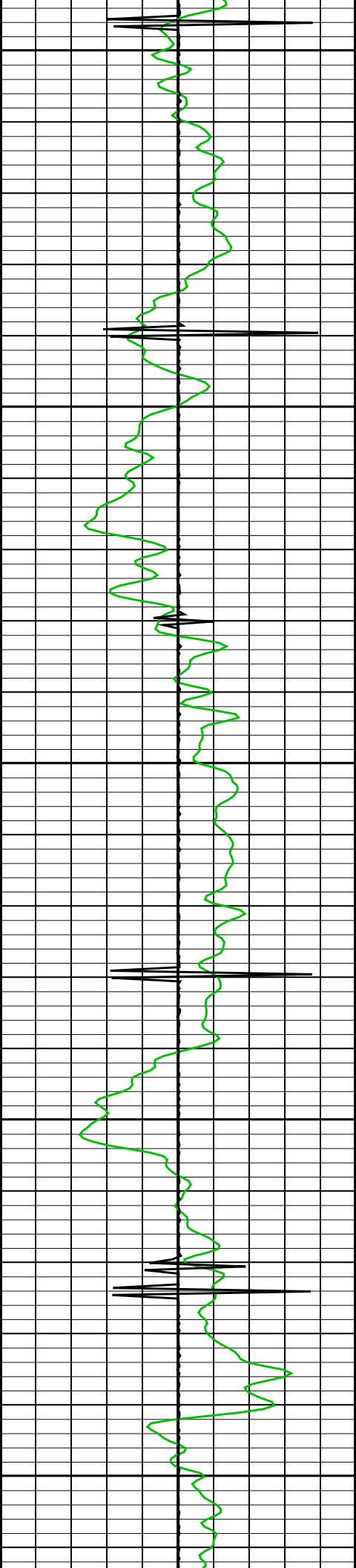




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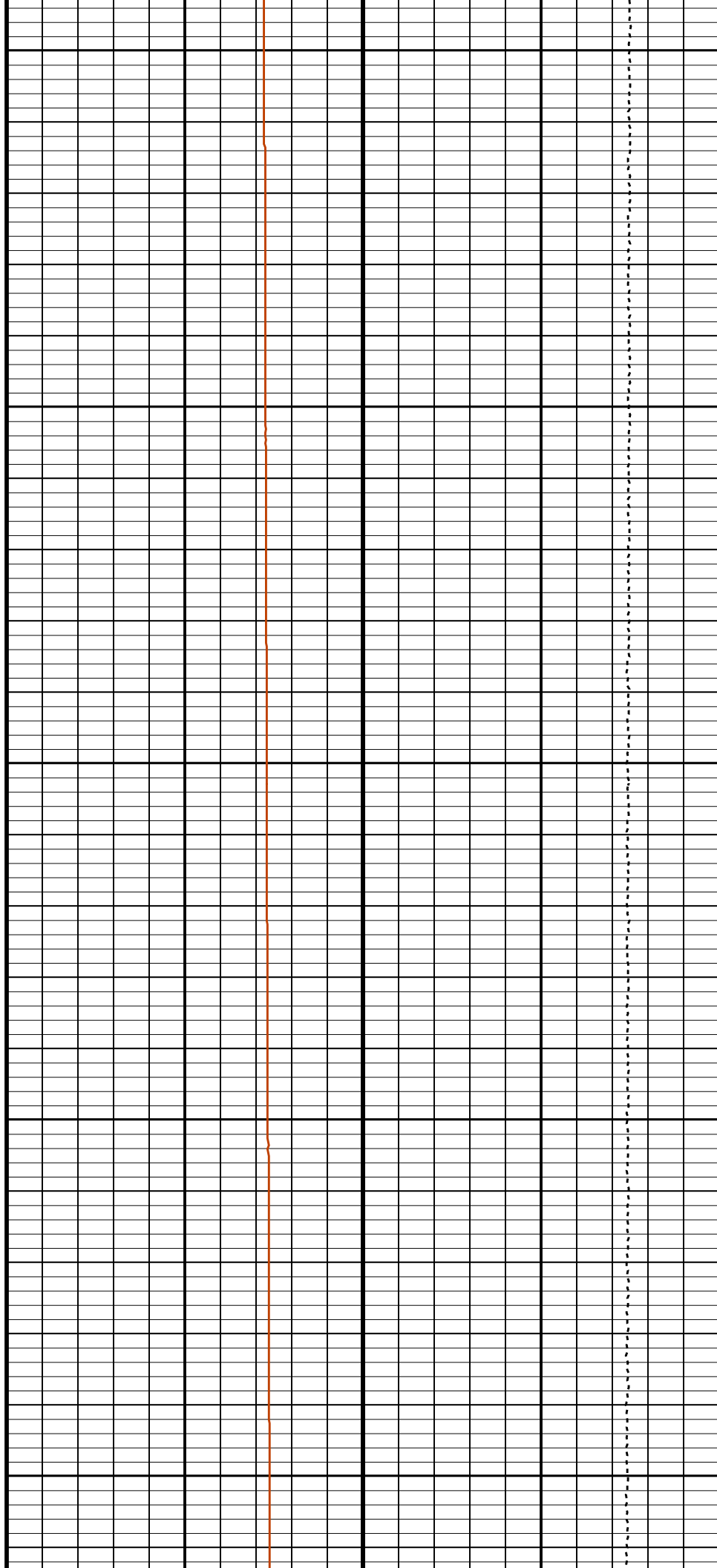
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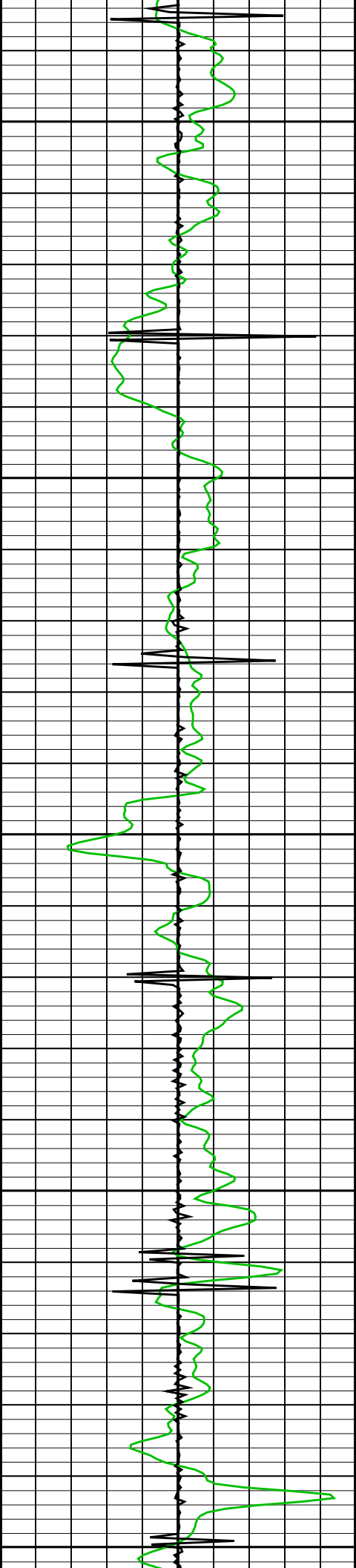


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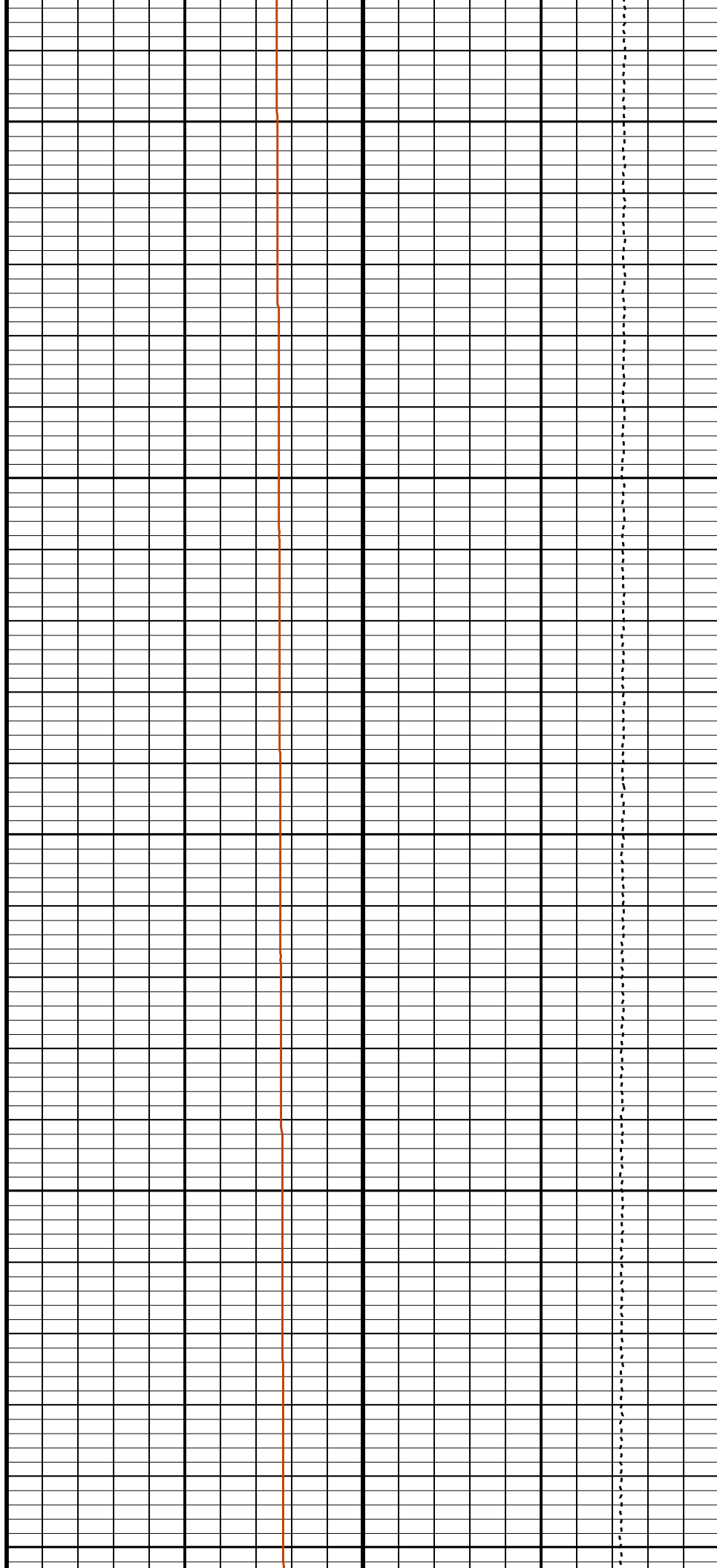


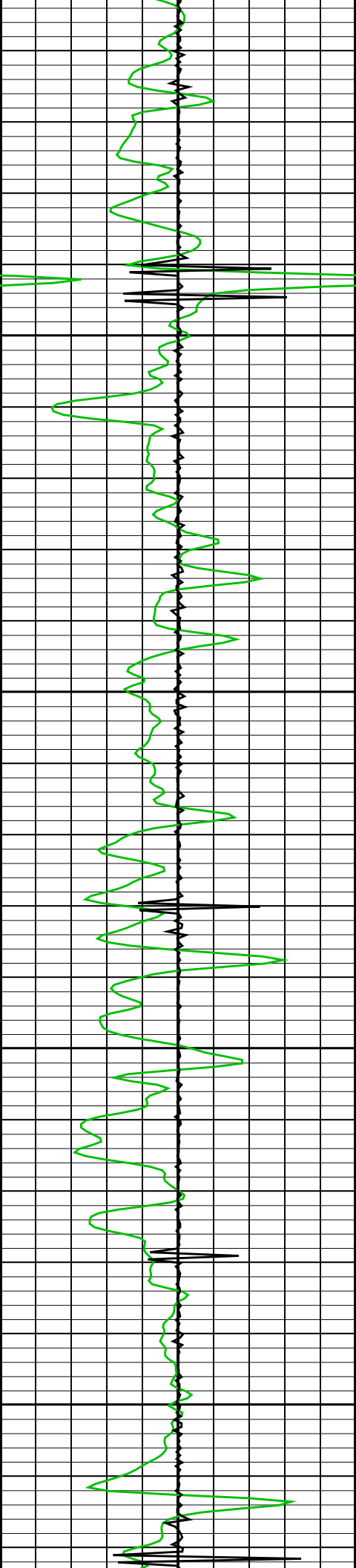


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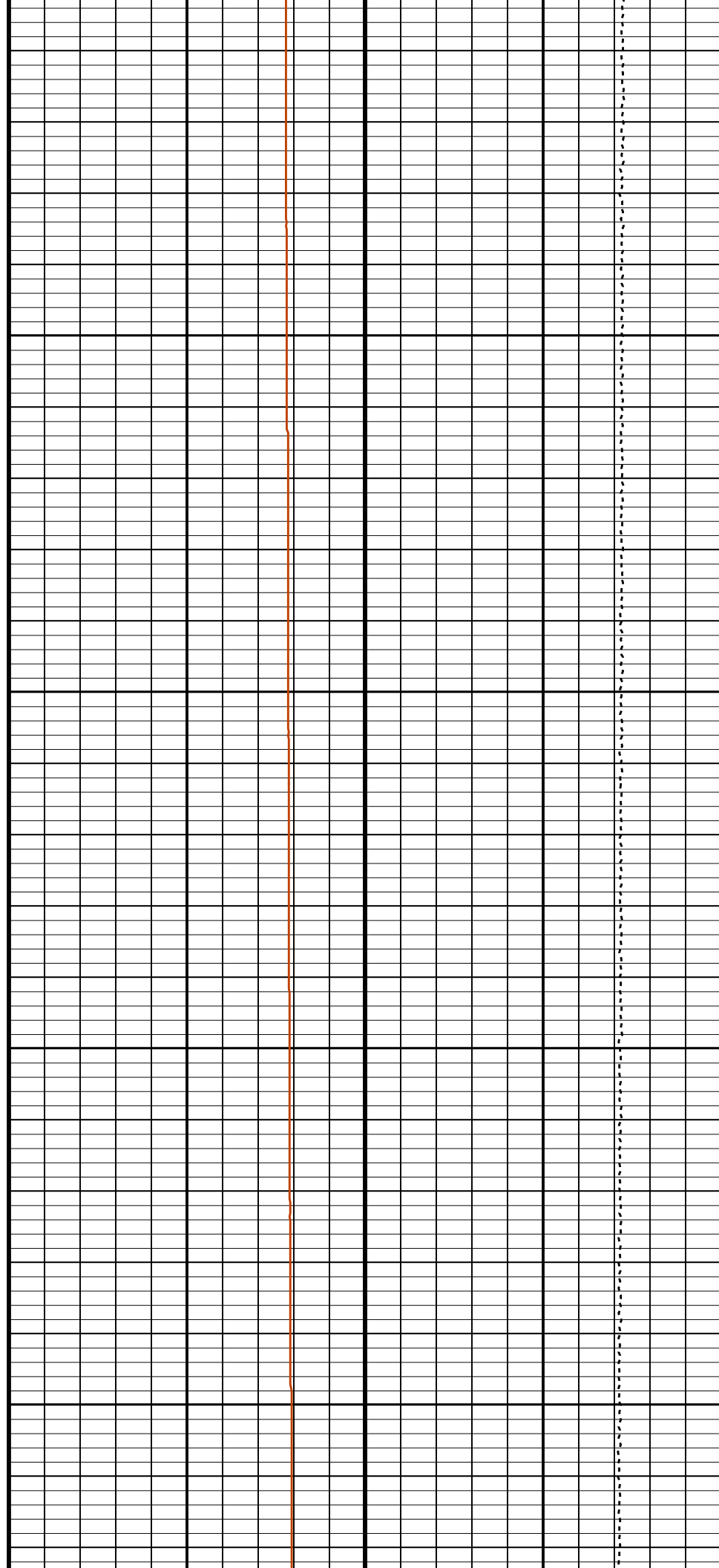
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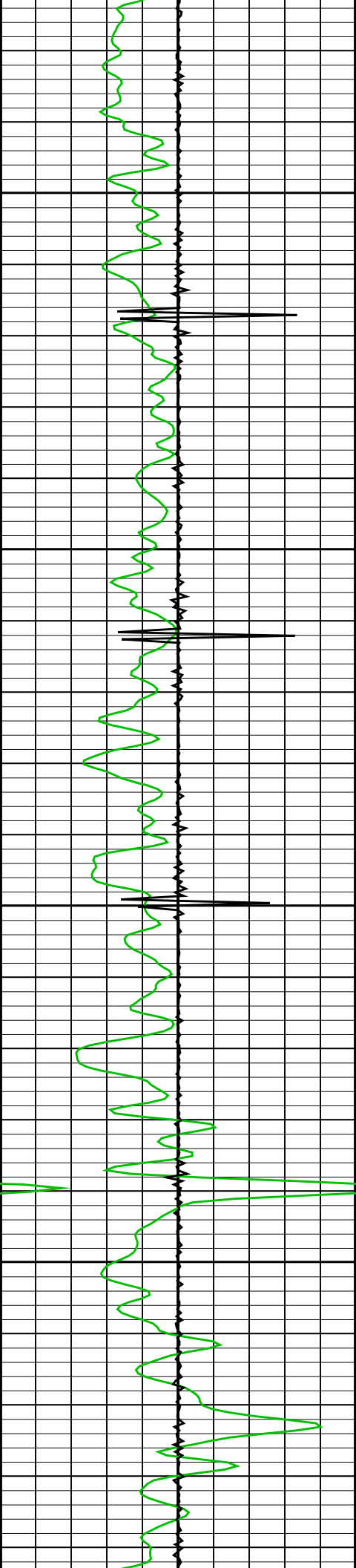


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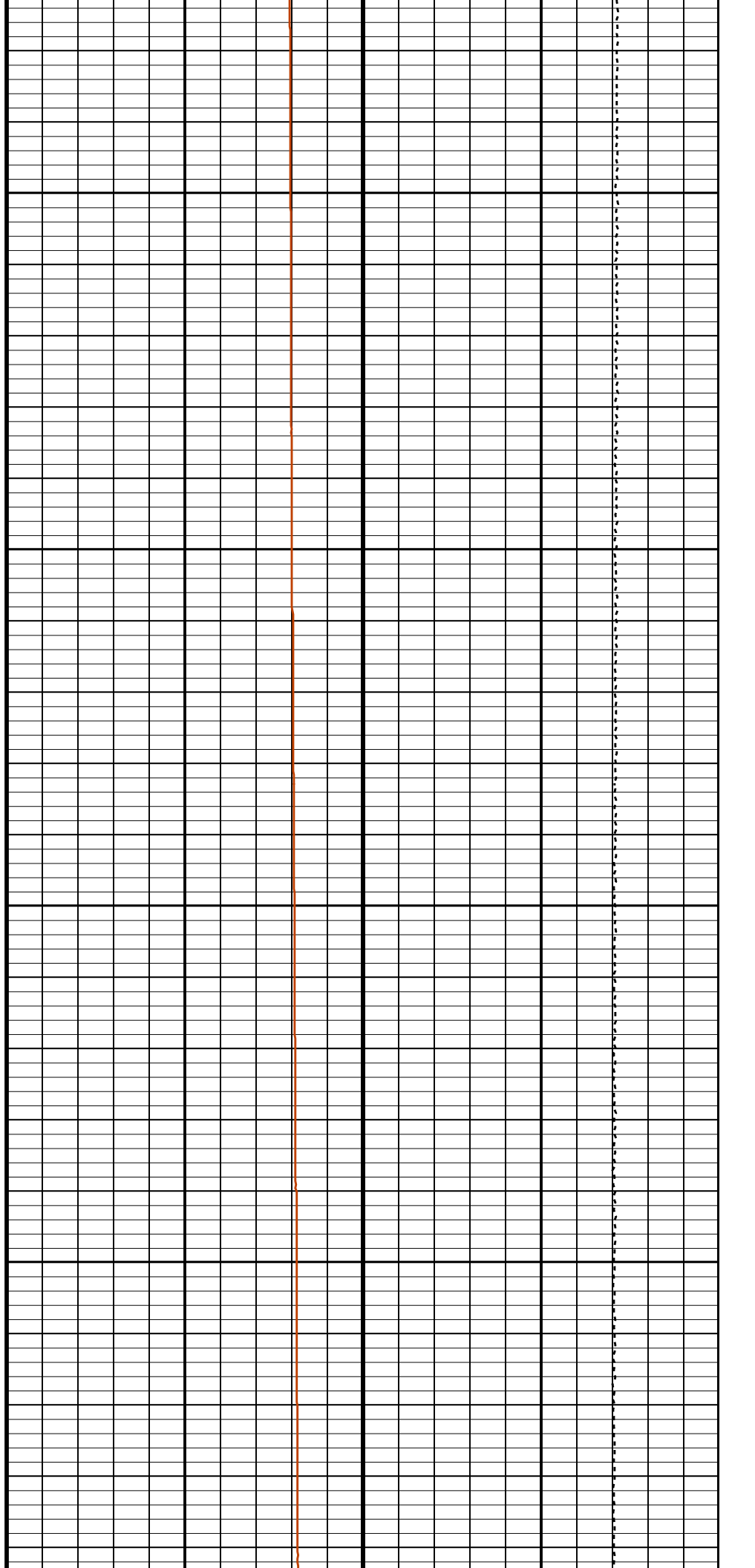


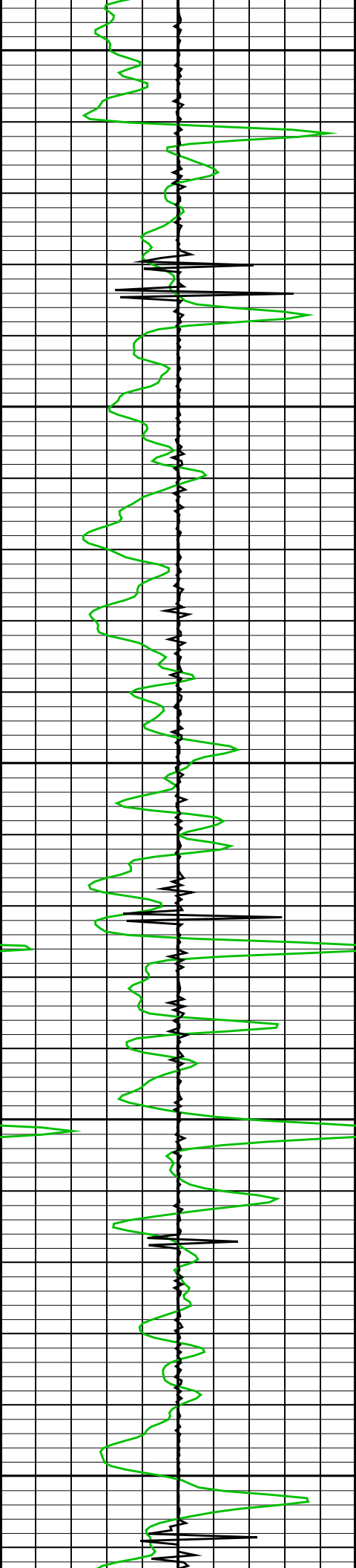




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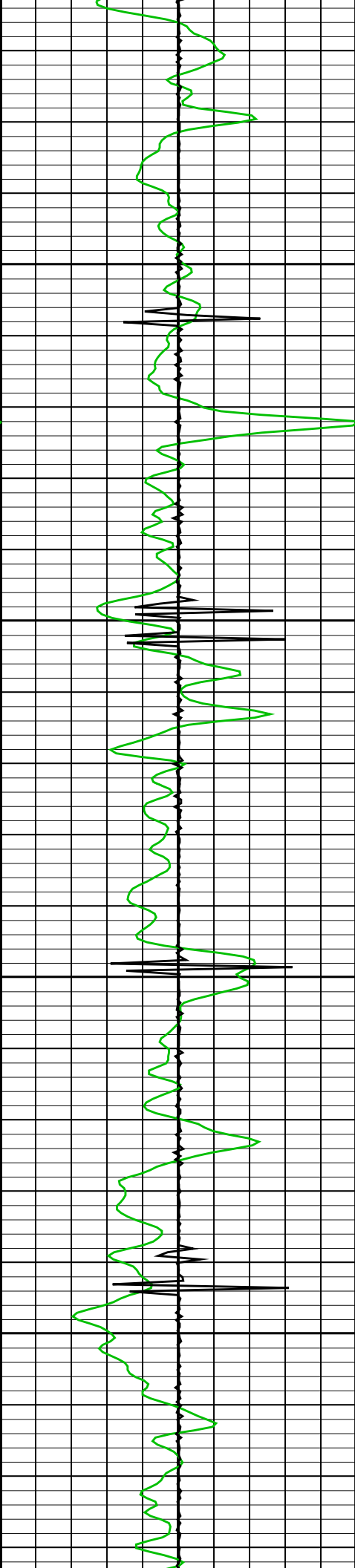
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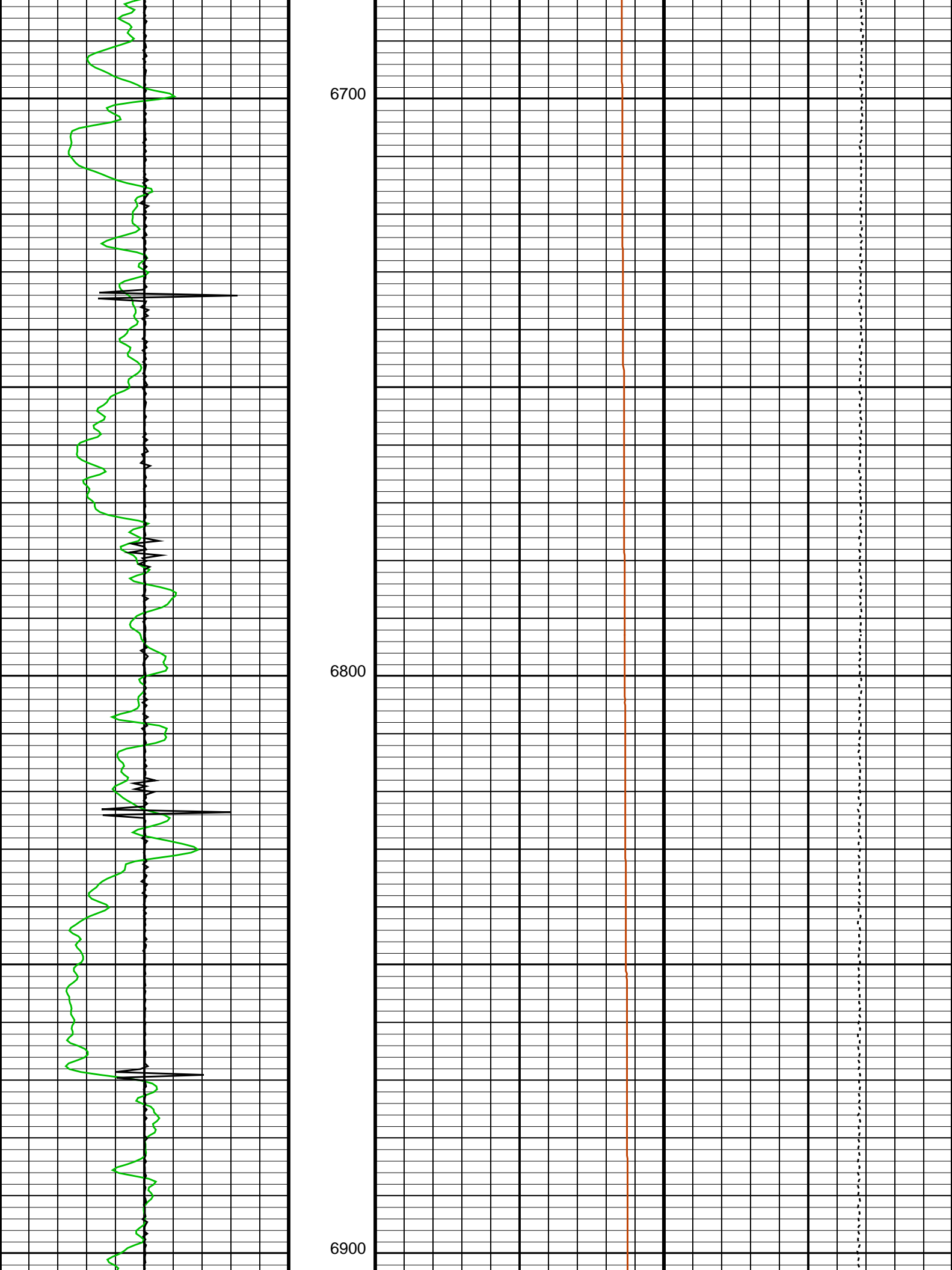
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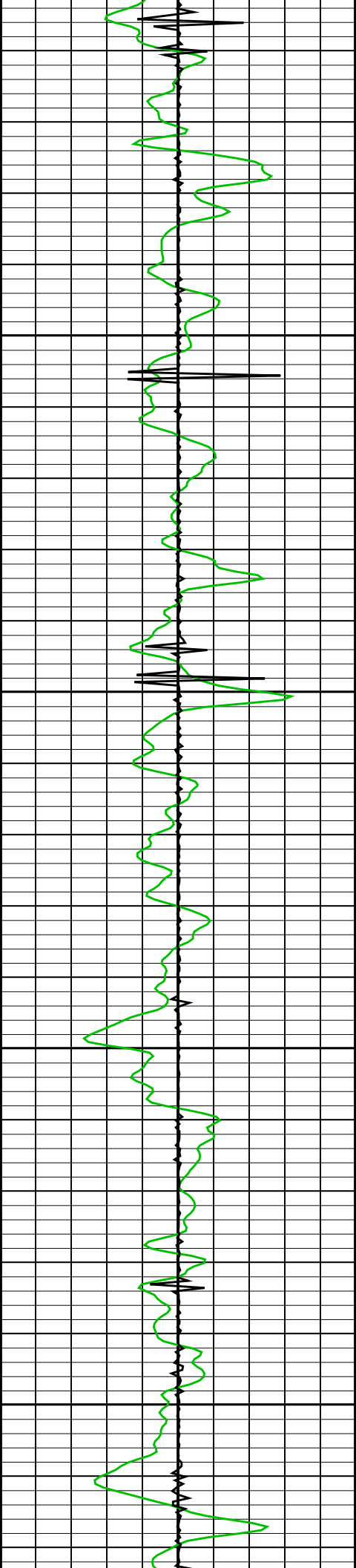
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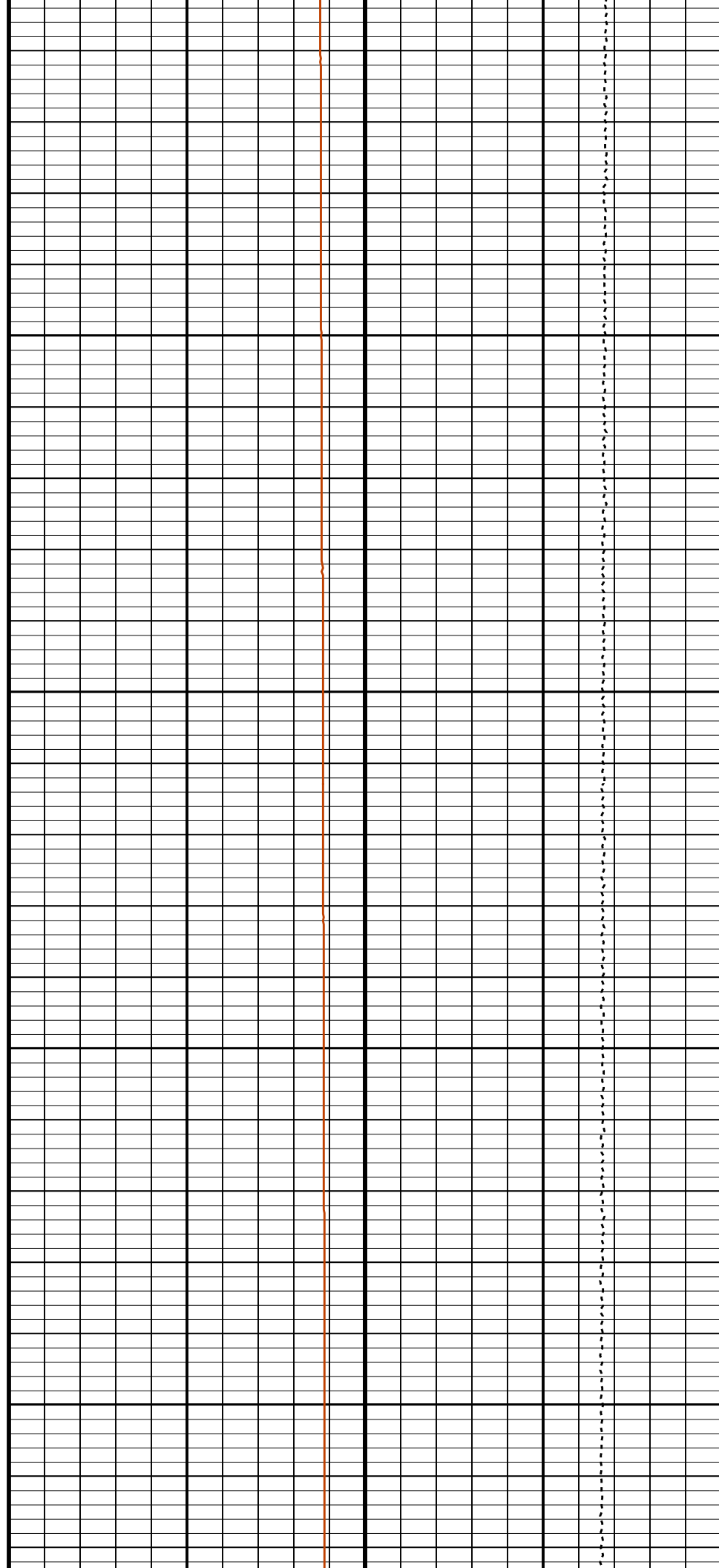
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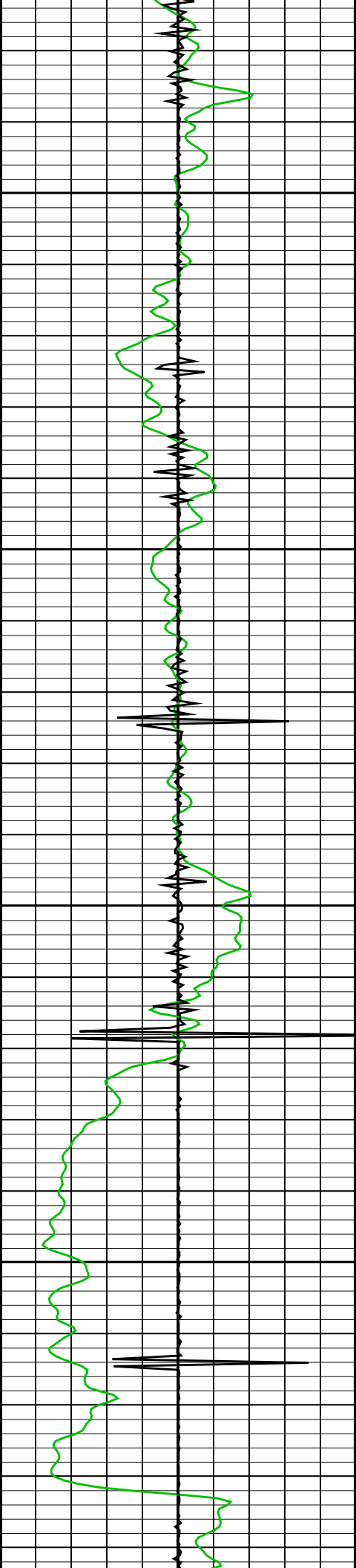




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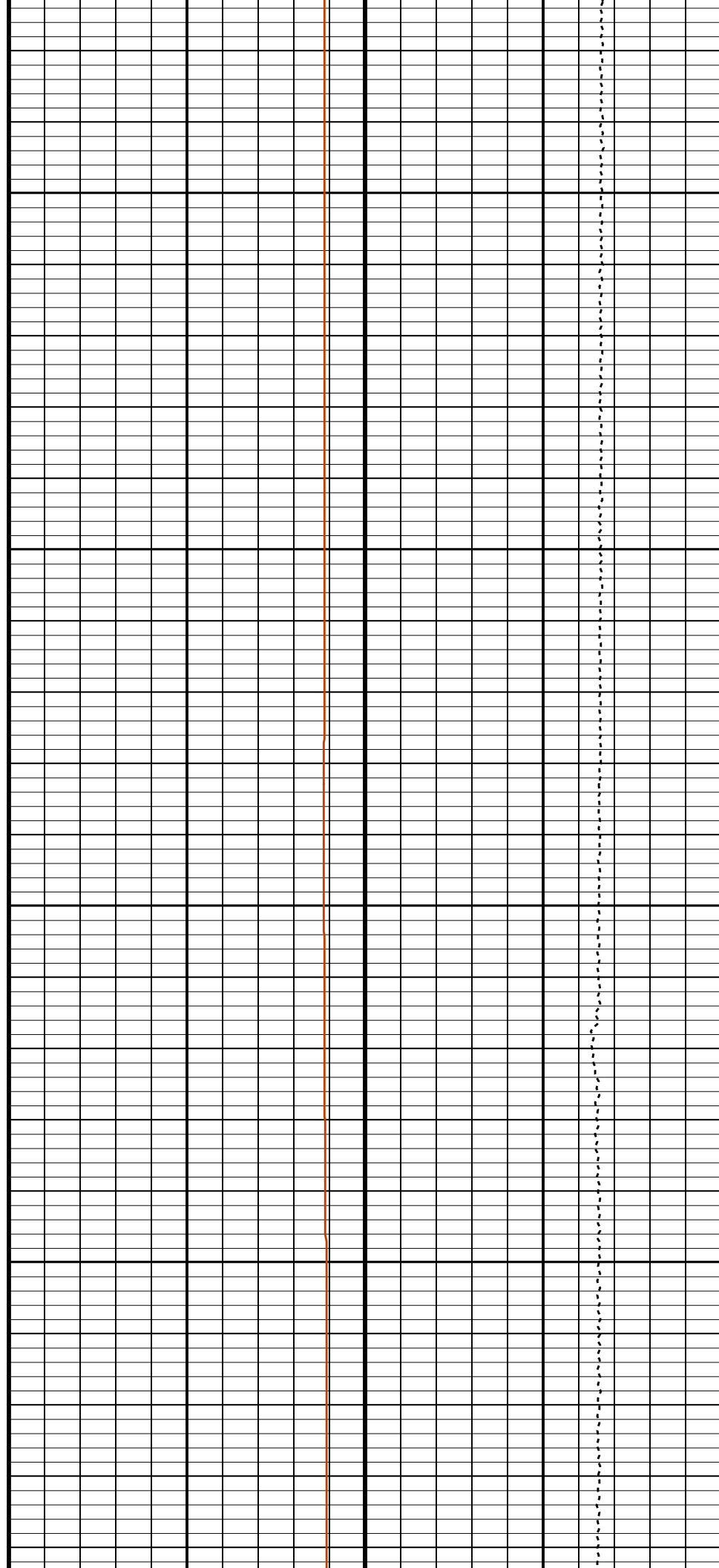
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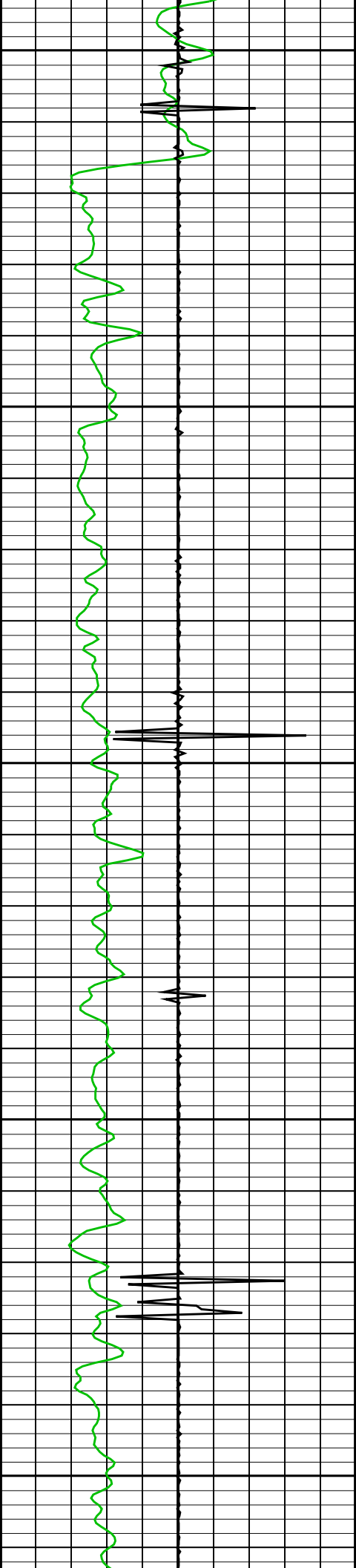




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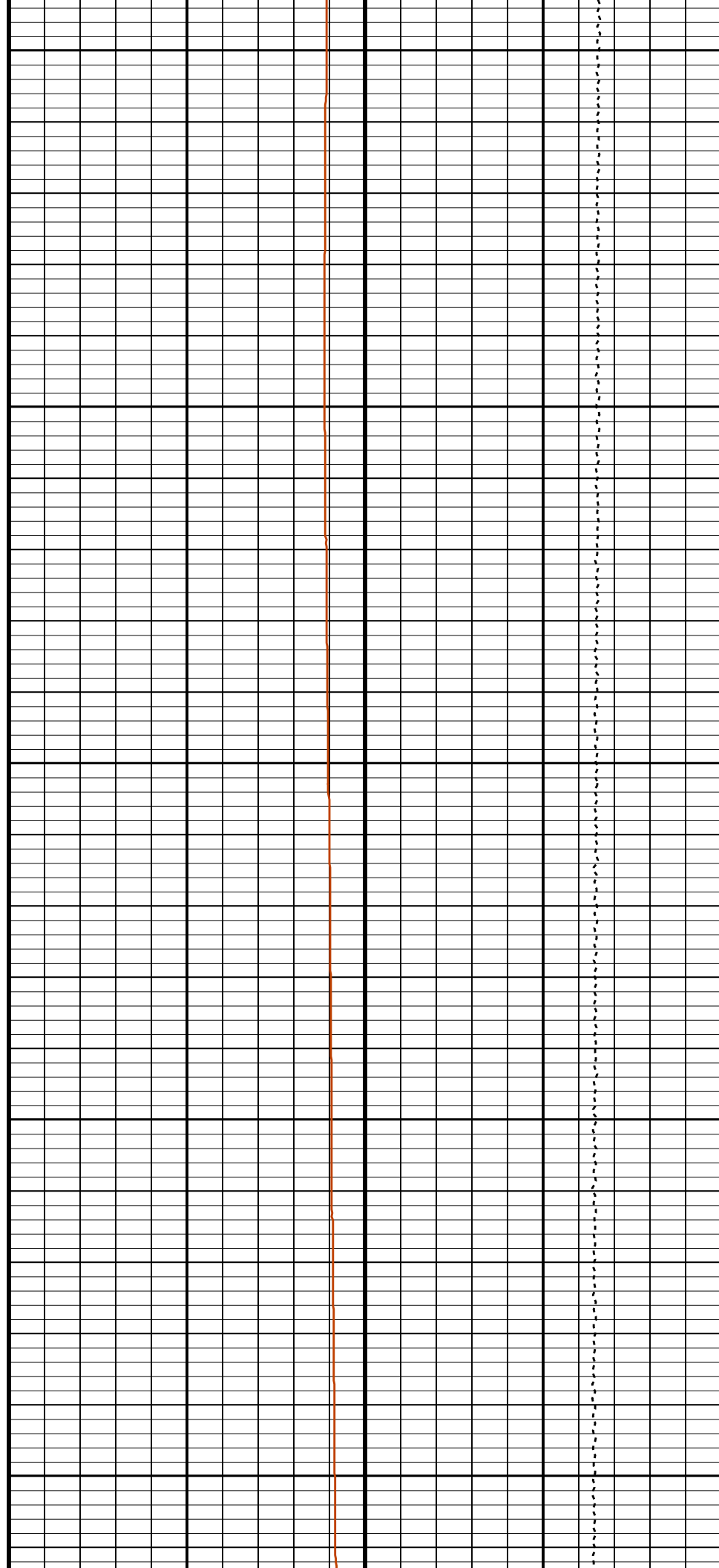
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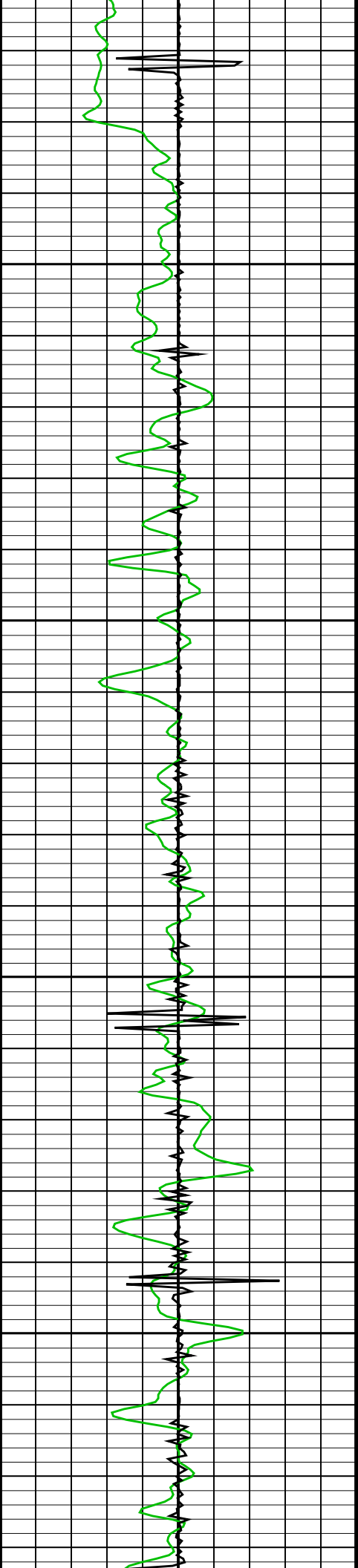




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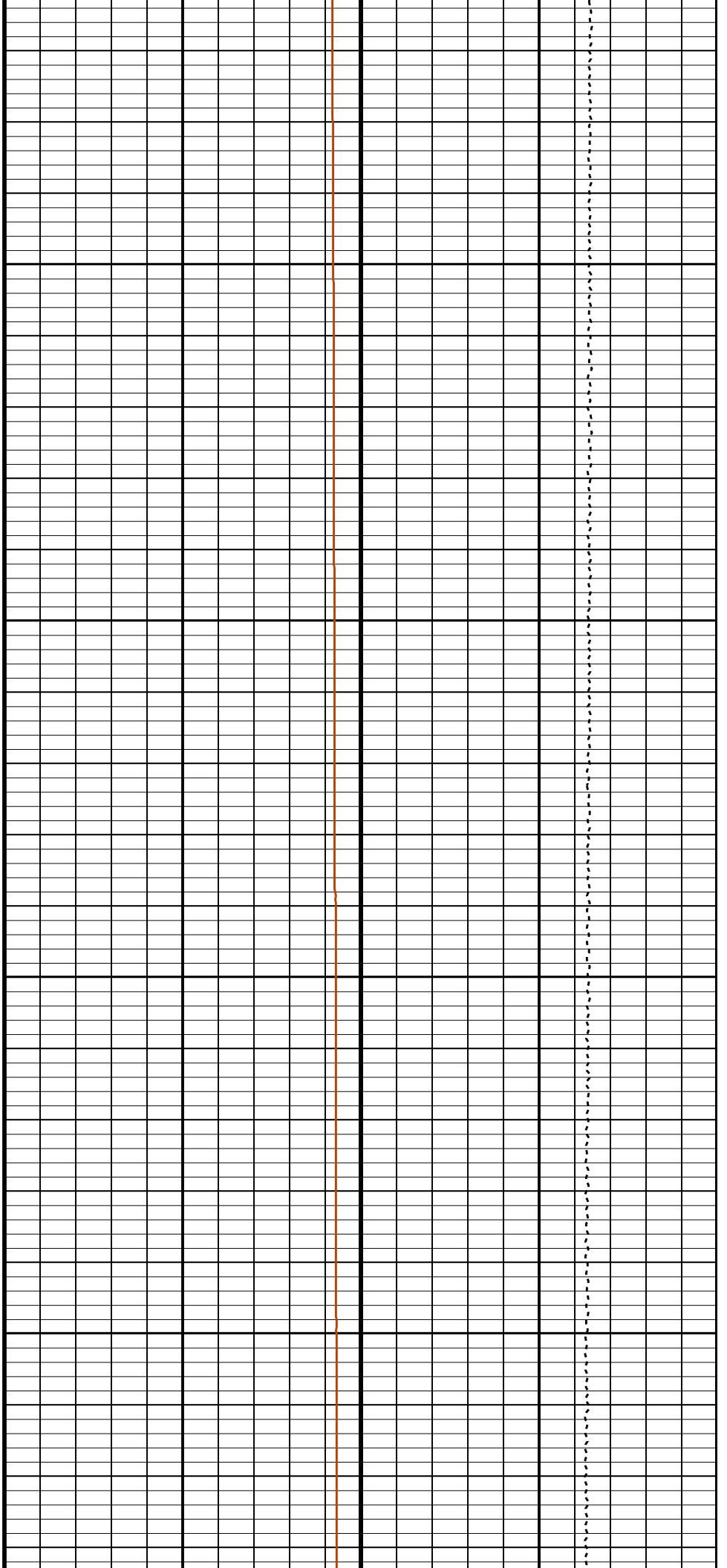
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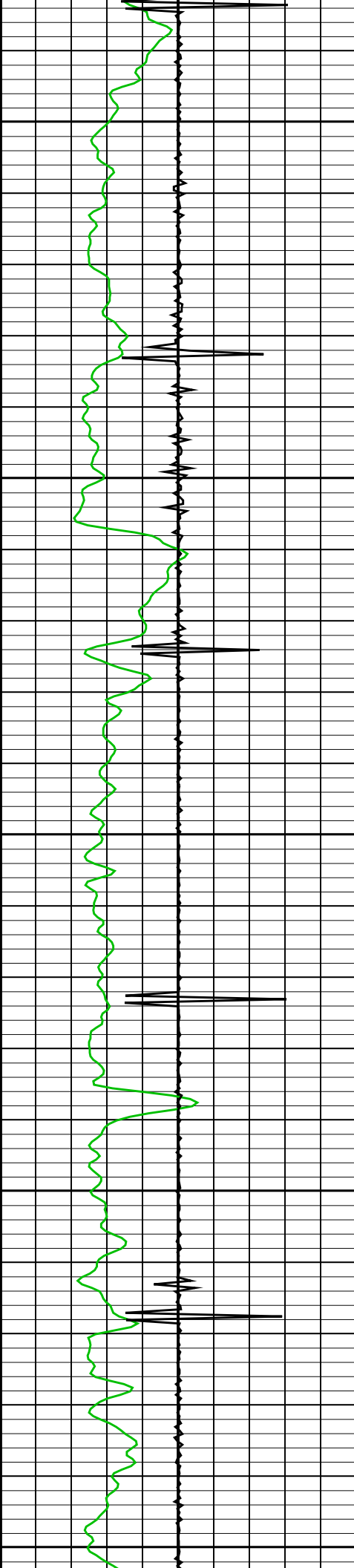


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7700



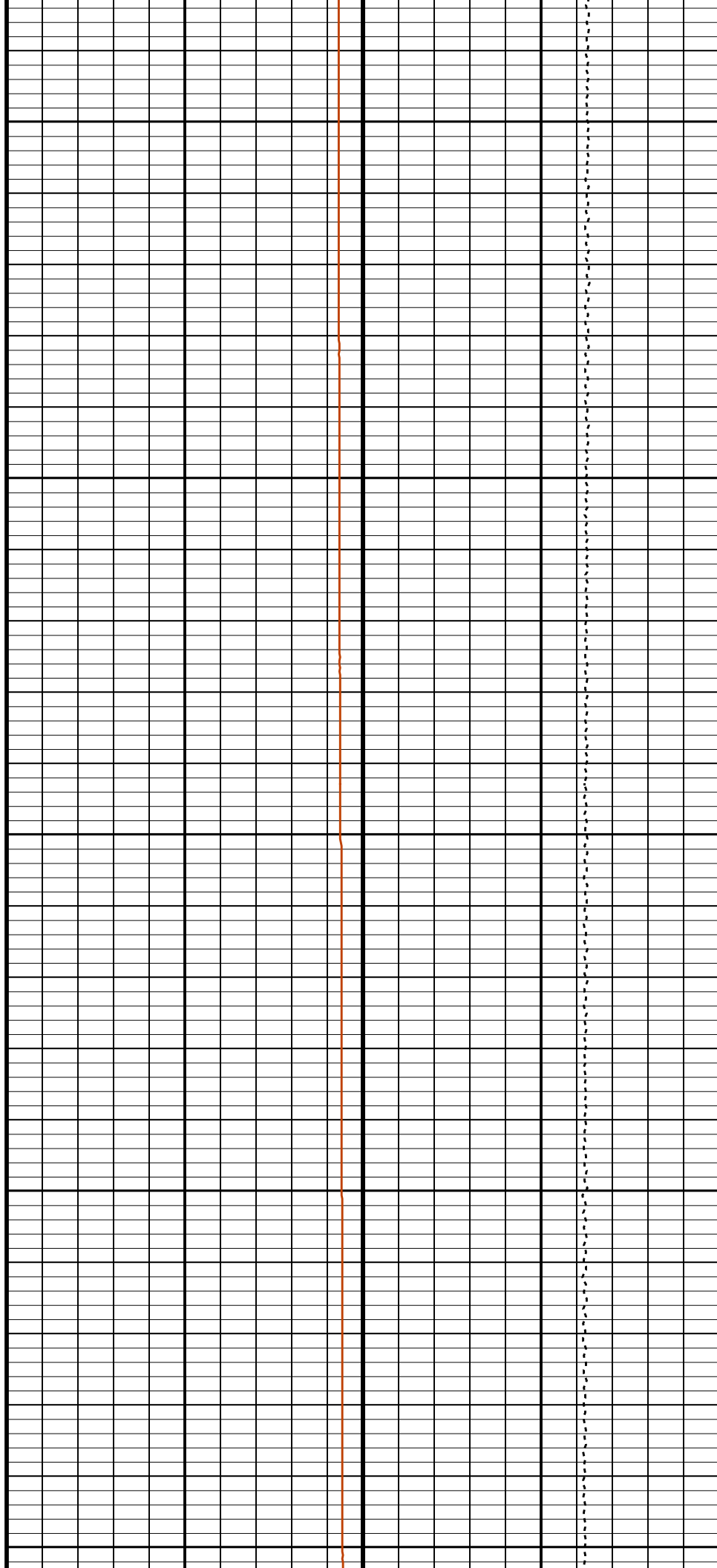


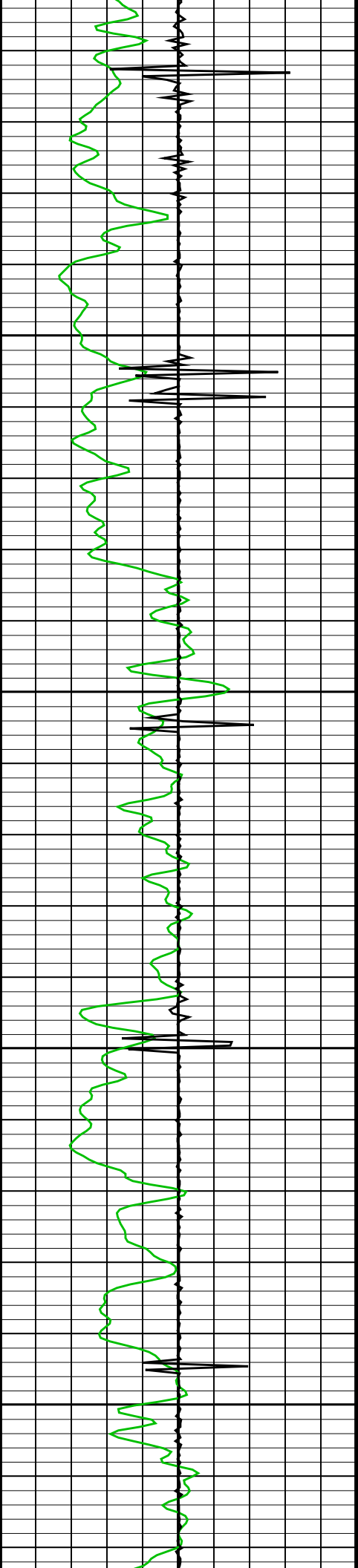


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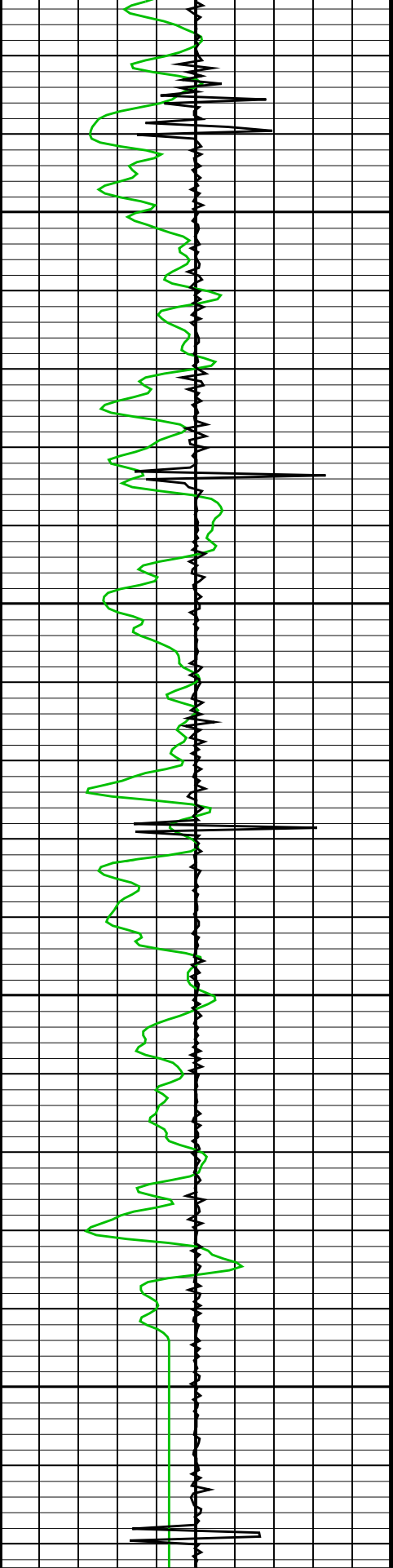
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8100

8200



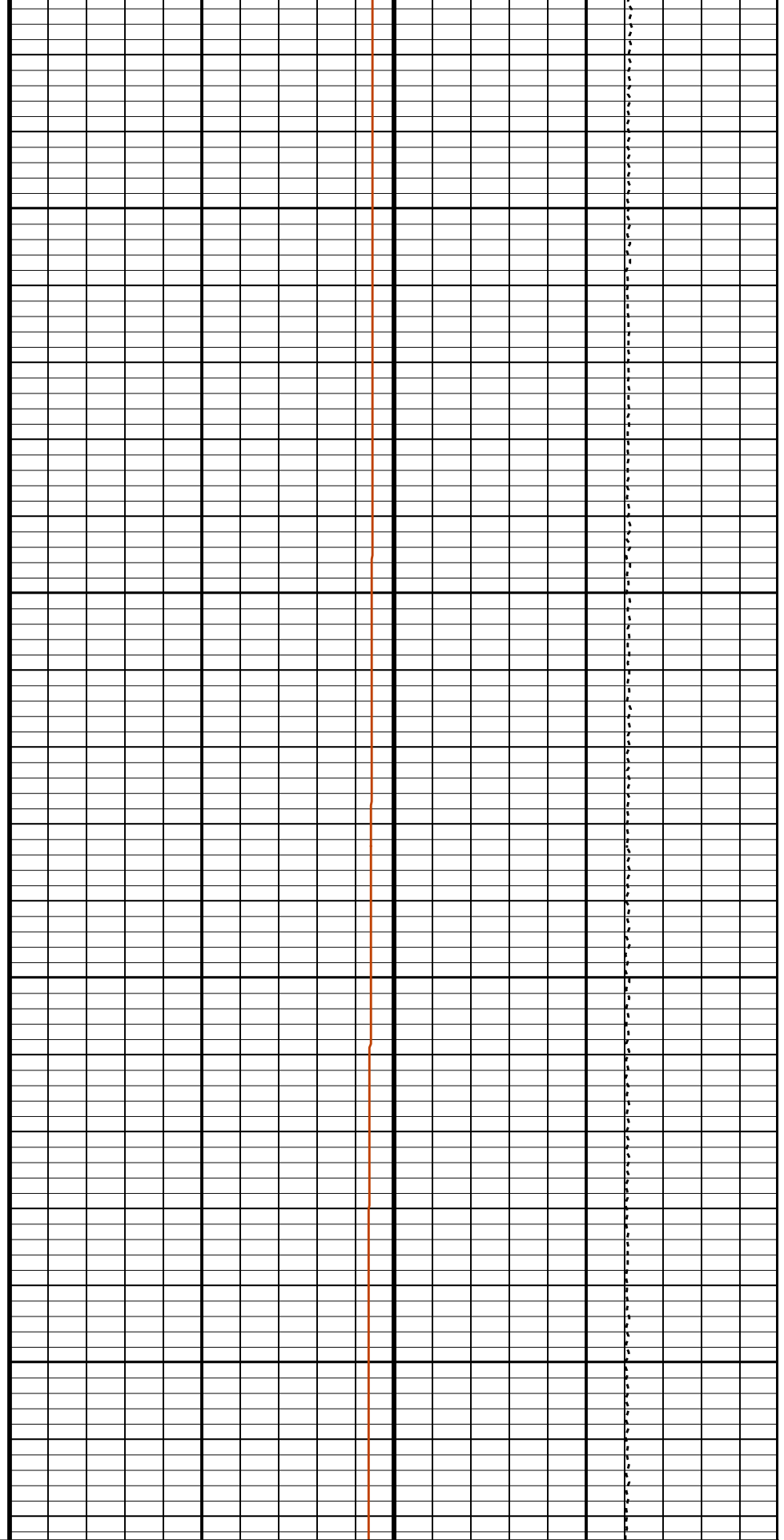
Gamma Ray (GR)  
(GAPI) 150

CCL (CCLU)  
(----) 20

-20

8300

8400



HTC Cartridge Temperature (HTEM)  
(DEGF) 220

Tension (TENS)  
(LBF) 0

10000

# 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	195 US/F
DOT	Diameter of Transducer Sensor	2.874 IN
EMXV	EMEX Voltage	50 V
MW	Mud Weight	8.4 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	1.95 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	4.0 FT
PP	Playback Processing	RECOMPUTE

Format: CORRELATION Vertical Scale: 5" per 100' Graphics File Created: 28-Apr-2010 17:10

## OP System Version: 17C0-154

USIT-D 17C0-154 HILTH-FTB 17C0-154  
DTC-H 17C0-154

### Input DLIS Files

DEFAULT SPLICE\_USI\_TLD\_MCFL\_028 FN:1 PRODUCER 28-Apr-2010 17:05 8419.0 FT 56.1 FT

### Output DLIS Files

DEFAULT USI\_TLD\_MCFL\_CNL\_030PUP FN:27 PRODUCER 28-Apr-2010 17:10

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**REPEAT PASS**

MAXIS Field Log

Company: ExxonMobil Production Corp Well: PCU 297-11C9

### Input DLIS Files

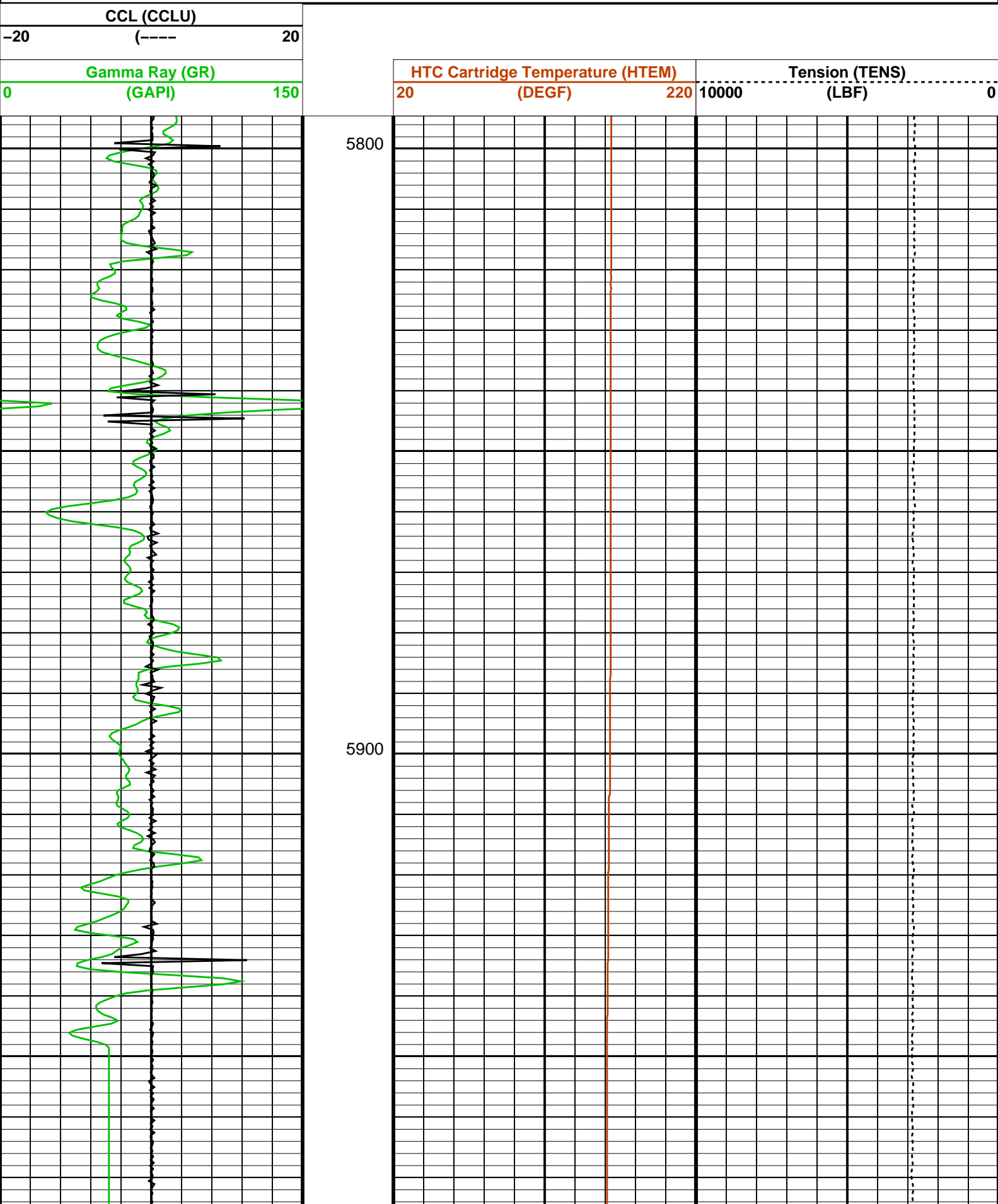
DEFAULT USI\_TLD\_MCFL\_CNL\_015LUP FN:14 PRODUCER 28-Apr-2010 12:38 5975.0 FT 5792.5 FT

### Output DLIS Files

DEFAULT USI\_TLD\_MCFL\_CNL\_031PUP FN:28 PRODUCER 28-Apr-2010 17:30 5977.0 FT 5794.5 FT

OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		



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CALIBRATIONS

MAXIS Field Log

### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 28–Apr–2010 5:57							
Gamma Ray Background	30.00	N/A	34.48	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	165.1	N/A	165.1	N/A	N/A	0.09091	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 19–Feb–2010 16:58 Before: Calibration not done							
CNTC Background	26.67	26.67	N/A	N/A	N/A	0.1500	CPS
CFTC Background	29.55	29.55	N/A	N/A	N/A	0.1500	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 19–Feb–2010 16:58							
Thermal Near Corr. (Tank)	5800	5258	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2175	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.417	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 28–Apr–2010 11:45							
Z–Axis Acceleration	32.19	N/A	32.15	N/A	N/A	N/A	F/S2

The HGNS Neutron Master Calibration was done with the following parameters :

NCT–B Water Temperature    59.4    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
Neutron Logging Source	NLS – KL	
Neutron Source Radioactive	NSR – F	
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 –

### 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
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Well: **PCU 297-11C9**  
Field: **Piceance Creek**  
County: **Rio Blanco**  
State: **Colorado**

CORRELATION LOG

CCL / GAMMA RAY